

**Qualifying Dental Programs For Internationally-Trained Dentists:  
Insights From A Scoping Review And Instructor Perspectives**

by

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## ***ABSTRACT***

**Background-** The integration of Internationally-trained dentists (ITDs) into the dental workforce of host countries is essential for addressing workforce shortages and enhancing the diversity of dental care. According to the World Health Organization (WHO), there is a global shortage of health professionals, including dentists, with low- and middle-income countries being the most affected. In Canada, it is estimated that about 21% of the dental workforce consists of ITDs, highlighting the significant role they play in the national healthcare system. Qualifying dental programs are designed to help ITDs meet the standards of dental care expected in their host countries. Despite the increasing number of studies on this topic, a comprehensive understanding of ITDs' performance and experiences in these programs remains limited. For instance, a study conducted in the United States found that ITDs often face unique challenges, such as cultural disparities and language barriers, which can impact their performance. Additionally, the perspectives of instructors on the clinical performance of advanced placement (AP) students, who are often ITDs, have not been extensively explored. Understanding both the literature on ITDs and instructors' insights is crucial for identifying strengths, limitations, and areas for improvement in qualifying dental programs. This thesis aims to comprehensively explore the clinical performance of ITDs enrolled in qualifying dental programs and to understand instructors' perspectives on the performance of advanced placement (AP) students in these programs. The study focuses on identifying strengths, limitations, and recommendations for improvement in the training and integration of ITDs.

**Methods-** The ethics approval for this study was obtained from the University of Alberta Research Ethics Board (Ethics approval # Pro00114218). First, we conducted a scoping review guided by Arksey and O'Malley's framework, with no restrictions on time period and study design. Four electronic databases (PubMed, ERIC, Scopus, and ProQuest) were searched for relevant studies, and reference lists of

selected papers were checked to complement the search. Two independent reviewers screened eligible papers and extracted relevant data. The second part is a qualitative study using a qualitative description design. Twelve full-time clinical instructors involved in the delivery of the DDS Advanced Placement program at the University of Alberta were purposefully selected using maximum variation sampling. Data were collected through individual, semi-structured interviews via Zoom and analyzed using inductive, manifest content analysis.

**Results-** The scoping review included 15 papers: 2 reviews and 13 primary studies, predominantly conducted in the US and Canada. Key findings highlighted that most qualifying programs are undergraduate level with a duration of 2 years, and ITDs are mostly from India. Significant predictors of academic and clinical performance were English language scores and NBDE I score. Challenges faced by ITDs included cultural disparities, language barriers, financial constraints, and immigration issues.

The qualitative study involved interviews with 12 instructors (3 males and 9 females, aged 30 to 70 years). Notable strengths of AP students included enthusiasm and dedication. However, areas for improvement were identified, such as clinical skills in composite tooth preparation, hand skills, and radiographic interpretation. Instructors recommended comprehensive initial assessments, earlier integration into the program, preclinical sessions tailored to learning needs, and ongoing cultural training.

**Conclusion-** There is a growing body of literature on ITDs in qualifying dental programs, but more evidence is needed to understand their performance and experiences fully. Qualifying dental programs should continuously assess and support the clinical performance of AP students. The effectiveness and

feasibility of instructors' recommendations require further investigation. Data from these efforts will be crucial in refining educational strategies and support systems for ITDs.

## ***PREFACE***

This thesis is an entirely original work authored by Riya Midha. The research project, to which this thesis contributes, received ethical clearance from the University of Alberta Research Ethics Board under the project titled: " Instructors' Perspectives of the Clinical Performance of ITDs Enrolled in Dental Qualifying Program: A Qualitative Description Study," with approval reference Pro00114218, granted in December 2021.

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## ***CHAPTER ONE: INTRODUCTION***

In this chapter, the Internationally-trained dentists, dental qualifying programs, and the advanced placement students will be summarized, and challenges and existing support systems for ITDs will be described. Subsequently, the problem statement will be introduced, followed by a presentation of the research objectives and questions.

### ***1.1 Background of ITDs***

ITDs play a vital role in addressing the dental care disparities, particularly among low-income populations in the United States (Northridge et al., 2020). The lack of access to dental services for millions of children and families underscores the pressing need to maximize the potential of these professionals. Challenges such as uneven distribution of dentists, limited Medicaid participation, and underutilization of skills among foreign-trained dentists highlight the complex landscape they navigate (Manski et al., 2015). Addressing these issues requires a comprehensive understanding of the recertification processes and barriers these professionals face. Exploring the policies in place in various countries, like Canada's Pan-Canadian Framework, and the initiatives being implemented in the US can inform strategies to empower ITDs to contribute effectively to the healthcare system. By examining the background and experiences of these professionals, we can better support their integration into dental qualifying programs and enhance their clinical performance for the benefit of underserved communities (“Advancing Oral Health in America,” 2012).

ITDs play a crucial role in addressing the global oral health workforce challenges, often seeking opportunities to integrate into new healthcare systems through dental qualifying programs. These

dentists, are typically educated and trained outside the country where they seek practice, bring diverse cultural backgrounds, clinical experiences, and skill sets to the dental profession. Understanding the definition and characteristics of ITDs is essential for effectively evaluating their performance and integration into host country healthcare settings. Recognizing the complex factors that influence their adaptation and success, such as language proficiency, cultural competence, and clinical competencies, is pivotal in designing tailored support systems within dental qualifying programs. Studies have shown that the successful integration of oral health into primary care can positively impact the oral health outcomes of underserved populations, indicating the potential for ITDs to contribute significantly to enhancing oral health equity (Shrivastava et al., 2020). Essential terms such as "advanced placement programs," "ITDs," and "advanced placement students" are clearly defined to enhance comprehension and support a focused understanding of the study's scope.

## ***1.2 Dental Qualifying Programs***

The significance of dental qualifying programs in the context of ITDs is multifaceted and essential for ensuring quality oral healthcare delivery. As highlighted in the study by Agbor, M., & Azodo, C. (2012) on dental auxiliaries in Cameroon, these programs play a crucial role in expanding the workforce and maximizing the scope of services provided, ranging from basic procedures to more complex treatments like root canal therapy. Moreover, the findings underscore the importance of standardized training and job specifications to uphold professional standards and ensure optimal patient care, reflecting the need for well-structured dental qualifying programs for ITDs. Building upon past efforts to enhance healthcare coverage, as discussed in Artiga, Rudowitz, & McGinn-Shapiro, (2010) these programs offer a pathway for newly eligible low-income populations to receive comprehensive care by addressing barriers to access and delivering tailored interventions. The amalgamation of these insights emphasizes the pivotal role of dental qualifying programs in bridging gaps in oral healthcare provision and

improving outcomes for diverse patient populations, thereby underscoring their significance in the global healthcare landscape.

### ***1.3 Challenges Faced by ITDs***

#### ***1.3.1 Cultural and Language Barriers***

Cultural and language barriers play a significant role in shaping the experiences of ITDs participating in dental qualifying programs. The integration of these professionals into the healthcare system of a new country is influenced by their ability to navigate diverse cultural norms and language practices. As highlighted by Dywili et al., (2012) overseas-trained health professionals are expected to possess not only the necessary professional skills but also cultural competencies to provide quality care in rural and remote areas. Integration experiences for international healthcare professionals, including dentists, are shaped by their cultural awareness (Davda et al., 2018), English language proficiency, and social support networks. Understanding and addressing these cultural and language barriers are crucial for enhancing the successful integration and retention of ITDs in dental qualifying programs, ultimately contributing to the quality of oral healthcare provision.

#### ***1.3.2 Licensing and Certification Hurdles***

In the realm of ITDs seeking integration into the Canadian workforce through dental qualifying programs, the significant obstacle of licensing and certification hurdles emerges as a focal point of concern. Foreign-trained professionals often encounter barriers in having their credentials recognized and accepted within the Canadian regulatory framework, akin to the challenges faced by skilled immigrants in other sectors. The reassessment and improvement of accreditation and employment requirements for foreign-trained professionals are vital for their successful integration (Kaushik & Drolet, 2018). Additionally, the institutional design of regulatory bodies and licensing boards can

inadvertently disadvantage immigrant populations (Balla, 2011). These insights underscore the need for a nuanced approach towards addressing the licensing and certification hurdles faced by ITDs participating in dental qualifying programs, providing a foundation for exploring pathways to enhance their successful entry and advancement within the Canadian dental landscape.

### ***1.3.3 Integration into the Local Dental System***

Integration into the local dental system is a multifaceted process for ITDs participating in dental qualifying programs. As highlighted in the literature, migration motives and integration experiences vary among health professionals, with nurses reporting knowledge and skills gaps, discrimination, and limited career progression compared to physicians. Understanding the cultural awareness, discrimination exposure, language proficiency, support networks, and personal attributes of dentists is crucial for successful integration (Dywili et al., 2012). Additionally, recognising the expectations of overseas-trained health professionals, providing adequate orientation, and fostering a welcoming community are essential elements for their successful integration into rural and remote areas (Dywili et al., 2012). As ITDs navigate the complexities of the local dental system, tailored support and policies are necessary to facilitate their smooth transition and retention in the workforce.

## ***1.4 Support Systems for ITDs***

### ***1.4.1 Mentorship Programs***

Mentorship programs play a crucial role in supporting ITDs as they navigate the challenges of participating in dental qualifying programs. Mentorship is essential for strengthening the education, training, and professional development of healthcare professionals, including dentists (Nathwani & Rahman, 2022). By engaging in mentorship programs, these dentists can enhance their clinical skills, cultural competence, and understanding of the local healthcare system. Additionally, it is crucial to



prioritize the development of individual and institutional leadership in healthcare capacity-building initiatives. This aligns with the pivotal role mentors play in guiding and shaping the career trajectories of ITDs (Silva et al., 2022). Through mentorship, these dentists can bridge gaps in knowledge and skills, leading to improved clinical performance and successful integration into the Canadian dental workforce. As such, mentorship programs serve as a cornerstone for the success and sustainability of ITDs in dental qualifying programs.

#### ***1.4.2 Professional Development Opportunities***

The professional development opportunities available to ITDs in dental qualifying programs are pivotal for both individuals and the host country's healthcare system. With the ongoing global phenomenon of health professional migration, exemplified by the emigration of health professionals from South Africa as discussed in Crush et al.'s Brain Drain and Regain (2014), strategies to retain skilled professionals in the healthcare workforce are indispensable. These opportunities not only facilitate career advancement for dentists but also address healthcare delivery gaps, particularly in regions experiencing shortages of qualified professionals. Understanding factors such as satisfaction levels and immigration potential, as highlighted in the cited research, illuminates the necessary strategies to support professional growth and ensure a sustainable healthcare workforce. Exploring these professional development avenues enables the present study on ITDs in dental qualifying programs to examine diverse facets of training, retention, and skill utilization within healthcare systems.

#### ***1.4.3 Psychological and Emotional Support***

ITDs undergoing dental qualifying programs may benefit significantly from receiving psychological and emotional support throughout their training. The importance of collaboration and teamwork in healthcare underscores the need for psychologists' involvement in providing such support, particularly

in a high-pressure academic and clinical environment (Robiner, W. N., et al, 2013). Moreover, Mostafa & El-Atawi, (2024) emphasizes the essential role of interdisciplinary practices among healthcare professionals, including dentists, in addressing oral health needs comprehensively and underscores the interconnectedness of physical and mental well-being in the context of dental education. By integrating psychological and emotional support mechanisms into the curriculum and support services for ITDs, dental qualifying programs can better equip these individuals to navigate the challenges they may encounter, enhance their clinical performance, and promote holistic patient care. Integrating such support would not only benefit the well-being of the dentists but also contribute to improved patient outcomes and overall program success.

## ***1.5 Impact of ITDs on the Dental Profession***

### ***1.5.1 Diversification of the Dental Workforce***

The diversification of the dental workforce has emerged as a critical priority, particularly with the participation of ITDs in dental qualifying programs. Kleiner's research on occupational licensing (Kleiner, 2006) underscores the necessity of examining the costs and benefits associated with these programs to assess their impact on the broader workforce. Aligning the future health workforce with demographic needs and addressing emerging challenges, such as integrating diverse health professionals like dental practitioners (Balasubramanian & Short, 2021) is crucial for establishing a comprehensive and sustainable healthcare system. This emphasis on diversifying dental professionals, especially through programs facilitating the transition of ITDs, highlights the importance of ensuring that the workforce not only meets regulatory standards but also effectively serves the evolving healthcare needs of diverse populations globally. Exploring this diversification is essential for enhancing the quality and accessibility of dental services in today's interconnected world.

### ***1.5.2 Addressing Dental Workforce Shortages***

Addressing dental workforce shortages is a critical concern in healthcare, particularly for regions experiencing challenges in accessing oral health services. The demand for dental care continues to rise alongside the uneven distribution of providers, necessitating innovative solutions to ensure equitable access to high-quality services (Rehan K, 2022). One promising strategy involves leveraging ITDs participating in dental qualifying programs. These ITDs bring diverse skills and expertise, which can significantly contribute to addressing workforce shortages. Understanding the perspectives of instructors on the clinical performance of ITDs, as explored in the qualitative study within this thesis, is crucial for optimizing their integration into the healthcare system. By examining successful models and conducting rigorous evaluations, policymakers can harness the potential of ITDs to enhance oral healthcare access and improve health outcomes for underserved populations.

### ***1.5.3 Enhancing Cultural Competence in Dental Care***

Enhancing cultural competence in dental care is crucial for ITDs participating in dental qualifying programs. By improving their cultural competence, dental professionals can effectively understand and address the diverse cultural backgrounds and oral health beliefs of their patients. This enhances patient-provider communication, builds trust, and promotes a patient-centered approach to dental care. Drawing on community-based education and interprofessional collaboration principles (De Villiers et al., 2017) integrating cultural competence initiatives into dental training programs prepares dentists for diverse practice settings. For instance, initiatives such as the Oral Health Impact on Communities Access Network pilot project (Phillips et al., 2021) demonstrate how innovative strategies, including training medical providers in oral exams and preventive care, can promote oral health equity. By embedding

these initiatives into dental education and practice, ITDs in dental qualifying programs can improve their clinical performance and effectively meet the oral health needs of diverse populations.

