

REDUCING THE BARRIERS FOR FOREIGN-TRAINED ENGINEERS: A
LITERATURE REVIEW & STUDY OF THE ROLE OF A BRIDGING PROGRAM IN
ASSISTING ENGINEERS

by

Dunya Mojadiddi, Hons. BA Labour Studies and Sociology, McMaster University, 2013

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Dunya Mojadiddi

Reducing the Barriers for Foreign-trained Engineers: A Literature Review & Study of the Role of a Bridging Program in Assisting Engineers

Dunya Mojadiddi
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Ryerson University

Abstract

Foreign-trained engineers make up a significant number of the skilled immigrants accepted to Canada annually. This study seeks to identify the various barriers discussed in the literature that these foreign-trained engineers face in gaining licensure and successful employment in Canada. It also examines the findings from a survey conducted of previous graduates of Ryerson University's Internationally Educated Engineers Qualification Bridging (IEEQB) Program. The purpose of the research was to identify whether or not the bridging program assists foreign-trained engineers in obtaining a P.Eng license and finding employment in their fields. Twelve participants were involved in the study; the study found that the participants faced the barriers discussed in the literature. The information found in this study will be used as a stepping-stone in future research to reduce the difficulties foreign-trained engineers face and assist them to successfully integrate into the Canadian labour market.

Key words: Engineer; Foreign-trained; Bridging Program, Professional Engineers Ontario (PEO)

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Section 1: Introduction

Canada focuses on accepting immigrants that can benefit the country. Hence, growing numbers of immigrants are foreign-trained professionals. Unfortunately, upon arrival in Canada, approximately 70% of foreign-trained professionals experience barriers in the labour market, despite the fact that they come with education, work credentials and experience (Luo et al., 2005). As a result, the barriers professional immigrants face often devalue their credentials and work experience (Li, 2004). In particular, the work experience and credentials obtained in an immigrant's home country may not be recognized as equivalent to Canadian credentials (Li, 2004).

Professional immigrants are faced with challenges finding jobs in the Canadian labour market that correspond to their credentials and training. They face the disadvantage of being placed in low-wage jobs rather than the professions for which they were trained in their home countries. They face these disadvantages as a result of undervalued foreign credentials. The Foreign Credentials Referral Office (2011) states, "foreign credential recognition is the process of verifying that the education, training and job experience one obtained in another country is equivalent to the standards established for Canadian workers." In order to verify that the "education, training and job experience" from another country is equivalent to Canadian workers, foreign-trained professionals must undergo various processes to gain licensure and reaccredit their credentials. Certain professions are regulated in Canada in order to protect the health and safety of Canadians (settlement.org, 2013). Regulated professions, have a multi-step process in order for foreign-trained professionals to gain licensure in Canada. Engineering is a regulated profession in Canada that is governed by provincial regulatory

bodies with specific credential requirements in order to be able to practice the occupation (Zietsma, 2010). Unfortunately, regardless of the education and years of experience, engineers may have acquired outside of Canada, it is not considered equivalent to the standards required by provincial regulatory bodies.

1.1 Research Problem

Canadians fail to recognize that denying the accreditation of immigrant professionals does indeed affect the country on an economic and non-economic level. Based on Canadian demographics, immigration makes up a large portion of population growth, which should make this an important issue for Canadians. Canada has always embraced its multicultural society in other avenues of its growth, yet continues to limit professional immigrants from success in the labour market due to the lack of foreign credential recognition. Lack of foreign credential recognition impacts Canada's ability to take advantage of the human resources immigrants provide in terms of their education, skills, and experience. Preventing immigrants from being accredited and working creates a larger gap in the labour market and hinders both the Canadian economy and society.

John Tory, Ontario PC leader said, "The more we can do to help newcomers get into roles that match their abilities and income potential - be it through credential recognition, language training, facilitating jobs and self-employment, or other means - the better the results will be for our economy" (Deans and Tory, 2011). Canada welcomes and values immigration but then prevents individuals from achieving success once they arrive. Eliminating this divide between immigrants and native-born Canadians can contribute to Canadian culture and create a more integrated community. Canada needs immigrants, and it needs them to succeed in the labour market. There is a high demand

for engineers, and Canada has human resources within reach but refuses to use them. Baby boomers are reaching retirement, and this will severely impact the labour market and the economy as a whole. Canada needs more workers, and with more accredited foreign-trained engineers there will be a better educated and experienced labour force.

Engineering is a regulated profession in Canada with high demands. With a total number of twenty-four hundred (2400) engineers listed to be accepted in Canada through the Federal Skilled Workers Program (FSWP), it is evident that foreign-trained engineers make up a significant portion of foreign-trained professionals (Government of Canada, 2014). Professional immigrants, such as engineers, face numerous obstacles when attempting to integrate into the Canadian labour market. They face many barriers in gaining licensure and successful employment commensurate to their credentials and training (Boyd, 2013). Although these barriers have diminished over the years, difficulties continue to exist preventing foreign-trained engineers from gaining licensure and finding successful employment in their field of training.

1.2 Research Objective

This study seeks to outline the various barriers faced by foreign-trained engineers in Canada. Furthermore, it seeks to identify the impact bridging programs have on successful licensure and employment for foreign-trained engineers. It will do this through the use of a short case study based on an online survey. The following research ultimately hopes to provide an action plan for eliminating these difficulties, while allowing foreign-trained engineers to successfully gain licensure and enter the labour market within their professional fields.

Section 2: Background

2.1 Statistics and Trends of Foreign-trained Engineers in Canada

A maximum number of twenty-four hundred (2400) engineers are accepted through the FSWP, with each category being split into sub-caps of three hundred (300) individuals. The categories consist of civil, mechanical, chemical, mining, geological, petroleum, aerospace, and computer engineers (Government of Canada, 2014).

Professional Engineers Ontario found that approximately thirty percent (30%) of licensed engineers in Ontario were educated outside Canada (PEO, Valuing Newcomers, n.y.).

Statistics Canada conducted research in 2001 and 2006 regarding the characteristics of the population in engineering fields of study. Unfortunately, the most detailed studies on this topic are dated, yet I expect the situation to be similar today because foreign-trained engineers continue to face barriers in finding employment compared to their Canadian counterparts. The findings indicated that approximately thirty-six thousand (36,000) engineers were foreign-trained. This makes up approximately thirty percent (30%) of the entire engineering population. Approximately seventy-five percent (75%) of the population had a Bachelors degree, while fifteen percent (15%) held a Master's degree, and only four percent (4%) carried a Ph.D (Statistics Canada, Table A.2, 2008). Furthermore, the most common field of study was electrical engineering, followed by civil and mechanical engineering. Lastly, the study indicated that the majority of foreign-trained engineers worked in occupations other than engineering, as only thirty-seven percent (37%) were employed in an engineering field of work (Chart 2, Statistics Canada, 2008).

Unfortunately, foreign-trained engineers were found to be less likely than their Canadian-trained counterparts to work in engineering occupations. Statistics Canada

found that only twenty-six percent (26%) of foreign-trained engineers worked in engineering jobs, while over forty percent (40%) of Canadian born engineers worked in engineering jobs. This statistic is astounding considering the study also found that foreign-trained engineers were more educated than their Canadian counterparts (Boyd and Schellenberg, 2014). More than half of the foreign-trained engineers held occupations in technical or other fields unrelated to engineering (Chart 2, Statistics Canada, 2008).

Approximately twenty-five (25%) percent emigrated from Eastern Europe. More than half of these foreign-trained engineers were visible minorities, compared to only three percent (3%) of Canadian-born engineers (Boyd and Schellenberg, 2014). Furthermore, the study identified that foreign-trained engineers arriving from Western countries were more likely to find employment in their engineering fields than those educated in South East Asia. Statistics Canada found that foreign-trained engineers from Western countries were just as likely (39%) as Canadian-born engineers (40%) to find employment in their fields (Boyd and Schellenberg, 2014). Meanwhile, those trained in South East Asia had only a fifteen (15%) percent chance of being employed in engineering fields (Boyd and Schellenberg, 2014). Therefore, those individuals arriving from Western countries whose education system was comparable to Canada's were more likely to have their credentials recognized and find employment in engineering fields than those from countries in South East Asia. Language may be a factor in their credentials recognition, as those who arrive from English-speaking countries may have an easier process in receiving accreditation compared to those who do not arrive from English-speaking countries. Section 5.2 will discuss language barriers in more depth.

