Foreign-Trained Dentists’ Perceived Knowledge and Skills After Graduation from a Structured Two-Year Program


Abstract: In this survey study, graduates of the University of Western Ontario program for foreign-trained dentists from 1999 to 2009 were asked for their perceptions of their knowledge and skill in fourteen clinical topic areas before they were admitted to the program and after graduation. Their ratings were made on a ten-point visual analog scale divided into three aptitude domains: competent, proficient, and master/expert. Definitions of each domain were provided. The majority of the respondents felt that their knowledge level improved at least one aptitude level in only four of the fourteen (29 percent) topic areas but that their skill level had increased at least one aptitude level in nine (64 percent) topic areas. Of note, clinical topics with content reflective of North American dental practice such as oral medicine and treatment planning, ethics, regulated dentistry, record keeping, and informed consent were the topic areas in which most respondents reported an improvement in both their knowledge and skill. It is suggested that programs evaluating or providing gap training for internationally trained dentists consider mandatory inclusion of these topics.

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There is a widely held opinion in Canada that graduates of many non-North American dental schools do not meet the minimum standards in one or more academic or clinical disciplines and thus should not be directly certified by Canadian Dental Regulatory Agencies (DRAs). Responding to increasing pressures from dentists who have immigrated to Canada, a perceived need for more dentists in underserved areas, and the desire to provide fair employment opportunities for all citizens and landed immigrants, organized dentistry reacted by establishing formal educational programs for foreign-trained dentists.

The University of Western Ontario (UWO) program, formally called the Qualifying Program, was renamed the Program for Internationally Trained Dentists (ITD) in 2006. It is a two-year training course for dentists who have graduated from a non-accredited four-year dental program. To qualify, candidates must have proof of Canadian citizenship, demonstrate English language proficiency (TOEFL, MELAB, or IELTS), complete and pass the Eligibility Examination under the aegis of the National Dental Examination Board (NDEB), and complete a Prior Learning Assessment (PLA) developed by UWO. The purpose of the PLA is to determine which candidates, over a two-year period, would be most likely to attain competency levels equivalent to that of students in the four-year dental program. Although the format and content have changed over time, the university has consistently incorporated a PLA into its admission requirements. An in-person interview is also a requirement. Upon successful completion of the two-year program, the candidate is eligible to write the NDEB examination; if successful, the candidate, upon application, will receive certification from a DRA and subsequently hold the same practice privileges as a graduate of a Canadian dental school.
The first ITD class was enrolled at UWO in 1997, and in 1999 the Commission on Dental Accreditation of Canada gave the two-year UWO program full accreditation. Boorberg et al.¹ have published a comprehensive overview of qualifying and degree completion programs offered in Canada and the United States. It is fair to say that the concept, development, and implementation of these programs represent a successful cooperative effort among organized dentistry, the DRAs, and the universities. Today, approximately eighty positions per year are offered at Dalhousie University, University of Montreal, McGill University, University of Toronto, University of Western Ontario, University of Manitoba, University of Alberta, and University of British Columbia.

Although accreditation approval by the Commission on Dental Accreditation requires that the ITD program embrace two full academic years, opportunity is provided to present material unique to the ITD students. These special courses are usually given in the summer before the first fall term and are designed to upgrade students’ clinical skills that the faculty felt were deficient as assessed by both the PLA and experience derived from previous ITD classes. Whether these actually matched the perceived needs of the students has yet to be tested. Therefore, the purpose of this research was to better understand how the students in the UWO ITD program perceived their clinical knowledge and skills prior to entry into the program and after completing it.

**Method**

The decision to restrict the survey to the graduates of only one university (UWO) was based on the fact that each dental school with an ITD program develops its own entry standards. Although the junior and senior year curricula for most schools are similar in course content, they are not exactly the same; therefore, the remedial programs designed for the ITD are different.

An e-mail survey was chosen rather than personal contact to maximize confidentiality, minimize cost, and provide ease of completion. A commercial online survey tool (SurveyMonkey) was selected to assist in survey design and collation of the results. Respondents were not identified by name. The research was approved by the University of Western Ontario Health Sciences Ethics Review Board.

