CAPE Submission on Bridging Skills Gaps between Internationally Trained Engineering Graduates and Employer Need
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The Council for Access to the Profession of Engineering (CAPE) – formerly the Coalition for Access to Professional Engineering was launched as an independent membership-based association of Internationally Trained Engineering Graduates (ITEGs), engineering technicians and engineering technologists in Ontario on October 16, 2004.

At present CAPE is undertaking the 'Engineering Access' Action Research Project, funded by Canadian Heritage, Human Resource Skills Development Canada (HRSDC) and in-kind contributions by its members.

An on-going survey of Internationally Trained Engineering Graduates (ITEGs), engineering technicians and engineering technologists in Ontario under this project shows that out of a sample of 709 participants surveyed between May and December 2004, over 50% are unemployed, 30% are under-employed or in non-engineering related occupations and only 17% are working in the engineering field although only less than 5% of them are licensed.

Having analysed our focus group and survey data, CAPE has determined that access to engineering employment by Internationally Trained Engineering Graduates (ITEGs), in Ontario, both in terms of licensing and employment, is dictated by the requirement for 12 months 'Canadian Experience' under a previously licensed engineer.

Our research shows that the Ministry of Training, Colleges and Universities, Access to Professions and Trades Unit (APT), has and is continuing to support a range of partnership initiatives, including support for bridge training projects, to assist qualified immigrants to employ their skills more quickly in the Ontario economy. Innovative bridge training models are expected to develop ways for key stakeholders – employers, occupational regulatory bodies and educational institutions – to assess existing skills and competencies and provide training and workplace experience, to help people move quickly into the labour market without duplicating what they have already learned elsewhere[1]

Under the 'Engineering Access' project, efforts are being made to engage employers the exercise of developing a database that will generate information on the skills gap between what skills employers need and skills that ITEGs actually possess to better understand labor market supply and demand in the engineering workforce in Ontario.

The purpose of this submission is to share the history of our employment outreach research and a recent pilot survey of employers. In particular we would like to focus on the skills 'gaps' that needs to be bridged to integrate internationally trained engineering graduates into the Ontario engineering workplace and profession.

CAPE was first established as the Coalition for Access to Professional Engineering in 1994 with the assistance of Skills for Change. Subsequently, in 1997, Skills for Change instituted the STIC (Sector Terminology, information and counseling) employment preparation program to assist newcomers in the fields of Engineering, Accounting, Health Care and IT. This program provides comprehensive information on certification and licensure, sector regulations, and labor market trends to help newcomers develop realistic action plans to enter their professions in Canada.

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[1] Opening doors for internationally trained individuals, Ministry of Training, Colleges and Universities website link http://www.edu.gov.on.ca/eng/general/postsec/openingdoors/apt/bridge.html

Through detailed occupational profiles, participants are expected to assess their skills and background against the competencies and requirements necessary to practice their profession in Ontario. Participants in this program are assisted with job search through individual counseling, employer outreach, and a post-program follow-up networking Group. Unfortunately only something less than ten percent of the participants actually find a job placement in their field of training through this program.

In 2000, CAPE initiated a survey to investigate employer interest in co-op bridging programs (including bridge training and work experience placements). CAPE independently approached 25 employers selected from the Consulting Engineers of Ontario directory for this survey. Employer responses to this survey were as follows:

- Smaller companies were not interested because they did not have enough work
- The contact would respond only if they were either Foreign Trained Professionals themselves or had knowledge of Foreign Trained Professionals working within the company
- Insurance coverage during placements was considered an issue
- They would not want to train someone if it was taxing on their time and resources

A positive outcome was that Ontario Hydro approached CAPE and Skills for Change to form a partnership with the objective of helping candidates applying for licensure with PEO to obtain the required Canadian experience. By June 2000, 2 engineers were placed with Ontario Hydro through Skills for Change which acted as a screening agent. However the program ceased thereafter.

