International Journal of Engineering Education Vol. 31, No. 4, pp. 927–937, 2015
Printed in Great Britain

0949-149X/91 $3.00+0.00

Social Capital Dynamics among Participants in a Qualifications Recognition Program for Internationally-Educated Engineers*

MARCIA R. FRIESEN
Faculty of Engineering, University of Manitoba, E2-262 EITC, Winnipeg, Manitoba, Canada, R3T 5V6.
E-mail marcia.friesen@umanitoba.ca

The support structure in a prototypical foreign credentials recognition program for internationally-educated engineers (immigrant engineers) was assessed via survey research with four cohorts of program participants (N = 100; n = 61). The study investigated program participants' experiences with and perceived value of a range of informational, academic, social, personal, and financial supports that the program had developed. The data also allowed for an exploratory interpretation of the dynamics when one cultural group (in this case, Filipino) greatly outnumbers all other cultural groups represented within the overall cohort. The framework of collectivism is used to explain the underlying motives and intentions of group behaviours, and the framework of social capital sheds light on intra- and inter-group dynamics that may not be readily apparent to group members themselves. The findings can serve as a guide to other qualifications recognition programs and to initiatives, regardless of jurisdiction, where culturally diverse cohorts are co-mingling in educational or professional practice settings.

Keywords: immigrant professionals; internationally-educated engineers; qualifications recognition; foreign credentials recognition; social capital; collectivism

1. Introduction

In 2013 and 2014, the support structure in an established Qualifications Recognition (QR) program for internationally-educated engineers was assessed via survey research. Prior work had examined the overall efficacy and value of the QR program as a whole [1, 2], and the current study investigated participants' awareness of and experiences with a range of informational, academic, social, personal, and financial supports that the program had developed. The data also allowed the researcher to explore another phenomenon, here called "a majority within minorities". This refers to a culturally diverse program cohort in whom one cultural group greatly outnumbers all other cultural groups represented within the cohort, and the potential concomitant social dynamics within the group.

The work represents a localized case study of the Internationally-Educated Engineers Qualification Program (IEEQ), a prototypical foreign credentials recognition program leading to professional engineering licensure in Canada. Attention is focussed on two aspects of interest in the case: assessment of the multi-dimensional support structure created for this particular profile of participants, and exploration of the "majority within minorities" phenomenon. The latter is interpreted within a conceptual framework of collectivism and social capital theory.

The work contributes to an understanding and validation of the supports required for internationally-educated professionals who have newly immigrated and are pursuing qualifications recognition in their profession, and the work can assist others working in this area in developing or assessing their own QR programs. This is of particular importance to countries and regions that rely on immigration to address labour market demands. By positioning the phenomenon of "majority within minorities" within collectivism and social capital, the work challenges the prevailing narrative of difference-as-deficit and furthers an understanding of the underlying dynamics of newcomers' decisions upon acculturation.

2. Background

Qualifications recognition programs are designed for internationally-educated professionals to meet the requirements for licensure in regulated professions. Canada relies on immigration of internationally-educated professionals to meet labour market demands in a number of regulated professions, including engineering, nursing, education, medicine, and dentistry. While QR programs lead to the professional outcome of recognition by the licensing body in the profession, they are typically delivered by post-secondary educational institutions. Generally, programs address academic con-

* Accepted 26 February 2015.

firmation of professional knowledge and skill, a labour market or work experience component, and acclimatisation to the culture of Canada and the culture of the profession in Canada. QR programs coincide with countries and regions that rely on immigration and may specifically recruit professionals for immigration in order to meet labour market shortages in regulated professions.

Qualifications Recognition programs are also known to be resource-intensive [3, 4], similar to experiences with Access programs for Aboriginal students in Canadian colleges and universities [5]. The staff-to-student ratios tend to be higher than in the typical undergraduate population in Canadian universities, and the types of supports and advocacy needed are different than the typical student advising available in Canadian undergraduate programs. For these reasons, QR programs are often asked to justify their program structure and associated resource needs. This work examines the use of and impact of the support structure developed in the IEEQ Program specifically, as part of administrative research into resource utilization.