Contact was made with all graduates of the UWO ITD program from 1999 through 2009 by using the e-mail listings in our alumni database. A message was sent to all graduates indicating that they would be contacted by the dental school and asked to participate in a survey soliciting their perceptions of their skills and knowledge before entering and after graduating from the program. A few weeks later, a letter of information was sent to the graduates with detailed information about the purpose of the survey and what would be done with the results. All graduates were assured that their identity would not be disclosed. A link to the online survey was provided, and the name and e-mail address of a contact person not associated with the survey was made available if assistance was required. A reminder e-mail was sent two weeks later, followed by a second reminder about three weeks after that. Multiple responses were not allowed as the survey was designed to receive only one interaction for any name/computer combination.

The survey instrument was designed within SurveyMonkey and was pretested by having the ITD students currently enrolled at UWO complete a hard-copy version. The test group was given unlimited time to complete the survey and asked to report verbally or in writing whether they understood its purpose and the questions being asked and if they had any difficulty comprehending the instructions and definitions. Based on the results of the pre-test, modifications were made.

On opening the survey, respondents were asked to indicate the year of their graduation from the ITD program. The structure of the survey as divided into four distinct sections was then explained. Section A asked the respondent to rate his or her knowledge in fourteen topic areas related to clinical dentistry prior to being accepted at UWO. Section B asked respondents to rate their skill level for the same topic areas. Sections C and D followed the pattern of the first two sections but focused on respondents’ knowledge and skills following graduation. For each question, the respondent was instructed to tick one of ten equally spaced locators of increasing value on a visual analog scale (VAS). Locators 1–3 represented levels of the competent domain; locators 4–6 represented levels of the proficient domain; locators 7–9 represented levels of the master domain; and locator 10 represented the expert domain. As an aid, a list of definitions was provided for each of these terms as they pertained to both knowledge and skill (see Figure 1). The levels of master and expert were later combined into a single domain of master/expert. The fourteen topic areas were as follows: oral medicine and treatment planning, oral surgery, pedodontics,
orthodontics, record keeping and informed consent, periodontics, endodontics, operative dentistry, fixed prosthodontics, removable prosthodontics, radiology, critical assessment of the literature, ethics and regulated dentistry, and interpersonal communication.

An example of a typical set of questions and the VAS are shown in Figure 2. Of primary interest was any change in respondents’ perception of their domain of knowledge and skill from admission into the program to their perception after completion of the program. For this purpose, a response that indicated a change in perceived skill or knowledge—for example from locator 2 to locator 3—would remain in the competent domain and be reported as no change. However, a response that indicated a change from locator 2 to locator 5 was recorded as a change from the competent domain to the proficient domain. Collapsing the raw data in this manner allowed for only robust changes to be reported.

The responses to the survey were entered into an Excel spreadsheet by the survey instrument. The data were transformed to a JMP v.8.0 database, and descriptive statistics were generated. No hypotheses were tested.

### Results

During the eleven-year period from 1999 to 2009, there were 126 graduates from the UWO ITD program. Current e-mail addresses could be found for only 120 of the graduates, and eighty-eight of those responded to the survey. For reasons that are not understood, thirty-three respondents did not answer the knowledge section of the questionnaire relating to graduation, and thirty-five did not answer the skills section relating to graduation. Therefore, the response rate for questions on perception on graduation from the ITD program and for changes from admission to graduation were 46 percent for knowledge and 43 percent for skills. Responses were received from members of all eleven classes. The response rate per class ranged from 25 percent to 100 percent.

Figure 3 shows the geographic areas where the students had obtained their initial dental degree. Over 60 percent of them had obtained their primary dental degree in West Central Asia, the Middle East, and Southern and Southeast Asia. From self-reported

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**KNOWLEDGE**

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert</td>
<td>I have a specialist’s knowledge of the subject. I can discuss all aspects of the discipline, applying evidence-based research and literature references. I feel confident that I could teach the subject at an undergraduate level.</td>
</tr>
<tr>
<td>Master</td>
<td>I fully understand all aspects of the subject. I know the significant contributions from the literature and I am aware of the current research.</td>
</tr>
<tr>
<td>Proficient</td>
<td>I have a good understanding of the significant elements of the subject. I am not aware of the current research or significant contributions from the literature.</td>
</tr>
<tr>
<td>Competent</td>
<td>I am aware of the major concepts and principles of the discipline. I use the textbook or Internet for information.</td>
</tr>
</tbody>
</table>

