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Usability of Health Promotional Materials and Their Translations by Newcomer Populations

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USABILITY OF HEALTH PROMOTIONAL MATERIALS AND THEIR
TRANSLATIONS BY NEWCOMER POPULATIONS

by

Uliana Roskina, BA, University of Alberta, 2011

A Major Research Paper

presented to Ryerson University

in partial fulfillment of
the requirements for the degree of
Master of Arts
in the Program of
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Toronto, Ontario, Canada 2012

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ABSTRACT

Health promotional materials are used to increase people's health literacy and educate them about important health related issues. However, research indicates that due to linguistic and cultural barriers, many immigrants do not comprehend the information provided in such materials. To reach the linguistically-diverse population of Ontario, the Ministry of Health and Long-Term Care prepares educational materials in different languages. However, no research has focused on immigrant reading comprehension of the health promotional materials. This research paper compares reading comprehension of health promotional materials in English and in Russian by Russian-speaking newcomers to examine the usability of the promotional materials on the Ministry of Health and Long-Term Care website. It then proposes policy recommendations to lower readability levels of the health promotional materials and their translations.

Key words:

Immigrant, language barrier, health promotion, comprehension, translation

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Chapter 1: Defining research

I. Introduction

As the literature on immigrant health suggests, immigrants are a vulnerable population, due to the socioeconomic, cultural-linguistic, and systematic barriers that they face when accessing health care services (Gallo Stampino, 2007). These barriers may prevent them from learning important information about certain health issues and becoming health literate, which in turn may have a negative impact on their overall health and wellbeing. To increase immigrants' knowledge about health issues and the services that are available for them, the Ontario Ministry of Health and Long-Term Care prepares multilingual educational factsheets. However, in reviewing the literature, it became apparent that these materials are not always effective in educating the newcomer populations. Since there is a paucity of research on newcomers' reading comprehension of the health promotional materials in Canada, I decided to explore this topic to fill this gap. I administered a reading comprehension test in English and in Russian, using factsheets from the official Ontario Ministry of Health and Long-Term Care website.

II. Thesis statement

The findings of this research demonstrate that health promotional materials, which are available on the official Ontario Ministry of Health and Long-Term Care website, have low readability level and lack linguistic and cultural congruence. Re-writing these materials in target languages, using simple and culturally appropriate wording, as well as tailoring the content to be appealing to the newcomers from different cultural

backgrounds is a more effective way to promote health literacy among immigrant populations.

III. Objectives

To examine the aforementioned problem I have developed three following objectives:

1. To reveal potential problems in comprehension of the language health promotional materials in English by Russian-speaking newcomers. Since no study compared newcomers' reading comprehension of medical texts in English and in their native language, my study may pave the way for further research in this area. Furthermore, using social inclusion theory in this study may help demonstrate how health promotion can also contribute to exclusion or inclusion of immigrant populations.
2. To determine whether there are any differences in reading comprehension of the medical factsheets in English between men and women. Women are considered as a disadvantaged and vulnerable population who often lack education and literacy in their native language. Due to various barriers to the ESL classes, many women are more likely to reside in Canada for years without the knowledge of English or French (Bowen, 2001). This effectively prevents them from accessing health promotional materials. Comparing reading comprehension scores between genders may help determine whether this is true among Russian-speaking newcomers.
3. To reveal any potential problems in comprehension of the translated health materials by the Russian-speaking newcomers. Translation is an expensive and

time-consuming process that becomes ineffective when newcomers cannot utilize the translated texts. Testing how well Russian-speaking newcomers comprehend medical factsheets in their native language may help uncover the low readability of texts, as well as poor quality and lack of cultural sensitivity of the translations.

IV. Organization of research paper

This research paper consists of 4 chapters. Chapter 1 provides the background information about the research I conducted: the research goals, the theory behind this research, the method of data collection, and the sample used. Chapter 2 presents the review of the literature on this topic: why accessing health promotional materials is important to immigrants, what is the healthy immigrant effect, what is health literacy, and what are some common issues in health promotion. Chapter 3 reveals my findings and presents my discussion of the results and the limitations of my study. Lastly, Chapter 4 proposes policy recommendations based on the findings of my research, as well as the conclusion.

V. Theoretical framework

The theoretical framework that I am using in this major research paper is based on social inclusion principles and theories. Social inclusion is widely used as a theoretical framework in the immigration and social work fields (Guildford, 2000; Mitchell & Shillington, 2002; Caidi & Allard, 2005; O'Hara, 2006). It has been recognized as a “key social determinant of health” that is crucial in addressing social and health inequalities (O'Hara, 2006, p. 1), which is why it is especially relevant for my study.

Social inclusion is a multidimensional and complex discourse that is shaped by political and ideological positionings (Caidi & Allard, 2005). Although there is no generally recognized definition of this concept, for the purposes of my study I will adopt the definition proposed by Omidvar and Richmond (2003):

Social inclusion involves the basic notions of belonging, acceptance and recognition. For immigrants and refugees, social inclusion would be represented by the realization of full and equal participation in the economic, social, cultural and political dimensions of life in their new country [...]. [S]ocial inclusion can be seen as the dismantling of barriers that lead to exclusion in all these domains (p. 1).

This definition is especially appropriate for my study as it focuses on barriers to health care faced by immigrants when they come to Canada. Utilizing the social inclusion principles in my paper will help demonstrate whether immigrants are accepted into Canadian society and are able to access services available to them.

Often social inclusion is seen as a solution to social exclusion (Guildford, 2000), which is why it is important to define the latter term. This concept is a part of the economic, political, cultural, and social domains, which is why there are multiple interpretations of social exclusion (Taket et al., 2009).

Social exclusion is a complex and multi-dimensional process. It involves the lack or denial of resources, rights, goods and services, as well as the inability to participate in the normal relationships and activities that are accessible for the majority of the population, whether in economic, social, cultural, or political arenas. It affects both

the quality of life of individuals and the equity and cohesion of society as a whole (Levitas, 2007, as quoted in Taket et al. 2009, p. 8).

The concept of social exclusion/inclusion emerged in the 1970s and 1980s in Europe. Due to the economic and social problems caused by “structural unemployment,” many unionized workers found themselves unemployed and facing poverty (Guildford, 2000, p. 7). The aging population, coupled with ethnic and racial tensions within European societies also contributed to the social exclusion of many people (Guildford, 2000). In response to increasing welfare problems, some European countries began to develop a series of social inclusion policies and strategies (Omidvar & Richmond, 2003).

Inclusion/exclusion theories help focus on exclusionary forces and processes. Exclusion is the product of acts by institutions and individuals, and inclusion helps understand who is responsible for the marginalization of certain groups and individuals (Mitchell & Shillington, 2002). Institutions have the power to respond with the policies that can either aggravate the situation of excluded and marginalized individuals (Mitchell & Shillington, 2002), or improve their situation.

One way to respond to exclusion and marginalization of immigrant groups is through the settlement policies that address these issues. Unfortunately, the settlement policies in Canada are not always effective in tackling social and economic exclusion of immigrants and refugees (Omidvar & Richmond, 2003). In the context of health promotion, immigrant populations do not always have access to easily comprehensible and culturally appropriate educational materials translated into their native language (cf. p. 16 – 17).

Developing policies that promote social and economic inclusion can help improve the health of the population, eliminating health inequalities that exist between different groups (Guildford, 2000).

To cater to the immigrant and refugee populations that may not be fluent in English or French, socially inclusive health promotion may involve culturally sensitive translations of health educational texts. Supplementing the text with images, or even adapting printed materials into videos, for cultures that respond better to visual aids and for those people who have limited command of English or French, would promote inclusion and improve immigrants' health.

To summarize, the social inclusion framework is an appropriate approach for the analysis of newcomer experiences with health promotional materials. As Caidi and Allard (2005) note in their article, provision of information is the key element of social inclusion.

Immigrants and refugees require access to understandable and useful information about housing, social services, employment opportunities, health services, etc. that can assist them with their integration. If immigrant populations cannot access this information, or are unable to utilize it, they cannot fully integrate into Canadian society. This research paper will examine whether the health promotional materials on the Ontario Ministry of Health and Long-Term Care website are usable by the Russian-speaking newcomers.

VI. Positionality

One of the reasons I have chosen this topic and am approaching it from a social inclusion perspective is my personal background as an immigrant to Canada. I was born and raised in Russia and immigrated to Canada seven years ago. As a newcomer I faced linguistic

and cultural barriers to various services, including health care. As a result of my ethnic background and my experiences as an immigrant, I may unintentionally generalize my experiences and make assumptions that most Russian newcomers in Canada encounter similar problems. In addition, as a Russian immigrant, I may have certain biases that may distort the results.

VII. Research process and methods

a. Literature review

My research started out with a review of the existing literature over the last twenty years. It mainly consists of peer-reviewed scholarly articles and government documents written in English. Since no previous studies have compared newcomers' reading comprehension of health promotional materials in Canada, the scope of this literature review is wider and includes a range of different topics. I began my review by exploring the healthy immigrant effect and the hypotheses that explain it. Next I examined the literature on health literacy and how it affects people's health. Following that, I reviewed the immigrant health literacy. The final topic that I explored was health promotion in the immigration context. Furthermore, I have selected sources that examine the aforementioned topics from sociological, cultural, linguistic, and scientific perspectives, which allowed me to get a more comprehensive idea about the topics under study. The articles that I reviewed mainly focused on Canada and the United States populations; however, some works involved Zambia and Great Britain populations.

I have also reviewed a report from the Health Canada website, a policy brief from the Metropolis website, which is a non-profit organization, and a study sponsored by the Canadian Council on Learning, a national, independent not-for-profit corporation.

b. Research questions and hypotheses

The research questions that emerged from the literature review were:

Do recent Russian-speaking immigrants have a better comprehension of materials written in their native language, or in English?