A growing body of academic research is exploring fundamental principles of QR programs for internationally-educated professionals [3, 6–9]. At times, studies tend to be jurisdiction- and profession-specific, given that professional regulation is a provincial mandate in Canada and requirements vary between professions. Research that originates from public policy tends to focus on an enumeration of institutional capacity and program capacity and the quantitative outcome metrics associated with specific QR programs [10–12] rather than qualitative principles or philosophies of QR delivery. There is also a broader research base that examines newcomers' labour market outcomes and the quantification of newcomers' human capital [13–15], and an examination of critical perspectives and philosophies underpinning the QR field [16–18].

Very little research exists in the engineering education literature that specifically relates to qualifications recognition processes for internationally-educated engineers who have immigrated to a new jurisdiction and/or theoretical frameworks for understanding or interpreting the choices of immigrant engineers and what they need. In a review of the *International Journal of Engineering Education*, the *Journal of Engineering Education*, and the *European Journal of Engineering Education* from 2005 to present, three studies by other authors addressed the theoretical and practical impacts of cultural dynamics in an educational setting. In one, cultural factors were found to influence students' choices of university and study programs [19]. Another author discussed students' learning patterns in the computer science and engineering classroom as culturally-dependent, evident in students' cultural schemas of thinking and cognition as a social process [20]. In a third study, cultural dynamics of power distance, collectivism, and context were found to impact the relevance and robustness of the chosen data collection methods in a cross-cultural educational study [21]. Other studies in the engineering education literature that speak to cultural awareness and cultural impact are generally focussed on examining an educational initiative in an international setting (for example, [22]), the development of a 'global engineer' in the context of accreditation requirements and the globalization of engineering practice (for example, [23] and [24]), and international perspectives on engineering education research (for example, [25] and [26]). No existing studies were identified that dealt with the "majority within minorities" phenomenon.

3. Methodology

3.1 Study site

The study site was the Internationally-Educated Engineers Qualification Program (IEEQ) at the University of Manitoba, Canada. Participants in the IEEQ Program are newly arrived immigrants to Canada who hold engineering credentials (university degrees and engineering experience) from their home countries. The IEEQ Program, established in 2003, is a pathway for formal recognition of these foreign credentials with the licensing body for professional engineering in the jurisdiction. Newcomers with foreign engineering credentials attend the IEEQ Program in order to become licensed and thereby gain the right-to-title and right-to-practice professional engineering in Canada.

The program duration is 12–24 months depending on individual requirements and consists of academic qualification through senior-level undergraduate engineering courses, Canadian work experience through a co-op employment term, cultural integration support through communication & language development, cultural fluency development, and professional networking opportunities. Approximately 50 participants are enrolled at any given time in either their first or second year of studies.

The program is unique from traditional undergraduate engineering studies in several ways. First, IEEQ participants are typically 30–50 years old with a prior university degree, prior professional engineering experience, and life experience associated with immigration and age. Second, the program confers a professional credential (first stage of professional licensure) in addition to an academic credential (post-baccalaureate diploma in engineering) to successful graduates, and in doing so, is

assuming some responsibility delegated by the licensing body that regulates professional engineering in the jurisdiction. Third, the program foundation consists of a range of informational, academic, social, personal, and financial supports designed specifically for the unique profile of IEEQ participants. In this way, the IEEQ Program is strongly aligned with other QR programs for internationally-educated professionals, as well as Access programs for Aboriginal students at Canadian universities.

3.2 Participants

Data were collected from all graduates and current participants of the 2010/2011, 2011/2012, 2012/2013, and 2013/2014 cohorts of the IEEQ Program (referred to as IEEQ8, IEEQ9, IEEQ10, and IEEQ11, respectively, denoting the 8th, 9th, 10th, and 11th cohort admitted to the program since its inception in 2003). This represented exactly 100 individuals who were invited to participate in the survey, of which 61 responded.

The general profile of the participants in this study was as follows. Participants represented over 30 countries around the world. The top five countries of origin are Philippines, Ukraine, India, China, and Pakistan. Participants may be single (approximately 1/3) or married (approximately 2/3) and may be independent, supporting children, and/or supporting elderly parents. About 25% are women. Most have arrived in Canada 1–3 years prior to entering the IEEQ Program. All participants hold a bachelor-level engineering degree from their country of origin, with anywhere from zero to 20 years of engineering experience prior to arrival in Canada. The majority of participants do not have any Canadian engineering experience although most have Canadian work experience in non-engineering jobs (e.g. service industry).