Similar to the 2001 census data, in 2006 foreign-trained engineers were significantly less likely to be working in their profession compared to those who held engineering degrees from Canadian universities (62% for Canadian born and 24% for foreign-trained) (Zietsma, 2010). In 2006, of the 157, 900 foreign-trained engineers, only nineteen percent (19%) were working as engineers, while of 167, 300 Canadian born engineers, approximately forty-two percent (42%) were working as engineers (Zietsma, 2010).

The findings from the 2006 Statistics Canada study indicate that the characteristics of the educational system in different countries has a significant impact on the recertification process of foreign-trained engineers because there may be variations in training and work experience between differing countries (Zietsma, 2010). The education and practices of engineering in other countries differs from that in Canada. Therefore, the study indicates that the recognition of foreign credentials along with the certification requirements are reasons for the differences between those engineers educated in Canada and elsewhere.

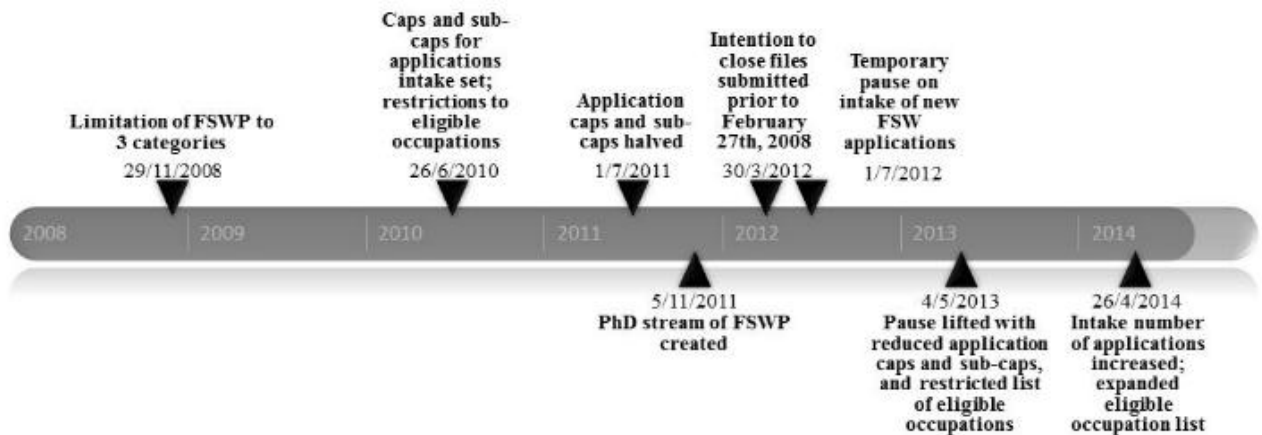
2.2 Federal Skilled Workers Program and Professional Engineers Ontario

The Federal Skilled Workers Program (FSWP) selects foreign-trained engineers to come to Canada. As outlined in the previous section, the Government of Canada indicates the number of engineers and the type of engineering that are listed as eligible occupations by the FSWP. These individuals are expected to be able to become established in Canada economically in order to gain acceptance and permanent residency through the FWSP (Moving2Canada, 2011). The program thus focuses on accepting immigrants that can benefit Canada economically. Canada's labour market needs have

changed over the years, and therefore the FSWP selects immigrants based on its labour market needs.

In the year 2002, the Immigration and Refugee Protection Act (IRPA) was created, allowing for the Canadian Citizenship and Immigration Minister to change the criteria of the FSWP by Ministerial Instructions (CIC News, 2014). Table 1.1 below provides a timeline that outlines the impact of Ministerial Instructions on the FSWP, where it has had the largest influence (CIC News, 2014):

Table 1.1 Changes in the Criteria of the FSWP by Ministerial Instructions



Source: (CIC News, 2014).

Appendix A provides a more detailed outline of the changes that have occurred at each date. Evidently, improvements have been made to the FSWP. Currently, there are higher caps on the number of applications accepted. For foreign-trained engineers, as mentioned previously, there is a total cap of twenty-four hundred (2400) immigrants with

sub-caps of three hundred (300) for specific engineering fields. For foreign-trained engineers to be eligible through the FSWP they are evaluated based on a point system with different selection factors. The Government of Canada (2013) outlines these different selection factors as:

- English and/or French Skills at twenty-eight points
- Education at twenty-five points
- Experience at fifteen points
- Age as twelve points
- Arranged employment in Canada as ten points
- Adaptability as ten points

An individual must have a total of sixty-seven points or higher in order to qualify and be accepted in Canada through the FSWP.

According to Jason Kenney, the former Minister of Citizenship, Immigration and Multiculturalism, the changes to the FSWP will allow Canadians to “see a higher share of the economic immigrants either already working here or being invited by employers” (Proussalidis, 2012). The changes place more emphasis on having immigrants arrive in Canada with an invitation from employers, so that they are placed in a job upon arrival. There will be a pre-assessment of the credentials of foreign-trained professionals. Kenney emphasizes “we are not being true to our reputation as a land of opportunity by inviting engineers to come to Canada and drive cabs” (Proussalidis 2012). Kenney believes that economic integration can help ease an immigrant’s ability to socially integrate in Canada (Keung, 2012). The new FSWP criterion favours young immigrants with strong language skills, as language skills improve the social and economic integration of immigrants; the bar for competence in the official Canadian languages has been raised (Keung, 2012). Applicants for the eligible occupations must ensure that they meet one of the following criteria of the FSWP: (1) a minimum of one year of work experience in one of the

eligible occupations; (2) a qualified offer of employment prior to arrival in Canada; or, (3) are eligible to apply through the PhD stream (Government of Canada, 2013).

Immigrants in regulated professions, such as foreign-trained engineers will need to be pre-assessed in order to ensure that they will receive certification in Canada prior to application processing (Keung, 2012). Foreign-trained engineers arriving to Canada must fulfill the requirements of the regulatory body in the province they wish to settle in order to receive licensure. For those foreign-trained engineers arriving in Ontario, Professional Engineers Ontario (PEO) is the regulatory body through which licensure is granted.

PEO's principal objective is to "regulate the practice of professional engineering and to govern its members, holders of certificates of authorization, holders of temporary license, holders of provisional license and holders of limited licenses in accordance with the Professional Engineers Act, the regulations and the by-laws in order that the public interest may be served and protected" (Thompson, 2012, p.25). Since 2001, PEO has tried to make access to the engineering profession "equitable and fair" (Thompson, p.22, 2012). Furthermore, under the Act, PEO "establishes the educational, experience, and other requirements of licensure (PEO, Valuing Newcomers, n.y.).

With the increase in foreign-trained engineers arriving to Ontario, the Canadian Council of Professional Engineers agreed that "the profession should work together to facilitate the integration of foreign-trained engineers into the profession ensuring that they can obtain their P.Eng. more quickly and efficiently, without lowering admission standards or compromising public safety" (Thompson, 2012, p. 22-24). In October 2010, the Ontario government removed the requirement to be a permanent resident or citizen of Canada in order to be permitted to hold the P.Eng license, provisional license, or limited

license. As a result, PEO hopes that foreign-trained engineers will be able to have completed many of the licensure requirements upon arrival to Canada, preparing them to enter the workforce soon after arrival. In order to be eligible for the P.Eng license, applicants are required to “be at least eighteen years old, of good character, hold an undergraduate degree from a Canadian Engineering Accreditation Board (CEAB)-accredited program or its equivalent, successfully complete the PEOs Professional Practice Examination, and demonstrate a minimum of four years of acceptable engineering work experience, of which one year is to be in Canada” (PEO, Valuing Newcomers, n.y., p.2). The following section will discuss the literature on accreditation regarding the different processes foreign-trained engineers must undergo in order to gain licensure.

Section 3: What processes must foreign-trained engineers undergo to gain licensure in Canada?

The literature helps answer how immigrants achieve accreditation for foreign credentials. This is of great importance, because foreign-trained engineers must be accredited to work in Canada.