### ***1.6 Advanced Placement Programs***

Advanced Placement Programs have become crucial in addressing the projected shortages of healthcare providers, as highlighted by research (Ahmed & Carmody, 2020). They offer a unique opportunity for ITDs to integrate into the healthcare system efficiently. Through a comprehensive overview of these programs, it becomes evident that they play a vital role in preparing individuals for the demands of the current healthcare climate (S. V. Kellesarian, 2018). These programs emphasize the transformative learning process, which has been observed in graduate occupational therapy students participating in fieldwork placements (Mattila, 2019). Such practical and immersive experiences are instrumental in enhancing self-efficacy and professional development. For ITDs navigating the challenges of entering dental qualifying programs, the incorporation of Advanced Placement Programs can serve as a strategic solution to bridge the gap between academic knowledge and clinical practice.

### ***1.7 Clinical Performance of Advanced Placement students***

Clinical performance evaluation is crucial in assessing the competency and readiness of ITDs participating in dental qualifying programs, such as the advanced placement program at the University of Alberta. This evaluation not only ensures the quality of patient care but also plays a pivotal role in their education and professional development. Implementing robust assessment tools and strategies allows educators to effectively gauge their clinical skills and knowledge, identifying strengths and areas for improvement. Initiatives aimed at enhancing practitioner preparedness for educational roles, such as mentor education programs highlighted in the literature (Scammell et al., 2009) are instrumental in supporting the clinical assessment process and fostering a culture of continuous learning and

improvement. Additionally, collaborative efforts across disciplines, exemplified by projects like Making Practice Based Learning Work (MPBLW) (Turnock MPhil et al., 2005), underscore the importance of sharing best practices to optimize clinical performance evaluation in healthcare education. By emphasizing quality assurance and mentor support, these initiatives ensure that ITDs receive comprehensive feedback to enhance their clinical competencies and contribute effectively to dental qualifying programs.

### ***1.8 Statement of Problem***

Despite the growing importance of integrating ITDs into advanced placement programs within the rapidly evolving field of dental education, existing research predominantly focuses on quantitative investigations. While these studies provide valuable insights into the educational frameworks, they often lack the depth and details required to comprehensively understand the challenges and opportunities inherent in these programs, particularly from the perspective of students and instructors. Furthermore, there is a notable gap in the literature regarding qualitative examinations of the experiences of ITDs navigating through advanced placement programs, as well as the perceptions and challenges faced by instructors facilitating these educational initiatives.

Thus, the primary problem addressed by this thesis is the absence of a comprehensive understanding of the complexities and details associated with integrating ITDs into advanced placement programs from a qualitative perspective. This gap hinders our ability to identify and address the unique challenges faced by ITDs and instructors, ultimately limiting the development of effective strategies to enhance the educational experience within these programs. Therefore, this research aims to fill this gap by conducting a thorough qualitative examination of the architecture, experiences, perceptions, and challenges of both ITDs and instructors within advanced placement programs for ITDs. Through this

exploration, the study seeks to contribute to the ongoing discourse on dental education by providing valuable insights and recommendations for improving the integration process and fostering positive educational outcomes for all stakeholders involved.

### ***1.9 Goal***

The overall aim of this study was to map the currently available findings on ITDs admitted in dental qualifying programs through a scoping review. This was followed by exploring instructor perspectives of clinical performance of ITDs enrolled in these programs in the School of Dentistry at the University of Alberta.

### ***1.10 Specific Objectives***

The specific objective of the thesis was to conduct a systematic search of literature for ITDs in dental qualifying programs and map the characteristics and range of methodologies used in the identified literature. This was followed by a qualitative description study to describe the perspective of instructors about dental advanced placement student's clinical performance in the School of Dentistry at the University of Alberta. The thesis looked into following research questions:

- What is the nature of studies conducted on ITDs enrolled in dental qualifying programs?
- What are the strengths and limitations of the clinical performance of AP students according to their clinical instructors?
- How can their clinical performance be improved according to clinical instructors?

## ***CHAPTER TWO: Qualifying Dental Programs for Internationally-Trained Dentists: A Scoping Review***

### ***2.1 ABSTRACT:***

**Objectives:** Many dental schools offer qualifying dental programs to internationally-trained dentists to help them meet the standards of dental care expected in the host country. The literature on this topic is growing, but it has not yet been comprehensively summarized. This scoping review aimed to summarize the available literature on internationally-trained dentists (ITDs) enrolled in qualifying dental programs.

**Methods:** Arksey and O'Malley's framework guided the study design. No restrictions were set on time period and study design. Four electronic databases, including PubMed, ERIC, Scopus, and ProQuest, were searched for relevant studies. Reference lists of selected papers were checked to complement the search. Two independent reviewers were involved in the screening of eligible papers and extraction of the relevant data.

**Results:** Fifteen papers were selected for this review, including 2 reviews and 13 primary studies. Ten studies were conducted in the US and 5 in Canada. All primary studies used quantitative approaches. Three studies focused on program (e.g., duration, type of program, admission requirements) and student characteristics, 9 assessed the performance (predictive, comparative, and perceived) of ITDs, and 3 described challenges faced. Majority of the programs were undergraduate level with duration of 2 years and ITDs were mostly from India. The most significant predictors of academic and clinical performance were English language scores and National Board of Dental Examination (NBDE) I score. The challenges encompassed cultural disparities, language barriers, financial constraints, and immigration-related issues.

**Conclusions:** Although the literature on ITDs in qualifying dental programs is growing and covers several topics, more evidence is needed to further describe and understand ITDs' performance and experiences in these programs.

**Keywords:** *dental education, internationally-trained dentist, foreign trained dentists, dental qualifying programs.*

## **2.2 INTRODUCTION:**

Despite oral diseases being preventable, they are highly prevalent, especially among underserved population, including ethnic minority groups, immigrants, and low-income individuals (Peres et al., 2019). Oral diseases have several long-lasting consequences and represent a substantial burden for individuals, families, and healthcare systems (Petersen, Baez, and Ogawa, 2020). Lack of accessible, affordable, and culturally appropriate dental services has significantly contributed to this burden (Scannapieco and Gershovich, 2020). Research has reported an increased demand for dental services coupled with a shortage of dental care providers (Patterson Norrie et al., 2020).

Developed countries such as Canada and the United States can benefit from internationally-trained dentists [ITDs] wishing to become licenced dentists in the host country (Farronato et al., 2020). In addition to addressing current and estimated shortage of dental care providers, these professionals could alleviate current demands for dental services in these jurisdictions and diversify the dental workforce, which may improve access to dental services, especially among ethnic minorities groups (Al-Sowayh & Sukotjo, 2011).



Obtaining dental licensure is challenging as current regulations in nations such as Canada and United States no longer allow direct dental licensure of ITDs (Mörch et al., 2021). ITDs can obtain dental licensure in Canada through two pathways. One pathway involves passing three examinations administered by the National Dental Examining Board of Canada (NDEB), which make ITDs eligible for the NDEB certification process (Arksey and O'Malley, 2005). The other pathway involves the completion of a qualifying program in an academic dental institution (Berthold & Lopez, 1994). Similarly, ITDs in the US are required to pass the Integrated National Board Dental Examination and then to complete a degree from a dental program accredited by the American Dental Association CODA (Commission on Dental Accreditation) to obtain dental licensure in this jurisdiction (Boorberg et al., 2009). In addition to facilitating the dental licensure process, dental qualifying programs have been established to ensure that ITDs meet the existing standards of competence for dentistry in the host country (Browder et al., 1980). Currently, 40 dental schools in the US and 8 dental schools in Canada offer dental qualifying programs (Contacts and Organizations 2021).

In recent years, numerous studies have conducted on ITDs enrolled in qualifying programs and their participation in the dental workforce upon licensure. While some review studies have described specific aspects (e.g., challenges faced by ITDs) of the involvement of ITDs in these programs, they have not provided a comprehensive, systematic summary of the research activity on this topic. The purpose of this review was to systematically map the available literature on ITDs involved in dental qualifying programs. Summarizing the literature is important to understand the scope and nature of the research activity on this topic and identify future research directions.

## **2.3 METHODS**

The scoping review was guided by the multistage procedural framework suggested by Arksey and O'Malley. This framework suggests five main stages to conduct scope of the review: 1. Framing the research question 2. Recognizing relevant studies 3. Study selection process 4. Charting or plotting the data 5. Assembling, summarizing and reporting the results. Unlike systematic reviews that usually answer narrowed synthesis questions regarding treatment effectiveness and relationships between exposures and outcomes, scoping reviews are suited to map the research activity on the area of interest and identify gaps in existing literature. The PRISMA-ScR Extension guidelines for reporting scoping reviews was followed to improve transparency of the review process (Kogon et al., 2011).

### ***2.3.1 Framing the research question***

The review was sought to answer the following questions:

- What were the characteristics of the studies conducted on ITDs in dental qualifying programs?
- What were the areas that these studies investigated?
- What were the main results of these studies?

### ***2.3.2 Identifying the relevant studies***

Search terms related to population, topic of interest, and context were developed to identify the relevant literature. A university librarian was consulted to improve the search terms (see table 1), identify proper databases, and develop a robust search strategy, which was adapted to each database. Boolean operators were used to narrow and combine literature search. The databases searched included PubMed, Scopus, ERIC and ProQuest. A search was re-conducted in July 2024 to update the research activity. Original and review studies published in English language that focused on ITDs enrolled in dental qualifying programs were included. Table 2 shows the inclusion and exclusion criteria used to identify the relevant studies.

**TABLE 2-1: SEACH STARTEGY**

Database	Search Terms
PubMed	(((((foreign-trained dent*) OR (international-trained dent*)) OR (internationally-trained dent*)) AND (dental program)) OR (dental degree completion)
Scopus	TITLE-ABS-KEY ("foreign-trained dent*") OR ( "international-trained dent*" ) OR ( "internationally-trained dent*" ) AND ( "dental program*" ) OR ( "dental degree completion" )
ProQuest	("foreign-trained dent*") OR ("international-trained dent*") OR ("internationally-trained dent*") OR ("foreign-trained dental student*") OR ("international*-trained dental student*") AND ("dental program*") OR ("dental degree completion")
ERIC	Foreign dentist

**TABLE 2-2: INCLUSION AND EXCLUSION CRITERIA**

Criteria	Inclusion	Exclusion
Language	English	Non-English
Study focus	Internationally-trained dentists enrolled in dental qualifying programs.	All other internationally-trained dentists not enrolled in dental qualifying programs.
Type of article	Original research, reviews.	Commentaries and conference abstracts.
Ethics clearance	Studies with approved ethics	Studies without approved ethics.
Population and sample	Internationally-trained dentists in recognised dental qualifying programs.	Internationally-trained dentists continuing clinical practice without enrolling in dental qualifying programs.

### ***2.3.3 Study selection***

The data was managed using Mendeley Reference Manager and Rayyan web application. Once duplicates were removed, two team members (RM & KZ) independently screened papers by titles and abstracts. Discrepancies were resolved by consensus, including a third party when necessary (AP & SC). The same team members independently reviewed the full texts of the remaining papers to establish their eligibility.

### ***2.3.4 Charting the data***

The same data were extracted from the included papers. Data were collected on publication characteristics (author, title, journal, type of article, and year of publication), studies characteristics (country, research inquiry, research method) and main study results. Discussion with two team members (AP & SC) were made after developing the data extraction form. The researcher was calibrated to extract the data. Data extraction was tested with 15 articles for further refinements by three team members (RM, AP & SC).

### ***2.3.5 Collating, summarizing, and reporting the results***

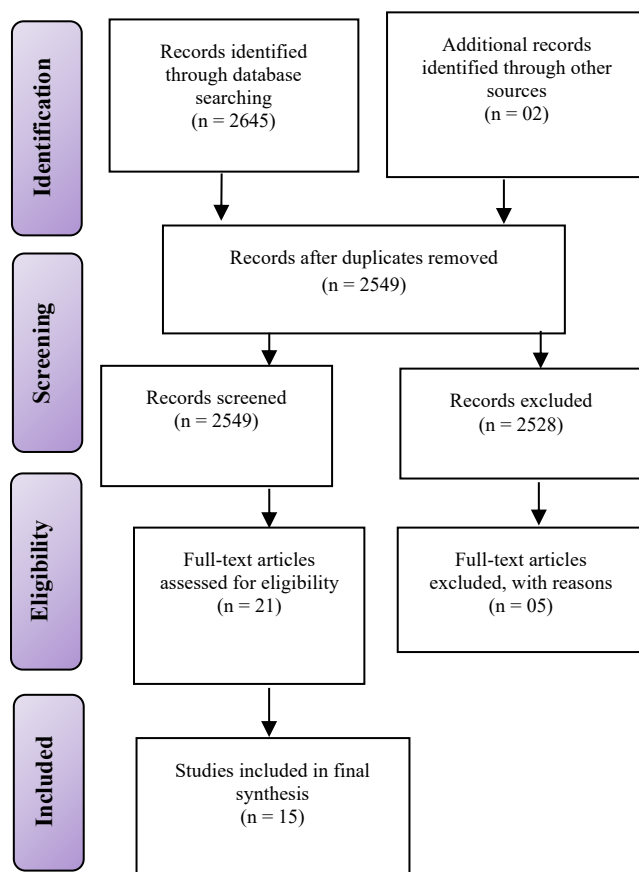
Descriptive statistics were used to summarize publication and study characteristics. Results of previous studies were organized into inductively developed categories based on study aims.

## ***2.4 RESULTS***

A total of 2,645 records were identified from the literature. Two additional studies were found by reviewing the reference lists of eligible papers. After eliminating duplicates, 2,549 records remained. Initial screening of titles and abstracts yielded 21 potentially eligible papers. Following a full-text

review, 6 of these papers were excluded. Reasons for exclusion included being perspective articles (n=5) or comparing dental programs in different jurisdictions exclusively (n=1). Therefore, 15 papers were included in this review (see Figure 2-1).