**SKILL**

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert</td>
<td>I have full mastery of the skills required for this discipline. I would never refer a patient to a specialist. I am confident that I could teach this subject at a graduate level.</td>
</tr>
<tr>
<td>Master</td>
<td>I can treat almost all my patients at a very high skill level. I would only refer the most challenging cases. With some training, I could be an effective undergraduate teacher.</td>
</tr>
<tr>
<td>Proficient</td>
<td>I am experienced at performing all the standard procedures associated with this discipline. I refer some cases to a specialist. In order to improve, I would need some additional training.</td>
</tr>
<tr>
<td>Competent</td>
<td>I can perform most of the standard procedures associated with this discipline. I refer many patients to dentists with better skills. I require additional training.</td>
</tr>
</tbody>
</table>

Figure 1. Definitions of knowledge and skills levels provided in survey
**Section A**
Rate your KNOWLEDGE of the following disciplines PRIOR to being accepted into the QP/ITD Program at the University of Western Ontario.

**Section B**
Rate your SKILL LEVEL of the following disciplines PRIOR to being accepted into the QP/ITD Program at the University of Western Ontario.

**Section C**
Rate your KNOWLEDGE of the following disciplines AFTER your graduation from the QP/ITD Program at the University of Western Ontario.

**Section D**
Rate your SKILL LEVEL of the following disciplines AFTER your graduation from the QP/ITD Program at the University of Western Ontario.

<table>
<thead>
<tr>
<th>Oral medicine and treatment planning</th>
<th>Competent</th>
<th>2</th>
<th>3</th>
<th>Proficient</th>
<th>5</th>
<th>6</th>
<th>Master</th>
<th>8</th>
<th>9</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central and South America, 3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Europe, 15%</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Asia, 19%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa, 5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Central Asia and Middle East, 31%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southern and Southeast Asia, 30%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Europe, 1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2. A typical set of questions and the recording scale of the survey

Figure 3. Region where graduates’ primary dental degree was obtained

*Note: Total percentage equals more than 100% because of rounding.*
data, before immigrating to Canada, forty-seven (37 percent) were practicing dentistry, forty (32 percent) were dental assistants, twelve (10 percent) were in graduate school or working in a research capacity, three (2 percent) were employed as dental teachers in some capacity, three (2 percent) were hospital residents, twelve (10 percent) reported that they worked in some unspecified dentally related activity, three (2 percent) were employed as dental hygienists, and six (5 percent) reported no dentistry-related experience at the time of immigrating to Canada. The average age of the respondents was thirty-four years (range twenty-four to fifty-one), with a male to female ratio of 1.5:1.

On admission to the ITD program, more than 60 percent of the respondents perceived that they were either at the proficient or master/expert level of knowledge in all of the topic areas except orthodontics, record keeping and informed consent, critical appraisal of the literature, and ethics and regulated dentistry. An identical result is seen in the perceived level of skill prior to admission. Those four topic areas were considered by the respondents themselves to be their weakest clinical areas of both knowledge and skill on admission to the program.

Following graduation from the UWO ITD program, 90 percent of the respondents considered themselves to be either at the proficient or master/expert level of knowledge in all topic areas except for orthodontics and critical appraisal of the literature. A similar result is noted in their perception of their skill, in which 90 percent of the respondents considered themselves to be either at the proficient or master/expert level following graduation except for orthodontics and critical appraisal of the literature. The data for their perceived level of knowledge and skill on admission and after graduation are shown in Table 1.

Our particular interest in this study is the change in a respondent’s perception of his or her knowledge and skill from admission to graduation in the fourteen topic areas. The largest proportion of the respondents indicated that their knowledge improved at least one aptitude domain in only four of the fourteen (29 percent) topic areas (oral medicine and treatment planning, record keeping and informed consent, periodontics, and ethics and regulated dentistry); however, their skill level improved in nine of the fourteen (64 percent) topic areas (oral medicine and treatment planning, record keeping and informed consent, periodontics, endodontics, fixed prosthodontics, radiology, critical appraisal of the literature, and ethics and regulated dentistry) (see Table 2).