The accreditation process is difficult for many immigrants, as it requires having to deal with various institutions both in Canada and their countries of origin. Prior to their arrival to Canada, engineers must have a post-secondary education, a professional degree, training, and work experience. Upon their arrival to Canada, they must undergo certification examinations and gain Canadian work experience.

The Canadian Information Centre for International Credentials (CICIC) informs engineers that they require certification and/or licensing from government organizations

or regulatory bodies (CICIC, 2013). It further discusses that the accreditation process is timely and costly, requiring immigrants to be informed and prepared regarding the requirements necessary to pursue careers as engineers prior to their arrival to Canada (CICIC, 2013). In some cases, without recertification and retraining, foreign-trained engineers will not be able to obtain licensure in Canada in their professional fields.

Yet, according to Wong & Wong (2006), although immigrants may be trained engineers in their home countries, they have less of a chance in finding employment in their field of work in comparison to Canadian-trained engineers. Shan (2013) similarly discusses that foreign-trained engineers are not treated equal to their Canadian counterparts in the labour market, posing a barrier to their integration in the workplace. Furthermore, Girard and Bauder (2007) found that foreign-trained engineers have specified that Canadian credentials are necessary in order to find employment in their appropriate fields of work.

Cheng et al. (2012) discuss the barriers that exist in obtaining licensing and certification for foreign-trained professionals, such as engineers. In Ontario, they must undergo licensure and certification processes established by PEO in order to be included in their professions. According to the Fairness Commissioner, in 2011, only thirty-two percent (32%) of foreign trained engineer applicants were “accepted into full membership” in their profession (Office of the Fairness Commissioner, 2013, p.61).

Engineers in Canada must hold the Professional Engineer license that is issued by self-governing licensing boards (Brennenstuhl et al., 2011). As mentioned previously, PEO is the regulatory body in Ontario that provides licensure for professional engineers. The criteria to gain licensing, as a professional engineer, are very difficult. PEO requires

that applicants must be “eighteen years old, of good character, able to meet PEO’s stipulated education standards, pass the Professional Practice Examination, and fulfill the engineering work experience requirements” (Brennenstuhl et al., 2011, p.10). Fulfilling the engineering work experience requirements consists of gaining four years of work experience as an engineer, of which one year must be Canadian experience (Brennenstuhl et al., 2011).

The requirements outlined by PEO pose barriers for foreign-trained engineers. Foreign-trained engineers are not familiar with the values and expectations of employers in Canadian society and the Canadian labour market (Türegün, 2012). “Until candidates internalize the habitus of the engineering profession in the form of Canada-specific professional practices and ethics, they will not be licensed as a professional engineer” (Türegün, 2012, p. 5). However, the requirement to obtain one year of Canadian experience in the field of engineering provides foreign-trained engineers with some experience of Canadian values and expectations within the workforce, hence allowing individuals to gain licensure.

The literature indicates that foreign-trained engineers face difficulties with having their foreign credentials recognized. They must have their credentials assessed and for many, they must undergo retraining to prepare them for licensure and acceptance into the Canadian labour market. In order to eliminate these barriers, the Office of the Fairness Commissioner works to assist for foreign-trained immigrants to integrate in the labour market. It “works with regulated professions and compulsory trades to make sure they have fair registration (licensing/certification) practices” (Fairness Commissioner, 2014). Further, “it makes sure that certain regulated professions in Ontario have registration

practices that are transparent, objective, impartial and fair” (Fairness Commissioner, 2014). It focuses on where regulators need to make improvements in order to allow qualified individuals to have quick, fair access to work in their professions.

The Office of the Fairness Commissioner has studied the registration practices of PEO which, through the Professional Engineers Act, administers licensing and certification for engineers in Ontario in order to ensure that these professionals are qualified to practice (Professional Engineers Ontario, 2013). As mentioned by Brennenstuhl et al. (2011) and Türegün (2012), PEO, a self-regulatory body, sets policies for licensing and regulating engineers’ practices under the Act. The Act defines the practice of professional engineering as “any act of designing, composing, evaluating, advising, reporting, directing or supervising wherein the safeguarding of life, health, property or the public welfare is concerned and that requires the application of engineering principles” (Office of the Fairness Commissioner, 2007). Therefore, in order to best serve the public, PEO focuses on selecting only the best-qualified individuals to practice engineering by assessing their qualifications thoroughly (Professional Engineers Ontario, 2013).

Engineers with foreign credentials must go through the same process as Canadian graduates. They must apply for a license, go through an “assessment of academic qualifications, write the professional practice examination, complete practical experience, and demonstrate language proficiency” (Office of the Fairness Commissioner, 2007). For individuals who do not have an engineering degree from an accredited Canadian institution, PEO must assess their academic qualifications (Office of the Fairness Commissioner, 2007). Once the applicants’ credentials have been assessed, the file is

forwarded to the Academic Requirements Committee for the internal review process, which will then give the applicant access to a first instance registration hearing before the Registration Committee which “conducts formal hearings between the Registrar and applicants for licensure” (Professional Engineers Ontario, 2013).

Fairness Commissioner Jean Augustine supports bridging programs as an avenue designed to better inform foreign professionals with the cultural and industry-specific information required to succeed within the Canadian labour market. The Engineering Intern Training Program, a bridging program designed for engineers aims to “attract, recruit, and retain” future engineers for the Ministry of Environment (Ministry of Environment, 2013). In order to enroll in PEO’s Engineer Intern Program, a candidate must be an applicant for licensing (Office of the Fairness Commissioner, 2007). The program is four years in length for recent graduates who obtained at least a Bachelor’s degree in “chemical, civil, environmental, or mechanical engineering” (Ministry of the Environment, 2013). The goal of the program is to provide non-licensed individuals with the work experience necessary to obtain their Professional Engineering license. As a result, this bridging program offers practical and multidisciplinary learning experiences.

The next section of this paper will discuss theories explaining barriers that foreign-trained professionals face, and the barriers specific to gaining licensure and successful employment in Canada.

Section 4: Theories explaining barriers

Various barriers exist in the integration of foreign-trained professionals arriving in Canada. Different theories can help explain these barriers.

First, within the context of the immigration of foreign-trained professionals, such as engineers, human capital theory is particularly important. Human capital theory refers to the idea of workers entering the labour market under conditions of perfect competition and securing employment based on their “educational credentials, technical skills, level of work experience, etc.” (Girard and Bauder, 2007, p.36). Explaining basis for the acceptance of foreign-trained engineers through the FSWP, human capital theory implies that a certain “type of immigrant best suits Canada from an economic standpoint” (Buzdugan and Halli, 2009, p.236). The large pool of highly trained foreign engineers entering Canada fulfills human capital theory’s criteria of a highly skilled, well-educated immigrant. However, despite the fact that foreign-trained engineers have high levels of education, they continue to face barriers in the labour market compared to Canadian-born professionals, which will be discussed in Section 5 of this paper.

Second, Max Weber’s social closure theory is described as the “means by which social collectivities seek to maximize rewards by restricting access to rewards and opportunities to a limited circle of individuals who are eligible” (Parkin, 1974, p.3). Furthermore, social closure denies “opportunities to outsiders” (Parkin, 1974, p.3). It excludes other individuals from opportunities, leaving the opportunities only available to one’s own group (Mackert, 2012). For example, foreign-trained engineers arrive in Canada with high skills and qualifications, yet they are excluded from the job opportunities available to Canadian-born individuals. As a result, there is a division of labour because the education and experience of foreign-trained engineers is not recognized. Without fulfilling PEO’s requirements, foreign-trained engineers are unable to gain licensure in their fields of work. “Licensing, credentialing, and certification”

create barriers for foreign-trained engineers to work in their occupations (Weeden, 2002, p.57). Regulated bodies, such as PEO, create boundaries for foreign-trained engineers. This maximizes the rewards for Canadian-born engineers, as they have better access to the Canadian labour market than those with foreign credentials. Foreign-trained engineers are excluded based on their “educational credentials and knowledge” (Weeden, 2002, p.58).