Since women are considered a vulnerable group of population that does not always have access to ESL classes, and as a result faces linguistic and cultural barriers to healthcare services (Bowen, 2001), I also wanted to answer the following question:

Which gender group has a better comprehension of health educational texts written in English?

To compare the reading comprehension of health promotional materials in English and Russian languages among literate Russian-speaking adults I tested two hypotheses:

Null Hypothesis: The health educational factsheet in English and its translation in Russian are equally comprehensible for Russian-speaking immigrants.

Taking into consideration previous studies discussed in the literature, the social inclusion perspective, and the demographic characteristics of men and women in my sample, I speculate that women, as a marginalized group may have lower English language skills

than their comparable male counterparts, which can contribute to the differences in the reading comprehension scores between genders.

Alternative Hypothesis: Women, will have lower reading comprehension scores of the selected medical factsheet in English than men.

c. The instrument

To answer my research question I designed a reading comprehension test using two medical brochures provided on the Ontario Ministry of Health and Long-Term Care website. Owing to a large immigrant population, the Ontario provincial healthcare system takes into consideration the needs of newcomers who may not speak English or French. It offers translated health promotion materials in 27 languages dealing with provincial health services, vaccinations and common diseases. Although not all factsheets that are posted on the website have multilingual translations, the Ontario Ministry of Health and Long-Term Care website is still more ‘immigrant friendly’ than the provincial healthcare websites of Alberta (Alberta Health, n.d.) Saskatchewan (Government of Saskatchewan Health, n.d.), Manitoba (Manitoba Health, n.d.), and Quebec (Santé et Services sociaux Québec, n.d.), which offer the texts only in English and French languages.

I selected a text about Pneumococcal Conjugate Vaccine that informs the readers about the causes, spread, and common risks of this disease, instructs the readers about proper vaccination procedures and lists possible side effects. I chose this text because it is offered in 22 languages, including Russian; therefore, this particular factsheet is available to a lot of people.

I also wanted to avoid giving a factsheet that would discuss a topic that is familiar to the participants. For example, administering a reading comprehension test based on a factsheet about flu would not be as effective. Many participants would use their previous knowledge about this disease since they either had the flu once or twice in their lifetime, or at least know a person who did. Pneumococcal infection is something less common, which is why an average person would not know about the symptoms, vaccinations, and causes of the disease.

Another determining factor was the length of this factsheet: 2 pages in English and 2.5 pages in Russian. The text contained enough information to prepare 20 reading comprehension questions, but was short enough to be read within a 30-minute timeframe.

To test the readability level of the factsheet I applied the 'Flesch-Kincaid readability index calculator (Readability-Score.com, n.d.). 'The Flesch-Kincaid Reading Ease' and 'Flesch-Kincaid grade level' calculators are used to test the readability and reading ease of a text. To calculate the readability based on a United States grade level, the Flesch-Kincaid tests use sentence length and number of syllables in formulae (Williamson & Martin, 2010). A text is considered well written and easy to read if it has a readability level of 60 (on a 100-point scale) and can be comprehended by a 10-11 year old child in grade 5 or 6 (Underwood, Serlemitsos, & Macwangi, 2007; Williamson & Martin, 2011).

The Flesch-Kincaid tests revealed that the selected factsheet has 11th grade level readability and 42.1 reading ease score. Both numbers indicate that this text is difficult to comprehend for an average person. After testing three other factsheets that were offered

in multiple languages and were 2 to 3 pages in length, I found that that none had a 5-6 grade readability level.

Factsheet	Flesch-Kincaid Grade Level	Flesch-Kincaid Reading Ease
Pneumococcal Conjugate Vaccine Infant	11	42.1
Healthy smiles Ontario	10.2	52.6
Haemophilus influenzae type B (Hib) Vaccine	8.7	60.1
Health Care Options	10.6	51.4

Table 1: Results of the Flesch-Kincaid readability and reading ease test of four randomly selected health factsheets available in multiple languages on the Ontario Ministry of Health and Long-Term Care website.

I developed a structured questionnaire in English and in Russian to test the participants' reading comprehension of the factsheet. The first section of the questionnaire consisted of ten multiple-choice questions. Each question offered four possible answers, but only one option was the correct response. The second section of the questionnaire had ten true-or-false questions. The questions were based on the information provided in the text and were designed to test every section of the factsheet.

The participants were also asked to complete a short demographic survey that contained 5 questions and to indicate their age group, gender, education level, area of specialization, and whether they participated in the ESL classes. This information was used for the data analysis and to answer the research questions.

d. The sample

The sample for this qualitative study consisted of 16 people – 8 (50 %) men and 8 (50%) women who resided in Greater Toronto Area (GTA). The majority of the participants responded to the recruitment flyer that was posted on social networking pages like Facebook and Vk.com (Russian version of Facebook), as well as on the discussion and advertisement boards of Russian online newspapers. I also distributed flyers at the Eastern European grocery store “Yummy Market” at 4400 Dufferin in North York. After conducting each session, I applied a snowball-sampling procedure, where I asked newcomers who completed the study to share the recruitment flyer with potential participants they might know.

My study required purposive rather than probability sampling, because it focused on a specific group. The individuals who wished to participate in the study were required to meet the following criteria: (a) be recent immigrants, residing in Canada for 3 years or fewer, (b) have native fluency in Russian language, and (c) have a high-school diploma, or its equivalent.

Upon arrival to Canada, newcomers deal with stress brought about by migration, non-citizen status, linguistic barriers, etc. They are a vulnerable group that requires comprehensible information about the health services and issues. I chose to examine the Russian-speaking newcomers, because there is a paucity of research in Canada about immigration and settlement experiences of this ethnic group. In addition, I believed it would be most effective if I worked with this group, as I am fluent in Russian: I was able to translate the questionnaire, analyze the Russian translation and communicate with

participants. It was important that the participants were fluent in Russian, because I wanted to compare the reading comprehension of a text in English versus a text in a native language, and wanted to exclude people who might have reading difficulties in general.

Finally, the participants were required to have a high-school diploma or its equivalent, because I wanted to have a sample of literate adults who could read and write at least in their native language. Since I was testing the reading comprehension of printed materials, it would be pointless to recruit participants who would be unable to read.

e. The survey

The process of data collection involved 16 one-on-one sessions that lasted one hour. Participants had the freedom to determine the time and location of the session that were convenient for them. As a result, I administered the survey in public libraries, the University of Toronto Robarts library, and in different coffee shops around the city. Starting from the first participant, every respondent was asked to draw a questionnaire out of a stack that initially consisted of 8 questionnaires in English and 8 in Russian. This way, participants were randomly assigned to two ‘language samples’ i.e. groups of 8 people that completed the reading comprehension test in English, and 8 that were assigned to do the same task in Russian. Each language sample consisted of 4 men and 4 women.

In the first fifteen minutes of every session I explained the consent process, gave background of the study and provided instructions on how to complete the reading comprehension test. Participants were given 45 minutes to read the text as many times as

they wished, to answer the questions in the demographic questionnaire, and to respond to the 20 reading comprehension questions. The questionnaires and consent forms were collected and separated into two different folders when the time allotted for each session ran out, or upon the participants' completion of the survey. I began data analysis after administering the survey to all 16 participants.

It is important to note that this study aimed at testing the readability and usability of the selected factsheet. Its goal was not to measure the reading skills, or the English languages skills of the Russian-speaking newcomers. Since each medical factsheet contains information about important health issues such as chronic disease management, health services, vaccinations, common diseases, etc., it should be comprehensible to everybody. Every sentence of a factsheet offers information that may somehow affect a person's health. If a person does not understand one paragraph, or one sentence, it may lead to unfortunate consequences, which is why the passing score in this reading comprehension test was determined to be 100 percent. If respondents obtained lower than 100 percent score on the comprehension test, the factsheet obviously failed to deliver the information to the readers.

Chapter 2: Literature review

1. Immigration health trends: The healthy immigrant effect

Immigration and settlement may have an impact not only on the socio-economic status of migrants, but also on their physical and mental health. Studies have shown that newly arrived immigrants are healthier than immigrants who have lived in Canada for 10 years

and the native-born population (Chen, Ng, & Wilkins, 1996; Newbold & Danforth, 2003; McDonald & Kennedy, 2004). In the literature this phenomenon is known as the “healthy immigrant effect” (Chen, Ng, & Wilkins, 1996; Newbold & Danforth, 2003; McDonald & Kennedy, 2004).

McDonald and Kennedy (2004) found the convergence of the health levels of newcomers to the levels of the native-born population after living in Canada for approximately 20 years. Their study demonstrated that both immigrant men and women were less likely to have chronic illnesses than native-born Canadians upon their arrival; however, with the years spent in Canada, their health status lowered and the incidence of chronic conditions approached the native-born levels (McDonald & Kennedy, 2004).

Newbold and Danforth (2003), obtained similar results in their study, where they evaluated the health status of immigrants. The authors analyzed the National Population Health Survey (NPHS) of 1998/99, which contains information on physical and mental health status, health care utilization, socioeconomic indicators, etc., and confirmed the healthy immigrant effect. While the newcomers reported higher health status than the non-immigrant population, those individuals who spent 10 years or more in Canada reported poorer health than their non-immigrant counterparts, including higher rates of diabetes, heart disease, arthritis, and other chronic conditions (Newbold & Danforth, 2003).

One of the possible explanations of the health disparities between the three aforementioned groups of population are the linguistic and cultural barriers to health care that immigrant populations face upon arrival to Canada (McDonald & Kennedy, 2004).

Bowen (2001) suggests that besides the new arrivals there are a lot of immigrants who live in Canada for years without the knowledge of one of the official languages. As a result, they face two types of barriers to health care services: first, they simply cannot appear at a medical office in order to be assessed; second, they cannot communicate with the health providers, which affects their diagnosis and treatment (Bowen, 2001). In her report, Bowen (2001) also highlights that the lack of fluency in French and English is linked to lower health status, increased rates of hospitalization, and poor understanding of medical conditions.