The Ontario Society of Professional Engineers in partnership with PEO (the regulatory body), and other groups including CAPE developed the Pathways employment experience program for internationally trained engineers. It was expected to help applicants gain the necessary 12 months' Canadian experience required for licensing and intended to "bridge the Canadian experience gap" identified as a major hurdle for foreign applicants[2].

Only those internationally trained engineering graduates who had fulfilled all the requirements for licensure except the one year Canadian experience were qualified to participate in the program. The program offered participants six weeks of in-class training followed by a one-year paid job placement. The one-year job placement was to pay a minimum of $600 a week and designed to give them the experience necessary to qualify for licensure as professional engineers in Ontario. Of the first two batches comprising 29 internationally trained engineering graduates, who initially paid about $3,500 each for the six-week in-class course, 16 were placed in engineering jobs that were not necessarily commensurate with their skills and training. OSPE failed to find placement for the balance. The feed-back from the 16 who found placements has not been known although CAPE is aware that some of these engineers did not go through the full one year placement while another was laid off soon after obtaining his license.

CAPE is undertaking the 'Engineering Access' project to enable ITEGs to access the engineering profession in Ontario by documenting barriers faced by them and understanding how engineering in Canada compares with engineering in many parts of the world from which ITEGs are coming. The objective is to fully understand the gaps between the qualifications, skills and attributes of ITEGs in comparison to engineers in Ontario as this presumably forms the basis for the bridge training programs. It would also demystify the term 'Canadian Experience' for the ITEGs.

In order to establish this skills 'gap', the national occupations classification (NOC) was identified as a useful index against which to develop this comparison. Using the NOC information, CAPE developed an understanding of the functional levels, commensurate skills and attributes (soft

[2] http://www.regulators4access.ca/html/bridgprog.htm

Skills) required within this classification under the 213, 214, 223 and 224 codes assigned to the engineering, engineering technicians and technologist occupations.

CAPE first prepared a survey questionnaire to collect data on the skills, education and experience attributes of Internationally Trained Engineering Graduates (ITEGs), engineering technicians and engineering technologists in Ontario. This questionnaire has been answered by over 700 Internationally Trained Engineering Graduates (ITEGs), engineering technicians and engineering technologists in Ontario. The survey data provides a general understanding of the participant's country of origin, fields of specialization, education and qualifications, previous employment and experience, employment status and experience since arrival in Canada

CAPE then designed a questionnaire to collect parallel data from the mainstream engineering fraternity on the qualifications, skills and attributes of those working as professional engineers, engineering technicians and engineering technologists in Ontario. The first version of a pilot questionnaire contained in Appendix 1 was designed with the intent of determining the nature and extent of the skills gap. Starting with a clear preamble stating the purpose of the questionnaire, this sought to collect data on the survey participant's academic profile, professional development highlighting skills developed, experience, workplace culture in Canada and language of instruction /use. The objective was to enable the ITEGs to better understand how their educational and professional background relates to the mainstream Canadian engineering community. The idea was to profile how skills developed at each stage by the Canadian engineer related to career development and also the proficiency in English (or French) and knowledge of North American business practices to enhance the ITEG understanding of their needs regarding language and work place culture.

Initial attempts to reach the employed professional engineers in Ontario were rebuffed so a recruiter reflective of the mainstream Canadian engineering population was brought on board to assist with the survey. The recruiter did elicit a response by 50 engineers holding professional engineering positions across a number of engineering disciplines but the response was that our questionnaire was intrusive and extensive in its form in addition to the following:

- There was resistance to filling forms
- The response was only obtained after a telephone call
- Open ended questions did not work
- Majority of those responding were not keen to answer the questionnaire
- The Questionnaire was considered too lengthy
- The respondents didn't see benefit to them, their job or their industry
- Hiring Managers do not see immigrants as being their problem
- Immigrant expectation was not defined

Taking the above concerns into consideration the questionnaire was refined in collaboration with the recruiter to make it short and non-intrusive. This version of the questionnaire is contained in appendix 2. The recruiter then contacted another 100 engineers directly to interest them in the survey. Again as among the initial survey group responses were negative. The main comments this time round revolved around advice that CAPE should concentrate on what ITEGs needed to do to get into the job market. A typical comment is reproduced below:

'The survey is very confusing. In fact, its bloody silly! …… The response requested is meaningless. Who cares what degrees the recipient has? You only want to know whether he/she will hire foreign engineers. Or is this a scam to get info on engineers for future headhunting? (That would be my perception if I didn't know better.)