3.3 Data

Data were collected via a detailed survey, consisting of over 50 multi-part questions and nine open-ended questions. Cohorts IEEQ8 through IEEQ10 were invited to participate in the survey in June 2013. Cohort IEEQ11 was invited to participate in the survey in June 2014. In all cases, the cohorts had completed at minimum one year of full-time participation in the IEEQ Program at the time of the survey.

Each part of each multi-part question was answered on a Likert-type scale, and the open-ended questions allowed for free-form text responses. Upon approval by the university's research ethics board, the survey was administered online and was structured to ensure anonymity of individual participants. The software was set to ensure that respondents' IP addresses were not captured. Data analysis consisted of descriptive statistics of the quantitative survey data, and thematic analysis of open-ended, qualitative data using the constant comparative method.

4. Findings

4.1 Survey findings

Key findings are summarized in Table 1 and discussed below.

Forty percent of respondents finished or intend to finish their program over one year total while 48% of respondents finished or intend to finish their program over a period of 18–24 months in total. The remaining 12% of respondents needed or anticipate needing more than 30 months in total to complete their program.

Twenty percent of respondents reported that they had completed their last university degree five or fewer years before entering the IEEQ Program. Fourteen percent of respondents reported that they had completed their last university degree six to 10 years before entering the IEEQ Program, and 66% of respondents reported that more than 10 years had passed between their last university degree and their entry into the IEEQ Program.

Just over 40% of respondents reported being employed while they were in the IEEQ Program, and one in four respondents reported working more

Table 1. Summary of Survey Findings

Survey parameter	% of respondents
Time to finish program: 12 mths	40%
Time to finish program: 18–24 mths	48%
Time to finish program: 30+ mths	12%
Elapsed time since last university degree: 0–5 yrs	20%
Elapsed time since last university degree 6–10 yrs	14%
Elapsed time since last university degree: 11+ yrs	66%
Respondents employed 0–40 hrs/wk while participating in QR program	42%
Respondents employed 15–40 hrs/wk while participating in QR program	25%
Awareness of QR program supports (Appendix A)	87% and higher
Use of QR program supports (Appendix A)	85% and higher
Perceived benefit/impact of QR program supports (Appendix A)	82% and higher

than 15 hours per week while they were in the IEEQ Program.

The survey asked participants to comment on each specific support provided (see Appendix A for listing), and to provide a separate rating for three separate aspects of each support: their awareness of the support, their use of the support, and the perceived benefit of the support. The survey then also allowed for open-ended responses to questions relating to participants' self-identified challenges in the first term of the program, challenges in later terms of the program, and participants' greatest misunderstandings or misconceptions of the program upon entry.

The survey findings indicated very high awareness (87% and higher), use of (85% and higher), and impact of (82% and higher) of most of the supports that the IEEQ Program has developed for its participants. All areas of support were deemed important by survey respondents. In each area of support, the survey findings nonetheless highlighted specific components that should be better promoted and/or assessed relative to relevance to IEEQ participants.

In the area of language and communication support, the ongoing inclusion of a full-time Communications Instructor in the IEEQ staff team is very highly affirmed. A significant concern of IEEQ participants is the financial impact of attending the program. This includes the direct costs of the program (tuition, textbooks, etc.) as well as the opportunity cost of lost employment income and the ongoing need to support oneself and usually family members as well. Thus, development of additional sponsored bursaries or scholarships for IEEQ participants was highlighted as a need.

Despite high levels of awareness among IEEQ participants of networking and career development support and mentorship opportunities, the use of these opportunities remains lower than other supports (75%). This coincides with IEEQ staff observation of the difficulties in communicating the role and importance of these activities to participants. Often, this is due to the markedly different nature of employment searches across cultures, the different meanings and objectives of networking in different cultures, and the different objectives that professional contacts serve in different cultures. Building an understanding of the Canadian meaning and importance of networking and mentorship opportunities is one aspect of cultural fluency [27] or cultural intelligence [28], which includes knowledge of cultural differences, skills to apply the knowledge in practice in new settings, and metacognition to effectively judge one's behaviour decisions.