**FIGURE 2-1 PRISMA DIAGRAM FOR STUDY SELECTION PROCESS**



### ***Characteristics of Studies***

All the studies originated from North America, with 10 studies (66%) produced in the United States and 5 (34%) in Canada. Most studies (N=11, 73%) were published in the Journal of Dental Education. Other studies were issued in various journals, including the Journal of the American Dental Association,

International Education, Journal of Prosthodontics, and Dentistry Journal. Four studies were published prior to 2000, six between 2000 and 2010, and five between 2010 and 2022.

The selected studies comprised 2 reviews and 13 primary studies. Among the primary studies, twelve employed quantitative research approaches, while one used a mixed-method approach. Most studies did not specify methodologies employed (N=10, 66%), including the one utilizing a mixed-method approach. Reported review methodologies included systematic and literature review, whereas the reported methodologies of primary studies were defined as overview (N=1), descriptive (N=1), and program evaluation (N=1). These studies collected data through documentation (e.g., administrative records, exam/rest results) (N=7) and surveys (N=4). Table 2-3 depicts the main characteristics of included studies.

**Table 2-3: CHARACTERISTICS OF INCLUDED STUDIES**

Category	Number Of Studies	Type Of Study	Focus
Program and Student Characteristics	4	3 Primary Studies, 1 Review	Program names, durations, costs, admission requirements, pathways to licensure, tuition disparities, demographic profiles of ITDs, educational backgrounds
Challenges	1	1 Primary Study	Academic, linguistic, cultural, and logistical challenges faced by ITDs in qualifying degree programs
Performance of ITDs	9	6 Primary Studies, 3 Reviews	Predictors of academic success, comparative performance with domestic students, perceptions of program effectiveness among ITDs

***Based on study aims, results of included studies were related to:***

#### ***2.4.1 Program and student Characteristics:***

Three quantitative primary studies described program characteristics, including program names, durations, costs, levels, types, and student numbers, admission requirements, and program sizes. Although programs had slightly different names, common names included International Dentists program, Advancement Placement program, and Qualifying program. The majority of programs were two years (Boorberg et al., 2009), four of them were three to six years (Boorberg et al., 2009), and none were shorter than two years. A review detailed various pathways for dental licensure, including Advanced Standing programs, Specialty Training programs, and Advanced Post-graduate programs (S. V. Kellesarian, 2018). Tuition varied depending on program type and country (USA or Canada) (Stacey & Whittaker, 2005), but in general, it was higher in US programs than Canadian ones. Admission requirements included English language proficiency tests (TOEFL, IELTS, MELAB), board exams (NBDE I&II, NDEB I) (Sweis & Guay, 2007), prior learning assessments, faculty interviews, academic achievements, dexterity tests, clinical training, transcripts, resumes, recommendation letters, and bench tests.

It was also reported by one study that ITDs' had more advance education than domestic students which might affect the overall academic performance of these students (Byrne et al., 2019). One study reported that 25.8% of ITDs were from India, 11% from the Philippines, and 5.8% from Colombia, while other countries contributed to the remaining 5% (Sweis & Guay, 2007). Another study (Boorberg et al., 2009) indicated a consistent increase of 5% to 7% in the number of ITDs enrolling in undergraduate programs and 20 to 25% in graduate programs over 10 years.

#### **2.4.2 Challenges and Barriers:**

One quantitative original study (Rice et al., 2003) and two review studies (S. V. Kellesarian, 2018; Pannu et al., 2013) highlighted challenges faced by ITDs during their programs. Notable findings included academic challenges such as language barriers, lower academic performance (GPA), and the competitive nature of the admission process (Pannu et al., 2013). It was also reported that challenges include the competitive admission process, which is exacerbated by limited available seats, significant tuition disparities between domestic and international students, and stringent immigration processes (S. V. Kellesarian, 2018). Financial constraints emerged as significant, with ITDs facing lower stipends, elevated tuition fees, and pronounced discrepancies between domestic and international student expenses (Rice et al., 2003). Moreover, challenges such as cultural adjustments, psychological well-being, and familial support for ITDs, and sociocultural challenges were reported. These findings collectively underscore the multifaceted nature of challenges faced by ITDs, encompassing academic, financial, cultural, and social dimensions (S.V. Kellesarian, 2018.; Pannu et al., 2013; Rice et al., 2003).

#### **2.4.3 Performance of ITDs:**

Performance studies reported on predictive, comparative, and perceived performances. All five primary studies utilized a quantitative approach to predict ITDs' academic performance (Browder et al., 1980; Itaya et al., 2008; Pitigoi-Aron et al., 2011; Simon et al., 1997; Stacey & Whittaker, 2005). Entrance examinations such as the National Board Dental Examination (NBDE) and National Dental Examining Board of Canada (NDEB) were identified as strong predictors of academic achievement during the program (Browder et al., 1980; Itaya et al., 2008; Pitigoi-Aron et al., 2011; Stacey & Whittaker, 2005). English language proficiency scores (TOEFL) were also significant predictors of academic success in three studies (Itaya et al., 2008; Pitigoi-Aron et al., 2011; Simon et al., 1997). Notably, one study



highlighted the association of TOEFL scores with clinical grades, underlining the importance of effective communication with faculty and patients (Pitigoi-Aron et al., 2011). This study also found that operative and fixed techniques tests, along with interviews, were weaker predictors. These findings were consistent with another study identifying NBDE I and TOEFL as the strongest and laboratory tests and interviews as the weakest predictors of ITDs' overall performance (Itaya et al., 2008). TOEFL and dexterity tests were also found the strongest predictors of academic and clinical performance by two studies (Simon et al., 1997; Stacey & Whittaker, 2005). In contrary, an earlier study by Browder et al. 1980 reported slightly different findings, suggesting that English language tests were not significant predictors, while NBDE I and the American Dental Association Science Achievement test emerged as the strongest predictors. NBDE II and dexterity tests were also reported as the most significant predictors for both academic and clinical success among ITDs, with TOEFL scores and interviews being the weakest predictors.

Two studies compared the performance of international and domestic students (Al-Sowygh & Sukotjo, 2011; Kogon et al., 2011). While one reported no significant difference (Al-Sowygh and Sukotjo, 2011), other study found that domestic students outperformed international students in the final grades whereas the performance of both the groups was reported to be similar in OSCE (Kogon et al., 2011).

Regarding ITDs' perceptions of the program, Berthold and Lopez (1994) reported that students generally felt included within the school community and expressed confidence in their ability to seek assistance within the program. This study underscored the importance of integration with regular students in aiding ITDs to bridge cultural gaps and develop new clinical skills, thereby enhancing their performance. Additionally, they emphasized the role of proper teaching assistance, particularly in

clinical settings, in reducing anxiety among ITDs and improving their performance. Such assistance facilitated the acquisition of "foreign" clinical skills at a faster pace. Another study (Kogon et al., 2011) indicated that students perceived enhanced skills in treatment planning, oral medicine treatment planning, informed consent, ethics, record keeping and regulated dentistry. Kogon demonstrated that the participants in this study also reported no change in knowledge or skill level in areas of orthodontics, paediatric dentistry, operative dentistry, fixed and removable prosthodontics, and critical appraisal of literature (Kogon et al., 2011).

## **2.5 DISCUSSION**

This scoping review comprehensively mapped the existing literature on internationally-trained dentists (ITDs) enrolled in qualifying programs, providing a detailed summary of these programs, highlighting key features, and identifying research gaps. Most included studies were quantitative in nature and lacked detailed reporting on methodology. Many studies have identified significant challenges faced by internationally trained dentists (ITDs), including language barriers, cultural differences, social integration issues, immigration hurdles, and financial difficulties. These challenges can profoundly affect ITDs' academic and clinical performance. Language proficiency and cultural adaptation were found as major predictors of success in qualifying programs, with higher language proficiency scores being strongly associated with better academic and clinical outcomes (Winterer et al., 2022). Additionally, social integration and financial stability have been linked to improved academic performance, highlighting the importance of the availability of the support systems.

Most studies included in this review did not clearly articulate their methodology, a pattern that aligns with findings from earlier reviews in medical education (John et al., 2020). Research has also

suggested that reported methodologies may be misclassified. While we did not determine the methodologies, the labels used for some (e.g., descriptive study) did not indicate the specific approach employed to inform the study design. Misclassification of methodologies may be due to a deficiency in methodological comprehension, coupled with endeavours to enhance credibility by showing a more sophisticated study design.

Limited number of studies used qualitative and mixed-method designs, which can provide valuable insights into the experience of internationally-trained dentists (ITDs) (Lin et al., 2023). These approaches allow for a deep exploration of the complex social and cultural contexts that influence ITDs' academic and clinical performance. a nuanced understanding of the challenges and facilitators ITDs face, such as language barriers, cultural adaptation, and social integration. This approach enables researchers to triangulate findings, leading to more robust and holistic insights that inform targeted interventions and support mechanisms for ITDs (Chen et al., 2023)

Many studies in our review highlighted various characteristics of qualifying programs for ITDs, such as program structures, student demographics, and tuition costs. These findings align with the existing literature, which has extensively discussed the development of these programs in response to anticipated shortages of dental graduates.<sup>46</sup> Specifically, the programs identified in this review—ranging from undergraduate to graduate levels—are consistent with those described in previous studies (Surdu et al., 2021). However, this review also offers a more detailed examination of program diversity and tuition costs, aspects that are often less emphasized in other reviews. For instance, the financial burden on ITDs, with higher tuition fees compared to domestic students, underscores a significant barrier that has been documented but not thoroughly analysed in prior research. This detailed understanding

contributes to a more comprehensive overview of the challenges ITDs face and highlights areas for potential policy interventions.

Several studies included in this review consistently found that English proficiency predicted academic success among ITDs (Walton-Roberts et al., 2020). Specifically, Rojo et al. (2022) conducted a seminal study on nursing students, demonstrating that English-language acculturation significantly predicts academic performance in those whose primary language is not English (Rojo et al., 2020). They highlighted that nursing students with lower scores in English as a second language (ESL) exams tended to achieve lower mean subject grades. This finding underscores the critical role of English proficiency in influencing academic outcomes across various educational disciplines, as observed in the context of nursing education. The study by (McAllister et al., 2018) adds depth to our understanding by specifically examining how English-language acculturation impacts academic performance, paralleling the findings observed among ITDs in dentistry.

Furthermore, similar associations between English proficiency and academic performance have been reported among nursing students in other studies, reinforcing the robustness of this relationship in diverse educational settings. Therefore, integrating the insights from (Salamonson et al., 2008) and related studies enhances the understanding that English proficiency not only correlates with academic success among ITDs in dentistry but also echoes findings in nursing education. This supports the argument that proficiency in English as a second language plays a pivotal role in academic achievement across different academic programs and student cohorts (Virgilio et al., 2010). Furthermore, board examination results, specifically the National Board Dental Examination (NBDE), has been highlighted as significant predictors of performance in dental graduates. Success in these exams correlates with better academic outcomes among dental students (Mörch et al., 2021). For example, studies included in

this review consistently reported that higher scores on the NBDE correlate with higher mean subject grades and overall academic success among ITDs. This association underscores the importance of board examination performance as a determinant of academic achievement in dental education. Similarly, in medical education, specific board examination results, such as those from the American Board of Surgery (ABS) Qualifying and Certifying Examinations, have also been shown to predict performance in medical graduates. Research indicates that success on ABS exams correlates positively with academic outcomes among surgical residents (Virgilio et al., 2010). This correlation highlights the crucial role of board examination performance across healthcare disciplines in predicting academic success. By examining these correlations in both dental and medical education contexts, we deepen our understanding of how performance on standardized examinations influences broader academic outcomes in healthcare training programs (Ahern et al., 2019). This linkage underscores the consistent predictive value of board examination results in shaping academic achievement and underscores their significance as a measurable indicator of professional competence (Virgilio et al., 2010) .

The review extensively delved into the challenges and barriers encountered by ITDs. Across the studies, lower stipends, higher tuition costs, language disparities, and the arduous immigration process emerged as significant hurdles. Moreover, the competitive admission process and the sociocultural adjustments faced by ITDs underscored the intricate integration challenges within qualifying degree programs (Trevena, 2019) . Echoing our findings, a study on international medical graduates also shed light on similar challenges, including social, cultural, and language barriers (Steinberg et al., 2016). This underscores the generalizability of these obstacles across different healthcare professions. The stringent immigration process was similarly identified as a major challenge for international medical graduates (IMG). The recognition of these challenges emphasizes the necessity for targeted support mechanisms to enhance the experiences of ITDs. Recommendations such as developing targeted cultural competency

training, developing intercultural communication skills training programs, and creating opportunities for cultural immersion experiences (clinic rotations) were made to provide additional cultural training to IMGs, a measure that could be equally beneficial for ITDs (Webster et al., 2015).

The limitations of our study encompass both general limitations inherent to scoping reviews and those specific to our study. The predominance of studies from North America limits the generalizability of findings to other regions. Additionally, the lack of explicit methodology reporting in some studies hinders a comprehensive assessment of research rigor. Another limitation of this study is the absence of quality assessments for the included studies means that the rigor of the individual studies was not systematically evaluated, which could impact the reliability of the synthesized evidence. Additionally, we excluded papers in languages other than English due to limited resources for translation, which may affect the generalizability of our study findings. However, based on the number of papers included, we are confident that the inclusion of this literature would not have altered the patterns observed in the extracted data.

Future research should expand to include studies from diverse geographical regions beyond the US and Canada, as the challenges and experiences of ITDs in qualifying programs may vary significantly by location. Incorporating qualitative methodologies can provide deeper insights into the personal and social dimensions of ITDs' experiences, which are often overlooked in quantitative studies. Longitudinal research is also needed to track ITDs' progress from enrolment through post-graduation, offering a more comprehensive understanding of how well these programs prepare them for long-term practice in the host country. Additionally, developing and testing targeted interventions to address the common challenges faced by ITDs—such as language barriers, cultural disparities, and financial constraints—could lead to more effective support systems within qualifying dental programs.