II. Health literacy

The term health literacy is defined as the “ability to obtain, understand and use health information” (Simich, 2009, p.3). According to Nutbeam (2000), the main components of health literacy are basic, or functional literacy, which allows people to read and write; communicative, or interactive literacy that enables people to derive meaning and information from various forms of communication and then apply it in different circumstances; and critical literacy that can be applied to assess information critically and become motivated to access health services and to understand and use information that promote good health.

Existing literature on health literacy (Baker, 1999; Nutbeam, 2000; Bowen, 2001; Simich, 2009; Ng & Rasugu Omariba, 2010) suggests that low health literacy may have a negative impact on a person’s health. Nutbeam (2000) argues that the inability of a person to read and write decreases his or her exposure to health education. The study by Baker et al. (1997) that measured the relationship of reading ability and self-reported

health and use of services among adult patients from two public hospitals in the U.S. also confirms Nutbeam's conclusion. Using the Test of Functional Health Literacy in Adults that involves actual medical materials that are available for the patients in the health care setting, Baker et al. (1997) measured patients' ability to comprehend directions for taking medication, keeping appointments, monitoring blood sugar, etc. The results of this study revealed that the participants who had inadequate reading abilities reported lower health than those with adequate reading skills (Baker et al., 1997).

Finally, Baker (1999) stresses that patients with inadequate basic health literacy are less likely to know the details about their chronic conditions and to understand the treatment instructions after visiting a hospital. They are more likely to make errors when taking medication due to their inability to read the label, and may intentionally stop taking their medication if they do not trust their doctors (Baker, 1999). Taking into account the aforementioned findings it can be concluded that while basic literacy does not necessarily ensure health literacy, it is definitely an important component.

The research has demonstrated that Canadians are 2.5 times more likely to rate their health as poor or fair if their health literacy is low (Simich, 2009). The effects of health literacy on health are great especially among the most vulnerable groups of the population such as recent immigrants, seniors, people with lower levels of schooling, and those who receive social assistance (Simich, 2009). Consequently, health literacy becomes a pressing issue in Canadian society, where immigrants and refugees make up a large proportion of the population. These groups may experience lack of meaningful information about health issues and preventative services due to the linguistic and

cultural barriers, which in turn contributes to the decline in their health status (Simich, 2009).

III. Health literacy in the immigration context

Although many immigrants may have received education in their homelands prior to immigrating, they can be considered illiterate if they lack functional literacy in one of the official Canadian languages (Bowen, 2001; Zanchetta & Poureslami, 2006; Simich, 2009). The problem of illiteracy is quite high in Canada: 29 percent of foreign-born people who have some university education test as functionally illiterate in an official language compared with 6 percent of Canadian-born population (Bowen, 2001).

In 1998, Ontario was the first province to conduct a study on literacy of immigrants (Ontario Ministry of Training, Colleges, and Universities or OMTCU, 2000). Statistics Canada and the Ontario Ministry of Training, Colleges, and Universities collected responses from 4,633 Ontario immigrants to determine their level of literacy. They found that 67 percent of immigrants did not reach a minimum level that is required to function in a society, whereas 38 percent were at the lowest possible literacy level compared with 15 percent of Canadian-born Ontarians (OMTCU, 2000). The report notes that the numbers of years of education did not vary greatly between the two aforementioned groups (OMTCU, 2000). Therefore, immigrants' low literacy levels were due to their poor command of English. Unfortunately, many immigrants who had the lowest scores were not aware that they had a problem (OMTCU, 2000). Not only this aggravates the problem of illiteracy, but it also means that health literacy of these individuals is also in question.

Evidence suggests that linguistic barriers may impede initial access to health services by recent arrivals and earlier immigrants who have a poor command of English or French (Bowen, 2001). These barriers may also result in the low health literacy levels among immigrants (Bowen, 2001), which in turn contributes to the decline in their overall health and wellbeing. The results of the Longitudinal Survey of Immigrants to Canada (LSIC) demonstrated that poor self-reported health status of immigrants who resided in the country for 6 months and for 2 years is associated with their poor command of one of the official Canadian languages (Simich, 2009).

The insufficient language skills of many immigrants are exacerbated by stress or illness (Chang & Kelly, 2007). It also may be more difficult for newcomers to understand, or express concerns about more complex and stress-related issues in a second-language (Bowen, 2001). Unfortunately, the more vulnerable members of society, like women, seniors, poorly educated and low-income individuals, and people who suffer from psychological disorders, or have experienced traumatic events are more likely to encounter the aforementioned problems (Bowen, 2001).

Asgary and Segar (2011) conducted a study that examined health care experiences of 35 refugees and asylum seekers living in New York in order to identify what barriers they experience when accessing health care. The authors administered focus group studies and semi-structured interviews, using interview guides that contained open-ended questions with additional inquiries for deeper exploration. The participants established unanimously the lack of adequate interpretation services, especially for the rare languages, as one of the barriers they experience. The results also demonstrate that asylum seekers and refugees experience barriers to health services owing to their unfamiliarity with the

new health and social systems, as well as the lack of cultural sensitivity among service providers and staff (Asgary & Segar, 2011).

The common opinion in the literature (Bowen, 2001; Zanchetta & Poureslami, 2006; Clarke, Periam & Zoitopoulos, 2009; Simich, 2009; Ng & Omariba, 2010) is that many health services are not culture, faith, language, or literacy sensitive. For example, Simich (2009) claims that health literacy of immigrants depends not only on their language literacy, but also on their cultural beliefs about illness, familiarity with the health system in Canada, prior education about health related issues in their country of origin, etc. Zanchetta and Poureslami (2006) explain that for immigrant populations, especially for those with the limited knowledge of English or French, it is difficult to adapt to the new health culture in Canada. Many newcomers do not have sufficient information about services and benefits that are available to them and may use alternative types of health providers, such as herbalists (Zanchetta & Poureslami, 2006).

Some of the barriers that immigrants have identified in the past are fear of speaking English; suspicion of the authority; isolation and sense of being an outsider; lack of familiarity with Canadian health system; cultural differences; and not knowing where and how to access services (Simich, 2009). Furthermore, the study by Ng and Omariba (2010) demonstrates that ethnic background can affect immigrants' health literacy. The authors analyzed data from the 2003 International Adult Literacy and Skills Survey (IALSS), which was meant to determine how well adults use printed materials to function in society. The participants were required to provide information regarding their prose and document literacy, numeracy, and problem solving skills. 191 "literacy items" were used to measure health related activities, like health promotion, health protection, disease

prevention, healthcare, and system navigation (Ng & Omariba, 2010, n.p). The authors found that the low health literacy results are especially significant for the immigrant of non-European and non-American ethnic backgrounds. They attributed such low scores to the linguistic and cultural differences that exist between participants' countries of origin and Canada (Ng & Omariba, 2010).

IV. Readability of health promotional materials

Language and cultural barriers make it especially challenging for immigrants to have access to health promotional materials that have progressively become an integral part of health education. Hospitals, state health departments, medical, nursing, and non-for-profit organizations, etc. develop thousands of printed materials such as brochures, leaflets and pamphlets that contain educational information and aim at increasing people's health literacy (Singh, 2000; Shieh & Hosei, 2008).

The common view in the literature is that the reading comprehension skills of people are often overlooked when the educational materials are being prepared (Davis et al., 1990; Underwood, Serlemitsos & Macwangi, 2007; Shieh & Hosei, 2008; Badarudeen & Sabharwal, 2010; Williamson & Martin, 2010). Many of the educational materials available for patients have low readability levels and are not comprehensible for an average reader (Davis et al., 1990; Underwood, Serlemitsos & Macwangi, 2007; Shieh & Hosei, 2008; Badarudeen & Sabharwal, 2010; Williamson & Martin, 2010).

Readability of a text refers to its understandability: it is an indication of whether a text is easy, or difficult to comprehend. There are over 40 different formulas that measure readability, such as Flesch-Kincaid test that was used in this study, the Simple Measure

of Gobbledygook (SMOG), the Fry Index Measure, etc. (Shieh & Hosei, 2008). These tests are based on sentence length, number of syllables in words, and number of words in sentences (Shieh & Hosei, 2008).

When Davis et al. (1990) compared the reading comprehension levels of 151 primary care patients with the readability of written clinical materials, testing each participant for reading recognition and comprehension levels via the Peabody Individual Achievement Test (PIAT), they found a 5 to 7-year gap between the reading comprehension of the average clinic patients and the readability of most health educational materials and physician-written instructions or communications. The areas with high percentages of minority, poverty and immigrants had the highest level of illiteracy (Davis et al., 1990). Unfortunately, the authors do not include in their article any possible explanations as to why the aforementioned groups may have had such low scores.

Shieh and Hosei (2008) evaluated the readability level of 21 health promotional materials and found that the average grade level of readability of these materials was 10.1. 86 percent were rated as not suitable for readability (i.e. they had 9th grade level readability or higher) and only 14 percent were rated as adequate (6th to 8th grade readability level). Wilson et al. (2006) performed a two-group experimental design to examine reading skills, comprehension levels and knowledge about different communicable diseases among low-literacy parents. Out of 54 participants, about a half read at the 8th grade level, or lower. The mean score for reading comprehension was 59. Nearly half of the participants (46 %) did not understand the content of the factsheets, or required assistance (Wilson et al., 2006).