Third, the devaluation of foreign credentials of foreign-trained engineers is further explained by split labour market theory (Basran and Li, 1998). According to split labour market theory, there are two labour markets. In one market, native-born Canadians work for high wages, while in the other market, foreign-trained immigrants work for low wages (Basran and Li, 1998). The discrimination against the immigrants in this case is the result of differences in the price of labour. The lack of recognition of foreign credentials of foreign-trained engineers constitutes a massive devaluation of work and wages. Due to their exclusion from the upper labour market, many foreign-trained engineers take on secondary work far below the qualifications they acquired in their home countries (Brennenstuhl et al., 2011). They may attempt to pursue working towards the accreditation of their foreign credentials and obtaining the P.Eng license, but this is often expensive and takes a long period of time, which is difficult to afford while juggling low-wage, precarious work (Boyd and Thomas, 2001). As a result of being placed in low-wage jobs, the knowledge and training of foreign-trained engineers is undervalued and underutilized.

Section 5: Barriers to Licensure and Labour Market Integration

Unfortunately, after immigrating to Canada, foreign-trained engineers face downward mobility. Forced to take a job below their professional credentials and qualifications, they become victims of “brain waste” as they are unable to utilize the human capital they possess (Boyd, 2013). This section of the research will discuss the various barriers identified in the literature. First, two case studies that were the initial starting point in educating me about the barriers foreign-trained engineers face will be discussed. For the purpose of this research, it was both intriguing and important to study real life instances in which foreign-trained engineers faced obstacles in Canada. This helped provide a stepping-stone in the empirical research interests of this study.

5.1 Case Studies – An example of the case of foreign-trained engineers

Hiam Al Sabery, an Iraqi trained engineer came to Canada in hopes of becoming licensed in Ontario. In order to fulfill PEO’s requirements to work for a full-year in Canada under a licensed engineer, Hiam sent resumes to over two hundred and fifty (250) companies within eight months of arrival (Smolkin, 2013). The dilemma that foreign-trained engineers face is the difficulty in obtaining employment without Canadian experience, which held true for Hiam Al Sabery. He never heard back from any of the numerous companies he applied to. He was expected to gain Canadian experience, but no employer was willing to hire him without Canadian experience, a common dilemma faced by immigrant professionals. In order to support his family, he had to spend all his savings and take on a low-skilled job in construction. This is a common challenge for foreign-trained professionals such as engineers - they are forced to take on low-skilled jobs in order to provide a living for themselves and their families (Newson, 2013).

Eventually, he was able to secure a lower-level job to complete the requirements necessary for his Professional Engineering License.

On the other hand, William Lin who arrived to Canada in 1999 from a southeastern Chinese province, was also full of hope (Chapin, 2012). He had almost ten years of experience as a mechanical engineer and a bachelor's degree from one of the most prestigious schools in China. He also had a master's degree from a university in Japan and gained worked experience in the country. He was a well-known mechanical engineer in his native country, where the government had handpicked him to help develop a turbine for export to Thailand. He estimated that it would only take him a few months to find professional work in Canada because he had scored above average as a skilled immigrant and his profession was listed as "in-demand". He also made sure to receive his certification from PEO prior to arrival in Canada. He thought this would ensure his credentials were transferable to the Canadian labour market. Yet, after sending over 150 resumes over a period of six months, he did not receive a single call. In order to support his family, Lin bought a convenience store and has been using it as his source of income since. He got tired of his low-wage job. Finally, in 2003, four years after his arrival, and was finally called in for an interview. William was sure he was qualified; he waited for two weeks but did not receive a call back. He was therefore forced to abandon his professional ambitions.

Although these cases differ in their eventual outcome, it is evident that both Hiam and William were highly qualified foreign-trained engineers who were denied the opportunity to work in their respective fields by hundreds of employers in the Canadian labour market. Hiam was unable to obtain his P.Eng License without Canadian work

experience, and unable to gain Canadian work experience without his license. William on the other hand obtained certification prior to arrival in Canada through PEO, but still faced continuous rejection from employers and was unable to transfer his skills. He is a clear victim of “brain waste,” as his credentials were not recognized in the Canadian labour market, forcing him to operate a convenience store for the remainder of his working life in Canada.

As a whole, reading these case studies led me to determine whether or not the efforts in place to ease the licensure and employment processes of foreign-trained engineers were worthwhile. Although some started off facing barriers but eventually gained licensure and successful employment, in other cases, such as that of William, were individuals who had to accept that they will never have their dream come true in pursuing a successful engineering career in Canada. These two cases brought to life the various barriers foreign-trained engineers face in Canada. The sections below will discuss the specific barriers foreign-trained engineers face.

5.2 Language Barriers

The FSWP requires foreign-trained engineers, along with other skilled workers, to communicate in either English or French. The highest point-value in determining the selection of an individual to be accepted in Canada is given to language proficiency (Government of Canada, 2013). The points system is a general assessment of competence and the application process requires foreign-trained engineers to demonstrate language proficiency in English or French (Office of the Fairness Commissioner, 2007). There is no guarantee that someone who is good enough in English can practice the profession, as there are other criteria to determine their acceptance in the field. Keeping foreign-trained

engineers from achieving licensure due to their language fluency limits their ability to become employed in their relative fields (Guo, 2013).

They can overcome these barriers by partaking in language classes, such as English as a Second Language (ESL) training, and they can take profession-specific classes to acquire technical language that may not be familiar to foreign-trained engineers. The service may be available free of charge, but the individual must be aware of where to access these services (Ontario Canada, 2012). On the other hand, if the services are not offered for free, it may be a financial burden since these individuals may be placed in low-wage jobs. Lastly, taking additional classes to increase language proficiency may be at inconvenient hours depending on the schedule of the immigrant (Zaman, 2008). Evidently, what seems to be a simple task of attaining language proficiency to gain licensure as a foreign-trained engineer is rather a difficult decision that can negatively affects the future success of these individuals.

5.3 Barriers in achieving accreditation

For foreign-trained engineers achieving accreditation can be an exhausting and sometimes impossible task. Foreign-trained engineers may be required to contact post-secondary educational institutions, provincial governments, provincial regulatory bodies, and prospective employers. Since foreign-trained engineers enter through the FSWP, they have the desire to enter the labour market upon arrival to Canada. They must have documents confirming they have completed their education, training and experience attained in their home countries (Houle and Yssaad, 2010).

After qualifications of foreign-trained engineers are reviewed they must complete one year of supervised work by a licensed engineer in Canada (Houle and Yssaad, 2010).

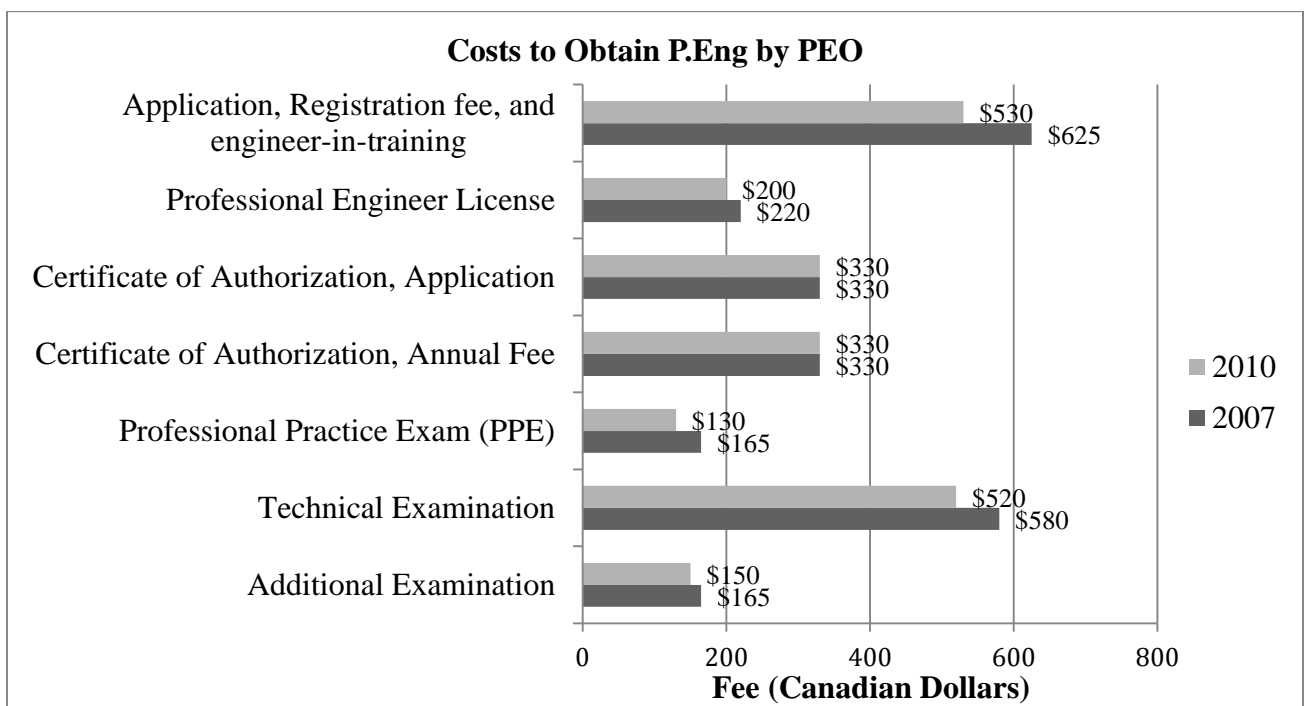
However, some foreign academic credentials are questioned, as the foreign-trained engineers may come to Canada from non-accredited schools. As a result, they are required to retrain before beginning the process of licensure, regardless of their years of experience and training (Houle and Yssaad, 2010). An unsuccessful accreditation process poses barriers for these individuals to enter the Canadian labour market and integrate in Canadian society. As a result, they often face the decision of acquiring low-wage jobs in order to provide a living for them.