## **2.6 CONCLUSION:**

The scoping review provides a comprehensive overview of the experiences, challenges, and performance of internationally-trained dentists (ITDs) in qualifying degree programs. The review highlights that while ITDs face significant challenges, such as language barriers, financial constraints, and cultural adjustments, they also demonstrate strong academic performance, particularly when supported by robust admission criteria and educational frameworks. The findings underscore the necessity for dental educators, policymakers, and researchers to address these challenges while leveraging the strengths of ITDs to enhance their integration and success in qualifying programs. This review lays the groundwork for future research and interventions aimed at optimizing the educational journey of ITDs, ultimately contributing to a more inclusive and effective global dental education system.

# ***CHAPTER THREE: Instructors' Perspectives of the Clinical Performance of Internationally-trained Dentists Enrolled in Dental Qualifying Program: A Qualitative Description Study***

## ***3.1. ABSTRACT***

**Objectives:** This qualitative study explored the instructors' perspectives on the clinical performance of advanced placement (AP) students, focusing on strengths, limitations, and recommendations for improvement.

**Methods:** Qualitative description guided the study design. Participants were full-time clinical instructors involved in the delivery of the DDS Advanced Placement program in the School of Dentistry at the University of Alberta. Instructors were purposefully selected using maximum variation sampling. Data were collected through individual, semi-structured interviews via Zoom and analysed using inductive, manifest content analysis in which categories and sub-categories were developed to account for the relevant data. Strategies to ensure methodological rigor included selecting information-rich participants and ensuring that the chosen research methods aligns with the research objective and is followed as expected.

**Results:** Twelve instructors were interviewed, 3 were males and 9 females ranging in age from 30 to 70 years. The study unveiled notable strengths such as the enthusiasm and dedication of AP students. Instructors emphasized the need for tailored skill development and cultural competence among AP students. Areas for improvement included a lack of clinical skills such as composite tooth preparation, hand skills, and radiographic taking skills, as well as habit modification from previous training. Instructors recommended conducting a comprehensive initial assessment, integrating AP students



earlier into the program, tailoring preclinical sessions tailored to address AP students' learning needs, and providing ongoing cultural training.

**Conclusion:** Qualifying dental programs are encouraged to comprehensively and continuously assess the clinical performance of AP students to provide the support they need throughout their training. The effectiveness and feasibility of instructors' recommendations to improve these programs remain to be elucidated. Data from these efforts will be crucial in correcting and refining educational strategies and support systems.

### 3.2. *INTRODUCTION*

Current licensure policies in Canada do not allow internationally-trained dentists (ITDs) to obtain direct licensure (Boorberg et al., 2009). In 1996 the Commission on Dental Accreditation of Canada, working closely with Canada's National Dental Examining Board (NDEB) and several Canadian universities, introduced a two or three year qualifying program for these professionals (Kogon et al., 2012). Another pathway to be eligible for dental accreditation and licensure is by completing board equivalency examinations governed by NDEB (Entry-to-Practice: Graduates of Non-Accredited Dental Programs - the National Dental Examining Board of Canada, 2024). Qualifying degree programs have been established to respond to the current criteria for dental licensure, address the projected shortage of dentists in Canada, generate revenues for dental schools, accommodate the increased need for dental licensure of ITDs, and ensure that ITDs pursuing dental licensure meet the existing standards of competence for dentistry in Canada (Boorberg et al., 2009).

Currently, eight universities in Canada (University of Alberta, University of Manitoba, University of Saskatchewan, University of Toronto, McGill University, Western University, Dalhousie University and Université de Montréal) offer dental qualifying programs to ITDs. (Contacts and Organizations -

the National Dental Examining Board of Canada, 2023). The University of Alberta (UofA) offers the DDS Advanced Placement program, a qualifying dental program, to applicants who are Canadian citizenship or permanent residents and have graduated from a four-year non-accredited dental program. These eligible applicants are required to demonstrate English proficiency, pass the Assessment of Fundamental Knowledge (AFK), an entrance examination governed by the NDEB, and complete a Pre-entry examination at the UofA (DDS Advanced Placement, 2024). Every year between 18 to 20 applicants enrol in the (DDS Advanced Placement, 2024). Despite the efforts made to meet the educational needs of ITDs, research has shown that they face numerous challenges to complete these programs. Such challenges relate to notable educational differences between international and Canadian programs, cultural and communication issues, and financial constraints (Kellesarian, 2018; Pannu et al., 2013).

Previous investigators have described existing qualifying programs and explored challenges, opportunities, and academic experiences of ITDs. They also compared the performance of international and domestic dental students (Kogon et al., 2012), and examined predictors of academic performance and clinical competency (Pitigoi-Aron, King, and Chambers 2011; Stacey and Whittaker 2005). While board examination results and English language proficiency test (e.g., TOEFL and IELTS) have been found to predict academic and clinical performance, the existing evidence is inconclusive (Stacey and Whittaker 2005). To date, limited evidence exists about the instructor views of the clinical performance of ITDs. Clinical instructors monitor and assess this performance on a regular basis using a variety of methods (e.g., direct observation, tests) and criteria (e.g., communication skills, clinical competency); therefore, they are in a position to report on strengths, and areas for improvement.

This study aimed to explore the perspective of instructors about the clinical performance of AP students in the School of Dentistry at the University of Alberta. Clinical performance was understood as the basic and advanced clinical competencies demonstrated by students throughout their training. Exploring instructors' views will help identify areas for improvement in the clinical performance of AP students and design strategies to address limitations. The research questions of this study were:

- What are the strengths and areas for improvement of the clinical performance of AP students according to their clinical instructors?

What are the recommendations of clinical instructors for enhancing the clinical performance of AP students.

### **3.3. *METHOD***

**3.3.1. *Study Design:*** Qualitative Description informed the study design. This well-established qualitative research method is suited to provide a straightforward, low-inference summary of individuals' views of a situated social phenomenon.(Bradshaw et al., 2017) The study was approached from a constructivist lens that presupposes a relative ontology (e.g., reality does not exist independent of individual consciousness), a subjective epistemology (e.g., knowledge is individually and socially constructed), and a value-driven axiology (Creswell & Cheryl N. Poth, 2016). Ethics approval for the study was obtained from the Human Research Ethics Board of the University of Alberta (Pro#00114218).

**3.3.2. *Setting and Participants:*** The advanced placement program at the University of Alberta commenced in 2000 and the first graduate class received their degree in 2002 (Boorberg et al., 2009).

The program duration was increased from two to three years in 2022. The estimated costs including the tuition and equipment & instrumental fees for this three-year program is approximately \$285,543. (DDS Advanced Placement, 2024)

Using maximum variation sampling, participants were purposefully chosen from a diverse pool of full-time clinical instructors teaching third- and fourth-year AP students across different disciplines, each possessing a varied level of experience. Instructors were invited to take part in a 30-minutes interview via e-mail by the first author (RM) in (Dillman Don A et al., 2016)

**Data Collection:** Written informed consent and a demographic questionnaire was collected from participants before the interviews. Data were collected through individual, semi-structured interviews. The interviews were conducted at a convenient time for the participants. All the interviews were conducted by a graduate student (RM) with formal training in qualitative research. The interview protocol, including opening, transitioning, main, and closing questions, was pilot tested with two instructors and included demographic and open-ended questions. Table 3 shows the main interview questions and their corresponding probing questions. The interview questions explored instructor's views of the clinical performance of AP students, especially strengths, limitations, and recommendations for improvement. The interviews lasted between 30 to 45 minutes.

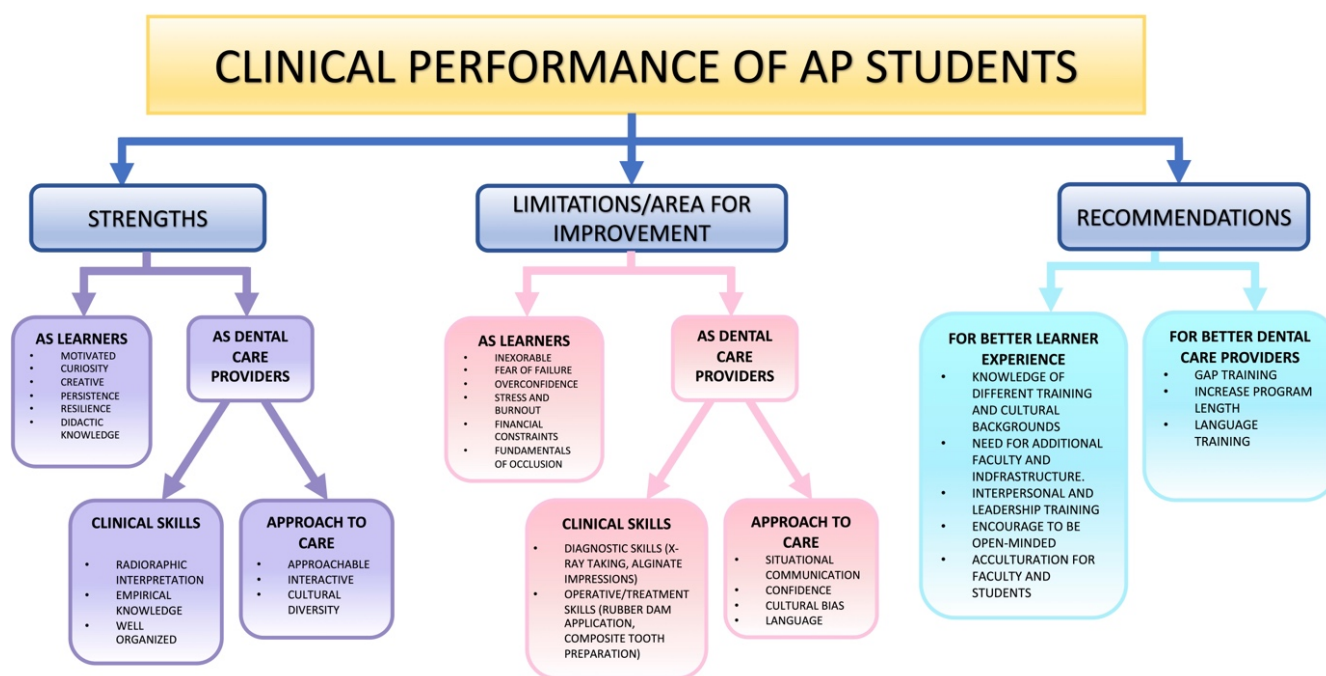
**Table 3-1 MAIN INTERVIEW QUESTIONS**

Sno.	Main Questions	Probing Questions
1.	How do you describe the clinical performance of AP students?	What are the main strengths?
		What are the main limitations (or areas for improvement)?
2.	Tell us about your experience training AP students	What works?
		What needs to be improved?
		What do you think that instructors should do to improve the training of AP students?
3.	Tell us about the interaction between AP students and patients	What needs to be improved?
		What barriers, if any, might affect this interaction?
		What would you recommend to improve the interaction between AP students and patients?
4.	How would you describe, in general, the interaction of AP students with other students?	What barriers, if any, might affect this interaction?
		What would you recommend to improve this interaction?

**3.3.3. Data Analysis:** Interviews were audio recorded and transcribed using Zoom transcription by Zoom Video Communications, Inc., San Jose, California, United States and Otter.ai, Mountain View, California, United States. Data were analysed using inductive content analysis (Morse, 2015) in which categories and sub-categories were inductively developed to account for the data without a preconceived framework. Transcripts were thoroughly read for familiarization with data. The data were systematically coded focussing on the manifest content (what instructors explicitly stated). Developed codes were sorted into potential categories and subcategories, which were discussed with the research team (RM,AP,MA). Improved categories and sub-categories were checked against the data to ensure that they account for the data sorted into each and the entire dataset. Representative quotes were selected to support the analysis. Table 3-2 represents the developed conceptual map. Several strategies were used

to ensure methodological rigors such as ensuring consistency between the research question and the chosen method, selecting information-rich participants, debriefing each interview to inform further data collection, reaching data saturation at a categorical level, and reporting prevalent and divergent views of the clinical performance of AP students (Morse, 2015).

**Figure 3-1 CONCEPTUAL MAP DESCRIBING STRENGTHS, AREAS FOR IMPROVEMENT AND RECOMMENDATIONS BY INSTRUCTORS’.**



### 3.4. RESULTS:

#### 3.4.1. Participant Instructors’ Demographics

Twelve individual interviews were conducted with full-time faculty members including 3 males aged between 53-70 years and 9 females aged between 30-70 years. The experience of the recruited participants was between 3 to 14 years. They were all clinical instructors, some of whom in leadership positions. The participants were from different disciplines including Orthodontics, Prosthodontics, Operative and Endodontics, and Paediatric dentistry. Consistent with the research questions, participants' views were related to strengths, areas for improvement, and recommendations for improving the clinical performance of AP students.

#### ***3.4.2. Strengths in AP students' Clinical Performance***

Instructors highlighted several strengths of AP students, both as learners and clinicians, which were assumed to influence their clinical skills and approach to care. AP students were consistently described by their instructors as "motivated" and "hardworking," attributes they believed could foster a positive learning environment. According to the instructors, these qualities also contributed to the students' clinical performance: *"I'm impressed by the positive attitude these AP students bring to the clinic. They are really eager to learn and take on new challenges. It creates a good atmosphere for everyone."* Moreover, instructors noted that the positive attitude and strong work ethics of AP students played a pivotal role in their clinical interactions. They described that good communication skills and politeness were strengths that facilitated positive relationships in clinical settings: *"...the quality of our candidates is quite amazing you know they come with excellent skills their communication skills are very good. I think overall, they're really, really good listeners, like they're very interested in different techniques and open to learn those techniques. Yeah, that would be the main positive one, very polite."*

Instructors reported that despite encountering various challenges such as cultural differences, language barriers, and diverse working environments, AP students demonstrated resilience. Instructors observed their persistent efforts to overcome obstacles and pursue their objectives with unwavering determination: “... *they are so brave, to be honest, and I also think that they are very hard working, because when they arrive, like at the school to start the programme, they face so many challenges at the beginning.... And very passionate.*”

Most AP students were described by their instructors as approachable and open to feedback, actively seeking opportunities for professional growth. Instructors appreciated their proactive approach to learning new skills, acknowledging their commitment to self-improvement even in the face of difficulties. Reflecting on their experience, an instructor stated: “*I’ve given feedback to a few, and I appreciate their openness to it. They don’t shy away from constructive criticism and show a genuine interest in improving.*” In the words of another instructor “*I’ve seen them grow from someone timid to someone extremely competent and skilled*”.