Calabro, Taylor, and Kapadia (1996) conducted a study to determine whether health promotional materials about alcohol use were more effective when their readability was higher. They examined change in knowledge, attitude and behavioural intention of 252 women who participated in the study. They determined that the existing materials were at grade 10 level of readability and contained a lot of “non-essential” information (Calabro, Taylor, & Kapadia, 1996, p.303). The authors translated the factsheets in Spanish and eliminated the non-essential information, bringing the texts down to 3rd grade level of readability. Results demonstrated that the English speaking participants recalled more information, and showed change in attitude and behavioural intention after reading a text that had 3rd grade level of readability. There were no significant differences between the 3rd grade level and 10th grade level groups for the Spanish-speaking participants. The authors hypothesize that their Spanish translation of the original health materials used for the study might not have been comprehensible enough for some Spanish-speaking participants due to the variations in dialects (Calabro, Taylor, & Kapadia, 1996).

The low readability of medical materials is attributed to vocabulary that the health professionals use when they prepare the printed materials: the unfamiliar words and medical jargon reduces patient reading comprehension. Cole (1979) administered a multiple-choice questionnaire to measure patient’s knowledge of the definitions of 15 medical words that were taken from the printed health materials. Many patients had limited knowledge of medical words, particularly when there was no context given to derive the meaning of the word. The results also suggested that people with little education and of lower social status had lower scores on the test (Cole, 1979).

VI. Health promotion and immigrant populations

The literature suggests that the readability of health promotional materials is a big concern for newcomers. Bowen, 2001; Zanchetta and Poureslami, 2006; Clarke, Periam and Zoitopoulos, 2009; Simich, 2009; Ng and Omariba, 2010 contend that linguistic barriers may prevent immigrants from comprehending written informative materials that are meant to educate population and act as preventative measures. In addition, they may have anxiety about their medical condition (Williamson & Martin, 2010), which can make it difficult to comprehend medical terminology and complex sentences that contain a lot of information.

Written health promotional materials are not always linguistically and culturally sensitive, because they do not take into consideration immigrant and refugee populations and other low-literate people. Many educational resources demonstrate low quality of translation including mistakes and “culturally inappropriate wording” (Clarke, Periam, & Zoitopoulos, 2009, p.120). As a result, health literacy promotion among non-English or non-French speaking people may not always be effective.

Health promotional materials are not always suitable for immigrant populations, because they do not always contain information that is appropriate and representative to all ethnic groups (Guidry & Walker, 1999). Guidry and Walker (1999) assessed the cultural appropriateness and sensitivity of printed cancer education materials (PCEMs) that targeted African Americans. They conducted both quantitative and qualitative tests - focus groups, advisory committee, project staff, using the Printed Cancer Education

Materials for African Cultural Sensitivity Assessment Tool of materials on eight types of cancer (Guidry & Walker, 1999). The results revealed that 56.2 percent of PCEMs were culturally insensitive, with the visual message being their weakest component (Guidry & Walker, 1999).

In a different study, assessment of cancer articles written in English-language for the Jewish, Black/Caribbean, First Nations and East Indian ethnic newspapers via Cultural Sensitivity Assessment Tool (CSAT) also demonstrated that these articles did not include all of the ethnic groups and were not culturally sensitive (Simich, 2009).

Researchers (Tuffnell et al., 1994; Zanchetta and Poureslami, 2006; Clarke, Periam, and Zoitopoulos, 2009; Simich, 2009) maintain that information provided by the health professionals should be understandable especially for the newcomers. Using simple, short words and jargon-free explanations are the linguistic strategies that are discussed in the literature (Tuffnell et al., 1994; Zanchetta and Poureslami, 2006; Clarke, Periam, and Zoitopoulos, 2009). Simich (2009) believes that translation of medical materials should not be a mechanical process, but should involve cultural experts to assist in developing culturally sensitive information.

Although there has not been a study that compared immigrant's reading comprehension of health materials in Canada, the study of reading comprehension, language, translation and readability among literate Zambian adults conducted by Underwood, Serlemitos and Macwangi (2007) most closely relates to this topic. Just as immigrants, many Zambians face linguistic barriers due to the linguistic diversity and colonial past of Zambia.

The participants in this study were presented with four texts based on the actual medical materials used by community health volunteers in English and in Zambian languages, two written at a fourth-grade readability level and two at an eighth-grade readability level. The authors evaluated reading comprehension of these medical materials on the basis of participants' ability to read and answer questions about the texts. (Underwood, Serlemitos, & Macwangi, 2007). They found that the majority of the sample tested higher on English than on Zambian language tests, except for those participants who had the lowest level of educational attainment. Moreover, the results show that both Zambian- and English-language grade-four test scores were significantly higher than the grade-eight test scores (Underwood, Serlemitos, & Macwangi, 2007).

In their article, Underwood, Serlemitos, and Macwangi (2007) conclude that the absence of studies that compare adult Zambians' reading comprehension of health materials in seven Zambian languages with their English-language materials present a dilemma for the health care providers who have to decide in which languages to translate health promotional materials. Translating health promotional materials requires a lot of time and money; therefore it is important to know which translation will be most beneficial for the population (Underwood, Serlemitos, & Macwangi, 2007).

The issue brought up in this article is also relevant for Canada. It is very important to investigate whether the English or the French versions of the health educational materials, or their multilingual translations are more comprehensible for the target populations. The immigrants that reside in Canada have linguistically diverse backgrounds. It might not be feasible to translate health educational materials into the native languages of every immigrant group. Therefore, studying how well newcomers comprehend health

promotional texts in English or French and then adjusting these texts' readability (if necessary) can ensure that any individual, who has basic language skills in one of those languages has an opportunity to learn important health-related information.

There is also the need to study to what extent newcomers comprehend the information provided to them via translations of the French or English health promotional texts. This may reveal the high readability levels of the texts, low quality of translations, and other barriers that prevent immigrants from learning important information about their health. Exploring the issue of immigrant's reading comprehension of health promotional materials can have positive outcomes for future immigrant cohorts.

Chapter 3: Findings and discussion

I. Results

a. Demographic characteristics

The majority of the individuals (81.3%) who participated in the study are in the 18 to 30 age-group: 7 out of 8 men (87.5%) and 6 out of 8 women (75%). One male (12.5%) and two female participants (25%) are in the 31 – 55 age group (18.7%). Men displayed higher levels of education with 7 individuals (87.5%) holding an undergraduate degree and one (12.5%) holding a college diploma. Women, on the other hand, demonstrated more diverse levels of education: 4 undergraduate degrees (50%), 2 college (25%) and 2 high school diplomas (25%). 10 out of 16 individuals (56%) that took part in this study have attended, or were in the process of attending ESL classes. 3 out of 4 men (75%) who were administered the English text and questionnaire attended ESL classes. 2 (50%) out

of 4 women in the same language group indicated that they have taken English language classes in Canada.

Age	Men	Women
18-30	88	75
31-55	13	25
56-75	0	0
76-100	0	0
Education		
High-School	0	25
College Diploma	13	25
Undergrad. Degree	88	50
Grad. Degree	0	0
ESL classes	75	50

Table 2: Demographic characteristics of participants in % out of $N=16$

62 percent of male participants indicated science or math related areas of specialization such as petroleum engineering, economics, computer sciences, and information technologies. Women's areas of specialization were related to social sciences and humanities: human resource management, translation, sociology, and English language. One female participant indicated that her undergraduate major was in physics.

b. Differences in reading comprehension by language group

To answer my first research question, I marked the questionnaires and populated the scores of both language groups onto Excel sheet. First of all, no participants in either language group scored 100 percent on the test. Participants in the Russian sample scored better on average than the participants in the English sample. The average score for Russian sample was 77.5 percent, while the English sample average score was slightly lower ($\bar{X} = 75\%$).

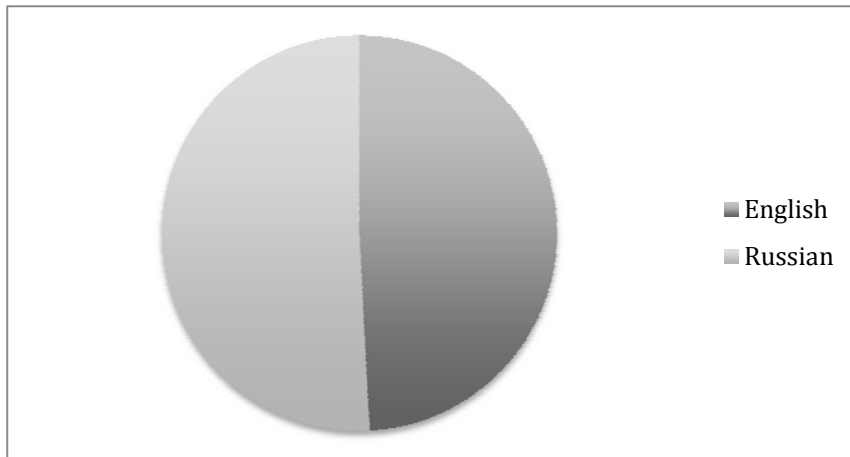


Table 3: Average reading comprehension scores of participants in Russian sample and English sample

c. Differences in reading comprehension by gender

To answer my second research question, I calculated the average scores for two gender groups. The overall results demonstrate that women scored higher on their tests (\bar{x} =78.1%) than men (\bar{x} =74.3%), especially in the English sample, where the average score for men was 70 percent, while for women it was 80 percent.

The average test scores of male participants demonstrate that this gender group performed better in their first language (\bar{x} =78.8%) than in English (\bar{x} =70%). Women, on the other hand, scored higher in English with the mean score of 80 percent, than in Russian, where the mean was 76.2 percent.

