

Critical perspectives in a qualifications recognition programme for immigrant engineers in Canada

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ABSTRACT: Many countries, including Canada, the United States and Australia, are addressing labour market shortages in part through immigration of highly skilled workers. While internationally educated professionals hold credentials and experience that constitute a full professional qualification in their home country, they are faced with the task of validating these credentials in their newly-adopted country in order to achieve the right to practice their profession, including formal recognition of foreign credentials with regulatory bodies, informal recognition of work experience in engineering industry and developing cultural fluency. The Internationally Educated Engineers Qualification Program (IEEQ) at the University of Manitoba, Canada, provides a qualifications recognition pathway for internationally-educated engineers. This article reviews the Program model and outlines four critical perspectives embedded within the model. The Program components include academic requirements, an authentic practice experience, sociolinguistic language and communication development, and socialisation to the engineering profession. These components are imbued with critical perspectives that include a difference model, assimilation to the professional culture, principles of substantive equality and appropriate recognition for internationally-educated engineers.

Keywords: Immigrant engineers, qualifications recognition, foreign credentials recognition

INTRODUCTION

Many countries, including Canada, the United States and Australia, are addressing labour market shortages in part through immigration, and in particular, the immigration of highly skilled workers in the professions and trades. While internationally educated professionals (IEPs) hold credentials, experience and skills that constitute a full professional qualification in their home country, they are faced with the task of validating these credentials in their newly-adopted country in order to achieve the right to practice their profession. Increasing international mobility is afforded by the Washington Accord and the Bologna Process, which provide reciprocal recognition of academic qualifications between signatories to the agreements. However, IEPs also need to meet regulatory bodies' requirements in order to achieve professional status in their newly-adopted country and they need to make cultural adaptations as part of their professional integration and career development.

In Canada, regulated professions such as medicine, law, nursing and engineering require practitioners to be registered (licensed) with the provincial regulatory body in order to practice the profession. When IEPs immigrate to Canada, this legal requirement for professional registration is often unexpected and unfamiliar, as many IEPs arrive from countries where the university degree alone confers right to title and right to practice in a profession. IEPs confirm the need for more support in achieving qualifications recognition and professional licensing in Canada, citing difficulties in foreign credentials recognition and gaining Canadian professional experience as the two primary obstacles to full labour market participation [1][2].

Employers concur that the most important factors influencing IEPs' level of employment are prior related Canadian experience, occupation-specific language and communication proficiency, and professional licensure [3][4]. Qualifications Recognition encompasses the policies and programmes that seek to address the challenges and barriers that can keep IEPs' skills from being fully utilised in the Canadian labour market.

In this context, the Internationally Educated Engineers Qualification Program (IEEQ) at the University of Manitoba, Canada, was developed in 2003, in order to provide a pathway for formal recognition of foreign credentials for internationally-educated engineers (IEEs) to meet professional licensing requirements with the local engineering regulatory body, the Association of Professional Engineers and Geoscientists of Manitoba (APEGM). The regulatory body, APEGM, has always provided a mechanism for foreign credentials recognition for IEEs through the completion of

assigned technical examinations, and the IEEQ Program was developed as an additional option for IEEs seeking formal recognition of foreign engineering credentials and professional registration in Manitoba. In doing so, the IEEQ Program also sought a comprehensive scope, focussing not only on technical confirmation, but on additional factors that critically influence an IEE's opportunities for meaningful career development [5]. Over ten years, IEEQ has grown into an established Program actively working with 50 IEEs at any given time, focusing on technical and professional knowledge, skills and values.

IEEQ aims to deliver a qualifications recognition pathway for IEEs which is fair, time-efficient and comprehensive. The pathway aims to be fair, in that IEEs are given multiple and credible opportunities to demonstrate competency, in which the demonstrations are valid and authentic assessments of required professional knowledge and skill required for entry-level practice and, whereby, the IEE can meet APEGM's requirements for qualifications recognition.

The pathway aims to be time-efficient, in order to allow IEEs to achieve qualifications recognition and to enter professional practice in Manitoba as expeditiously as possible without undue delays in assessment, application, and admission processes, and undue length of programmes. Time-efficiency acknowledges that recency of past professional experience is an important factor in the ease with which an IEE can effectively enter professional engineering practice in Manitoba. The pathway aims to be comprehensive, allowing the IEE to recognise, understand, assimilate and demonstrate the scope of professional knowledge, skills and values required for effective professional practice in Manitoba, in a manner that reflects the unique requirements of a given IEE.