Instructors praised AP students for their solid grasp of clinical and empirical knowledge, particularly highlighting their exceptional skills in “radiographic interpretation”.

One of the instructors shared their perspective by saying: “*There is a bit lack of experience in terms of practice taking x rays, but they are very nice in interpretation, for example.*” The organization skills of AP students was also commended by the instructors, proving beneficial during clinical procedures. Sharing their perspective, an instructor conveyed: “*..., they’re really well-organised when it comes to their own treatments, so they prepare well for the procedure.*”

Additionally, instructors noted that AP students exhibited approachability and interacted effectively with patients, demonstrating a thorough understanding of treatment plans and procedures:



*“I would see that there are some that are very caring and very interactive”.* According to the instructors, their cultural diversity contributed positively to clinic dynamics, particularly in addressing language barriers and fostering inclusive patient care. One instructor elaborated *“It's actually sometimes very helpful if we have patients that do speak a certain language and we have certain students that can help either they do the treatments I think that is for the patient really, really good.”*

External factors such as family responsibilities and personal situations were recognized as potential influencers on the clinical performance of AP students by the instructors. According to them, stable family lives were associated with better performance, while challenges at home could impede progress in the program. As expressed by an instructor: *"If the family life is good, things are good. But if they have troubles at home, things aren't going well [at school], but I think they really try hard."*

Overall, AP students' dedication to learning and their ability to overcome obstacles were key strengths noted by instructors, highlighting their potential as competent and skilled clinicians.

#### ***3.4.3. Areas for Improvement in Clinical Performance:***

Instructors identified several areas for improvement among AP students, both in their capacity as learners and clinicians, which were further delineated based on clinical skills and approach to care. Notably, instructors observed the presence of both "old habits" and "bad habits" among some AP students, suggesting a resistance to change possibly stemming from prior training.

In their own words, one participant highlighted: *“I find that they have some preconceived ideas sometimes about what they should be doing, or how things are done. And depending on where they were*

*trained, it may not be appropriate in this day and age, or so, that's what I mean is that they come in with preconceived ideas."*

Breaking away from these ingrained practices and adopting new techniques was seen as challenging by instructors, particularly due to the varying skill levels among students: *"One challenge is the variation in skill levels. Some students come with more hands-on experience than others. We need to address this diversity more effectively."* Echoing similar sentiments, another participant noted *"... these students come from a wide variety of dental schools and different countries. Some of them have never placed a rubber dam others have not used composites or sectional matrix; and many of them have never used digital X-rays."*

Specific challenges were noted by the instructors in techniques such as composite preparation and placement, x-ray procedures, and the use of curettes. One of the instructors shared their perspective by saying *"I noticed a few students struggling with certain techniques, particularly composite placement. It seems like there are gaps in exposure, possibly due to their different educational backgrounds."*

Additionally, instructors mentioned while some students demonstrated strong hand skills, others required improvement in this area, prompting suggestions for more focused hand skill development through additional preclinical sessions. One of the instructors emphasized, *"Areas that need clinical improvement include the use of an ultrasonic scaler, use of curettes rather than just sickle scalars ... the ability to perform root planning, detect calculus, use periodontal probe or a nabers probe, and take and interpret X-ray."* Adding to the discussion, an instructor offered: *"Hand skills vary among students. While some show excellent dexterity, others need more work in this area. We might want to focus on dedicated sessions for hand skill development."*

Diagnostic skills and the tendency to prioritize speed over patient comfort during procedures were highlighted as area needing improvement, illustrated in the words of an instructor: *“We have holders that are placed in a patient's mouth. Sometimes, there is a tendency to rush and invade the patient space, being super-fast and potentially hurting the patient. And then the patient complains.”*

They also described a limitation in the approach to patient care, where there is a tendency among some students to instruct patients rather than engage in a collaborative dialogue. This suggests a need for improvement in communication and interpersonal skills to foster a more patient-centred approach. *“When you're a physician or a dentist or whatever, you just tell the patient things as opposed to collaborating with the patient.”*

Areas for improvement also included barriers undermining the clinical performance of internationally-trained dental students like financial constraints were also cited as significant barriers to learning for AP students by the instructors: *“They pay almost three times more than the other students. And there is living costs and exams ... and time management as well.”*

In summary, instructors outlined areas for improvement from both learner and clinician perspectives and suggested remedies to address these shortcomings.

#### ***3.4.4. Recommendations for Improvement:***

Instructors highly valued the contributions of AP students and offered a range of recommendations aimed at improving their learning experiences and enhancing their capacity as dental care providers. Educationally, instructors advocated for a thorough initial assessment of AP students upon entry, including “hands-on tests”, to gauge their proficiency levels. One of the recommendations was: *“We*

*could implement a more thorough initial assessment process, perhaps hands-on tests or interviews, to better understand each student's skill level and background."*

They proposed that integrating AP students earlier into the program, possibly in the first year, could be more advantageous: *"It would be probably just more efficient if we could bring them in year one."*

Continuous support and monitoring were seen as essential for identifying and addressing challenges faced by AP students early on. To address varying levels of experience among students, instructors suggested tailored interventions such as "more focused preclinical sessions" and "hands-on skill development" for those encountering difficulties. Instructors shared their perspectives, with one stating *"... more tailored preclinical sessions, focusing on hands-on skills. This could help bridge the gap among students with varying levels of experience"*

Recognizing the significance of effective communication in the clinical setting, instructors emphasized the need for cultural training sessions for both students and instructors to navigate communication and language differences. The instructors recommended implementing training programs that enhance cultural sensitivity, including interactive sessions with simulated patients to practice effective communication. They stressed the importance of supporting the well-being of AP students, particularly concerning cultural adjustment challenges, as crucial for their success... *"I like those introductory rounds, where students kind of explain a little bit their backgrounds. And I think it's always important to understand that there's different cultures and maybe different hierarchies. So I think it's nice for the students to know when they join, like, we don't really have that hierarchy, like they're not. So no one is really superior or inferior, we're here to help and support them. So I think getting that out of like, that's how someone was brought up, like, you can change that from one day to*

*another. But yeah, make sure you're getting that awareness that there are different cultures and different backgrounds. You know, being open, I think both sides have to be open for that”.*

They proposed establishing a system for regular evaluation of the program's effectiveness, incorporating feedback from both students and faculty, to continually adapt and better address the evolving needs and challenges of AP students. An interesting point raised by one participant was :*"Considering our diverse student population, cultural training could enhance awareness. Additionally, language proficiency assessments might be useful to address potential language barriers."*

Furthermore, instructors encouraged AP students to maintain a positive mindset, urging them to embrace broad learning experiences and remain observant of their surroundings. As recommended by one instructor: *“If you're asking me to suggest ways to improve ... I would like to tell them to switch their mind and be open minded to absorb everything. It's not that I'm telling them forget what you had. And this is not correct. But open your mind to absorb new things.”* Another added to the recommendation *"Encouraging interaction between AP and regular students through events or collaborative projects could break down social barriers and foster a more integrated learning environment."*

Instructors advised against dwelling on barriers and challenges, emphasizing the importance of utilizing the three-year program to expand AP students' knowledge and skills in the field.

Overall, instructors provided a comprehensive overview of the strengths and areas for improvement in the clinical performance of AP students, underscoring the importance of tailored interventions and ongoing support to optimize their success in dental programs. They emphasized the need for an open-minded approach and continuous adaptation throughout the three-year learning journey for AP students.

### 3.5. *DISCUSSION:*

This qualitative descriptive study describes the perspectives of twelve full-time clinical instructors at the University of Alberta's School of Dentistry regarding the clinical performance of advanced placement students. The study identifies strengths, areas for improvement, and instructor recommendations based on semi-structured interviews. These findings offer a comprehensive understanding of the AP students' clinical journey, providing valuable insights into their performance and the perceptions of their instructors.

Several strengths of AP students were reported, which were related to their clinical skills and approach to care. The motivation of AP dental students to acquire clinical knowledge and skills is pivotal in assessing their performance and identifying areas for improvement. Similar to internationally-trained dental students, internationally-trained nursing and medical students often demonstrate intrinsic motivation driven by a genuine interest in their field and a desire for competence. Bengtsson and Ohlsson (2010) highlight that internationally-trained nursing and medical students possess an internal drive to master their disciplines, a characteristic also observed in AP dental students. This shared intrinsic motivation underscores the importance of recognizing and fostering such attitudes within dental education to enhance clinical performance and professional development (Bengtsson & Ohlsson, 2010). Instructors reported that AP students demonstrated dedication and passion for dentistry, particularly in overcoming challenges such as cultural differences and language barriers. This commitment underscores the students' intrinsic motivation and highlights areas where further support can enhance their clinical performance. A similar study on internationally-trained psychology students highlighted the significance of resilience in overcoming challenges, particularly cultural differences and

language barriers (Jones et al., 2018). International psychology students, like ITDs students, often encounter diverse cultural contexts and linguistic complexities during their educational and clinical experiences. Despite these challenges, both groups demonstrated resilience by adapting to new environments, navigating cultural nuances, and effectively communicating with diverse populations (Jones et al., 2018)

The AP students' organization skills, solid grasp of clinical knowledge, and distinctive skills in radiographic interpretation were also commended by instructors, underscoring their potential as competent clinicians. These findings can be related to the fact that many AP students have practiced as dentists in their country for some time or as dental assistants immediately before joining the qualifying programs in the host countries (Kogon et al., 2011).

In their study, Kodjo and colleagues (2009) highlighted the perceived benefits of cultural diversity among AP students, particularly its role in overcoming language barriers and promoting inclusive patient care. These findings resonates deeply with broader discussions on cultural competence in clinician communication and underscore the significance of healthcare providers understanding and navigating cultural differences to facilitate effective communication with patients from diverse backgrounds (Kodjo et al., 2009). Interviews conducted for current study revealed additional insights into the impact of cultural diversity among AP students. Participants consistently highlighted how diverse backgrounds and experiences enrich educational environments and contribute to culturally competent care delivery. For instance, students' varied perspectives enhance patient-provider communication and foster trust, which aligns with the goals of culturally sensitive healthcare practices (Kodjo et al., 2009). Drawing parallels between these findings and existing research emphasizes that embracing cultural diversity not only enhances the educational experience for AP students but also holds

potential benefits for improving patient outcomes through culturally competent healthcare practices. By integrating interviews from current study with the findings of Kodjo.'s research on cultural competence in clinician communication, this discussion offers comparative insights that enrich the understanding of the impact of cultural diversity on educational settings and healthcare delivery. The comparative approach highlights the importance of cultural competence in both educational and clinical environments, ultimately enhancing the quality of healthcare delivery.

In addition to the strength, instructors identified several areas for improvement among AP students, ranging from technical skills to interpersonal interactions. The finding concerning students exhibiting resistance to change and relying on outdated practices from prior training, as well as struggling with varying skill levels and diagnostic abilities, aligns with the challenges identified for international medical graduates (IMGs) in the US graduate medical education and healthcare system environment in a recently conducted review (Zepeda et al., 2022). This review highlights the difficulties faced by IMGs, including adapting to new healthcare systems, navigating cultural differences, and addressing variations in educational backgrounds (Zepeda et al., 2022). Similarly, students in the current study exhibited similar challenges, such as difficulty adjusting to new techniques and overcoming disparities in skill levels acquired from different educational contexts. This parallel underscores the significance of providing targeted support and training programs tailored to address the specific needs of learners transitioning to new educational or professional environments, whether in dental or medical fields. By acknowledging these challenges and implementing strategies to mitigate them, educators can better support learners in their journey toward proficiency and competence in their respective disciplines.



The challenges described by the instructors' in communication and patient interaction, specifically concerning speed and patient comfort, resonate with the findings from the systematic review by Pilotto, Duncan, and Anderson-Wurf (2007). The review outlines issues faced by clinicians in training IMGs, which often include difficulties in effective communication due to language barriers, cultural differences, and varying communication styles. These challenges underscore the importance of cultural sensitivity training and enhanced communication skills for both clinicians and AP students to ensure effective patient care and rapport building (Pilotto et al., 2007). By addressing these issues through targeted training programs and support mechanisms, educators and healthcare providers can facilitate better interactions between ITDs and patients, ultimately improving the quality of healthcare delivery and patient satisfaction.

Additionally, the recognition of family responsibilities and financial constraints as external factors that may affect the clinical performance aligns with the challenges experienced by ITDs in the United States (Kellesarian 2018). This study discussed the various hurdles faced by ITDs, including navigating unfamiliar healthcare systems, obtaining licensure, and adapting to cultural differences (Kellesarian 2018). Moreover, the study underscored the importance of addressing these challenges through supportive measures and resources to facilitate the successful integration and practice of foreign-trained dentists in the U.S. healthcare environment. By acknowledging and providing holistic support for factors such as family responsibilities and financial constraints, institutions can better assist foreign-trained dentists in overcoming barriers to their clinical performance and professional success.