5.4 Financial barriers

The lack of recognition of the credentials of foreign-trained engineers negatively affects their integration into Canadian society. It leads to financial barriers as well as a lower standard of living. When declined accreditation, they are often faced with the dilemma of what steps to pursue next in order to provide a living for themselves in Canada. The financial strain these foreign-trained engineers face force them into working low-income jobs regardless of their education, credentials, and skills (Brennenstuhl et al., 2011). Working at low wage jobs below their engineering qualifications places immense financial pressure on the immigrants, especially for those with dependents to support. It is common to see foreign-trained engineers working as taxi drivers or providing delivery services (IAF, 2012). Almost half of the respondents in a study described that obtaining accreditation of their training and credentials from Canadian employers was “very difficult” or “impossible” (Buzdugan and Halli, p.372, 2009). It is likely that their credentials become meaningless as they are forced to work jobs well below their skills and training.

Financial barriers also negatively affect the licensure process for foreign-trained engineers. PEO has various costs that these individuals must pay. Being placed in low wage jobs, it is difficult to fulfill these costs along with the standard costs of living necessary to maintain a life in Canada. Table 1.2 below outlines some of the costs required to obtain licensure from PEO in 2007 and 2010:

Table 1.2: Comparison of P.Eng Licensure costs in 2007 and 2010



Source: (Office of the Fairness Commissioner, 2007; PEO, 2010):

As outlined, the costs have increased in all categories, except for the certificate of authorization fees. The higher costs make it even more difficult for foreign-trained engineers to afford licensing. These are only the minimum costs related to licensing. Foreign-trained engineers may also have to incur costs by attending bridging programs to have their credentials and training updated and accepted through PEO. In addition, they

may face various costs prior to arrival, in order to have their credentials assessed. Moving from one country to another also has many financial costs, and though these costs are borne by the engineer because they have chosen a new country, many do so under the impression that they will be able to find gainful or professional employment and salary commensurate to the experience and skills obtained abroad. As a whole, these foreign-trained engineers may resort to working in low-wage jobs due to the lack of recognition of their skills and training. It is difficult for a poorly paid worker to pay for the costs associated with becoming an accredited engineer in Canada. Unfortunately, paying various fees is not where it ends for foreign-trained engineers. They must gain a minimum of one year Canadian work experience working under a qualified P.Eng license holder. This is often one of the most difficult tasks for a foreign-trained engineer.

5.5 Barriers to Canadian Work Experience

Although employers are not considered accredited bodies such as PEO, they play a vital role in providing foreign-trained engineers with the Canadian work experience necessary for their successful membership into the Canadian labour market for engineers (Mata, 1999). PEO has various requirements including a minimum of four years work experience of which one year must be in a Canadian jurisdiction (Brennenstuhlet et al., 2011). “Employers do not hire foreign-trained people unless they have attained membership in appropriate professional associations while professional associations do not grant membership unless the individual applicant has some proven amount of Canadian work experience” (Mata, 1999, p.8). This poses barriers for foreign-trained engineers who require Canadian work experience. Yet, if employers refuse to hire engineers without a P.Eng license, foreign-trained engineers are victim to a vicious cycle,

unable to obtain the Canadian work experience necessary to obtain the licensing required to pursue a career in their professional field. Difficulties in having their credentials recognized and obtaining jobs commensurate to their skills and knowledge leads to stress on both the individual and their families.

5.6 Stress on individuals and their families

The devaluation of international engineers' foreign credentials and training can lead to traumatic emotional effects on immigrants and their families. As discussed by Bauder (2003), "[w]ith the loss of labour market status comes diminished social status" (p.708). According to the human capital perspective of learned effectiveness, education indicates the accumulated knowledge, skills, and resources acquired by an individual (Girard and Bauder, 2007). Therefore, the education of foreign-trained engineers structures their job opportunities (Girard and Bauder, 2007). Yet, the lack of recognition of immigrant credentials and training by employers strips these highly trained engineers of job opportunities and high wages. They lose human capital, resulting in a loss of social status.

According to Cheal, only forty percent (40%) of immigrants find a job within a year that corresponds to their qualifications (2010). The lack of job opportunities results in the wife and children within a household having to take on low-paying jobs (Cheal, 2010). Within a cultural context, many immigrant men are often the breadwinner and sole earner in their families. Not being able to find work is a degradation of their social status, as they are forced to rely on the incomes of their wife and children. A study conducted by Bauder (2003) discussed the experience of South Asian immigrants who are foreign-trained engineers. An employment counselor expresses:

I've had a lot of clients who are engineers...and they've had a lot of responsibility. And [they] feel very strongly that they shouldn't have to take a step down. They don't want to take a step down [because of their position] within their community here, as well as at home, and with their own husband or wife and children. I've had people say to me as well, "I don't want to get a job that's this [secondary labour] because what am I going to tell my children, that their dad is now, instead of being head of his company, is now a waiter in a restaurant? (p.709)

Placement in jobs far below their qualifications can lead to embarrassment for many foreign-trained engineers when facing their families and this leads to emotional stress. Initially, their intentions are to temporarily work these jobs until they find employment in line with their qualifications, but they end up in these jobs for many years since their economic obligations do not allow them to build their skills and qualifications (Newson, 2013). In addition, their skills may become outdated because they spend years working in survival jobs unrelated to their international training and experience.

5.7 Discrimination

Foreign-trained engineers may face discrimination by employers when looking for work, because they may be rejected a position due to their foreign credentials. Foreign-trained engineers have a right to fair treatment. Despite the economic necessity of immigration in Canada, it is evident that there are restrictions preventing immigrants from taking advantage their rights and freedoms. Discrimination against immigrants based on gender, origin, culture and class creates problems for workers. The FSWP encourages foreign-trained engineers to come to Canada for a better life and then the harsh reality strikes. Foreign-trained engineers are in demand and encouraged to come according to their education, experience, and job skills but once they arrive, these skills are undervalued. The Universal Declaration of Human Rights recognizes that "the

equality and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world” (United Nations, 2013). Each man and woman should not be denied his/her human worth or dignity. Canada signed this Declaration in 1948, and therefore must abide by the rights and freedoms (United Nations, 2013). Foreign-trained engineers who come to Canada should be entitled to their rights and freedoms regardless of their race, colour, language, national origin, and status as foreign-trained professionals. Yet, they are discriminated against based on their immigrant status. They do not have rights equivalent to those of native-born Canadians. A foreign-trained engineer coming to Canada and working as a taxi driver is not doing so out of choice, but desperation.