This article reviews the IEEQ Program model and highlights four critical perspectives that require consideration when developing and delivering qualifications recognition initiatives for IEPs. In general, very little academic literature exists regarding qualifications recognition for immigrant professionals, with some notable exceptions (for example [6-8]) and this work addresses the gap in the literature. Within the academic literature, discussions on the intersection of culture and engineering education are predominantly focused on preparing North American graduate engineers for professional practice in an environment of globalisation. The existing literature discusses how to prepare North American undergraduate engineering students with specific skills that will facilitate a career that may take them across national boundaries and/or working in virtual teams with professionals in other locations and other cultures [9-13]. While this body of literature is important for undergraduate education, it does not address the qualifications recognition issues that are important for IEPs and, in this case, IEEs.

THE IEEQ PROGRAM MODEL

The qualifications recognition process for IEEs in Canada begins with an initial assessment by the regulatory body in the respective province of residence, in this case, APEGM. APEGM's initial assessment is typically a verification of all educational credentials and a comparison of the foreign credentials to the scope of an accredited Canadian engineering degree in the same discipline. From this assessment, APEGM establishes a set of requirements specific to each IEE, generally articulated as a set number of national examinations.

The national examinations serve a confirmatory purpose and reflect the material taught at the senior-level of an undergraduate engineering degree. For those IEEs who choose to enter the IEEQ Program, the assigned examination requirements are, then, used to establish the academic requirements in IEEQ, which are tailored to each IEE's case-specific requirements in terms of number and topic areas of courses. The course requirements generally require one year of full-time study or equivalent. The formal purpose of the academic component is to confirm original academic preparation in the engineering knowledge and skills required for entry level practice in the profession. The academic component is delivered via courses in the regular undergraduate curriculum at the University of Manitoba.

The IEEQ Program includes a co-op work experience term of minimum four months' duration. The co-op term accrues academic credit and is a paid placement. The practice experience gained in the IEEQ Program allows IEEs to gain Canadian experience, a professional reference, the beginning of a professional network and critical exposure to the culture and values of the Canadian professional engineering workplace. Research has explored the relationship between an IEP's ability to recognise, understand, assimilate, and demonstrate the professional culture and values of the professional workplace to their overall professional integration and success [14][15].

In addition to an academic curriculum and co-op work experience placement, the IEEQ Program incorporates language and communication development for IEEs. This occurs in stand-alone language seminars and tutorials, as well as in-house language support for all parts of an IEE's curriculum. Finally, the curriculum includes support for IEPs' socialisation to the profession and support in assimilation to the culture and values of the profession in Canada. This task includes learning the professional scope of practice and learning the professional role in Canada. These two aspects are discussed in more detail in the next section, which explores the critical perspectives inherent in the IEEQ Program delivery. A more detailed overview of the Program development and Program components is outlined by the author [5].

Upon successful completion of the IEEQ Program requirements, IEEs receive the professional credential of the first licensure stage with APEGM and the academic credential of a Post-Baccalaureate Diploma in Engineering from the University of Manitoba.

CRITICAL PERSPECTIVES

All educational initiatives and qualifications recognition initiatives have a set of theoretical perspectives and beliefs embedded in their goals, practices and processes. These theoretical perspectives are shared by stakeholders and are intrinsically communicated to Program participants via day-to-day practice. For this reason, identifying these perspectives and beliefs is important. In IEEQ, the perspectives are *critical* in that critical theory is consciously political, concerned with questions of justice, and focused on emancipatory and democratic social change. Critical theory examines power relations and openly questions the values inherent in institutions and practices by articulating the underlying perspectives and assumptions. Common examples include feminist theories, disability studies and liberation theology. In addition to an explanatory role (explaining what is wrong with current social reality), critical perspectives are also practical (identifying actors to change current reality) and normative (providing clear norms for criticism and achievable practical goals for social change) [16][17].

Critical theory offers a little-used theoretical perspective when exploring issues of engineering education and professional engineering practice, which can complement existing theoretical perspectives and their concomitant methodologies and insights. For example, critical theory is concerned with the rejection of binaries. Traditional research questions such as, *what differentiates a successful IEE from an unsuccessful IEEs* are reframed to ask *how do IEEs define success?* or *how does the dominant community define a successful IEE?*

In this section, four critical perspectives are identified. Each perspective offers an alternative - and at times, opposite - perspective and a strong affiliation for one position is argued.