Instructors participated in this study proposed a range of recommendations aimed at enhancing the learning experiences and clinical proficiency of AP students including a comprehensive initial assessment process, earlier integration into the program, and tailored interventions to address skill

disparities. These recommendations are similar with another study on foreign-trained dentists' perceived knowledge and skills after graduation from a structured two-year program (Kogon et al., 2011). The authors similarly emphasized on the importance of a comprehensive initial assessment process aligned with the necessity for structured programs to gauge individual skill levels and identify areas requiring improvement among foreign-trained dentists. These findings are similar to that presented in Kogon (2011) study, which likely underscores the importance of thorough assessments at the beginning to facilitate targeted support and training throughout the program (Kogon et al., 2011). Moreover, the concept of earlier integration into the program resonates with the idea of providing foreign-trained dentists with opportunities for early acclimatization to program requirements and expectations, potentially fostering smoother transitions and optimizing educational experiences. The study by Jones, 2018 also provided insights into effective strategies such as cultural sensitivity training, early integration, and regular evaluation, which can be used for supporting and empowering ITDs from diverse backgrounds in their academic and clinical pursuits (Jones et al., 2018)

Additionally, the recommendation of tailoring interventions to address skill disparities is consistent with the need for individualized support mechanisms aimed at enhancing the knowledge and skills acquisition of ITDs. By aligning with principles of tailored interventions as outlined in a review on addressing determinants of practice (Baker et al., 2015) these interventions are designed to cater specifically to the unique backgrounds and skill levels of each dentist, ensuring they receive personalized assistance throughout their educational journey. This approach also embraces principles of diversity and inclusion by recognizing and accommodating the diverse learning needs of foreign-trained dentists within structured programs (Baker et al., 2015). Moreover, by emphasizing continuous professional development, these programs not only facilitate skill enhancement but also foster a supportive environment for dentists' successful integration into dental practice settings. Ultimately, this

tailored approach underscores the importance of addressing individual differences in skill levels and learning requirements within educational programs, promoting equitable access to quality training and support (Baker et al., 2015).

Culturally, there was a strong emphasis on the importance of conducting cultural training sessions for both students and instructors to navigate diverse backgrounds effectively. In considering the findings of Mori's (2000) investigation into the well-being of international students, parallels can be drawn with our study. Mori's research elucidates how international students navigate challenges similar to those faced by dental AP students, including cultural disparities and linguistic barriers. This study explores the mental health concerns of international students, highlighting their experiences with cultural adjustment and language difficulties (Mori, 2000). These findings are similar to the experiences of dental AP students, who also encounter comparable challenges in educational and clinical settings. It is plausible that both studies underscore the significance of tailored support mechanisms, such as counselling services, to aid students in overcoming these obstacles (Mori, 2000). Moreover, Mori's findings may underscore the necessity of cultural sensitivity training for both educators and students, mirroring the recommendations posited in the current study. Furthermore, the notion of fostering a sense of community support, as suggested by Mori, resonates with the imperative highlighted in our research to cultivate a conducive and supportive learning environment for dental AP students. These congruences underscore a shared emphasis on nurturing resilience and promoting holistic well-being among diverse student cohorts, irrespective of the academic discipline under examination (Mori, 2000).

Moreover, instructors' emphasis on the necessity for continuous support and evaluation of program effectiveness, incorporating feedback from stakeholders to adapt and address evolving needs, resonates with the framework outlined in the "PENN PASS" program for graduates of foreign dental

schools, as described by Berthold (1994). Similar to our study, Berthold highlight the importance of ongoing assessment and refinement to ensure the program remains responsive to the changing requirements and challenges faced by foreign-trained dental graduates (Berthold & Lopez, 1994). By incorporating feedback from various stakeholders, including program participants and faculty, institutions can tailor their support mechanisms and educational strategies to better meet the evolving needs of foreign-trained dental graduates. This iterative process of evaluation and adaptation is crucial for optimizing program outcomes and fostering the successful integration of foreign-trained dental graduates into the dental profession.

Overall, our findings show the multifaceted nature of AP students' clinical journey, highlighting the interplay between strengths, challenges, and recommendations for improvement. By understanding and addressing these dynamics, educational institutions can better support the success of AP students in dental programs, fostering a diverse and competent dental workforce poised to meet the evolving needs of patients and communities.

In discussing the study's limitations, it is essential to emphasize the strategies employed to address these constraints effectively. First, the study acknowledges the restricted sample size but emphasizes the strategic use of maximum purposeful sampling, ensuring depth and richness in the data obtained from the twelve full-time faculty members. Second, while the study involves faculty from a single school, transparency is emphasized to facilitate the replication of this research in diverse settings with similar curricula across dental schools in North America. Lastly, the author acknowledges the limitation of a single interviewer but addresses this by incorporating discussions between research team after the interviews, enhancing the reliability and credibility of the results.

Future directions for research include longitudinal studies to track the professional development and integration of dental AP students, assessing how their clinical performance evolves with sustained support and training interventions. Further investigation into the efficacy of specific educational strategies, such as cultural sensitivity training and tailored skill development programs, is warranted to optimize these approaches for improving the educational and clinical outcomes of dental AP students. Comparative research across diverse dental school settings and geographic regions would provide a comprehensive understanding of the factors influencing the success and challenges encountered by dental AP students in varied educational environments.

### **3.6. *CONCLUSION:***

Our research yielded a nuanced understanding of both the strengths of and challenges encountered by AP students in their clinical performance as viewed by their instructors. The recommendations put forwarded by instructors serve as comprehensive guide for enhancing the educational approach, support systems, and cultural awareness initiatives embedded in the dental programs. Implementing these recommendations has the potential to not only address current challenges but also foster a more inclusive and supportive learning environment for AP students, contributing to their overall success as dental practitioners.

## ***CHAPTER FOUR: Discussion and Conclusion***

The overall goal of this thesis was to shed light on the clinical performance of internationally-trained dentists (ITDs) in qualifying dental programs and to gain a deeper understanding of the instructors' perspectives on the strengths, limitations, and necessary improvements in these programs, ultimately aiming to enhance the training and integration of ITDs into the dental workforce. First, I conducted a scoping review to map the currently available knowledge on internationally-trained dentists admitted in dental qualifying programs. This was followed by exploring instructors' perspectives of clinical performance of internationally-trained dentists enrolled in the School of Dentistry at the University of Alberta through a qualitative study.

The scoping review revealed a prevailing emphasis on quantitative methodologies in research concerning internationally-trained dentists seeking qualification in dental programs. This trend mirrors broader patterns in dental education research, where quantitative data is frequently used to assess outcomes like academic performance, clinical proficiency, and licensure examination success rates (Noyes et al., 2019). However, this focus on measurable outcomes may overlook the complex sociocultural, linguistic, and contextual challenges that internationally-trained dentists face (Burke et al., 2009). To fully understand the multifaceted nature of their educational experiences and professional integration, incorporating qualitative research methods, such as interviews and focus groups, is crucial (Hamilton & Finley, 2019). This approach would provide deeper insights into the lived experiences of both internationally-trained dentists and those who educate them, thereby informing the development of more inclusive and effective educational policies.

The variation in program structures and characteristics underscores the lack of standardization across dental programs for ITDs. While the diversity allows for tailored approaches depending on regional and institutional goals, it may also contribute to inconsistency in training outcomes (Alhejji et al., 2016). The lack of shorter programs (less than two years) might be indicative of a robust attempt to ensure thorough requalification, yet this also increases the burden on ITDs in terms of time and financial commitments. The higher tuition fees in the U.S. compared to Canada raise concerns about accessibility and equity, particularly for candidates from lower-income backgrounds or developing countries (Frenette, 2005). This financial disparity might inadvertently limit the pool of qualified ITDs entering the profession, potentially leading to a less diverse workforce. The challenges faced by ITDs, particularly academic and financial barriers, are not merely individual obstacles but reflect systemic issues within the educational framework (Smith & Khawaja, 2011). The emphasis on standardized tests like TOEFL and NBDE in admissions processes, while providing a measure of academic preparedness, might overlook other critical aspects of an ITD's ability to succeed, such as cultural adaptability and hands-on clinical skills (Hee Kim and Darya Zabelina, 2015). The stringent immigration processes and financial constraints exacerbate these challenges, often placing ITDs in a precarious position where their educational and professional future is uncertain (Hari et al., 2023). These barriers, particularly those related to language proficiency and cultural adjustments, suggest a need for support systems that go beyond traditional academic assistance. Programs could benefit from incorporating mentorship, cultural competence training, and psychological support to help ITDs navigate these challenges more effectively (Sue et al., 2009). The identification of standardized exams such as the NBDE and TOEFL as strong predictors of academic success for internationally-trained dentists (ITDs) is a noteworthy finding that carries significant implications for both admissions processes and educational outcomes. These exams are designed to assess core competencies in dental knowledge and English language proficiency, which

are crucial for navigating the academic and clinical demands of dental programs in host countries. However, the reliance on these standardized metrics may inadvertently narrow the scope of evaluation, privileging certain skills while potentially overlooking other critical attributes such as clinical dexterity, cultural adaptability, and interpersonal communication. This could lead to the exclusion of otherwise capable candidates who might excel in practical settings but do not perform as well on standardized tests (Encalada Grez et al., 2023). Therefore, while these predictors serve as valuable tools for assessing baseline readiness, there is a growing need to supplement them with more comprehensive evaluation methods that capture the diverse skill set required for success in dental practice (McDonald and Paganelli, 2021). Integrating assessments that measure practical skills, cultural competence, and adaptability alongside traditional metrics could provide a more holistic understanding of an ITD's potential, ultimately leading to more informed admissions decisions and better educational outcomes (Zhao et al., 2023). The results point to the importance of developing more inclusive and flexible dental programs that accommodate the unique needs of ITDs. This could involve adjusting curriculum designs to provide additional support in areas like language proficiency and cultural competence, ensuring that ITDs are not only academically prepared but also well-integrated into the clinical and social fabric of their programs (Smith Clayton A. et al., 2019). Moreover, the financial and administrative barriers highlighted in the review suggest that institutions and policymakers need to consider strategies to reduce these burdens, possibly through scholarships, financial aid, or streamlined immigration processes.

Complementing the findings of the scoping review, the qualitative description study delved into the perspectives of instructors regarding the clinical performance of dental advanced placement (AP) students at the University of Alberta's School of Dentistry. Through qualitative interviews, a nuanced understanding emerged, shedding light on various facets of AP students' clinical journeys. The



qualitative study provided rich insights into the strengths, areas for improvement, and some recommendations to optimize the clinical trajectory of AP students, thereby complementing the quantitative findings of the scoping review.

#### ***4.1 Strengths in clinical performance***

The findings of the qualitative study underscored several strengths exhibited by AP students, significantly influencing their clinical skills and approach to care. The motivation of AP students to acquire clinical knowledge and skills emerged as a crucial factor in evaluating their performance and identifying areas for improvement (Olsson et al., 2020). Similar to nursing and medical students, dental AP students often exhibit intrinsic motivation driven by a genuine interest in dentistry and a desire for competence in their field. Additionally, AP students demonstrated resilience in overcoming challenges, such as cultural differences and language barriers, reflecting their dedication and passion for dentistry (Jones & Cope, 2018). This resilience parallels findings in other studies on psychology students facing similar cultural and linguistic complexities during their educational and clinical experiences (Jones et al., 2018).

Moreover, effective strategies such as cultural sensitivity training, early integration, and regular evaluation were identified as supportive mechanisms for empowering APs from diverse backgrounds in their academic and clinical pursuits (Jones et al., 2018). Their organized nature, solid grasp of clinical knowledge, and exceptional skills in radiographic interpretation were also commended by instructors, underscoring their potential as competent clinicians. These findings are consistent with the fact that many AP students have prior experience as dentists in their country or as dental assistants before joining the program (Kogon, Banting, & Sandhu, 2011). The perceived benefits of cultural diversity among AP students in addressing language barriers and promoting inclusive patient care resonate with discussions

on cultural competence in clinician communication, emphasizing the role of healthcare providers in fostering effective communication with patients from diverse backgrounds (Kodjo, 2009).

## **4.2 *Areas for improvement***

Instructors identified several areas for improvement among AP students, ranging from technical skills to interpersonal interactions. Students exhibited resistance to change and relied on outdated practices from prior training, struggling with varying skill levels and diagnostic abilities, similar to challenges identified for international medical graduates (Murillo Zepeda et al., 2022). These challenges underscore the significance of providing targeted support and training programs tailored to address the specific needs of learners transitioning to new educational or professional environments, whether in dental or medical fields.

Challenges identified in communication and patient interaction, specifically concerning speed and patient comfort, resonate with findings from systematic reviews outlining issues faced by clinicians in training international medical graduates (Pilotto et al., 2007). Cultural sensitivity training and enhanced communication skills were identified as essential for both clinicians and APs to ensure effective patient care and rapport building (Pilotto et al., 2007). Moreover, external factors such as family responsibilities and financial constraints were recognized as potential influencers on clinical performance, aligning with challenges highlighted in studies on internationally-trained dentists (Kellesarian, 2018). Addressing these challenges through supportive measures and resources can facilitate the successful integration and practice of AP students in dental programs.

## **4.3 *Recommendations***

Instructors proposed a range of recommendations aimed at enhancing the learning experiences and clinical proficiency of AP students. Recommendations included a comprehensive initial assessment process, earlier integration into the program, and tailored interventions to address skill disparities. These recommendations align with the necessity for structured programs to gauge individual skill levels and identify areas requiring improvement among internationally-trained dentists (Kogon et al., 2011). Furthermore, the emphasis on continuous support and evaluation of program effectiveness resonates with frameworks outlined in programs for graduates of foreign dental schools (Berthold & Lopez, 1994). By incorporating feedback from various stakeholders, institutions can tailor their support mechanisms and educational strategies to better meet the evolving needs of internationally-trained dental graduates.

Overall, the discussion encapsulates the multifaceted nature of AP students' clinical journey, highlighting the interplay between strengths, challenges, and recommendations for improvement. By understanding and addressing these dynamics, educational institutions can better support the success of AP students in dental programs, fostering a diverse and competent dental workforce poised to meet the evolving needs of patients and communities. In acknowledging the study's limitations, strategies were employed to reduce bias and enhance the trustworthiness of the findings.

By integrating the findings of both the scoping review and the qualitative study, a comprehensive understanding of the educational pathways and professional trajectories of internationally-trained dentists in qualifying dental programs emerges. The quantitative focus of the scoping review provides valuable insights into the prevalence of quantitative methodologies in dental education research, while the qualitative study offers nuanced insights into the lived experiences and perspectives of instructors regarding the clinical performance of AP students.