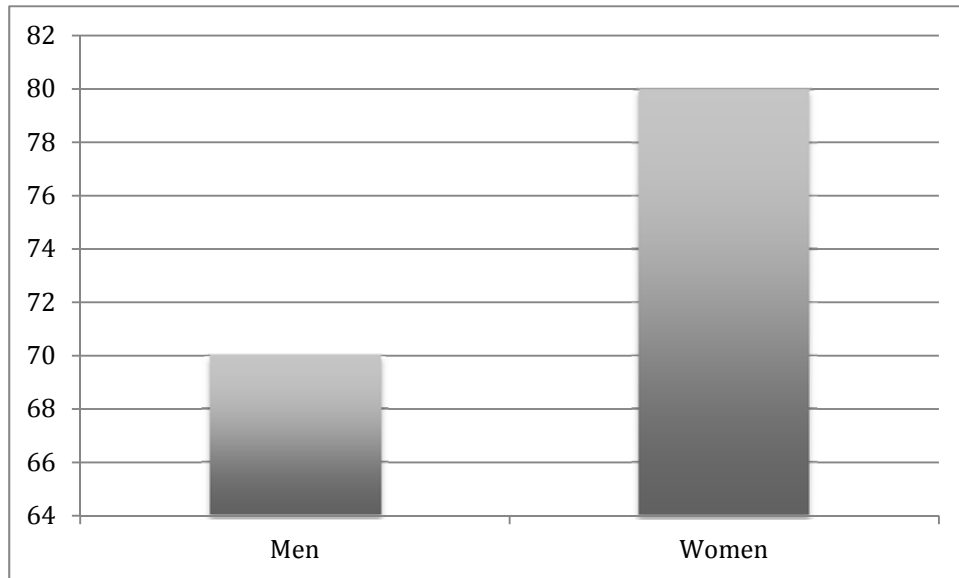


Table 4: Average reading comprehension scores of men and women in the English sample

d. Profiles of the participants with highest and lowest reading comprehension scores

The lowest score for the Russian language group is 45 percent and it belongs to a male in the 18-30 age range, who has an undergraduate degree in computer sciences, and who attended English lessons. The highest scores of 95 percent belong to two respondents. First respondent is a male in the 18-30 age range, who has an undergraduate degree in information technologies, and has attended ESL classes in Canada. Second respondent is a female, also in the 18-30 age range, who has a certificate in interpretation and has never attended ESL classes in Canada.

In the English language group the lowest score of 40 percent belongs to a male in the 18-30 age range, who has a certificate in an unspecified subject, and who has taken ESL classes in Canada. The highest score of 90 percent belongs to a female in the 18-30 age

range who has a college diploma in Human Resources and has not taken any ESL classes in Canada.

e. Differences in responses by language group

One of the objectives of my study was to reveal potential problems with the text such as low readability level of the text (Davis et al., 1990; Underwood, Serlemitos & Macwangi, 2007; Badarudeen & Sabharwal, 2010; Williamson & Martin, 2010), complex concepts and terminology, and translation lacking in cultural sensitivity (Clarke, Periam, & Zoitopoulos, 2009). By tallying up the number of correct responses to each question in the multiple-choice and the true-or-false sections of the questionnaires in both languages, I was able to see which areas of the text were not comprehensible to the majority of participants, as well as to compare the number of correct responses to different questions between two language samples.

The results suggest that in the multiple-choice section of the survey no question received a correct response from all 16 respondents. Only questions number 2 that asked “What does antibiotic resistance mean?” and number 5 that read “The pneumococcal vaccine should not be given to:” received a total of 15 correct responses.

Question 7 “Who is at high risk of getting IPD?” received the lowest number of correct responses: one correct response from the participants in the Russian sample and 4 from those who were administered the English version of the questionnaire. The second lowest response rate is for the question number 10 that asks “How early can a child receive vaccinations?” 6 people circled the correct answer.

Out of 10 multiple-choice questions, 3 received a higher number of correct responses from the participants in the English sample than from the participants in the Russian sample. The participants who were administered the questionnaire in Russian have a higher number of correct responses in 5 questions. Questions 8 and 9 received an equal number of correct responses from both language samples.

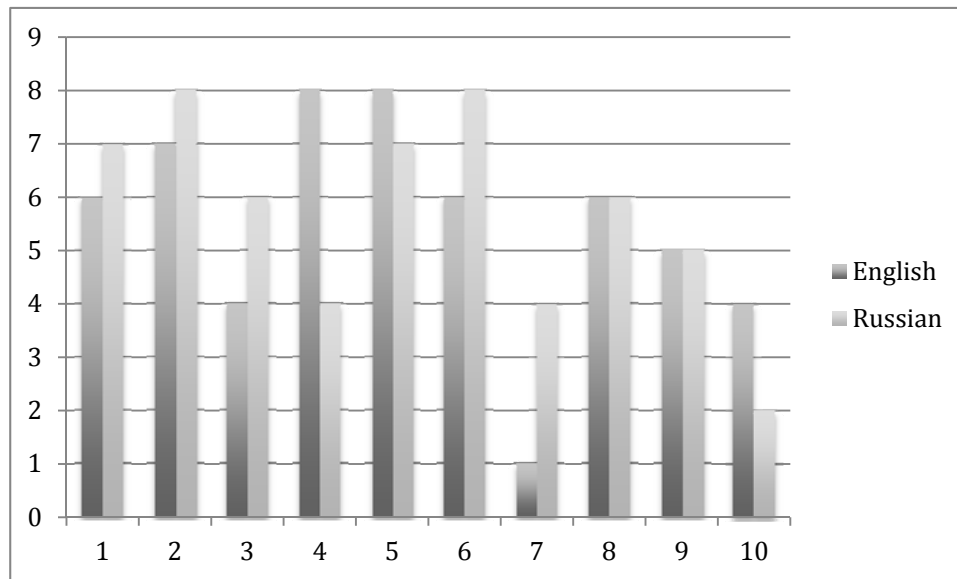


Table 5: Distribution of correct responds in multiple-choice questionnaire in English and in Russian

Overall true-or-false section had a higher number of correct responses than the multiple-choice section. All 16 participants answered correctly questions number 1 that read “Only young children can be healthy carriers of pneumococci bacteria” and number 4 “People with high-risk medical conditions are more predisposed to death or long-lasting complications from pneumonia”. 10 people, 5 from the Russian sample and 5 from the English sample) correctly answered question number 7 that read “All children who become ill from IPD have an underlying medical condition”.

Three true-or-false questions (2, 5, 9) received more correct responses from the participants in the English sample than from the ones in the Russian sample. The latter sample had a higher correct response rate for 4 questions. Questions 1, 4, 7 received the same number of correct responses from two language samples.

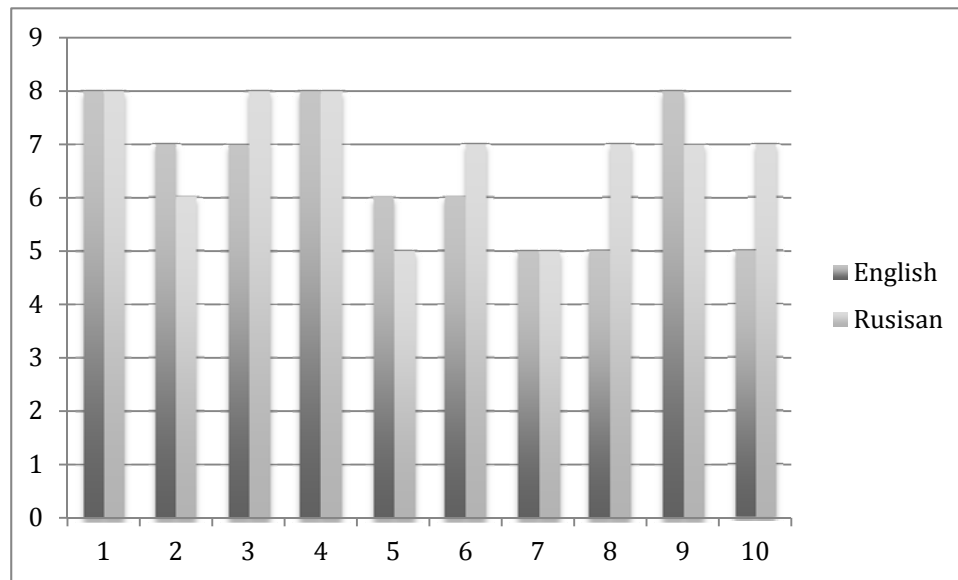


Table 6: Distribution of correct responses in true-or-false questionnaire in English and in Russian

II. Discussion

Out of a total of 16 respondents no one scored 100 percent on the comprehension test, which means that the factsheet failed to deliver the information to the participants in the study. Just as Davis et al. (1990) pointed out in their study, there is a 5-year gap between the readability level of this factsheet (11th grade) and the reading comprehension abilities of an average person (5th or 6th grade). Evidently, the factsheet used in this study is difficult to comprehend to a sample of newcomers whose first language is not English and who have no educational background in the medical field.

Another possible factor that has to be taken into consideration is the respondents' inattention or lack of interest during the test. There is always a probability that participants were circling random answers without reading the questions, or the text, or they could simply circle the wrong answer by mistake. Finally, the translation of the questionnaire from English into Russian was not done by a professional translator, which could also have had a negative effect on the participants' performance. However, the Russian sample achieved a higher average than the English sample, which suggests that the translation of the questionnaire was adequate and comprehensible for the majority of the sample.

a. The Null Hypothesis

The findings did not support my null hypothesis, which stated: the health educational factsheet in English and its translation in Russian are equally comprehensible for Russian-speaking immigrants. The Russian-speaking participants in this study demonstrated better reading comprehension of the factsheet written in Russian than in English. These results are not surprising, since Russian-speaking newcomers to Canada are more likely to have a better reading comprehension of a text written in their native language than in a language that they might still be learning. However, the performance of the participants in the English sample was better than anticipated: respondents in the Russian sample outperformed their counterparts in the English sample by only 2.5 percent.

The longitudinal study done by Citizenship and Immigration Canada (CIC) determined that 25 percent of refugees and 22 percent of economic immigrants identified lack of

knowledge of English or French as a serious problem even 4 years after landing (Derwing & Waugh, 2012). The sample selected for this study involved Russian-speaking newcomers who have lived in Canada for 3 years or less. Based on the demographic characteristics of the sample, their command of English was expected to be worse than of Russian. Only one participant in the English sample declared English literature as his major. Moreover, 5 out of 8 participants indicated that they attended or were in the process of attending the ESL classes in Canada, which suggests that they did not have language skills or did not speak English fluently on arrival. The high scores in reading comprehension of the factsheet in English may be a sign of their high ability to learn a second language within a short period of time.