Difference is not Deficit

A difference model of qualifications recognition recognises that an IEE's starting point is already a position of strength. The IEE possesses professional knowledge, skills and experience from a non-Canadian jurisdiction, which comprise a full professional qualification in that jurisdiction and, which comprise a strong foundation to transition to professional registration and career development in Canada. In a difference model, programmes such as IEEQ serve to facilitate this transition by providing a vehicle for the IEE to demonstrate knowledge or skill required by the regulatory body and often, to develop profession-specific communication fluency, assimilate to the culture and values of the profession, and gain supervised or mentored professional practice experience. In this transitional process, programming will explicitly draw on the IEE's current knowledge, skills, professional values and experience states, while clarifying the required knowledge, skills, professional values and experience required for professional registration and career development in Canada.

In contrast, a deficit model of programming considers the IEE's starting point to be a position of deficit, lack or weakness. Existing knowledge, skills and experience developed in a non-Canadian jurisdiction are generally discounted. In a deficit model, programming takes a *start at zero* approach, assuming that most knowledge, skills and experience required for professional registration and career development have to be facilitated by the qualifications recognition programme or process.

The distinction between a difference and a deficit model is very obvious in day-to-day curriculum and Program delivery. A difference approach will be inquisitive, curious to understand each participant's existing perspectives and experiences, while drawing comparisons and contrasts to Canadian engineering practice. A deficit approach will often talk at participants, rather than working with participants. A deficit approach views participants as empty vessels, devoid of relevant knowledge and experience, and waiting to be filled with the knowledge and expertise of a Canadian practitioner. A difference approach views participants as individual nodes within a larger web, each with knowledge and experience that is more closely resonant with some of their IEE colleagues (adjacent nodes) than to others (more distant nodes) within the overall web, and each with some unique position on the web relative to the node that represents a Canadian understanding of the engineering knowledge, values and ethics. A difference approach encourages self-reflection.

Assimilation, rather than Integration

The stakeholders of qualifications recognition initiatives, including the professional practice communities of the respective professions (e.g. engineering industry and employers), government, the regulatory bodies of the respective professions, and programmes such as the IEEQ Program use the term *integration* when discussing qualifications recognition and career development of IEEs in Canada. Yet, day-to-day practices and priorities reflect a preference for IEEs' *assimilation* to the profession. In this context, assimilation encompasses the IEE's ability to recognise, understand, adopt and demonstrate the culture and values of the Canadian engineering profession in order to be effective in professional practice.

Explicitly differentiating between integration and assimilation is important, particularly within a social and political environment in Canada that values and promotes multiculturalism. Certainly, newcomers to Canada are encouraged -

and informed of their legal rights - to hold and express their cultural and religious practices in personal and social life (provided they do not contravene Canadian law). In contrast to the American vision of society as a *melting pot*, Canada has long used the metaphor of a *cultural mosaic*, in which individuals maintain and contribute their cultural individuality toward the richness of society overall.

While this notion is upheld and practiced in cultural and social life, the engineering profession in Canada, like other professions in Canada, does not necessarily see it as a professional obligation for the profession to create a *cultural mosaic* of professional values and culture through the integration of IEEs. Like other professions, the engineering profession expects that IEEs will shift and adjust their knowledge, skills, values and culture to fit Canadian practice norms and expectations. In this context, the profession has a role to support IEEs in this transition, but the professions stop short of embracing the expectation that the profession itself will significantly adjust its corporate knowledge and skills base, values or culture.

These critical perspectives of a difference model and assimilation are reflected in the IEEQ Program's approach to language and communication development and socialisation to the engineering profession.

Language and Communication: The IEEQ Program curriculum includes a strong emphasis on sociolinguistic language and communication development or language within the specific context of the engineering profession. Language (grammar, vocabulary, syntax) is only one element of communication and communication is further embedded in culture. Sociolinguistic language and communication development addresses self-representation: how to engage oneself and others. Notions of what constitutes a persuasive email, a productive face-to-face meeting, an appropriate demeanor with clients, and other professional communication tasks reflect what are deemed to be Canadian culture and values, but equally importantly, they reflect the culture and values of the engineering profession. Sociolinguistic language development addresses this latter aspect.