When the responses for any given respondent are looked at over all fourteen topic areas, the mean number of topic areas in which a respondent indicated an improvement in knowledge of at least one aptitude domain level between admission and graduation was 6.7 (s.d.=4.6) or just under half of the topic areas. Four (7 percent) of the respondents reported no change in knowledge level in any of the fourteen topic areas, whereas nineteen (35 percent) reported an improvement in knowledge of at least one domain level between admission and graduation in ten or more topic areas. With respect to change in skill, the mean number of topic areas in which respondents indicated an improvement of at least one aptitude domain level between admission and graduation was 7.3 (s.d.=4.6) or fully half of the topic areas. Four (8 percent) of the respondents reported no change in skill level in any of the fourteen topic areas, but twenty (38 percent) reported an improvement in skill of at least one domain level between admission and graduation in ten or more topic areas.

Six respondents indicated that their knowledge domain level actually decreased from admission to graduation (four respondents in one topic area, one respondent in three topic areas, and one respondent in four topic areas). Four respondents also indicated that their skill domain level decreased from admission to graduation (three in a single topic area and one in three topic areas).

Discussion

The data collected in this survey are personal assessments of perceived knowledge and skill in a variety of dental topics and disciplines. The perception of one’s knowledge and skill is clearly subjective and involves a complex interaction of past experience, personal beliefs, and values. Although the validity of self-assessment as a measure of knowledge and skill compared to objective external determinants may be justifiably questioned,3,4 the respondents to our survey made self-assessments of their knowledge and skill without regard to external validation. The self-evaluation of their competence prior to admission was in essence the standard to which each respondent compared his or her competence after graduation. It is the change in perception of knowledge and skill within the individual respondent rather than a comparison to some external standard
that is most significant here. In a study with a similar pre- and post-test configuration, students at the University of Kentucky used a self-reporting survey to record changes in perception of clinical knowledge and clinical skills in nineteen patient care areas. The authors of that study acknowledged that self-reported changes in knowledge and skills may lack accuracy, but can provide useful indicators to support anecdotal observations of benefit derived from a program.

In our survey, the respondents were not provided an opportunity to enter a response less than the lowest level of competence. We presumed that,