The Immigration and Refugee Protection Act was enacted in 2002 in order to promote immigration to Canada and grant refugee protection to those displaced, persecuted or in danger. Although the Act highlights important aspects and issues immigrants face in coming to Canada, the objectives are merely dreams if not properly addressed. The Canadian government created this Act to in fact promote immigration, but this does not solve the problem of discrimination. Application of the Act is supposed to promote both the international interest of Canada, enhance public awareness of immigration, and also improve the overall well-being of immigrants to Canada. Also, by applying this Act, the Government of Canada obeys international human rights instruments, follows the Canadian Charter of Human Rights and Freedoms and is supportive of and cooperative with the Government of Canada (Government of Canada, 2001).

As a country that claims to act humanely, the various barriers foreign-trained engineers face should be a concern to Canada. As previously mentioned, the Office of the Fairness Commissioner believes in supporting initiatives that can better the integration process of foreign-trained engineers both in gaining licensure and successful employment in their relative fields of work in Canada. As a whole, foreign-trained engineers may face challenges directly related to credential recognition and those resulting from a lack of credential recognition. In their attempts to successfully integrate into the Canadian labour market equivalent to their skills and training, they face challenges of credential recognition, financial barriers, lack of Canadian work experience, language barriers, emotional strain, and discrimination. The following section will discuss the primary research conducted for this paper.

Section 6: Empirical Study

6.1 Research and Design

The literature previously discussed helps to answer the first two research questions below. My empirical research aims to answer the remaining two questions (3 and 4). Overall, this major research paper aims to answer the following questions:

- 1) What are the key challenges faced by foreign-trained engineers in gaining licensure and finding successful employment in Canada?
- 2) What processes must foreign-trained engineers undergo in order to obtain the Professional Engineering License (P.Eng)?
- 3) Do bridging programs assist foreign-trained engineers to gain successful employment and licensure in their field of work?
- 4) What changes can be made to bridging programs and the processes foreign-trained engineers must undergo in order to eliminate the barriers they face?

Initially, this paper was expected to study various bridging programs for foreign-trained engineers in Ontario, with the hope of identifying the overall strengths and

weaknesses of these programs. Further, I was hoping to find the best possible model in successfully assisting foreign-trained engineers with their P.Eng licensure and successful employment in the engineering labour market in Canada.

Unfortunately, after various back and forth communication with multiple engineering bridging programs, I was unsuccessful in reaching out and receiving data of foreign-trained engineers post-completion of the bridging program. As a result, I resorted to focusing on primarily secondary research, with a short case study of the Ryerson University's Internationally Educated Engineers Qualification Bridging (IEEQB) Program. The IEEQB Program is organized by Ryerson University's Faculty of Engineering and Architectural Science to help foreign-trained engineers meet the academic requirements of gaining licensure in Ontario. It started in Fall 2007 and takes twelve months to complete. The first cohort graduated in Spring 2008. In order to be accepted into the IEEQB Program, applicants are expected to apply for the P. Eng license with PEO, submit copies of their transcripts, and have a bachelor's degree in an engineering discipline from a program recognized by the Canadian Engineering Qualification Board (IEEQB, 2014). The program tuition fees are the same as the fees for undergraduate engineering students, at approximately \$9,421 - \$10,198. The course load is dependent on the applicant and his or her engineering discipline. Participants of the program must complete between six and nine courses that are offered during the day between 8 a.m. and 6 p.m. from Monday to Friday.

Unfortunately, no data was available to the IEEQB Program regarding previous graduates and whether or not they had succeeded in gaining licensure and successful employment after completing the bridging program. After some deliberation, the

Administrative Coordinator of the IEEQB Program agreed to send out an anonymous survey (refer to Appendix B for survey questions) that I created for previous graduates of the program.

6.2 Findings

Table 1.3: Sample Description

Category	(n) # of Individuals
Number of surveys sent out	40
Number of responses received	12
Gender	
• Male	8
• Female	4
Age	
• 25-35	6
• 35-40	3
• 40-55	3
Country of Origin	
• Asia	1
• Europe	9
• Middle East	2

The IEEQB Program Administrator sent out the survey via email to forty (40) previous graduates of the program. Due to time constraints, I could not have the survey posted for longer than a month, and hence received only twelve responses. The majority

of participants were male. Furthermore, most participants were between twenty-five and thirty-five (25-35) years of age. The countries of origin varied. Respondents originated from Asia, Europe and the Middle East, which was the most common area of origin. Furthermore, half of the respondents arrived in Canada between 2011-2013, one individual had arrived ten years ago in 2004.

6.3 Barriers in attaining Canadian work experience

All participants stated they had difficulties in attaining Canadian work experience. Furthermore, eight participants indicated that the reason they have not received the P.Eng license was solely because they still need to complete the one year Canadian work experience requirement. Without Canadian work experience, these participants, similar to many other foreign-trained engineers mentioned in the literature discussed, are unable to complete the licensure requirements outlined by PEO.

When asked how employers treated the foreign qualifications of these foreign-trained engineers when applying for work in Canada, many participants had their applications ignored for unknown reasons. They did not receive any responses for employment, not even an interview. One individual stated, “surprisingly the hiring managers I talked to in various job fair events had no idea about [the] industrial engineering field. Also they didn’t look to be happy with my ‘non-Canadian’ degree.” Furthermore, participants stated that employers did not recognize their academic qualifications, which further increased the barriers in obtaining a job that could enable them to acquire one year of Canadian work experience. Without Canadian work experience these individuals are unable to receive the P.Eng license. Yet, due to the fact that they do not have Canadian work experience, employers refuse to hire them.

6.4 Financial barriers

Eight participants indicated that they were faced with financial difficulties. One participant stated:

I came to Canada 2 weeks after my graduation, I had to finish my bachelor in 7 semester because I was coming to Canada, so I had no professional experience. It took me awhile to find out about IEEQB program at Ryerson University and because the courses I was required to take was not being offered at the same time it took me 4 full semester to finish 7 course and obviously I was not eligible to apply for OSAP, and that put a great financial pressure on me.

Furthermore, all participants indicated that the bridging program was not flexible with their work schedules which made it difficult for them to attend classes. Also as one participant stated, “it was difficult to pay for university and living arrangements.” One participant indicated that he had to take care of his wife and children, he stated, “it is my goal to get my license but I have to earn a living for my family. But when I find a job in the engineering field I hope to fulfill my requirements and become an engineer in Canada soon.”

6.5 Language Barriers

Language barriers were another issue that the participants emphasized. Five participants indicated having difficulty with the English language. One participant stated:

I had difficulties in communicating in English. I had very nice classmates who helped me out but it was a huge stress that I could not express things that I already knew about the course materials.

Evidently, language difficulties made it difficult for this individual to participate fully in class. Another participant stated:

I could not understand some of the information in English. It was very difficult for me. Sometimes I did know what the teacher was saying but

because it was a different description in my country I thought that I did not know. It is very hard to come to a new country and not know the language used for engineers work. This does not mean I do not have the experience and education. I just do not know the explanation in English.

This participant indicated having difficulties in understanding the engineering terminology taught in Canada. The material was similar to what he/she was taught and had experience in back home, but due to different terminology in Canada, it was difficult to understand the material being taught.

6.6 Overcoming barriers

When asked how these individuals worked towards overcoming these barriers, ten participants stated that they had not fully overcome these barriers yet. Others stated that attending the bridging program was a stepping-stone in allowing them to overcome the various barriers they faced. Yet, some individuals were unable to pursue their dreams of an engineering career in Canada. One individual stated:

My English improved gradually but I was never able to find a job in engineering field because when I finished the program I already had a 5 year gap since I was graduated from engineering. I attended so many job fairs and I had a shocking finding, even managers from Toyota at Ryerson Engineering job fair had no idea what an industrial engineer is capable of doing. After 7 years from my graduation I am back to Ryerson University to pursue another degree, this way at least I have a recent "Canadian" education and have to hide my engineering degree that I don't be asked why there is this gap in my resume ☹ [emoticon in original].

Although foreign-trained engineers can access the IEEQB Program in order to overcome the various barriers they face, individuals continue to face barriers post-graduation. Unable to find jobs in their engineering fields, some individuals, similar to the one mentioned above, may pursue other careers and accept that they will never attain recognition and successful employment as a foreign-trained engineer.