The key challenges reported by survey respondents included adaptation to university studies and technical course demands after being away from studies for a long period of time, managing time amidst the combination of studies, family, employment and other commitments, and financial stress. In particular, respondents characterised the challenges of adaptation to university studies to include the need to refresh pre-requisite knowledge very quickly, relearning technical theory, adjusting to the role of being a student, adaptation to an unfamiliar teaching style and educational culture, and adjustment to courses were more difficult and had heavier workloads than anticipated.

Key recommendations from respondents centred on having IEEQ staff continue to provide ongoing information and reminders to participants throughout the program including advice, personal encouragement, and coaching on personal skills like time management and stress management, facilitating study groups, connections between 1st and 2nd year IEEQ cohorts, mentoring arrangements, and continuing to expand the financial and employment supports available.

The survey findings highlight importance of the multi-dimensional support structure created in the IEEQ Program to support participants' informational, academic, social, personal, and financial needs while they are participating in the program. The findings also support the existing research that finds QR programs to be resource-intensive, not only in the amount of resources offered but also in the type of resources when compared to traditional undergraduate education. The findings can provide guidance to similar QR programs assessing their own program delivery.

4.2 Exploring a "majority within minorities"

4.2.1 Background

In 2008, the licensing body for engineering of the jurisdiction made significant changes to the foreign credentials assessment processes for internationally-educated engineers, toward the objective of better consistency and transparency in the process. The changes meant that Filipino internationally-educated engineers who, with a few exceptions, had previously not met the eligibility criteria for the IEEQ Program were, as of 2008, eligible for the IEEQ Program. Given that Philippines is the top source country for immigration to the region, by mid-2014, 33% of all IEEQ program graduates and fully 50% of approximately 50 current IEEQ participants at any given time were from Philippines. In contrast, it would be unusual to have more than three participants in a given cohort who shared the same country of origin, apart from this particular group.

The survey findings allowed for an exploratory examination of whether the emergence of one

dominant cultural group within the IEEQ cohort (here termed a "majority among minorities") highlighted any differences in the uses of and needs for supports for this cultural group relative to the non-Filipino respondents. An additional objective was to see whether the survey findings correlated with observations of IEEQ staff that, while anecdotal, highlighted persistent in-group behaviour with both positive and negative consequences for the dominant cultural group within IEEQ relative to other IEEQ participants who were not from the dominant cultural group within IEEQ.

4.2.2 Observations

Since 2008, IEEQ staff observed very strong group cohesion among Filipino IEEQ participants that overshadows the group cohesion that develops between other participants who may also share a common language or cultural background. For example, a Spanish-speaking participant from Cuba may form a strong bond with a Spanish-speaking participant from Colombia, or a participant from Ukraine and a participant from Russia may develop a strong camaraderie. However, the bonds that form within the Filipino cohort exceed these prior observations of friendship and support among duos or trios of participants. Within the Filipino cohort, it manifests in a variety of ways, including:

- The number of Filipino participants in the IEEQ cohorts far outnumbers any other identifiable group of shared language or country of origin (50% of the current IEEQ participant cohort);
- Organized Filipino IEEQ study groups that meet on and off campus;
- Personal friendships that extend outside of school hours to organized group social activities among Filipino IEEQ participants;
- A closed-membership Filipino-IEEQ Facebook group;
- Mutual advising of Filipino participants to attempt to match one another's academic programs;
- Strong group loyalty and advocacy when one individual may be experiencing hardships. This may include lobbying IEEQ staff or course professors for leniency on behalf of a fellow Filipino participant; and,
- A strong network of information that is shared within the group but protected or withheld from others, particularly when related to job search information or resources.

One of the negative consequences of the strong social cohesion within the Filipino cohort is that IEEQ staff have observed and been approached by non-Filipino IEEQ participants who experience discomfort and at times, explicit exclusion from their Filipino IEEQ colleagues. As an example, non-Filipino IEEQ participants report exclusion from tables occupied by Filipino participants in the student lounge, exclusion from information that is held and circulated among Filipino IEEQ participants only, exclusion from Filipino study groups during school hours and after school hours, and seating in classes where professors don't actively manage seating arrangements. In most cases, the key concern is the missed opportunity for mutual assistance in studying and learning course materials.

To gain insight into these consistent and enduring observations, the survey results were also analyzed to discern whether any statistically significant differences exist in the responses of Filipino respondents vs. non-Filipino respondents.