#### **4.4 *Limitations***

In discussing the limitations of the study, it is important to acknowledge the restricted sample size of the qualitative study and the potential for bias in participant selection. However, efforts were made to mitigate bias through maximum purposeful sampling and transparent reporting of the study methodology. In our study, we utilized maximum purposeful sampling by deliberately selecting participants who represented a broad spectrum of relevant characteristics, such as age, gender, different departments, and level of experience, to ensure that our sample was as inclusive and representative as possible. This approach was critical to capturing a diverse range of perspectives and reducing selection bias. Additionally, we adhered to rigorous standards for transparent reporting. We meticulously documented our research methodology, including participant selection criteria, data collection procedures, and analysis techniques. By following established reporting guidelines and providing detailed descriptions of our methods, we aimed to enhance the study's credibility and facilitate reproducibility. Additionally, the findings of the qualitative study are specific to the context of the University of Alberta's School of Dentistry and may not be generalizable to other educational settings. It is also important to consider the potential for response bias, as participants may have provided socially desirable answers during interviews, particularly given the hierarchical relationship between instructors and the institution. Furthermore, the reliance on self-reported data from instructors could introduce subjectivity, which may not fully capture the complexities of students' performance or the nuances of their challenges. Another limitation is the cross-sectional nature of the qualitative study, which captures perspectives at a single point in time and may not reflect changes in instructors' views or student performance over time. Finally, the exclusion of ITDs' perspectives themselves is a notable limitation, as their firsthand experiences could provide a more comprehensive understanding of the challenges and successes within the AP program. These limitations suggest that future research could benefit from

longitudinal studies, the inclusion of ITD perspectives, and the use of mixed methods to provide a more balanced and robust understanding of the issues at hand. Nonetheless, the qualitative study provides valuable insights into the clinical experiences of AP students and offers a foundation for future research in this area.

## **4.5 Implications**

Overall, the findings from both the scoping review and the qualitative study have important implications for research, practice, and policy in the field of dental education. By addressing the unique needs and challenges faced by AP students, educators, clinicians, and policy makers can work together to ensure that internationally-trained dentists receive the support and resources they need to succeed in qualifying dental programs and contribute to the dental workforce.

### **4.5.1 Implications for Research:**

The findings from both the scoping review and the qualitative study offer valuable insights for future research endeavors in the field of dental education and the integration of internationally-trained dentists into qualifying dental programs. Researchers can build upon the quantitative focus identified in the scoping review by conducting more qualitative studies to explore the lived experiences, challenges, and successes of AP students. Additionally, longitudinal studies tracking the academic and professional trajectories of AP students could provide valuable data on the long-term outcomes of interventions aimed at supporting their integration into dental programs. Comparative studies across different educational settings and countries could also offer insights into the effectiveness of various support mechanisms and interventions.

#### 4.5.2 *Implications for Practice (Clinician and Educator):*

For clinicians, the findings emphasize the importance of cultural sensitivity and effective communication skills in providing quality care to diverse patient populations. Clinicians working with AP students should be aware of the challenges these students face and be prepared to offer support and guidance as they navigate the transition to a new healthcare system. Additionally, educators can use the findings to inform curriculum development and teaching practices, ensuring that AP students receive the support and resources they need to succeed in their studies and clinical practice. Cultural sensitivity training, early integration into the program, and tailored interventions to address skill disparities are all strategies that educators can implement to support AP students in their educational journey.

#### 4.5.3 *Implications for Policy:*

The findings have implications for policy makers involved in shaping policies related to the integration of internationally-trained dentists into qualifying dental programs. Policy makers should consider the unique needs and challenges faced by AP students and work to develop policies that support their successful integration into the dental workforce. This may include providing funding for cultural sensitivity training programs, establishing mentorship programs to support AP students, and streamlining the process for obtaining licensure and accreditation for internationally-trained dentists. Additionally, policies should be developed to ensure that educational institutions have the resources and support they need to effectively support AP students and provide them with a high-quality education.

### 4.6 *Future directions*

Building upon the insights gained from both the scoping review and the qualitative study, several avenues for future research and action emerge in the realm of dental education and the integration of internationally-trained dentists into qualifying dental programs.

#### 4.6.1. **Longitudinal Studies:**

Future research could focus on conducting longitudinal studies to track the academic and professional trajectories of AP students over time. These studies could provide valuable data on the long-term outcomes of interventions aimed at supporting the integration of internationally-trained dentists into dental programs. By following AP students from admission to graduation and beyond, researchers can assess the effectiveness of various support mechanisms and identify factors contributing to their success or challenges faced along the way.

#### 4.6.2. **Comparative Research:**

Comparative studies across different educational settings and countries could offer insights into the effectiveness of various support mechanisms and interventions. By examining the experiences of AP students in different contexts, researchers can identify best practices and strategies for supporting their integration into dental programs. These studies could also shed light on the impact of cultural, linguistic, and contextual factors on the educational experiences and professional outcomes of AP students.

#### 4.6.3. **Intervention Studies:**

Intervention studies aimed at implementing and evaluating specific support programs for AP students could provide valuable evidence for effective strategies in dental education. These programs could include cultural sensitivity training, mentorship initiatives, early integration into the program, and tailored interventions to address skill disparities. By rigorously evaluating the impact of these

interventions on student outcomes, researchers can identify effective approaches for supporting the success of AP students in dental programs.

#### **4.6.4. Policy Development:**

Policy makers can draw upon the findings of both the scoping review and the qualitative study to inform the development of policies aimed at supporting the integration of internationally-trained dentists into qualifying dental programs. Policies could focus on providing funding for cultural sensitivity training programs, establishing mentorship programs, streamlining the licensure and accreditation process for internationally-trained dentists, and ensuring that educational institutions have the resources and support they need to effectively support AP students.

#### **4.6.5. Professional Development for Educators:**

Educators can benefit from professional development opportunities focused on enhancing their cultural competence and effectiveness in supporting AP students. Workshops, seminars, and training programs could provide educators with the knowledge, skills, and tools needed to effectively mentor and teach AP students from diverse backgrounds. By investing in the professional development of educators, institutions can create a more inclusive and supportive learning environment for AP students.

In conclusion, future research and action in the field of dental education should focus on longitudinal studies, comparative research, intervention studies, policy development, and professional development for educators. By addressing the unique needs and challenges faced by internationally-trained dentists, researchers, educators, clinicians, and policy makers can work together to ensure the successful integration of AP students into dental programs and the dental workforce.

## **4.7 Conclusion**



In conclusion, the synthesis of findings from both the scoping review and the qualitative study underscores the complexities and opportunities surrounding the integration of internationally-trained dentists into qualifying dental programs. While the scoping review highlighted the predominance of quantitative research in this area, the qualitative study provided valuable insights into instructors' perspectives, revealing both strengths and areas for improvement among AP students.

The identified strengths, such as resilience, cultural diversity, and solid clinical knowledge, position AP students as valuable assets to the dental workforce. However, challenges including resistance to change, varying skill levels, and communication barriers necessitate targeted support and interventions. Recommendations such as cultural sensitivity training, early integration, and tailored interventions emerged as crucial strategies for enhancing the educational experiences and clinical proficiency of AP students.

Looking ahead, future research and action should prioritize longitudinal studies, comparative research, intervention studies, policy development, and professional development for educators. By addressing the unique needs and challenges faced by internationally-trained dentists, stakeholders can collaboratively work towards fostering the success of AP students and cultivating a diverse and competent dental workforce equipped to meet the evolving needs of patients and communities.

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## ***APPENDICES***

### ***APPENDIX I: ETHICS APPROVAL***

#### **Notification of Approval**

Date: December 17, 2021  
Study ID: Pro00114218  
Principal Investigator: [Riya Midha](#)  
Study Supervisor: [Maryam Sharifzadeh-Amin](#)  
Study Title: Instructor Perspectives of the Clinical Performance of Internationally-trained Dentists Enrolled in Dental Qualifying Program: A Qualitative Description Study  
Approval Expiry Date: December 16, 2022

Thank you for submitting the above study to the Research Ethics Board 1. Your application has been reviewed and approved on behalf of the committee.

#### **Approved Documents:**

##### **Consent Forms**

[INFORMATION FORM](#)

[CONSENT FORM](#)

##### **Questionnaires, Cover Letters, Surveys, Tests, Interview Scripts, etc.**

[INTERVIEW PROTOCOL \(2\).docx](#)

##### **Protocol/Research Proposal**

[RESEARCH PROPOSAL](#)

##### **Other Documents**

[EMAIL COMMUNICATION](#)

Any proposed changes to the study must be submitted to the REB for approval prior to implementation. A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the REB does not constitute authorization to initiate the conduct of this research. The Principal Investigator is responsible for ensuring required approvals from other involved organizations (e.g., Alberta Health Services, Covenant Health, community organizations, school boards) are obtained, before the research begins.

Sincerely,

Theresa Garvin, PhD, MUA, BA  
Chair, Research Ethics Board 1

*Note: This correspondence includes an electronic signature (validation and approval via an online system).*

# APPENDIX II: ETHICS RENEWAL

## Notification of Approval (Renewal)

Date: November 22, 2023  
Renewal ID: Pro00114218\_REN3  
Principal Investigator: Riya Midha  
Study ID: Pro00114218  
Study Title: Instructor Perspectives of the Clinical Performance of Internationally-trained Dentists Enrolled in Dental Qualifying Program: A Qualitative Description Study  
Supervisor: Maryam Sharifzadeh-Amin  
Sponsor/Funding Agency: University of Alberta

	Project ID	Title	Grant Status	Sponsor	Project Start Date	Project End Date	Purpose	Other Information
RSO-Managed Funding:	RES0059935	"Instructor Perspectives of the Clinical Performance of Internationally-trained Dentists Enrolled in Dental Qualifying Program: A Qualitative Description Study"	Submitted		2/1/2022	3/31/2025	Grant	

Approval Expiry Date: November 21, 2024

Thank you for submitting this renewal application. Your application has been reviewed and approved.

This re-approval is valid for one year. If your study continues past the expiration date as noted above, you will be required to complete another renewal request. Beginning at 30 days prior to the expiration date, you will receive notices that the study is about to expire. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the REB does not constitute authorization to initiate the conduct of this research. The Principal Investigator is responsible for ensuring required approvals from other involved organizations (e.g. universities/colleges, community organizations, school boards) are obtained, before the research begins.

Sincerely,

Mary-Jane Sykes, REB Specialist, on behalf of

Dr. Theresa Garvin, PhD, MUA, BA  
Chair, Research Ethics Board 1

<https://arise.ualberta.ca/ARISE/sd/Doc/0/RVF404C99G8UT8D9AM9A4LIG00/fromString.html>

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Note: This correspondence includes an electronic signature (validation and approval via an online system).

## ***APPENDIX III: INFORMATION LETTER***

### **INFORMATION LETTER and CONSENT FORM**

**Study Title:** *Instructor Perspectives of the Clinical Performance of Internationally-trained Dentists Enrolled in Dental Qualifying Program: A Qualitative Description Study*

**Investigator:** Dr. Maryam Amin  
EMAIL [maryam.amin@ualberta.ca](mailto:maryam.amin@ualberta.ca)  
Phone number 780-492-7354  
ADDRESS: 5-513 Edmonton Clinic Health Academy, University of Alberta,  
Edmonton, AB, T6G 1C9

#### **Background:**

- You are invited to participate in this research study because you are a clinical instructor for the Advanced Placement Program at the University of Alberta.
- Due to the current licensure policies, internationally trained dentists (ITDs) cannot continue their dental clinical practice without gaining additional training. Despite the efforts made to meet the educational needs of ITDs, research has shown that they face numerous challenges to complete these programs. Such challenges relate to notable clinical training differences, educational differences between international and Canadian programs, cultural and communication issues, and financial constraints. To date, no research has explored the clinical training needs of ITDs in a comprehensive manner in spite of the role that ITDs can play in addressing the estimated shortage of dentists in Canada and the United States and the increased demand for optimal, accessible, and culturally appropriate dental services in these two countries.

#### **Purpose:**

- To describe perspectives of instructors about dental advanced placement students' clinical performance in the School of Dentistry at the University of Alberta. In this research, clinical performance will be understood as the level of competency demonstrated by students at different points in time throughout their training.

#### **Procedures:**

- You are being invited to participate in an interview to provide feedback and ideas about your experiences.
- The interview will have questions related to your socio-demographics, the interaction with ITDs and recommendations to improve their clinical performance
- It will take about 30 to 40 minutes in total to complete the interview. You will be assigned more time if you need or you can complete the interview in two sessions.

ER



**Benefits:**

- There are no immediate benefits in participating.
- However, completing this survey will enable development of strategies to improve the clinical performance of current and future ITDs at the University of Alberta which are based on your values as instructors.

**Risks:**

- There are no known risks involved in completing this interview.

**Voluntary Participation:**

- Your participation in this study is voluntary and you may say “no” to participate or leave the study at any time without penalty. You can also choose not to answer specific questions if you wish.
- You can withdraw from the study without any notice; your information will then be removed from the study.
- If you choose not to participate in the study or not to answer some questions, your decision will not have any penalties for you.

**Confidentiality:**

- Your name will not be revealed in any reports such as research papers or presentations from this study.
- Code numbers will identify documents from this study and the researchers listed above will only know these code numbers.
- Data will be kept in a safe place for a minimum of 5 years after completion of research project and electronic data will be password protected and when appropriate the audio recordings destroyed in a way that ensures privacy and confidentiality.
- You can receive a copy of a report of the research findings; you can contact any of the above-mentioned researchers if you are interested in receiving such materials.

## **APPENDIX IV: CONSENT FORM**

### **INFORMATION LETTER and CONSENT FORM**

**Study Title:** *Instructor Perspectives of the Clinical Performance of Internationally-trained Dentists Enrolled in Dental Qualifying Program: A Qualitative Description Study*

**Investigator:** Dr. Maryam Amin  
EMAIL [maryam.amin@ualberta.ca](mailto:maryam.amin@ualberta.ca)  
Phone number 780-492-7354  
ADDRESS: 5-513 Edmonton Clinic Health Academy, University of Alberta,  
Edmonton, AB, T6G 1C9

#### **Background:**

- You are invited to participate in this research study because you are a clinical instructor for the Advanced Placement Program at the University of Alberta.
- Due to the current licensure policies, internationally trained dentists (ITDs) cannot continue their dental clinical practice without gaining additional training. Despite the efforts made to meet the educational needs of ITDs, research has shown that they face numerous challenges to complete these programs. Such challenges relate to notable clinical training differences, educational differences between international and Canadian programs, cultural and communication issues, and financial constraints. To date, no research has explored the clinical training needs of ITDs in a comprehensive manner in spite of the role that ITDs can play in addressing the estimated shortage of dentists in Canada and the United States and the increased demand for optimal, accessible, and culturally appropriate dental services in these two countries.