**Table 1. Distribution of perceived level of knowledge and skill on admission to and graduation from the UWO ITD program, by topic**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Perceived Level of Competence</th>
<th>Knowledge on Admission</th>
<th>Skill on Admission</th>
<th>Knowledge on Graduation</th>
<th>Skill on Graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Oral Medicine and Treatment Planning</td>
<td>Competent</td>
<td>22</td>
<td>32.8%</td>
<td>22</td>
<td>37.9%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>42</td>
<td>62.7%</td>
<td>33</td>
<td>56.9%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
<td>3</td>
<td>4.5%</td>
<td>3</td>
<td>5.2%</td>
</tr>
<tr>
<td>Oral Surgery</td>
<td>Competent</td>
<td>17</td>
<td>25.8%</td>
<td>14</td>
<td>24.6%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>43</td>
<td>65.2%</td>
<td>36</td>
<td>63.2%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
<td>6</td>
<td>9.0%</td>
<td>7</td>
<td>12.2%</td>
</tr>
<tr>
<td>Pedodontics</td>
<td>Competent</td>
<td>19</td>
<td>28.4%</td>
<td>16</td>
<td>28.1%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>45</td>
<td>67.2%</td>
<td>38</td>
<td>66.7%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
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<td>4.4%</td>
<td>3</td>
<td>5.3%</td>
</tr>
<tr>
<td>Orthodontics</td>
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<td>48</td>
<td>72.7%</td>
<td>41</td>
<td>71.9%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>18</td>
<td>27.3%</td>
<td>15</td>
<td>26.3%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
<td>1.8%</td>
</tr>
<tr>
<td>Record Keeping and Informed Consent</td>
<td>Competent</td>
<td>39</td>
<td>59.1%</td>
<td>30</td>
<td>53.6%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>25</td>
<td>37.9%</td>
<td>23</td>
<td>41.1%</td>
</tr>
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<td>5.3%</td>
</tr>
<tr>
<td>Periodontics</td>
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<td>23</td>
<td>34.3%</td>
<td>20</td>
<td>35.1%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>40</td>
<td>59.7%</td>
<td>34</td>
<td>59.6%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
<td>4</td>
<td>6.0%</td>
<td>3</td>
<td>5.3%</td>
</tr>
<tr>
<td>Endodontics</td>
<td>Competent</td>
<td>22</td>
<td>32.8%</td>
<td>17</td>
<td>30.4%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>36</td>
<td>53.7%</td>
<td>33</td>
<td>59.9%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
<td>9</td>
<td>13.5%</td>
<td>6</td>
<td>10.7%</td>
</tr>
<tr>
<td>Operative Dentistry</td>
<td>Competent</td>
<td>10</td>
<td>15.2%</td>
<td>11</td>
<td>19.3%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>42</td>
<td>63.6%</td>
<td>31</td>
<td>54.4%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
<td>14</td>
<td>21.2%</td>
<td>13</td>
<td>26.3%</td>
</tr>
<tr>
<td>Fixed Prosthodontics and Implantology</td>
<td>Competent</td>
<td>26</td>
<td>39.4%</td>
<td>20</td>
<td>35.7%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>36</td>
<td>54.5%</td>
<td>31</td>
<td>55.4%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
<td>4</td>
<td>6.1%</td>
<td>5</td>
<td>8.9%</td>
</tr>
<tr>
<td>Removable Prosthodontics</td>
<td>Competent</td>
<td>19</td>
<td>29.2%</td>
<td>19</td>
<td>33.3%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>39</td>
<td>60.0%</td>
<td>29</td>
<td>50.9%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
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<td>10.8%</td>
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<td>15.8%</td>
</tr>
<tr>
<td>Radiology</td>
<td>Competent</td>
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<td>30.8%</td>
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<td>29.8%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>39</td>
<td>60.0%</td>
<td>34</td>
<td>59.6%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
<td>6</td>
<td>9.2%</td>
<td>6</td>
<td>10.6%</td>
</tr>
<tr>
<td>Critical Appraisal of the Literature</td>
<td>Competent</td>
<td>36</td>
<td>55.4%</td>
<td>30</td>
<td>54.5%</td>
</tr>
<tr>
<td></td>
<td>Proficient</td>
<td>24</td>
<td>36.9%</td>
<td>21</td>
<td>38.2%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
<td>5</td>
<td>7.7%</td>
<td>4</td>
<td>7.3%</td>
</tr>
<tr>
<td>Ethics and Regulated Dentistry</td>
<td>Competent</td>
<td>32</td>
<td>49.2%</td>
<td>26</td>
<td>46.4%</td>
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<tr>
<td></td>
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<td>28</td>
<td>43.1%</td>
<td>24</td>
<td>42.9%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
<td>5</td>
<td>7.7%</td>
<td>6</td>
<td>10.7%</td>
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<tr>
<td>Interpersonal Communication</td>
<td>Competent</td>
<td>24</td>
<td>36.4%</td>
<td>19</td>
<td>33.9%</td>
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<tr>
<td></td>
<td>Proficient</td>
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<td>54.5%</td>
<td>28</td>
<td>50.0%</td>
</tr>
<tr>
<td></td>
<td>Master/Expert</td>
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<td>9.1%</td>
<td>9</td>
<td>16.1%</td>
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as dentists, it would be most unlikely such a response would be made either on admission to the program or after graduation. In addition, the respondents in our study were asked to recall their perceptions from a minimum of one year up to ten years after graduation. In spite of these limitations, the data suggest that a significant percentage of all ITD students felt that they perceived their knowledge and skills on entry to the program to be at or beyond the competent range as defined by the survey in most of the topic areas. This finding was expected given that overestimation of skills is not an unusual finding in self-evaluation surveys. Since some of the graduates had little to no clinical dental experience on entering the program, one might argue that their actual knowledge and skills were probably no better than competent. However, the majority of the graduates felt that, after completing the ITD program, their knowledge and skills were improved often over many topic areas.