Filipino respondents were identified indirectly by the number of courses that respondents indicated they were assigned in the IEEQ Program. Knowing the proportion of Filipino participants in the overall survey population and the number of courses assigned to Filipino participants in the overall survey population compared to non-Filipino participants, the Filipino participants can be indirectly identified in the survey with a certainty of 89% – 100%.

4.2.3 Respondent profiles

In the respondent profiles, there was no statistically significant difference between Filipino and non-Filipino respondents related to employment status and elapsed time since first engineering degree. The time-to-completion of Filipino respondents was statistically significantly higher than non-Filipino respondents ($p < 0.01$). This is expected, given that Filipino respondents are all or almost all assigned 10 courses (the maximum number) in the IEEQ Program, rather than six or eight courses.

4.2.4 IEEQ Support Structure

In the responses, there were no statistically significant differences between Filipino and non-Filipino respondents' awareness, use, and perceived impact of Information, Academic, Financial, and Networking and Career Development resources.

In the section on Social and Personal Support, Filipino respondents reported a higher positive impact of the use of the student lounge and a higher positive impact from the support provided by fellow IEEQ participants (both significant at $p < 0.10$) than non-Filipino respondents.

In the open-ended responses, certain themes were significantly more prevalent among Filipino respondents. Over 70% of the following overall responses originated from Filipino respondents, and Filipino respondents also provided 75% of the

overall responses related to misconceptions and false expectations they had about the program upon acceptance.

- Challenges related to time management, including time management in studies and managing the rapid pace of courses in the first term of the program;
- Challenges related to time management in relation to the combination of studies, family, employment and other commitments in the second and later terms of the program;
- Other challenges and difficulties related to managing one or more of program workload, employment, physical, and psychological factors (e.g. motivation); and,
- Misconceptions related to the difficulty of the courses and the workload, the difficulty of the program, and the guarantee of a co-op job.

Another strong theme in the survey results overall was that respondents overall felt the IEEQ staff are already "as supportive as possible" and that challenges "needed to be addressed within ourselves". However, 70% of these responses came from non-Filipino respondents, while Filipino respondents provided over two-thirds of the recommendations to IEEQ staff to help participants address their challenges. These recommendations included:

- Provide continuous information and reminders to students throughout the program, including advice and personal encouragement and coaching on personal skills like time management and stress management;
- Facilitating study groups, connections between 1st and 2nd year IEEQ cohorts, and mentoring arrangements;
- Expanding the financial and employment supports available; and,
- Adjusting structural, institutional, or regulatory requirements related to maximum number of course in the program, adjusting course schedules to add evening options, and offering all courses in the program for IEEQ participants only.

5. Discussion

5.1 Interpreting observations through the lens of collectivism

The group behaviour of Filipino IEEQ participants is consistent with the description of highly collectivist cultures, which includes Philippines. In collectivism, individuals view and identify themselves first and foremost as members of a larger entity. By contrast, in individualistic cultures such as Canada, people view themselves as self-contained entities, and independence and self-reliance are highly-valued characteristics. In individualism, society's interests of stable social and economic systems are thought to be best served when rights and responsibilities are lodged at the level of the individual. Individual interests and rights are respected, successes are owned by individuals (e.g. 'a self-made man'), and failure is assigned to individuals. In collectivistic cultures, the interests of the group dominate, successes and failure are owned by the group (e.g. 'one for all and all for one'), and the group members are encouraged to rely on one another for support (practical, emotional, financial, etc.) with strong group loyalty and enduring relationships. Society's interests are thought to be best served when rights and responsibilities are lodged at the level of the group, and achievements reflect well on the entire group. Likewise, failures reflect on the entire group (e.g. the family, work team, company, community). Collectivist teams or groups share a higher proportion of information internally with other members than is shared externally with non-team members, while individualist teams or groups share information in more or less equal proportions externally and internally [29, 30].