Derwing and Waugh (2012) identify multiple factors that influence adults' ability to learn a second language. The younger students have an advantage when learning new languages (Cummins, 1980; Derwing & Waugh, 2012). According to Nejadansari and Nasrollahzadeh (2011), children outperform adults and adolescents in acquiring native level of grammatical competence, are more likely to reach higher levels of attainment in pronunciation, and can acquire a native accent in informal contexts, while adults may need a lot of time and instruction.

Education level also has an effect on second language learning (Derwing & Waugh, 2012). When Derwing and Munro, (2010) examined the Canadian Language Benchmark Assessment (CLBA) data from the Citizenship and Language Survey conducted by the CIC, they concluded that education was positively associated with higher scores on the CLBA test – participants with university or college training scored considerably higher than other participants.

Furthermore, based on the data from the CIC Citizenship and Language Survey, a person's mother tongue also plays a role in his or her language acquisition. Immigrants who spoke Russian or Ukrainian scored 7.24 points out of 12 on the CLBA test, which is considered fairly high (Derwing & Munro, 2010).

Cultural differences can also be a determinant factor in second language learning. In their longitudinal study, Derwing and Waugh (2012) found that Slavic language speakers showed significant ongoing improvement in their English language skills, more specifically their accent and pronunciation at the seven-year point of the study. Taking these findings in consideration, we can conclude that in this study, the participants' younger age, higher level of education and cultural background may have influenced their high reading comprehension scores.

The readability level of the factsheet selected for the study and the overall performance of the sample still suggest that the original text needs to be simplified. Newcomer populations will have problems understanding the information provided to them in medical pamphlets like the one used in the study unless they are simplified.

Having multilingual translations of health promotional materials available for immigrant populations is a socially-inclusive practice. However, if the original texts in English and French have low readability levels and are too complex for the ESL populations, then their translations will also have low readability level. Even if newcomers are able to read the text in their native language, it does not mean that they are able to comprehend what is being said. A good example are the men in the Russian sample in this study: they were highly educated and still demonstrated low reading comprehension of the text. Providing

immigrants with the English and French versions of the medical factsheets that are difficult to understand even for the native-speakers is like providing them with no resources at all.

b. The alternative hypothesis

The results of the study did not support my alternative hypothesis, which stated: Male participants will have a better comprehension of health education materials in English than women. Men did not have a better reading comprehension of the factsheet in English than women. Paradoxically, women's average score was 10 percent higher than men's. I did not anticipate these results, because the demographic characteristics of the English sample suggested that men had an advantage over women. Male participants in the English sample were more educated than women. Moreover, no female participants in the English sample declared English as their field of specialization at school, whereas one male majored in English literature. More male respondents in the English sample indicated that they attended ESL classes, which presumably would improve their English language skills. Finally, Russian/Ukrainian speaking women scored slightly lower on the CLBA (7.0 out of 12.0) than men (7.6 out of 12.0) (Derwing & Munro, 2010). Curiously, the findings did not support my assumptions and the results from other studies that are discussed in the literature (Rootman & Gordon-El-Bihbery, 2008; Bowen, 2009; Alberta Health Services – Calgary, 2009).

According to the 2003 International Adult Literacy and Skills Survey, 32 percent of foreign-born women “have extreme difficulty with and only limited use of printed materials,” compared to 24 percent of immigrant men (Rootman & Gordon-El-Bihbery,

2008). As Bowen (2001) noted women are a vulnerable population who face linguistic and cultural barriers. Many women cannot access ESL classes, because they have small children (Bowen, 2001). Culture and religion can also be inhibiting factors in women's health literacy. In the study of breast cancer detection practices of 57 South Asian women, it was determined that language and unfamiliarity with Western culture acted as barriers (Bowen, 2001).

Since the sample used for this study was very small and the majority of women were educated, and had a good command of English, we cannot assume that these findings are representative of the whole Russian-speaking population in Canada. It is also possible that the method of data collection in this study advantaged women over men. When Gluszynski and Dhawan-Biswal (2008) analyzed Programme for International Student Assessment (PISA) data, comparing immigrant youth with non-immigrants and first generation Canadians, they found that in all 32 participating countries 15-year-old girls, regardless of the grade they were in, outperformed boys in reading comprehension. While immigrant girls had lower scores than non-immigrant and first generation Canadian girls, they still did better than boys from all three groups. Immigrant boys were the most disadvantaged group (Gluszynski & Dhawan-Biswal, 2008).

The educational background of women in this sample also contributed to their high performance on the reading comprehension test: the majority of male participants had technical and scientific educational backgrounds, while women specialized in social sciences and humanities (which generally involve more reading and writing in a variety of styles and on a wider range of topics).

c. The readability issues

Question number 7 - “Who is at high risk of getting IPD?” from the multiple-choice section of the questionnaire and question number 7 - “All children who become ill from IPD have an underlying medical condition” from the true-or-false section were based on a small paragraph that explained that high-risk children who are under the age of 5 are at a high risk of getting IPD. Both questions received the lowest number of correct responses from English and Russian language samples. These findings suggest that translating a text that has low readability level produces a text with the same readability level in the target language. As it was mentioned earlier, immigrant groups cannot benefit from the translations of the health promotional materials if their readability level is too low; therefore, the original version of the health promotional materials should be simplified prior to translation.

One of the readability issues of this paragraph is caused by the inclusion of important information in the parentheses, which removes the feeling of importance and urgency from the phrase “as these children are at an increased risk for invasive pneumococcal disease.” In addition, Russian-speakers who do not have a good command of English might not know what the phrase “high-risk children” really mean. To them the word high-risk is ambiguous and can mean that “the high-risk children” represent danger, or that these children like to take risks.

In the Russian translation, the same information is presented differently: “this vaccine is also available for children under the age of 5, *who belong to a group of high risk* (because these children are at increased risk of developing invasive pneumococcal infection)”. It

offers more context to the word “high-risk” by identifying that “high-risk” refers to a group that children belong to rather than to children themselves.

Despite the different sentence construction in the Russian version of the factsheet, the majority of the participants did not comprehend information provided in that paragraph. This segment of the factsheet clearly needs revision, as a group of educated and literate adults could not comprehend it well enough to answer two questions that were related to the information provided in it.

Another segment of the text that might be too complicated for readers is question number 10: “How early can a child receive vaccinations?” The two sentences in that paragraph contain five different numbers, nominal and ordinal, written as the numerals (2, 6) and spelled out (four), which can be overwhelming when a person is learning a lot of new information, especially in a second language. The text also switches between months and weeks to describe baby’s age, which is inconsistent. In the Russian version, only months are used to describe the baby’s age. It is also possible that participants in the Russian sample performed better on this question, because they had an advantage of processing information that incorporated a lot of numbers (3 out of 4 of which were spelled out) in their native language.

Ten participants, 5 in each sample, answered question 9 correctly. This straightforward question was meant to test participants’ literal comprehension, i.e. their ability to locate and recognize information in the text. I did not anticipate that 37.5 percent of respondents would not be able to find the correct response to this question. However, after analyzing this segment, I arrived at the conclusion that the 6 participants who did not know the right

answer were confused or overwhelmed by the medical terminology. Even though the words pneumonia, bacteraemia, meningitis, and otitis media are explained in the segment (although not every newcomer is going to know the translation for anatomical vocabulary such as lung, blood and lining of the brain), the sickle cell disease that I used as an option and as the right response for my question, is not explained, which might have misled participants into thinking that it is also caused by “this type of bacteria. ”

Based on these findings I can conclude that inserting medical terminology in a health factsheet that is intended for average persons should be minimal. Every complex concept, or medical term should be explained in a clear and comprehensible manner.

d. The translation issues

The findings demonstrate that even though the English and Russian factsheets used in this study provided the readers with identical information, and the questionnaires developed in English and in Russian contained the same questions, the responses of the participants in the samples varied. Assuming that there are no issues with construction and translation of the questionnaire from English into Russian, the differences in responses to questions between samples are the result of participants’ reading comprehension of the texts.

Such variances in responses can be due to several reasons. For example, if a question receives more correct answers from the respondents in English sample it may be a sign that the Russian translation of the text is poor and does not present the information to the reader as clearly as the original factsheet in English. On the other hand, if more people in the Russian sample answer that question correctly, it may be assumed that due to

linguistic barriers, Russian-speaking newcomers are not able to understand the information in the original text. Unfortunately, since the sample size in this study is very small, it is not possible to conclude that these are the causes of the differences in responses between the two language groups.

Question number 4 had the greatest difference in the number of correct responses from the participants in two language samples. While everybody in the English sample answered the question correctly, only 50 percent of respondents in the Russian sample selected the right answer. The question was based on the fragment of the text that explains the purposes of the “Yellow Card.” While the English version of the factsheet explains clearly that “Yellow Card” is a personal immunization record, the Russian translation of that paragraph is a) poor and b) culturally insensitive.

Translating the Russian text word for word we get: “After your child receives any immunization, make sure that an appropriate entry is made into the vaccination registration card (that is sometimes called “Yellow Card”)”. The Russian translation does not explain what is meant by “an appropriate entry,” possibly because there is no mentioning of any “entry” in the original version of the text.

The phrase “vaccination registration card” was an attempt of the translator to produce “culturally sensitive” translation. However, in Russia, all the immunization records are included into a “personal medical card,” which is a folder that contains all medical records of an individual. Such culturally insensitive translation and ambiguous wording might have been confusing to the respondents in the Russian sample, who may have never heard of “vaccination registration card.”