Sociolinguistic language and communication development takes an additive (difference) perspective rather than a remedial (deficit) view. The curriculum consciously acknowledging that IEEs are already multi-lingual and orients itself to authentic tasks within the profession's accepted norms. These include functional tasks such as resume or portfolio preparation, job-searching activities and communication tasks, job interview preparation, and communication tasks expected within the academic curriculum and practice placement. Offering opportunities for reflection and debriefing of communication tasks (e.g. debriefing of a job interview) is an essential element of sociolinguistic language development.

These perspectives on language are similar to the findings of a study motivated by a context similar to the IEEQ Program - that of increasing immigration to Australia, with preferential immigration selection criteria for skilled immigrants such as engineers [7]. The study investigated factors that influence immigrant engineers' language competency and abilities to (linguistically) navigate real-life situations in a professional context. The findings highlight the frequent underestimation or discounting of an immigrants' overall professional competence on the basis of their language proficiency, and that contrary to belief, simple exposure to an environment will not cause language or intercultural competence to emerge naturally. The findings similarly stress the importance of combining both language and cultural teaching in preparing IEEs to navigate professional contexts successfully, particularly those contexts with unpredictable elements (job interviews, client meetings, etc).

Socialisation to the profession in Canada: Professional assimilation acknowledges that the IEE comes with existing strengths and competencies - knowledge, skills, experience and insights - and the IEE's task is to recognise and understand how their existing professional culture and values align to the engineering profession's culture and values in Canada, and further, to assimilate to the culture and values of the profession in Canada. The IEEQ Program facilitates this socialisation in part through the course ENG 4020 *Professional Engineering Practice in Manitoba*. Topics include:

- Introduction to the engineering profession and professional practice: practice sectors, workplace environment, and nature and scope of professional engineering roles;
- Understanding of the regulation and organisation of engineering as a regulated profession in Canada in terms of its legislative basis, its governance, the regulatory body's mandate and admission processes;
- Exploration and understanding of cultural diversity and cultural differences and, in particular, how they manifest in a professional workplace in Canada, using work of Laroche as a resource [14]. Despite the title, the concepts apply across professions;
- Professional engineering ethics and engineering law in the Canadian context; and,
- Employment preparation topics, including employment search strategies, resume preparation, interview practice specific to the engineering profession in Canada and career maintenance.

Assimilation to professional culture and values is further facilitated in all aspect of participation in the IEEQ Program: interactions with Program faculty and staff, interactions other students, faculty members, and practitioners of the profession through planned networking and mentoring arrangements, and full engagement in the educational context and practice placement. Opportunities to provide authentic and meaningful interaction between IEEs and Canadian-born engineers are included in the IEEQ Program.

Substantive Equality rather than Formal Equality

The concept of equal opportunity is founded on the principle that individuals should be treated similarly, that artificial barriers should be removed, and that individuals have a chance to succeed or fail on their own merits and efforts. Equal opportunity is tied to the notion of meritocracy and is an inherent factor in social mobility. Yet, different viewpoints of equal opportunity exist, and substantive equality is different than formal equality.

Formal equality is a relatively narrow interpretation focussed on the elimination of direct and observable bias or discrimination. Formal equality applies the same rules and treatment to everyone, regardless of circumstance, and determines the rules and treatments in advance. Substantive equality is a broader concept than formal equality. It is also harder to achieve and considered more controversial by some. Substantive equality asserts that the starting point of individuals competing for a resource or engaging in a process may be unequal or unfair, and that it is necessary and just to address what is sometimes called *equality of condition*. Substantive equality aims to provide a genuine opportunity to all those who hold potential to become qualified for the opportunity, and asserts that providing additional training or support to those that are farther from the end point is desirable.

In essence, substantive equality assumes that the playing field is not level, and aims to bring participants to the same starting point by overcoming obstacles over which they had little or no control. In simple terms, formal equality may dictate that two girls both get a new dress in the same colour and the same size, as this is an objective way to be fair and equal toward the two children. Substantive equity would dictate that two girls, who may be of completely different heights, both receive a dress that fits them uniquely although it may be of a different size and style from one another, on the understanding that being equal is not necessarily being equitable.

Substantive equality is a principle recognised by the Supreme Court of Canada that permits *differential* treatment in an effort to realise *fair* treatment and a genuine equality of opportunity. In the area of qualifications recognition, this means that different assessment and recognition strategies for international applicants are legitimate and warranted for truer assessment results [18]. Over the long term, a failure to enact substantive equality carries high social and financial costs, as individuals are not able to participate in society and in the labour market to their highest potential. This also carries costs in social cohesion.