A survey really needs to be addressed only to CEOs, senior managers or HR managers at engineering and other firms hiring lots of engineers,

not engineers in general. Surely, the target is to get companies to respond on their policies towards foreign-trained engineers, what they feel about them, do they have any problems regarding their hire, what can be done to improve matters, who in their firms do the hiring, how many foreign-trained engineers do they have, what has been their experience with them, and do they intend to hire more? It needs to raise engineering companies consciousnesses about foreign-trained engineers and induce them to better consider hiring them. If CEOs set policies mandating no discrimination towards foreign-trained engineers it can only improve matters.

The para that the British recognize more foreign degrees than the PEO is irrelevant and only tends to raise questions in recipients' minds as to CAPE's credibility. CAPE should be setting a meeting with the PEO's person to determine that organization's position and if they don't like that position, lobbying PEO board members to get it changed. It should then use what it finds out to prepare a survey of all Canadian PEOs and the national body, soliciting help with addressing the problem.'

At this stage, CAPE held an intense brainstorming session with two recruiters and three CAPE members. It was decided that the recruiter would develop a third questionnaire since he had a better understanding of the engineering employers. The questionnaire was then modified taking into consideration the above concerns and was composed of even less and non-intrusive questions. The questionnaire that the recruiter developed is contained in Appendix 3. Once again over a hundred engineers were contacted to participate in the survey. According to the recruiter's report, responses were received to this third questionnaire from only 9 (less than ten percent of the sample) engineers.
We have to conclude that employers are highly resistant to any survey that is ITEG driven and that seeks to establish skills, experience and other attributes that exist in the mainstream engineering fraternity of Ontario. They are slightly more open to participate in a survey that directly relates to assessing immigrant education, skills and attributes within the already recognized framework of licensing, job-search and networking, language and presentation that have been the subject of much of the literature and anecdotal articles previously if they are internationally trained or educated themselves.

Subsection 33(1) of Regulation 941/1990 made under the Professional Engineers Act states:

The applicant shall demonstrate that he or she has obtained,

i. a bachelor's degree in an engineering program from a Canadian university that is accredited to the Council's satisfaction, or
ii. Equivalent engineering educational qualifications recognized by the Council.

And 48 months of engineering experience, including the requirement[3] that the applicant:

'….must acquire at least 12 months of acceptable engineering experience in a Canadian jurisdiction under a licensed professional engineer (P.Eng.). This experience must be in addition to that obtained at the pre-graduation stage and/or toward a postgraduate degree'

This has two implications:

[3] Guide To The Required Experience For Licensing As A Professional Engineer In Ontario Published by Association of Professional Engineers of Ontario Revised January 2002

- The licensing process relies totally on the principle of equivalency. While the academic credentials assessment process is time consuming and cumbersome, it has at least the merit of an established equivalency measurement tool in the form of public documentation of the requirements and confirmatory and specific examinations - 'The ARC (Academic review committee) may prescribe a technical examination program, if it determines that an applicant's academic preparation does not meet PEO's established standards.'[1]
- The same cannot be said for the experience assessment. If three of the four years of international experience is recognized as equivalent to the alternative of three years local jurisdictional experience in Canada, why can four years not be equivalent? Presumably the internationally trained engineering graduate is expected to achieve a definite body of 'skills' through the12-month in Canada experience required under a licensed engineer so that this cannot be satisfied without securing employment under a licensed engineer nor can it be substituted by a Canadian postgraduate degree effectively putting the ITEG totally at the mercy of those who have been previously licensed by PEO. Is the fulfillment of the 12-month Canadian experience a reflection of the personal competence and global knowledge (or not) of the PEO licensed individual?