Question number 6 received higher number of correct responses from the Russian sample. I believe that the English sample struggled with the vocabulary used in this paragraph. The words ‘droplets’, ‘saliva’ and ‘utensils’, may not be familiar to the newcomers who have not lived in Canada for more than 3 years. In addition, they might not know that ‘e.g’. is an abbreviation from the Latin phrase *exempli gratia*, which means ‘that is.’

The results of this study suggest that the factsheets on the Ontario Ministry of Health and Long-Term Care website do not demonstrate cultural and linguistic congruence. The health promotion initiatives are effective when cultural values, beliefs and practices are taken into consideration. The factsheets have low readability level and are too complex for the average population, especially for newcomers who do not have a good command of English or French.

It is alarming that even though participants in this study were young, well-educated adults they did not score 100 percent on the reading comprehension test in their native language. Their command of English was clearly better than anticipated, since there was only a small variance in average scores between Russian and English sample; however; they did not comprehend the information well enough to answer all question correctly, at least in their native language.

III. Limitations of the study

Based on the results from this study, which used a small sample of only 16 participants it is not possible to extrapolate to the whole population of Russian-speaking newcomers in Toronto. Since it was a purposive rather than a random sample, it is not truly

representative of the whole population. Nevertheless, this study offers some quantitative information that can be used in future research with more elaborative methods and larger samples.

Since the reading comprehension questionnaire in English was not prepared by a specialist, or someone with more experience in test development, it is possible that it affected the participants' responses. In addition, the translation into Russian of the above-mentioned questionnaire was not completed by a certified translator, which may have resulted in some translation errors. It is possible that this may have affected the findings.

Although I compared the reading comprehension scores between gender groups to answer my second research question and to test the alternative hypothesis, I did not perform an in depth literature review on the topic of gender differences in reading comprehension. In addition, I did not explore this topic using feminist theories. The data analysis was based on the results from a few studies that were discussed in the literature on health literacy and immigrants' literacy, as well as on my assumptions. The scope of this study permitted only to determine whether there are differences in reading comprehension between men and women. It did not aim at discovering what are the causes and consequences of potential differences.

Chapter IV: Policy Recommendations and Conclusion

I. Policy recommendations

a. Culturally competent health promotion

In order to eliminate health disparities between newcomers, earlier immigrants and Canadian-born populations, health professionals have to learn how to serve multicultural populations, or in other words, become culturally competent. Cultural competence refers to “a set of values, behaviours, attitudes, practices, and policies within an organization or program or among staff that enables people to work effectively within groups” (Johnson Vaughn, n.d. p.46). Addressing socio-cultural and linguistic barriers in the areas of oral and written language, comprehension and compliance, and access to health services from a cultural competence perspective would involve the provision of interpreters when required and the development of health promotional materials that are accessible by all ethno-cultural groups. The ultimate goal of culturally competent health education is “awareness and adoption of healthy behaviours” where the target community fully understands “the health education process, the messenger, and the message” (Johnson Vaughn, n.d., p. 49).

Health professionals have to be well educated in terms of culture and linguistic diversity to reach the diverse populations of Canada. This applies to health promotional programs such as intervention and training programs, seminars with nutritionists, set of pictures in a magazine, etc. (Johnson Vaughn, n.d.). Academics agree that when health services are culturally competent, clients are more likely to adopt healthy habits, which in turn

reduces the health disparities between aforementioned groups (Johnson Vaughn, n.d.).

The results of this study seem to demonstrate that at this time health promotional materials are not yet inclusive of all immigrant populations. By ensuring that each medical factsheet takes into consideration cultural practices, values and beliefs of the target community, health promotion can become a successful tool in promoting immigrants' health literacy, which in turn will help eliminate health disparities between newcomers, early immigrant and Canadian-born populations.

As it was mentioned in the literature review, some ethno-cultural groups have different models of appropriating knowledge. Therefore, they might be more receptive to visual aids such as images, videos, and theatrical skits (Tuffnell et al., 1994; Zanchetta & Poureslami, 2006; Hoovey, Booker, & Seligman, 2007; Clarke, Periam, & Zoitopoulos, 2009; Simich, 2009). Cultural competent health promotion may require producing materials that incorporate these visual aids (cf. Perez & Luquis, 2008). For more information about cultural competence theory please read Tseng et al. (2007); Perez and Luquis (2008).

b. Deep structure modification

Culturally competent health promotion involves cultural tailoring process, which creates “culturally sensitive interventions, often involving the adaptation of existing materials and programs for racial/ethnic population” (Goldstein & Noguera, 2006). It is usually comprised of two parts: surface and deep structure modification (Alberta Health Services, 2009). The surface structure modification involves minor changes to the initiatives, like translating materials into the languages of different communities. Since the Ontario

Ministry of Health and Long-Term Care provides diverse populations with multilingual translations of many medical factsheets, it is more relevant to discuss deep structure modifications.

Health promotional programs, including printed materials, have to appeal to culturally-diverse populations. Deep structure modification ensures that each program is culturally tailored towards a target community. It takes into consideration cultural, social, psychological, environmental, and historical factors that influence human behavior (Goldstein and Noguera, 2006).

In the context of this study, performing deep structure modification requires rewriting all the medical factsheets at a Grade 5-6 readability level in the languages of all target communities rather than translating one factsheet into multiple target languages. The written materials, visual aids, images should contain normative emotional and tonal qualities of each community in order to reach diverse populations.

The print promotional materials like the ones examined in this study should be accessible to a wide audience, which can be achieved by making the content readable and plain. The Centre for Addiction and Mental Health (CAMH) proposes using simple language, avoiding medical jargon, idioms and humour, paraphrasing, and utilization of shorter sentences, 25 words or fewer. The results of this study support these recommendations: the factsheets used for reading comprehension test qualify for the deep structure modification.

In the case when health promotional materials contain images, it is more effective to depict members of the target community and use culturally appropriate colours and

graphic elements. For example in North America, pink is usually associated with femininity and softness, while in some Asian cultures, it implies sexuality (CAMH, n.d.).

c. Evaluating and pilot testing printed health promotional materials

Performing program evaluations can ensure that health promotional materials are culturally competent and effective in addressing the issues and the needs of the communities. One way of doing it is through focus groups with community stakeholders. Community members can assist developers by identifying and addressing specific issues of their communities. They can also consult on cultural and linguistic relevance of the translations and advise which method of health promotion is more appropriate for their community.

It is important to pilot test each factsheet, video, or theatrical skit before releasing it for a wider audience. Pilot testing readability, suitability, cultural appropriateness and linguistic relevance can ensure that materials are effective in promoting health to all the communities. Pilot testing can include reading comprehension testing among community members, assessment of knowledge and behavioural intentions on a specific issue before and after reading the informational factsheets, etc. While the evaluation and pilot testing procedures are expensive and require planning and preparation, they ensure that the promotional materials are successful in educating all communities about health services and issues. Producing materials without testing and evaluating them can result in ineffective health promotion and unwanted expenses.

II. Conclusion

This paper compared reading comprehension of a medical factsheet about Pneumococcal Conjugate Vaccine in English and in Russian by the Russian-speaking newcomers. It revealed that the readability of this factsheet is low. The findings demonstrated that Russian-speaking newcomers may not have fully comprehended either text; however, they performed better on the reading comprehension test in their native language than in English. From a social inclusion perspective it is possible to conclude that the aforementioned factsheet and the three other factsheets that were tested for readability are not inclusive of the average people due to their low readability levels.

Furthermore, the English and Russian versions of the factsheet about Pneumococcal Conjugate Vaccine are not inclusive of the Russian-speaking newcomers as they failed to deliver 100 percent of the information to the participants in this study who, for the most part, were highly educated individuals. It is assumed that newcomers with lower educational level and poorer English language skills are going to have more difficulties comprehending the same factsheet and might not learn about important health information provided in the text.

Since “information provision is a key component of social inclusion” (Caidi & Allard, 2005, p. 303), it would be advisable that the medical factsheets on the Ontario Ministry of Health and Long-Term Care website be reviewed: to increase their readability by eliminating medical terms and jargon, simplifying the language, and translating the original texts using culturally appropriate wording. Doing so would ensure that health

promotional campaigns are inclusive of all populations and are effectively promoting health literacy.

Finally, there is a need for more research in this area, preferably with larger samples and various ethno-cultural groups. Determining what factors influence reading comprehension of medical materials by newcomers can help find a way to improve their health literacy and narrow the health gap between newcomers, earlier immigrants and Canadian-born population.

Appendix 1: Reading comprehension questionnaire in English

Demographic Information Questionnaire

Please answer the following questions:

1) *Please select which age group you belong to*

a) 18 – 30 ; b) 31 – 55 ; c) 56 – 75 ; d) 76 – 100 ;

2) *Please state your gender*

a) Female ; b) Male

3) *What is the highest level of education you have attained ?*

a) high school diploma ; b) college diploma/certificate ; c) undergraduate degree ; d) graduate degree

4) *What was the field of your studies ? (please write it in the space provided below **if applicable**)*

5) *Have you attended English as a Second Language classes in Canada?*

a) Yes ; b) No

Reading Comprehension Questionnaire

Multiple Choice Questions:

Please read the questions carefully and choose ONE correct answer.

1) Who are the most frequent healthy carriers of the pneumococci bacteria?

- a) animals
- b) people of all ages
- c) young children**
- d) all of the above

2) What does “antibiotic resistance” mean?