Furthermore, most participants (8) were unable to work during the course of the bridging program, and those who did were in low-wage labour. All twelve participants stated that the bridging program was not flexible and they found it difficult to combine with their work schedules.

Section 7: Questions re: Bridging Program

7.1 Has the bridging program helped in gaining P.Eng License?

Only one participant had completed the licensure process and one participant had put the licensing process on hold due to family obligations. The remaining participants were currently in the process of gaining licensure. Of these individuals, over sixty-percent (60%) were one year into the licensure process through PEO, while others had just started. Another finding regarding the P.Eng License was that half of the individuals were unaware of PEO's requirements for licensure prior to arrival to Canada. A lack of information could be a significant barrier for these individuals, as they did not expect to have to go through these processes before arriving to Canada. One participant stated that knowledge about the accreditation process prior to arrival would have caused him/her to apply earlier and prepare for exams. Another participant said, "if I knew about the requirements to become an engineer I would apply to IEEQB years earlier and I would be working in intermediate now instead of being an undergrad student."

These participants expressed that the knowledge of licensure requirements prior to arrival would have helped them apply earlier and come to Canada prepared for the examinations. For one individual, knowledge of licensure could have assisted him/her in gaining employment earlier rather than having to return to school for another field of work. Furthermore, for those who have not completed licensure, all but one individual

stated that the need for one year Canadian work experience has placed a significant challenge in obtaining the P.Eng License.

7.2 Has the program assisted participants to gain successful employment in professional engineering fields?

As a whole, the majority of participants felt that the bridging program taught them something new, which could assist them in their journey to gain successful employment in Canada. One participant stated, “one of the courses I decided to take in industrial engineering was equivalent to two mechanical engineering courses at Ryerson, I learned about programming 3D printer and also build a simple climbing robot. I think that learning this could help me a lot when I find work as an engineer.” Other participants stated that they learnt about the engineering economy in Canada, specialized software that they had not used back home, ethics involved with engineering in Canada, and information regarding management in the engineering field. This was all information that they had not known prior to completing the bridging program.

Although all participants reported that the bridging program did not help them network with any individuals in their field, three of the participants did find employment in their field after completing the bridging program. One individual found work in his/her field of engineering immediately after completing the bridging program. Unfortunately, the remaining nine individuals were still working in fields unrelated to engineering as they continued to look for a job that will fulfill PEO’s one year Canadian work experience requirement.

7.3 How has the bridging program assisted in eliminating barriers mentioned in Section 6?

Sixty percent of the participants indicated that the IEEQB Program increased their knowledge in certain areas. Differences in education do exist in Canada, compared to other countries. For example, they learnt about specialized software they were not aware of in their home countries, the ethics involved with engineering in Canada, and were able to better their English speaking skills over the course of the bridging program. Unfortunately, financial barriers still existed for these individuals as they continued to work in survival jobs until they could find Canadian work experience. In addition, participants continued to feel that there was a lack of recognition for their foreign qualifications and the bridging program did not increase employers' awareness of the value of foreign credentials.

As a whole, the IEEQB Program has assisted the individuals in gaining knowledge that they did not have prior to attending the program, and assisted in diminishing language barriers. Yet, the bridging program did not assist in helping the foreign-trained engineers fulfill PEO's Canadian work experience requirement through an internship or placement, thus lack of work experience continues to be a barrier for these individuals to licensure.

7.4 How to improve the bridging program

First, it is important that staff turnover is brought to a minimum at the IEEQB Program. One participant stated:

There was not any one helping us find a placement during the first semester and when asking why that, the answer is that the person who was in charge has left the place! And no one to cover him! Anyways they got a new person on second semester who was helping to an extent and I really appreciated her effort, but she also left the place!

Another participant stated:

I was getting help from somebody who worked for the program but I was not told that she was leaving. When I went back to ask more questions, she was gone and nobody was in her place to help me.

For these participants, a lack of staffing along with turnover created difficulties. They were unable to seek advice and assistance when needed because no one was available to provide the necessary services. Although only two individuals expressed frustration regarding staff turnover, it is important that the IEEQB Program take note of this feedback in order to better assist their students.

Second, providing co-op placements for the students during or after completion of the program could have assisted them in networking, gaining Canadian work experience, and finding job opportunities. Networking is key within the Canadian labour market, as it is difficult to become successful without knowing individuals in one's field of work. Many of the participants felt that they were not given any networking opportunities. One individual stated:

The program did not meet my expectations. I expected to be recognized after attending Ryerson. Or be provided with some co-op/internship opportunities. But the industry liaison/administrator of the program just copy pastes the co-op/internship positions of Toronto Hydro which is all about electrical engineering and IEEQB students are not eligible for most of them (only 4-year program students are eligible), I still get her emails!

Another participant stated:

For a very short time there were two industry liaisons who truly put energy and effort in introducing and connection IEEQB students to the job market but they were not replaced ever after they left. Without the program being recognized by the Canadian job market, it is nothing but a passive 'continuing education' program. What is the point of spending two years and more than four thousand dollars and not finding a job?

Evidently, the program has made efforts in connecting individuals to the job market, yet they were not opportunities that these individuals could take advantage of.

Third, a more flexible schedule could allow students to work during the course of the bridging program. All participants found it difficult to work as the courses were available at times that conflicted with their work schedules. Therefore, having a more flexible course schedule would allow these individuals to get integrated in the labour market during the course of the program. One participant stated, “the hours these courses offered forced me to stop working since no employer would tolerate leaving work in the middle of business hours so frequently. I am not even able to take one course at a time since one course is offered different hours of the days in a week!” It is clear that an inconsistent course schedule results in frustration for these individuals and denies their ability to work.

Fourth, it is important that the program offers the assigned courses by PEO. One participant had to take more courses than necessary because Ryerson University did not have the exact match. A participant stated: “My 4 assigned course by PEO was expanded to 8 because Ryerson did not have exact match therefore I ended up paying more money that I didn't have.”

Lastly, participants suggested that the IEEQB Program make greater efforts in promoting the program in Ontario to encourage employers to recognize graduates of the program. One participant stated:

IEEQB has to hire some one to promote the program, puts energy and effort in making the Ontario (not saying the whole country!) know and recognize graduates of the program. This person has to have more capabilities than copy-pasting only Toronto Hydro job postings and has to be able to negotiate with industry partners to accept internationally educated engineers.

The IEEQB Program could negotiate with industry partners to accept foreign-trained engineers. As the program gains popularity, more employers will be attracted to its graduates.

Section 8: Limitations

Unfortunately, this study had various limitations. First, since the course of this research was over a single semester, the survey was only available for a short period of time. As a result, very few participants were able to complete the survey sent out. With such a small sample size, it is difficult to make conclusions regarding the IEEQB Program as a whole. In addition, the study was only limited to Ryerson University's IEEQB Program. Future research on this topic will conduct various bridging programs to help develop a framework that is best suited to assisting foreign-trained engineers in obtaining their P.Eng license and successful employment in their professional fields.

Section 9: Discussion

First, it was quite concerning to me to read feedback from a participant who indicated that he/she spoke to various hiring managers who were unaware of his/her engineering field. I also found it quite unfortunate that foreign-trained engineers feel that hiring managers do not seem pleased that they are not Canadian degree holders. For individuals who are completing the bridging program and making an effort to gain accreditation that is recognized in Canada, foreign credentials should not be a barrier for. Foreign credentials should not be reason for employers to reject foreign-trained engineers. In order to improve employment opportunities for foreign-trained engineers,

the Canadian government should encourage employers to accept of foreign credentials, especially when immigrants are making efforts to complete a Canadian education that can assist in their accreditation process.

Second, a solution for the IEEQB Program could be to tap into the job market. The IEEQB Program could have an agreement to assign individuals placements with different companies who are looking to find engineers to hire. Including an internship after completing the program could help these individuals network, gain Canadian work experience, and as a result ease into the job market rather than having to look on their own without any guidance after completing the program.