Like all cultural values, neither individualism nor collectivism is right or wrong. They are simply different ways of approaching the world, and each dictate appropriate behaviours in their respective contexts. Where collectivist people (Filipinos) enact collectivistic tendencies in an individualist environment (Canada)—or vice versa—the differences are noticeable. More importantly, the assigned intentions to the different behaviour can become problematic, due to difference in the underlying meanings of the actions in different cultures. Collectivist behaviour of 'loyalty' and 'support' to other group members can be interpreted by individualistic people as 'insular' and 'clique-ish'. Likewise, individualist ideals of 'independence' and 'personal responsibility', when manifest through action, can be interpreted by collectivist people as 'selfish' and 'uncaring' and disconnected from meaningful relationships.

Viewed through the lens of collectivism vs. individualism, the Filipino IEEQ cohort is acting appropriately for a collectivist orientation. However, the actions as they are played out in an individualistic environment are not being perceived positively. Although many non-Filipino IEEQ participants also come from collectivist countries prior to immigration to Canada, the disproportionate size of the Filipino IEEQ cohort appears to sharpen the contrast and impacts between collectivist and individualist orientations within the IEEQ Program.

5.2 Interpreting findings through a lens of social capital

Because of an apparent absence of research literature on the topic of a "majority within minorities", comparison to existing research was not readily available. A superficial interpretation of the findings relative to the Filipino IEEQ participants may imply that Filipino respondents tend to be less prepared and less realistic about the demands of the IEEQ Program than other participants, more likely to struggle with time management and balance of commitments during the program, and more inclined to place responsibility for remedy with the program staff rather than with themselves. However, such an interpretation plays into a prevailing narrative of difference-as-deficit or difference-as-deficiency, which this and others' work [16] also seeks to challenge.

Accordingly, the deeper cultural values need interpretation in order to generate alternative interpretations that do not assign negative characteristics of deficiency to one group on the basis of observed differences. Through a Canadian cultural lens, it appears that the internal support and cohesion among presumed Filipino IEEQ students comes at a cost to other IEEQ participants individually in the form of exclusion and a cost to the IEEQ cohort corporately in the form of fracturing into two groups—Filipino and 'Other'. However, there are also potential costs to the presumed Filipino IEEQ cohort when viewed through a framework of social capital.

Definitions of social capital are centred on the core idea that social networks have value and have an impact on individual economic participation. An individual's social capital is measured by their access to networks and their ongoing participation and acceptance in the network. As such, social capital reflects opportunity. Possible resources that members derive from the network include information, skills sets and status facilitated by group membership, and relationships of influence and support. Social capital's value is derived from two elements: the social relationship itself (and access thereto) and the amount and quality of resources made available by the social relationship. Inherent in social capital are norms of reciprocity and trust [31, 32].

Previous work has explored the integration of internationally-educated engineers into the Canadian engineering profession partially as a process of building social capital [33]. For example, access to an engineering workplace (through co-op work experience) facilitated by IEEQ is a significant form of social capital. Employment further facilitates an opportunity to develop professional relationships and to observe the mechanisms of social influence and mobility in the workplace. In the engineering profession, other indicators of social capital include engineers' awareness of and participation in professional networks and events specific to their industry or discipline, receiving or being sought for professional mentorship, invitations to participation on boards or committees, and familiarity with and personal connections to key organizations and key people in one's respective professional field.

Within social capital, four specific types of expectations have been theorized, two of which are claimed to be particularly clearly manifested in immigrant communities [34]. They are *bounded solidarity* and *enforceable trust*. Bounded solidarity refers to situational and reactive sentiments of the group, or situational circumstances that can lead to principled, group-oriented behavior, often arising out of circumstances of common adversities. Enforceable trust is an expectation within social capital in which individual members subordinate their present desires to collective expectations, in anticipation of advantages by virtue of group membership. While social capital is often held up for its individual and collective benefits, the negative potential functions of social capital including social control and restrictive gate-keeping, constraints on individual actions and freedoms, and intra-group leveling pressures to keep members of downtrodden groups in the same situation as their peers [32, 34].

Enforceable trust can be expressed as an either/or proposition: "You can be a part of this group or another group but not both, and we will sanction you if you leave this group". A prototypical example is that of immigrant communities in new countries and their reward systems for newcomers who turn to the community for all their integration and social support, and penalize (via isolation) those newcomers who prefer to act more independently and/or with the resources of the broader community such as immigrant-serving agencies. The larger and stronger the immigrant community, the more powerful this force can be.