Although the DRAs and indeed the public may be concerned about the technical skills of internationally trained dentists, the areas in which the respondents perceived their greatest improvement related to the non-technical aspects of dental practice, such as oral medicine and treatment planning, record keeping and informed consent, critical appraisal of the literature, and ethics and regulated dentistry. The perceived weakness in their knowledge and skills in these areas may be an expression of the diverse nature of scope of practice, ethical standards, and professional regulation that exist in the countries of origin of the ITD graduates.

While the majority of respondents reported an increase in knowledge and skill as a result of the ITD program, a few indicated a decrease after completion of the program. Although we believe that this likely reflects an inherent error in survey completion, it is conceivable that for some the course material was viewed as being remedial and its value was not appreciated. There may also be topics, which by self-evaluation, some respondents felt not to be in need of upgrading. Also, these respondents’ perception of their knowledge and skills on admission may simply have been overstated and those on graduation more accurate.

The opinion has been expressed that a two-year structured program may not be necessary for foreign-trained dentists. This view is often based on the applicants’ perception of their skills and training, perhaps augmented by their practice experience. There is general agreement that these perceptions are unlikely to be accurate. In addition, experience has shown that scrutiny of credentials and curricula, although of some value, is fraught with issues of uncertain validity and often lacks good comparative indicators (perhaps with the exception of a few who have an extensive academic or research background). Nevertheless, the DRAs are in discussion with some universities to sign a memorandum of understanding to provide a system of evaluation and gap training where required for some foreign-trained dentists to effect a significant reduction in the time needed to gain certification.

To aid in this process, the Canadian Ministry of Human Resources and Skills Development has recently made a significant grant to the Canadian Dental Regulatory Authorities Federation to assist in the development of an assessment tool for foreign-trained dentists from non-accredited dental programs. Successful completion of the assessment process would allow the applicant to bypass the two-year ITD program and take the NDEB examination directly. While this may seem to be a commendable stratagem, our results indicate that even when using a PLA to assist in the selection of the best candidates for admission to our two-year ITD program, a great many of the graduates reported at least a one-aptitude domain improvement in many topics. Gap training may be effective where there is confidence that the applicant is deficient in only a few topic areas. However, from a practical point of view, uniquely designed upgrading programs may be as expensive as two-year ITD programs. In addition, there would have to be some guarantee, through external validation, that the topic areas in which the applicants were deemed competent or better were actually so. The data from our study suggest that topics which showed significant domain improvement in knowledge and skill such as ethics and regulated dentistry, interpersonal communication, informed consent, and critical review of the literature should be a component of any program that evaluates or upgrades foreign-trained dentists.

Foreign-trained dentists seeking direct registration customarily make the claim that they perceive their knowledge and skill to be equivalent to those of domestic dental graduates. Although the DRAs and the NDEB may offer arguments suggesting that evaluation of course material and other credential reviews often do not support these perceptions, agencies such as Fairness Commissions, the Ministry of Labour, and organizations that promote fair and equal access are swayed by these claims. Regardless of whether the claims are justified or not, it is useful to show that even for those foreign-trained dentists...
who meet the criteria for admission to our ITD program, our data indicate that they report significant improvement in both knowledge and skill.

It is also important to determine whether the preadmission selection process is discriminating enough to identify applicants who would not benefit from a formal two-year ITD program. A PLA program that can discriminate between those who require training as provided in an ITD program and those who do not could be a useful adjunct for selecting appropriate candidates for gap training. In order to test both the validity of a PLA and the outcome of the ITD program, it will be instructive to compare the ITD graduates’ results to external validations—that is, dental school final academic examinations and the NDEB written examination with the domestic student cohorts. This research is under way.

**Conclusion**

In our study, graduates of the two-year UWO ITD program reported that they perceived their level of knowledge and skills in fourteen clinical topic areas to be at or beyond the competent level on admission to the program. Most also reported that they perceived their knowledge and skills in many clinical topic areas to have improved upon completion of the program. This is particularly apparent in the topic areas of oral medicine and treatment planning, record keeping and informed consent, and ethics and regulated dentistry.

**Acknowledgment**

The authors thank Ms. T. Vowles in the Office of the Director, Schulich Dentistry, for her assistance in managing the database of the graduates of the QP/ITD program.

**REFERENCES**