- a) refusal to take antibiotics
 - b) infection caused by IPD
 - c) use of antibiotics to treat an infection
 - d) difficulty to treat infection with antibiotics**
- 3) I should go to the nearest hospital if my child has:
- a) redness and/or itching in the site of vaccine injection
 - b) swelling of the face or mouth**
 - c) dryness of skin around the site of vaccine injection
 - d) any of the above-mentioned symptoms
- 4) The Yellow Card is used:
- a) for personal immunization record**
 - b) to register for school or daycare
 - c) to get immunization
 - d) to update a child's medical information online
- 5) The pneumococcal vaccine should not be given to children who:
- a) have had meningitis
 - b) frequently suffer from otitis and other ear infections
 - c) are at high risk of getting IPD
 - d) have had an anaphylactic reaction to prior dose of vaccine**
- 6) How are bacteria of IPD spread?
- a) sharing clothes with infected person
 - b) sharing drinks and eating utensils with infected person**
 - c) shaking hands with infected person
 - d) all of the above
- 7) Who is at high-risk of getting IPD?
- a) children who have had an invasive pneumococcal disease in the past
 - b) identical twins

- c) **children with chronic medical conditions**
 - d) children under 5 years of age
- 8) How many doses of the vaccine are required?
- a) four
 - b) one
 - c) three
 - d) **depends on child's age**
- 9) The streptococcus pneumoniae bacteria does not cause:
- a) pneumonia
 - b) bacteraemia
 - c) **sickle cell disease**
 - d) otitis
- 10) How early can a child receive vaccinations?
- a) 2 years
 - b) 2 months
 - c) **6 weeks**
 - d) at birth

True or False questions:

Please read the following statements and indicate whether they are True or False?

- 1) Only young children can be healthy carriers of pneumococci bacteria.
 True **False**
- 2) The vaccine is only available for high-risk children.
 True **False**
- 3) IPD bacteria can be spread by kissing.
True False
- 4) People with high-risk medical conditions are more predisposed to death or long-lasting complications from pneumonia.
True False

5) Anaphylactic reactions to the vaccine require a repetition of vaccination.

True **False**

6) The *streptococcus pneumoniae* bacteria can inhabit one's body without causing any symptoms.

True False

7) All children who become ill from IPD have an underlying medical condition.

True **False**

8) All vaccine series must begin at the age of 2 months.

True **False**

9) If a child has high fever or trouble breathing within 3 days of getting the vaccination, it is necessary to call the doctor or go to the hospital.

True False

10) All children, including those with allergies to the components of the vaccine, should get the needle.

True **False**

Appendix 2: Reading comprehension questionnaire in Russian

Демографическая Анкета

Пожалуйста, ответьте на следующие вопросы:

- 1) Пожалуйста, выберите к какой возрастной группе вы принадлежите
а) 18 - 30, б) 31 - 55, в) 56 - 75 г) 76 - 100;
 - 2) Пожалуйста, укажите свой пол
а) женский ; б) мужской
 - 3) Какой самый высокий уровень образования вы достигли?
а) диплом общеобразовательной школы; б) диплом колледжа / сертификат; в) диплом университета; г) ученую степень
 - 4) Какая у вас специализация? (Пожалуйста, напишите в отведенном ниже поле)
-
- 5) Вы брали уроки английского языка в Канаде?
а) Да ; б) Нет

Чтение и Понимание

Вопросы с несколькими вариантами ответов

Пожалуйста, прочитайте внимательно вопрос и выберите один правильный ответ.

- 1) Пневмококковую вакцину не следует давать детям которые/у которых
а) болели менингитом
б) часто страдают от отита и других инфекций уха
в) принадлежат к группе высокого риска
г) были анафилактические реакции предварительного дозы вакцины
- 2) Кто является переносчиками бактерий которые вызывают пневмококковую инфекцию?

- а) животные
- б) люди всех возрастов
- в) маленькие дети
- г) все вышеперечисленные

3) Что значит "резистентность к антибиотикам?"

- а) отказ принимать антибиотики
- б) инфекция, вызванная IPD
- в) применение антибиотиков для лечения инфекции
- г) затруднение лечения инфекций с помощью антибиотиков

4) Необходимость обратиться в ближайшую больницу появляется в случае когда у моего ребенка:

- а) покраснение и / или зуд в месте инъекции вакцины
- б) отек лица или рта
- в) сухость кожи вокруг места инъекции вакцины
- г) любой из вышеупомянутых симптомов

5) Yellow Card используется:

- а) для свидетельства об иммунизации
- б) для регистрации в школу или детский сад
- в) для получения иммунизации
- г) для обновления медицинской информации в Интернете ребенка

6) Бактерии вызывающие IPD распространяются через:

- а) обмен одеждой с инфицированным человеком
- б) обмен напитками и посудой с инфицированным человеком
- в) рукопожатие с инфицированным человеком
- г) все вышеперечисленное

7) Кто находится в группе высокого риска?

- а) дети, у которых были инвазивные пневмококковых инфекции
- б) близнецы
- в) дети с хроническими заболеваниями
- г) дети в возрасте до 5 лет

8) Каково требуемое количество прививок?

- а) четыре
- б) один
- в) три
- г) зависит от возраста ребенка

9) Бактерии *Streptococcus pneumoniae* не вызывают:

- а) пневмонию
- б) бактериемию
- в) серповидно-клеточной болезнь
- г) отит

10) Как рано ребенок может получить прививки?

- а) в 2 года
- б) в 2 месяца
- в) в 6 недель
- г) при рождении

Вопросы Верно/Не Верно

Пожалуйста, прочтите следующие утверждения и укажите, являются ли они верными или неверными?

1) Только маленькие дети могут быть здоровыми носителями бактерии пневмококка.

Верно

Не Верно

2) Вакцина доступна только для детей принадлежащих к группе высокого риска

Верно

Не Верно

3) IPD бактерии могут передаваться через поцелуи.

Верно

Не Верно

4) Люди с высоким риском заболевания более предрасположены к смерти или к длительным осложнениям от пневмонии.

Верно

Не Верно

5) Анафилактические реакции на введение вакцины требует повторения вакцинации.

Верно

Не Верно

6) Бактерии *Streptococcus pneumoniae* может находиться в теле человека не вызывая никаких симптомов.

Верно

Не Верно

7) Все дети болевающие IPD имеют какие-либо нарушения здоровья.

Верно

Не Верно

8) Серия вакцинаций всегда должна начинаться в возрасте 2х месяцев.

Верно

Не Верно

9) Если у ребенка высокая температура или затрудненное дыхание в течение 3 дней с момента получения вакцинации, необходимо вызвать врача или ехать в больницу.

Верно

Не Верно

10) Все дети, даже те у кого аллергия на компоненты вакцины, должны получить прививки.

Верно

Не Верно

Appendix 3: Consent Agreement Form

CONSENT AGREEMENT

Ryerson University

CONSENT TO PARTICIPATE IN RESEARCH

Usability of Health Promotional Materials and Their Translations in Newcomer Populations

You are being asked to participate in a research study. Before you give your consent to be a volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

Investigators: Uliana Roskina - Ryerson University student completing a Master of Arts in Immigration and Settlement Studies. The researcher is completing her Major Research Paper (MRP) under the supervision of Dr. Marco Fiola, the Chair of the Department of French and Spanish at Ryerson University. The results of this study will contribute to the researcher's MRP.

Purpose of the Study: The purpose of this study is to compare the understanding of the health promotional materials in English and Russian languages by Russian immigrants. The texts for this study will come from the Ontario Ministry of Health and Long-Term Care website. The goal of this research project is to find out how helpful these promotional materials are in teaching Russian immigrants about health issues and services.

Description of the Study: You will be randomly assigned to read a medical text in English, or in Russian. Next, you will answer 10 multiple-choice and 10 true or false questions about the information that you read. You will have 45 minutes to finish the whole task. The total length of the session will be one hour, as the researcher requires 15 minutes to explain the tasks and the purposes of this study. The researcher will meet you at the agreed upon time and at an agreed upon place.

What is Experimental in this Study: None of the procedures and questionnaires used in this study is experimental in nature. The only experimental aspect of this study is the gathering of information for the purpose of analysis.

Potential Risks and Discomforts: There may be some potential psychological, or social risks associated with this study. Since you will have to read a complicated text and then answer questions that will test your understanding of this text, you might experience boredom, embarrassment at getting a low score, frustration, or strong fear of taking a test. If you feel discomfort due to boredom, frustration, or fear, you may withdraw from the study at any time. Please note that the researcher is not testing your ability to read and answer questions, but the quality of the texts given to you.

Potential Benefits: The researcher cannot guarantee any direct individual benefit. However you may benefit from learning about the multilingual translations of the health materials available on the Ontario Ministry of Health and Long-Term Care website.

Confidentiality: Every effort will be made to ensure confidentiality of any identifying information that is obtained in connection with this study. All the information obtained in the course of the research will be confidential and will be available only to the researcher, Uliana Roskina and her supervisor, Dr. Marco Fiola. The data will be kept in the office of the supervisor at Ryerson University for six months and will be destroyed upon the expiration of the established period.

Voluntary Nature of Participation: Participation in this study is voluntary. Your choice of whether or not to participate will not influence your future relations with Ryerson University. If you decide to participate, you are free to withdraw your consent and to stop your participation at any time without penalty or loss of benefits to which you are allowed.

At any particular point in the study, you may refuse to answer any particular question or stop participation altogether.

Questions about the Study: If you have any questions about the research now, please ask. If you have questions later about the research, you may contact:

Uliana Roskina

Email: uroskina@ryerson.ca;

Dr. Marco Fiola

Email: mfiola@ryerson.ca; □

If you have questions regarding your rights as a human subject and participant in this study, you may contact the Ryerson University Research Ethics Board for information.

Research Ethics Board

c/o Office of the Vice President, Research and Innovation

Ryerson University

350 Victoria Street

Toronto, ON M5B 2K3

416-979-5042

Agreement: Your signature below indicates that you have read the information in this agreement and have had a chance to ask any questions you have about the study. Your signature also indicates that you agree to be

in the study and have been told that you can change your mind and withdraw your consent to participate

at any time. You have been given a copy of this agreement.

You have been told that by signing this consent agreement you are not giving up any of your legal rights.

Name of Participant (please print)

Signature of Participant

Date

Signature of Investigator

Date

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