Positioning this within a framework of immigrants' acculturation (Fig. 1) can help illustrate the dynamic tension that a "majority within minorities" has to navigate. Acculturation strategies can be considered along two dimensions which reveal four quadrants [35].

Enforceable trust and bounded solidarity can be overlaid onto this acculturation framework with the result that striving for the upper two quadrants—assimilation and integration—can have potential social capital costs within the home community. Newcomers navigate a dynamic tension not only in deciding on their position along the two axes proposed in the acculturation framework, but also

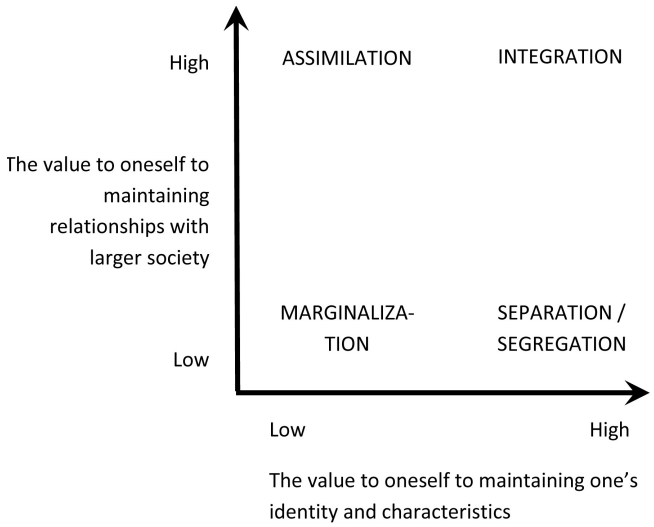

Fig. 1. Newcomers' acculturation strategies [35].

along a third axis denoting the value of maintaining relationships to one's home community within the larger society, where the home community may be of significant size.

Further qualitative work will investigate whether forms of bounded solidarity and enforceable trust are evident in the dynamic tension between the Filipino IEEQ "majority within minorities" of the larger IEEQ cohort. In particular, it is difficult for newcomer "majorities within minorities" to recognize the momentum they carry as a group, since the identity of the group is still grounded in the experience of being a newcomer and a minority in the larger community. Thus, the concerns of a "majority within minorities" are still directed toward overcoming adversities associated with qualifications recognition and overall inclusion in the new country. Given the significant personal and professional hurdles that this represents, it is reasonable to theorize that one's personal power and group momentum is not recognized. In a context like the IEEQ Program, a challenge for program staff is to facilitate and encourage the positive outcomes of social capital for all participants, while working to minimize the negative manifestations.

6. Conclusion

This work began as a localized case study assessing the support structure developed for internationally-educated engineers in a Qualifications Recognition program in Canada via survey research. The limitations of this study are primarily related to the small population size (N = 100). While the response rate was very good (n = 61), analysis remains by necessity limited primarily to descriptive statistics rather than more complex analyses of variable interaction. The generalizability of the findings should likewise be understood within this context. Nonetheless, the data did serve to generate findings of statistical significance, and serendipitously lent themselves to a preliminary exploration of the "majority within minorities" phenomenon. Further studies could be specifically designed to explore this more directly and extensively.

The findings of the survey supporting existing research on the resource-intensive nature of QR programs, both in the amount of support and advocacy needed and the nature and type of supports offered to participants. As such, the findings can serve as a guide to other QR programs relative to the supports from which immigrant professionals can benefit when pursuing qualifications recognition programs. The findings highlight which supports were identified by participants as having strong impact; this can also help guide resource allocation in programs that have limited resources and can help guide the order in which supports are developed in programs that are just beginning.

The data also allowed for an exploratory interpretation of the dynamics of Filipino program participants who represent a dominant cultural group within the overall program cohort, both within the Filipino cohort and relative to the non-Filipino participants. The framework of collectivism can be used to explain the underlying motives and intentions of group behaviours, and the framework of social capital can shed light on intra-group dynamics that may not even be readily apparent to group members themselves. Both areas can benefit from further research, given the absence of current research activity in the area. The traditional narrative on the immigration and professional integration of technology workers often assumes a smooth

transition, given assumptions about the generalizability and consistency of technical bodies of knowledge across cultures. Immigrant professionals themselves often underestimate the impact of cultural difference when relocating and re-entering professional practice in a new culture. This issue is particularly relevant in the context of increasing international mobility and migration afforded by the Washington Accord and the Bologna Process globally.