What the CAPE membership is seeking is an effective strategy to understand and attain the skills that will meet the PEO requirement for the twelve month 'in Canada' experience. The first partner for this has to be the PEO licensed engineer who has to define and provide this experience against a through understanding of the skills that that the ITEGs already possess. How will this be achieved if this fraternity will not engage with the ITEGs as illustrated by our experience detailed in the present document? We therefore request a separate meeting with you Ministry to discuss our 'constructive engagement 'approach and support for this to overcome the barriers that ITEGs experience in accessing licensing and employment in the Ontario engineering workplace.

APPENDIX 1: ORIGINAL QUESTIONNAIRE

APPENDIX 2: MODIFIED QUESTIONNAIRE

APPENDIX 3 - FINAL QUESTIONNAIRE #3

APPENDIX 4 – ANALYSIS OF RESPONSES TO QUESTIONNAIRE # 3

Table 1: Responses To Employer Questionnaire # 3

Question	Response		Comment
	Yes	No	
1. Would you consider hiring an ITEG?	9	0	
2. Would you consider hiring an ITEG with a P.Eng?	9	0	
3. Would you consider hiring an ITEG without a P.Eng?	9	0	
4. Does your company provide professional development courses?	6	3	
5. Does your company provide ESL courses?	0	9	
6. Does your company provide technical training courses?	7	2	
7. Do Human Resources drive the hiring process?	3	6	
8. Do project managers drive the hiring process?	7	2	
9. Do you post jobs on your corporate website?	7	2	
10. Do you advertise in trade magazines?	3	6	
11. Do you advertise in newspapers?	5	4	
12. Do you advertise on job boards?	7	2	
13. Does your company have an employee referral policy?	6	2	I did not answer
14. Do you use recruitment agencies?	7	2	
15. Does your company work in Canada ?	8	0	1 did not answer
16. Does your company work in North America?	6	1	2 did not answer
17. Does your company work internationally?	6	3	
18. Does your company hire international engineers from the countries where you do business?	7	2	
19. During the interviewing process do you emphasize:			
• Membership of Associations (PEO)?	3	6	
• Postgraduate education?	5	4	
• University education?	7	2	1 did not answer
• College education?	6	2	
• Technical training?	7	2	
• Specific Project experience?	9	0	
• Specific hard skills (software programs)?			
i. Written?	9	0	
ii. Presentation skills?	8	1	2 did not answer
iii. Designation	6	1	

20. Have you taken ESL? If How old were you when you took ESL? • Child? • Adolescent? • Adult?	3 2 1	6	
21. If English is your second language do you feel the challenge of language skills has held you back in your career advancement?	1	4	4 did not answer
22. How do you rank your communication skills: • Excellent? • Good? • Fair?	 6 2		 1 did not answer
23. How do you rank your written reports : • Excellent? • Good? • Fair?	 6 1 1		 1 did not answer
24. How do you rank your design reports: • Excellent? • Good? • Fair?	 5 2 1		 1 did not answer
25. How do you rank your presentation skills: • Excellent? • Good? • Fair?	 4 3 1		 1 did not answer
26. Do you think English writing courses for ITEGs with an emphasis on engineering would be helpful?	9	0	
27. Do you think communication courses for ITEGs with an emphasis on engineering would be helpful?	9	0	
28. Do you think that an accent reduction course for ITEGs with an emphasis on engineering would be helpful?	3	6	
29. Do you think courses for ITEGs on policies and guidelines in Ontario would be helpful?	6	3	
30. Do you think courses for ITEGs on policies and guidelines at the Federal level would be helpful?	6	3	
31. Do you think courses for ITEGs on policies and guidelines at the municipal level would be helpful?	4	5	
32. If the United Kingdom selection process met your professional standards would you be willing to expand your hiring criteria?	4		5 did not answer
33. Do you think utilising the United Kingdom's selection process may be reasonable for the PEO?	4		5 did not answer.