#### **Purpose:**

- To describe perspectives of instructors about dental advanced placement students' clinical performance in the School of Dentistry at the University of Alberta. In this research, clinical performance will be understood as the level of competency demonstrated by students at different points in time throughout their training.

#### **Procedures:**

- You are being invited to participate in an interview to provide feedback and ideas about your experiences.
- The interview will have questions related to your socio-demographics, the interaction with ITDs and recommendations to improve their clinical performance
- It will take about 30 to 40 minutes in total to complete the interview. You will be assigned more time if you need or you can complete the interview in two sessions.

## ***APPENDIX V: QUESTIONNIRE***

### **Demographic Information:**

1. Name: \_\_\_\_\_
2. Age (Year of birth): \_\_\_\_\_
3. Sex assigned at birth:
  - a. Male ☐
  - b. Female ☐
4. Level of training:
  - a. Dentistry ☐
  - b. Clinical residency/speciality. ☐
  - c. Graduate studies MSc/PhD. ☐
5. Year of graduation from dental school: \_\_\_\_\_
6. Where did you attain your dental degree?
  - a. Canada ☐
  - b. United States ☐
  - c. Others
7. Position at the University of Alberta
  - a. Full-time ☐
  - b. Part-time ☐
8. Discipline: \_\_\_\_\_
9. Years of teaching AP students: \_\_\_\_\_
10. School year of the students you teach:
  - a. Second year ☐
  - b. Third year ☐
  - c. Fourth year ☐

## ***APPENDIX VI: INTERVIEW PROTOCOL***

**Preamble:**

Hello. My name is \_\_\_\_\_. I would like to start off by thanking you for taking the time to participate in this interview, which will last approximately 45 minutes.

This interview is part of a research project that aims to explore instructors' views of the clinical performance of the advanced placement students enrolled in the DDS program in the School of Dentistry at the University of Alberta. Specifically, we want to know your views on the strengths and areas for improvement of the clinical performance of these students. This information will be used to improve the clinical training of advanced placement students and their educational experiences.

Today, you will be asked a number of demographic, background, and program-related questions; however, there are no correct or incorrect answers. The information you share will remain confidential. We would like to audio record the interview to enhance data collection and analysis afterward. Do have any questions before we start?

**Interview Questions:**

1. What words come to mind when you think of AP students?
2. Tell us about your experience teaching/training AP students.
  - What would you highlight as positive things/aspects?
  - What are the things/aspects that need to be improved?
3. Tell us about your experience providing feedback to AP students
  - How do they approach to feedback?
  - How do they receive feedback?
4. How would you describe the clinical performance of AP students?
  - What are their main strengths?
  - What are their main areas for improvement?
5. How would you describe the interaction between AP and regular students?
  
6. Tell us about the interaction between AP students and patients
  - What are their main strengths in providing dental care?



- What are the areas they need to work on or improve?
  - What are the main challenges they face when interacting with patients?
  - What would you recommend to improve the interaction between AP students and patients?
7. Tell us about the interaction between AP students and the supporting dental staff (dental assistants, lab technicians, clerks, etc.)?
    - What works?
    - What needs to be improved?
    - What barriers, if any, might affect this interaction?
    - What would you recommend to improve the interaction?
  8. Overall, what would you recommend to improve the clinical performance of advanced placement students?
  9. What kind of support, if any, does the school provide to AP students to help them address challenges related to their clinical education?
  10. Is there anything else that you wish to add to what we have discussed today?

**Closing Remark:**

On behalf of our research team, thank you very much for participating in this discussion and sharing your experiences and thoughts about the clinical performance of AP students and how it can be improved. Please feel free to contact us afterward if you wish to share any more information.

***APPENDIX VII: PARTICIPANT RECRUITMENT EMAIL***

Subject Line: How is the clinical performance of Advanced placement students?

Body:

Dear Dr. \_\_\_\_\_

My name is Riya Midha, and I am in the second year of MSc Dentistry under the supervision of Dr. Maryam Amin and Dr. Arnaldo Perez Garcia.

Our research team is conducting a research project that aims to describe clinical instructors' views of the clinical performance of advanced placement students. As a clinical instructor, you are in a position to provide valuable information about the clinical performance of these students, including strengths and areas for improvement.

The interview will take 30-45 minutes and will be conducted in a conversational manner. Your responses to the interview questions will be kept confidential.

All personal identifiers will be removed from interview transcripts to ensure anonymity.

There is no compensation for participating in this study. However, your views will help improve the advanced placement program in our school.

If you are willing to participate in this study, please reply to this email to schedule an interview on a day/time that works for you. Please find attached information letter, questionnaire and consent form, which need to be signed and sent back before the scheduled interview.

Please do not hesitate to contact us if you have any questions.

Thanks in advance,

**Contact information**

Riya Midha

Graduate student

School of Dentistry, University of Alberta

Email: rmidha@ualberta.ca

**Table 5 PROGRAM INFORMATION IN ORIGINAL STUDIES**

Author	Name of the program	Length	Cost	Number of students per year	Level of program	Type of program	Admission requirements
S. KOGON ET AL	Program for internationally-trained dentists	2 years			Undergraduate	Certificate	Canadian citizenship
							English language proficiency (TOEFL, IELTS, MELAB)
							NDEB
							Prior learning assessment
							Interview
G. PITIGOI-ARON ET AL	International dentist program (IDP)	2 years		10-16	Undergraduate	Degree	English language proficiency (TOEFL)
							Academic achievement
							Dexterity test
							Interview
							NBDE I&II
S. KOGON ET AL	Program for internationally-trained dentists	2 years			Undergraduate	Certificate	Canadian citizenship
							English language proficiency (TOEFL, IELTS, MELAB)
							NDEB
							Prior learning assessment
							Interview
ZH. AL-SOWYGH ET AL	Advanced education in prosthodontics (AEP)	3 years			Graduate	Degree	English language proficiency (TOEFL)
							Academic achievement
							Clinical training
							Interview
NB. BOORBERG ET AL	Qualifying program (QP) internationally-trained dentist program (ITDP)	2 years	\$91873-\$105,953	2-29	Undergraduate	Certificate	Non accredited dental degree
							ACFD
							English language (IELTS, TOEFL, MELAB, COPE)
	Advanced standing program (IDP)/	2 years	\$88,350-\$141,415	3-15	Undergraduate	Degree	NDEB
							English language (IELTS, TOEFL)

	IDAPP/ IDDCP/ IDDP)						Autobiographical sketch
							Clinical dental work experience
							Psychomotor skill assessment
							OSCE
	International dentist program (IDP)/APP/DISP/ISP/IDS/IDP/PPI D/PASS		\$90,835-\$170,561	10-24	Undergraduate	Degree	NDEB I&II
							TOEFL
							Interview
							Recommendation letter
							Psychomotor skill test
							Transcripts
LE. ITAYA ET AL,	International dentist program (IDP)	2 years		16	Undergraduate	Degree	
D. G STACEY ET AL	International dentist program (IDP)  Advanced standing program (IDP)/IDAPP/IDDCP/IDDP)	2 years		10-15	Undergraduate	Degree	Transcripts
		2 years					Degree
							Recommendation
							NBDEI&II
							TOEFL
							Dexterity tests
							Faculty interview
SIMON J. ET AL	International dental studies program	2 years			Undergraduate	Degree	TOEFL
	International dentist program (IDP)/APP/DISP/ISP/IDS/IDP/PPI D/PASS)						Degree
P. BERTHOLD ET AL	Program for advanced standing students	2 years		30	Undergraduate	Degree	TOEFL
							Transcripts
							NDEB I
							Interviews
HC. BROWDER ET AL	International	2 years			Undergraduate	Degree	



	student program						
HAUSMA NN E. ET AL,	DDS degree program for foreign trained dentists	2 years		10	Undergra duate	Degree	NDEB I
							English language test
							2 recommendation letter
							Credential verification

**TABLE 6 PROGRAM INFORMATION IN REVIEW STUDIES**

Author	Name of the program	Length	Level of program	Type of program	Admission requirements
SV KELLESAIAN ET AL	Advanced Standing programs	2-3 years	Undergraduate	Degree	TOEFL
					NBDEI&II
					Transcripts
					Psychomotor bench test
					Case presentations
					Interview
	Speciality Training Program	2-6 years	Masters/Doctoral	Degree	
	Advanced post-graduate education program		Graduate	Certificate	TOEFL
					NBDE I& II
					GPA
					Class ranking
					Transcripts
					Recommendation letter
V PANNU ET AL	International dentist program (IDP)	2-3 years	Undergraduate		NBDE

**Table 7 SUMMARY OF RESULTS OF INCLUDED REVIEW STUDIES**

<b>Sno .</b>	<b>Author, country, year</b>	<b>Title</b>	<b>Objective</b>	<b>Licencing pathways</b>	<b>Challenges/ barriers</b>	<b>Contribution</b>	<b>Career</b>
1.	SV KELLESAIA N et al, USA, 2018	Foreign-Trained Dentists in the United States: Challenges and Opportunities .	Challenges	Eligible to licensing exam after program	Admission process tuition cost, immigration cultural	Undeserved Communities, diversity, experience, expertise	Academic dentistry and clinical dentistry
2.	V PANNU et al, USA, 2013	Education for foreign-trained dentists in the United States: currently available findings and need for further research.	Barriers	NBDE II and completion of program makes eligibility to licensure	Further research is needed to know barriers	High level of technical skills, knowledge, English language proficiency, past clinical experience	

**Table 8 SUMMARY OF RESULTS OF INCLUDED PRIMARY STUDIES**

Student Perception	Contribution	Size & Population
Skills enhanced in oral medicine and treatment planning, record keeping, informed consent, ethics and regulated dentistry.		
Want to continue academic or research career.	Diversity, underserved communities, serve on vacant academic positions	
	Increase in number of dentists, Underserved communities	
		India (25.8%), Philippines (11%), Colombia (5.8%), Others 5% (Egypt, Syria, Peru, China, Korea, Iran, Pakistan, Mexico, Brazil)
	May serve at faculty positions	Increasing especially in graduate programs

<b>Method</b>	<b>Significant Predictors</b>	<b>Challenges/Barriers</b>	<b>Comparison With Domestic Students</b>
Not reported			Overall performance is equivalent
Not reported	TOEFL and NBDE I		
Not reported			
Not reported		Lower stipends, high tuition	USTD- higher educational debts, More interested in. Becoming ACP member, continue maxillofacial fellowship program
Overview		Cultural differences, psychological adjustment, sociocultural adjustment	
Not reported	Significant- TOEFL, NBDE I and interview		
Not reported			
Not reported	Significant- NBDE II and dexterity. Less		
Descriptive		Language, Counselling needs, lack of academic achievement	
not reported	TOEFL, bench tests		
Program evaluation			
Not reported	ADA Science Achievement Tests (SAT) and NBDE I		
Not reported	NDEB I, Previous academic records, years away from dental practice, age		

Sno.	Authors, Country And Year	Title	Objective	Study Design
1.	S KOGON ET AL, CANADA, 2012	Graduating Grades And National Dental Examination Results Of Foreign-Trained And Domestic Dental Students.	Comparison of grades	Quantitative
2.	G. PITIGOL-ARON ET AL, USA, 2011	Predictors Of Academic Performance For Applicants To An International Dental Studies Program In The United States	Predictors of academic performance	Quantitative
3.	S KOGON ET AL, USA, 2011	Foreign-Trained Dentists' Perceived Knowledge And Skills After Graduation From A Structured Two-Year Program.	Self-perception of ITD on their clinical performance before and after completing program	Quantitative
4.	ZH. AL-SOWYGH ET AL, USA, 2010	Foreign-Trained Dentists In Advanced Education In Prosthodontics Programs In The United States: Demographics, Perspectives On Current Training, And Future Goals.	Comparison between ITDs and domestic students based on their perceptions about their current clinical training and future goals.	Quantitative
5.	NB. BOORBERG ET AL, USA, 2009	Advanced Placement, Qualifying, And Degree Completion Programs For Internationally-Trained Dentists In Canada And The United States: An Overview	Pathways for ITDs	Quantitative
6.	LE. ITAYA ET AL, USA, 2008	Analyzing The Influence Of Admissions Criteria And Cultural Norms On Success In An International Dental Studies Program.	Predictors of academic performance	Quantitative
7.	LE. SWEIS ET AL, USA, 2007	Foreign-Trained Dentists Licensed In The United States Exploring Their Origins	Origins of ITDs	Quantitative
8.	D. G STACEY ET AL, USA, 2005	Predicting Academic Performance And Clinical Competency For International Dental Students: Seeking The Most Efficient And Effective Measures.	Predictors of academic performance	Quantitative
9.	C D. RICE ET AL, USA, 2003	The Enrollment And Support Of International Students At United States Dental Schools	Size and population of ITDs	Quantitative
10.	SIMON J. ET AL, USA, 1997	Admissions Test Predictors Of Performance In A Foreign-Trained Dentist Program.	Predictors of academic performance	Quantitative
11.	P. BERTHOLD ET AL, USA, 1994	PENN PASS: A Program For Graduates Of Foreign Dental Schools.	Program evaluation	Mixed method
12.	HC. BROWDER ET AL, USA, 1980	Foreign Dental Graduates: Admission Criteria And Predicted Success In An American Dental School.	Predictors of academic performance	Quantitative
13.	HAUSMANN E. ET AL, USA, 1973	DDS Degree Program For Foreign Trained Dentists	Program Evaluation	Quantitative