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Appendix: Supports Available to Internationally-Educated Engineers Qualification Program (IEEQ) Participants

IEEQ Program Information: IEEQ staff have developed various information formats for participants, focusing on providing program information that is timely, comprehensive, and plain-language. This includes

- IEEQ Student Handbook (policies & information) provided upon acceptance to the program;
- Financial assistance information provided upon acceptance to the program;
- IEEQ logbook to document academic advising, co-op employment search and professional networking provided prior to the beginning of classes.
- Individual guide sheets for claiming and using university web-based resources for registration, fee payment, schedule information, university email, etc.,
- Individual guide sheets outlining counselling and personal supports, childcare resources, and English language training resources for newcomers, both on campus and in the community;
- Weekly announcement emails from the IEEQ staff for the duration of the program.

All resources (except weekly announcement emails), are provided directly to each participant in both print and electronic formats and remain available on program web portals for the duration of their program.

Financial Assistance in the IEEQ Program consists primarily of referring participants to potential assistance sources for post-secondary students and for immigrant professionals undergoing qualifications recognition. IEEQ staff also provides administrative support, such as explanation of form-filling and providing confirmation of program status. Primary sources are:

- Provincial government funding for tuition and/or living support for internationally-educated professionals pursuing qualifications recognition;
- Provincial government student aid grants and loans (“student loans”);
- An independent micro-loan program established by a financial institution together with a community resource centre.
- Faculty of Engineering bursaries; and,
- Two IEEQ-specific bursaries sponsored by local employers.

Academic Assistance in the IEEQ Program includes:

- A program lending library of full textbooks and remedial texts in 20 technical areas (designed for remedial / refresher learning)
- Encouraging study groups with other IEEQ participants;
- Encouraging study groups with other engineering students (non-IEEQ), and providing advice on how to develop these connections;
- Coaching participants on the most productive use of office hours with the professors and teaching assistants; and,
- Referrals to sources of private tutors.

Networking and Career Development Support in the IEEQ program consists of:

- Industry tours organized specifically for IEEQ participants by IEEQ staff;
- Industry tours organized in other engineering courses;
- General-interest seminars organized for IEEQ participants organized by IEEQ staff to build awareness of engineering sectors;
- Weekly events with employers (informational and recruitment) organized by the Engineering Co-op/ Internship Program and the University’s Engineering Society;
- Preparation and coaching for the fall and winter career fairs on the university campus by IEEQ staff;
- IEEQ staff availability to review resumes, practice interviews, and coach on job search strategies;
- Referrals to University Career Services; and
- Discounted tickets to external events organized by the provincial engineering regulatory body, the consulting engineers sector group, the engineering student society, and similar.

Communications and Cultural Support in the IEEQ Program is centred on a staff member in IEEQ whose role is dedicated to this area of support. Activities include:

- Appointments with the Communications Instructor for general language and communication needs;

- Appointments with the Communications Instructor for assistance in communication tasks in engineering courses (written work, presentations, project team communication, etc.);
- Group sessions with the Communications Instructor (e.g. grammar tutorials);
- Appointments with the Communications Instructor to prepare for events (e.g. career fairs, job interviews, interview follow-up, networking events); and,
- Appointments with the Communications Instructor and other IEEQ staff to discuss problematic or confusing situations that arise during the program.

Social and Personal Support in the IEEQ Program includes:

- A program orientation day prior to the program start;
- IEEQ staff highly available for academic advising, cultural advising, and general advising;
- Mentoring opportunities with professors, Engineers-in-Residence, and others in the engineering community;
- Use of the engineering graduate student lounge;
- IEEQ social events during the program year (lunches, coffees, etc.); and,
- The support that develops between fellow IEEQ participants through shared experience and at times, shared language and culture.

Marcia R. Friesen is Associate Professor in the Faculty of Engineering at the University of Manitoba. She received her B.Sc. in Agricultural Engineering, Master of Education in Post-Secondary Studies, and Ph.D. in Biosystems Engineering. Her research interests include qualifications recognition for internationally-educated engineers, engineering practice, engineering culture, and engineering education. She also conducts research in computer modeling and simulation for healthcare applications as well as the development of ehealth/mhealth applications.