In regulated professions, the regulatory bodies have a legislative mandate to regulate and govern the profession in the best interest of the public. A primary role of the regulatory body is to ensure that only qualified practitioners are registered for professional practice. This is done, in part, by assessing the credentials of applicants for registration and determining whether the applicants' qualifications meet the accepted standards for professional practice. Much of the discourse in qualifications recognition is related to promoting and ensuring substantive equality in this gatekeeping function. This finds immediate application in the range of instruments and measures deemed acceptable and valid for authentic assessment of IEPs' knowledge, skills and competencies - both by the regulator and by the Program. While equality failures are rarely intentional, they are often embedded in, and perpetuated by, the stability of conservative professions such as professional engineering [6], in its well-intentioned institutions and in the long-standing, normative professional practices that have never been critically reviewed nor challenged.

Concrete examples of equality principles (or the absence thereof) can also be enacted in all aspects of Program delivery, from eligibility criteria for applicants, entry requirements (for example, relative to language proficiency), academic accessibility (the role of academic support, whether it is seen as being remedial vs. tutorial), and financial accessibility.

Substantive equality also plays a role in the policy discourse as it relates to Program development and support. To date, professions with demonstrated and consistent labour shortages are a natural target for qualifications recognition initiatives such as IEEQ. However, while professions may not experience a labour shortage directly, a profession may exhibit a lack of diversity in its labour force - in which the lack of diversity is incompatible with the diversity in the client base or the general population. For example, in areas of high immigration, a predominantly Caucasian and female workforce of schoolteachers may be teaching classes with high cultural diversity among the students. In this case, IEEQ and similar programmes enhance the diversity of the profession and further equity principles. Finally, even if no labour shortage exists - either directly or in relation to diversity - IEPs still benefit from IEEQ and similar programmes in terms of enhanced knowledge and skills for professional practice, an understanding of professional culture and values, and movement toward appropriate recognition.

Appropriate Recognition is not Under-recognition

IEEQ and similar programmes exist as a vehicle for immigrants' qualifications recognition and career development. Yet, programmes are by nature also a reflective process by which an IEP has multiple and iterative opportunities to self-assess their professional knowledge, skills and values against the Canadian requirements and norms within the respective profession. As such, some IEPs will come to recognise that they do not hold the knowledge and skills required to successfully transition to the profession in Canada or to successfully transition to the profession in Canada *at this time*. In the latter case, demands on an IEPs' time, financial resources, settlement stage, mental focus and emotional resilience may all contribute to their ability to successfully engage in IEEQ or similar programmes at a given time.

In the best case, IEEQ and similar programmes facilitate an IEPs' awareness of how they fit into the profession or allied professions in Canada, if different than their initial vision. For example, an IEE may participate in IEEQ and recognise that the scope of their personal engineering career in their home country is more closely aligned with a Certified Engineering Technologist in Canada, rather than a Professional Engineer. Similarly, an IEP may participate in a qualifications programme for nurses and recognise that the scope of their personal nursing career in their home country is more closely aligned with that of a Licensed Practical Nurse in Canada, rather than a Registered Nurse. Such an outcome is often viewed as under-recognition of IEPs. Yet, IEEQ and similar programmes offer the opportunities for self-assessment to occur by way of programme participation, and offer informed referrals to other avenues for recognition and career development (i.e. other regulators and/or other programmes). When enacted impartially, fairly, objectively and transparently, this process should be legitimately viewed as appropriate recognition rather than under-recognition of IEPs.

The outcome is that the IEP has a clearly-understood and viable pathway toward professional recognition and employment at the highest level possible, even if that recognition and employment differs from their initial vision. When the new understanding is higher than initial expectations, it is a motivating experience. When the new understanding is lower than initial expectations, it can facilitate peace of mind, a recognition that fair opportunities were offered, clarify aspirations, and facilitate referrals to other pathways for appropriate recognition.

CONCLUSION

This article has briefly overviewed the Program model used by the Internationally Educated Engineers Qualification Program, a qualifications recognition Program for internationally-educated engineers in Manitoba, Canada. The Program includes an academic component, practice experience, sociolinguistic communication development and socialisation to the profession. These components are developed around critical perspectives that include a difference model, assimilation to the profession, a principle of substantive equality and appropriate recognition for internationally-educated engineers.

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BIOGRAPHY



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