Third, if the IEEQB Program offered flexible schedules to students, many could work through the duration of the program. This can help reduce their financial barriers. Furthermore, offering a wider range of courses can save both time and money for students. Participants were frustrated because they had to take courses over a longer period of time because the courses they were required to take were not offered at the same time. Also, the courses that PEO required might not have been an exact match for some individuals, causing them to take on a larger course load. This results in more costs and time for these individuals, which many cannot afford since they are either not working or are surviving on low-wage jobs. In order to address this issue, the IEEQB Program should link with PEO and offer exact matches for the courses PEO requires for foreign-trained engineers. This way, they will be able to complete the program in a shorter period of time and incur fewer costs since they are already facing financial hardships and vulnerability.

Section 10: Conclusion and Future Action Plan

Overall, the increase in the immigrant population has a significant impact on the Canadian labour market. Many immigrants who come to Canada through the FSWP face various obstacles when looking for job opportunities due to their foreign credentials. As mentioned in this research, foreign-trained engineers are faced with language barriers, difficulties in achieving accreditation, financial barriers, barriers to Canadian work experience, discrimination and stress on individuals and their families. The emphasis on recruiting professionally trained immigrants to Canada is meant to sustain and benefit the Canadian economy and population. Therefore, it is important that the Canadian government take action in helping immigrants integrate into the labour market by recognizing their credentials and training.

In order to improve the conditions of these foreign-trained engineers, the Office of the Fairness Commissioner has taken positive steps towards providing better foreign credential recognition for professional engineers. It is evident that the bridging programs through Professional Engineers Ontario and Ryerson University provide a better avenue for foreign-trained engineers to gain accreditation to pursue their professional careers in the Ontario labour market. Previous graduates of Ryerson University's IEEQB Program indicated in the research conducted for this paper that they had faced the various barriers outlined in the literature. Participants continue to face barriers in obtaining Canadian work experience, language barriers, and financial barriers. Yet, the IEEQB Program is a stepping-stone to improving conditions for foreign-trained engineers. Although it is still a work in progress, the IEEQB Program provides a way for foreign-trained engineers to

upgrade their education and inform them about how they can be qualified; it provides them with a fair chance to become successful in their trained profession.

Furthermore, I hope to provide a future action plan that can assist foreign-trained engineers and provide them with a brighter future in Canada. My passion lies in helping foreign-trained professionals gain successful employment in their fields of work when arriving in Canada. I have created a future action plan with some of my own ideas which will be discussed below.

The single biggest barrier that all foreign-trained engineers face is finding Canadian work experience. Without finding Canadian work experience, these individuals are forced to take on low-wage jobs and may never gain licensure through PEO.

The FSWP advertises a high demand for foreign-trained engineers. Since the Canadian labour market is in need of these foreign-trained engineers, more efforts should be made to eliminate the barriers they face to gaining licensure and employment. The government now requires that applicants have their credentials assessed prior to arrival in Canada. Having their qualifications evaluated prior to arrival allows for applicants to avoid having to go through the processes and expenses to have credentials assessed upon arrival.

I believe there should be an information kit available to individuals applying to Canada regarding the licensure processes necessary. Half of the participants in the research survey were unaware of the licensure processes required by PEO until after they came to Canada. Increasing awareness of the procedures prior to arrival in Canada can help better prepare applicants and also benefit the Canadian economy, as they will be more employable upon arrival.

I also believe that the FSWP should tap into the Canadian labour market and identify which companies are looking to hire engineers. PEO should have satellite offices in the most common countries from which foreign-trained engineers are accepted. As a result, during the process of gaining acceptance through the FSWP, these foreign-trained engineers could attend the offices available by PEO in their home countries. This will prepare them for all examinations, increase their knowledge of technical terms in the field, and help better prepare them prior to arriving in Canada.

Upon arrival to Canada, these individuals will be fully prepared, ready to enter the job market in their field of work. Since the FSWP will be connected to the Canadian labour market, these individuals could be placed in these vacancies upon arrival and complete PEO's Canadian work experience requirement. Having already completed the necessary requirements outlined by PEO prior to arrival, the only requirement the individuals will need is to fulfill the Canadian work experience requirement. If they are placed in the job vacancies upon arrival to Canada, these individuals will have completed all licensure requirements within a year of arrival along with gaining work experience and increasing their networks. This will lead to a happier and more successful immigrant population, along with a more successful Canadian economy that takes advantage of the human capital that is brought into the country annually.

Appendix A

Changes to the FSWP by Ministerial Instructions

- November 29th, 2008: the FSWP applications were limited to the following three categories:
 - 1. Applicants who had arranged employment in Canadian
 - 2. Applicants who had experience in one of the eligible occupations
 - 3. Applicants who were students in Canada or temporary foreign workers
- June 26th, 2010: A maximum of 20,000 applications was set; a restricted list lowering the number of eligible occupations to 29 with lower sub-caps of 1,000 applications for each occupation; mandatory language testing
- July 1st, 2011: Maximum number of applications lowered to 10,000; lowered sub-caps for each occupation to 500
- November 5th, 2011: PhD stream created for FSWP
- March 30th, 2012: Former Citizenship and Immigration Minister announced to close the files for applications made before February 27th, 2008
- July 1st, 2012: A temporary pause on intake of new FSW applications
- May 4th, 2013: Pause lifted; intake maximum of 5,000 applications; restricted to lower number of eligible occupations (24) and lower sub-caps of 300 for each occupations; instituted minimum language requirements; mandatory foreign credential assessment instituted; lower maximum for PhD stream
- April 26th, 2014: intake maximum set to 25,000 applicants; eligible occupation list expanded to 50 occupations

Source: (CIC News, 2014)

Appendix B

Survey Questions

1. Gender
 - Male
 - Female
2. Age
 - 25-35
 - 36-40
 - 41-45
 - 46-50
 - 50+
3. What is your country of origin?
4. When did you come to Canada?
5. Please describe the barriers you faced as an engineer, once you arrived to Canada. (example: language difficulties, lack of Canadian work experience, financial difficulties, familial responsibilities, etc.)
6. How did you overcome these barriers?
7. How far have you come along in the licensing process?
 - Completed
 - In Process (Please indicate how many years into the process you are) _____
 - Not Started
8. Were you aware of Professional Engineers' Requirements for licensing prior to arrival to Canada?
 - Yes
 - No
9. If no, would knowledge of licensure requirement prior to arrival have helped you?
10. If you have not completed licensure , please indicate the reason:
11. What could have better prepared you to gain your Professional Engineering license?

12. Was not having a license a barrier for you to find successful employment?
- Yes
 - No
13. How did employers treat your foreign qualifications when applying for jobs in your professional field?
14. Where did you seek help with the licensure process?
15. Was the help provided beneficial in your process to gain licensure?
16. How did you hear about this Bridging Program?
- Family
 - Friends
 - Settlement Agency
 - Professional Engineers Ontario
 - Internet
 - Other (Please Specify)
-
17. Were you working during the course of your Bridging Program?
- Yes
 - No
18. If yes, what was your occupation?
19. Was your bridging program flexible enough to accommodate your work schedule?
- Yes
 - No
20. If you were not working, was it because the bridging program was not flexible enough with your work schedule?
- Yes
 - No
21. Did your Bridging Program provide you with an engineering placement/internship?
- Yes
 - No
22. If yes, was the work you were doing within the specific field of engineering you are trained for?

23. Did your placement/internship provide you with Professional Engineers Ontario's one year Canadian work experience requirement?
- Yes
 - No
24. If no, how did you fulfill PEO's one year requirement?
25. Have you currently completed Professional Engineers Ontario's one year Canadian work experience requirement?
- Yes
 - No
26. Did your bridging program provide you with help in networking with individuals in your field work?
- Yes
 - No
27. If yes, how?
28. Did you learn anything new in the Bridging Program?
- Yes
 - No
29. If yes, what did you learn?
30. Were you able to find work in your field after completing the bridging program?
- Yes
 - No
31. If yes, how much time did it take you to find work in your field after completing the bridging program?
32. Are you currently working
- Yes
 - No
33. If yes, what is your occupation?
34. Did the bridging program meet the expectations that you had prior to attending?
Please explain how.
35. How could the bridging program be changed to help you gain licensure and successful employment?
36. Please suggest how foreign-trained engineers could gain easier access to Canadian work experience?

37. Please provide any ideas you may have regarding improvements in the licensure process.

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