

**Professional Identity of Dental Hygiene Students
and
Registered Dental Hygienists: A Cross-Sectional Study**

by

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CHAPTER I INTRODUCTION

1.1 Problem Statement

Every occupation has its own way of developing a professional identity which differentiates it from other vocations.¹ However, some occupations incorporate similar “attitudes, values, knowledge, beliefs and skills.”¹ The dental hygiene and nursing professions are similar to each other and have been for a long time. Both focus on disease prevention and management, clinical portion in the curriculum, and both are supervised professions that require licensure and State and National board exams. Nursing and dental hygiene can be classified as true professions because they both have a professional organization and students are required to have formal education that includes topics such as professional traits, ethics and skills.²

Nationwide, many health profession curriculums provide students with an opportunity to develop their professional identity through clinical practice and by observing licensed professionals interact with patients.^{1,3} Dental hygiene students are provided the same experiences in the dental hygiene program by observing Registered Dental Hygienist faculty interact with patients. There is published literature on the subject of how nursing, medical and dental students develop professional identity; however, there is a gap in the literature regarding how dental hygiene students develop their professional identity. Because of the similarities between the nursing and dental hygiene professions, it is realistic to assume that the development of a professional identity has a place in the dental hygiene curriculum.

It is important to understand how a person develops their personal identity before one understands how a person develops their professional identity. The Moratorium-Achievement-Moratorium-Achievement (MAMA) cycles are a developmental process in identity status.⁴ These cycles, values and influencing factors can affect a person’s personal identity.^{4,5} Furthermore, they can also influence a person’s professional identity. By the time a person reaches early adulthood, he or she has already established an identity via religious beliefs, political party affiliations and an occupation.⁴ However, identity is not one directional; it can

change. Persons' identities can change as they progress through life and can be lost. Understanding how identity can be lost is as important as how it is developed. When a person's "values, attitudes, roles, identifications" are no longer as important or they are no longer satisfying, these elements of one's identity may be lost.⁴ Determining which characteristics dental hygiene students and Registered Dental Hygienists associate with their professional identity will fill a void in the literature.

Survey questions for this research project were developed based on a professional identity reflective writing assignment completed by dental hygiene students at the University of Michigan. Several themes emerged as significant expectations of themselves as these students progressed through the dental hygiene program and moved toward becoming Registered Dental Hygienists. The purpose of this study is to assess how Registered Dental Hygienists in the State of Michigan responded to questions regarding these themes compared to dental hygiene students enrolled in dental hygiene programs throughout the State of Michigan. Anticipated outcomes of this study will be to inform the public and policy makers about the professional values and beliefs of dental hygiene students and Registered Dental Hygienists in our State. In addition, the results are important for dental hygiene educators, as they play a significant role in educating dental hygiene students about professionalism and assist them in shaping their professional identity.

1.2 Goal Statement

The goal of this project was to determine which qualities and characteristics Registered Dental Hygienists and dental hygiene students associate with the development of their professional identity. In addition, a secondary goal of this research was to determine if there is an association between being a member of our professional organization, the American Dental Hygienists' Association, and one's perception of being a professional.

1.3 Specific Aims

Specific Aim 1: To determine which qualities and characteristics dental hygiene students consider when becoming a Registered Dental Hygienist, specifically in the area of expectations of self.

Hypothesis: As dental hygiene students progress through the dental hygiene program, they begin to develop a sense of professional identity. Common themes will exist among dental hygiene students as they progress towards becoming an oral health care professional.

Specific Aim 2: To determine which qualities and characteristics dental hygiene students and Registered Dental Hygienists associate with being an oral health care professional, currently (students and Registered Dental Hygienists), retrospectively (Registered Dental Hygienists), and prospectively (students), specifically in the area of expectations of self.

Hypothesis: Registered Dental Hygienists' expectations of being an oral health care professional are the same as those of dental hygiene students at all points in time.

Specific Aim 3: To determine which qualities and characteristics Registered Dental Hygienists associate with being an oral health care professional, specifically in the area of membership in their professional association.

Hypothesis: Being an active member of the American Dental Hygienists' Association provides a mechanism for Registered Dental Hygienists to expand upon their concepts of professional identity.

1.4 Significance

According to Wilkins (2013) a dental hygienist is a "licensed primary healthcare [sic] professional, oral health educator, and clinician who provides preventive, educational, and therapeutic services supporting total health for the control of oral diseases and the promotion of oral health."⁶ This thesis research project will expand on the existing literature to identify how registered and student dental hygienists develop their professional identity. The authors used a cross-sectional survey design to determine which characteristics dental hygiene students associate with their professional identity currently and which they expect to associate with their professional identity in the future. A cross-sectional survey design was used to determine which characteristics Registered Dental Hygienists associate with their professional identity at the time of responding to the survey and which characteristics they remember as having associated with their professional identity in the past. The results will assist dental hygiene programs in understanding how well they are incorporating professional identity development efforts into their educational programs and in determining if being a member of the professional organization plays a role in professional identity development.

1.5 Thesis Overview

In order for the reader to grasp the importance of this thesis, an overview of the subject is presented. Chapter II is the Review of Literature which discusses characteristics and development of professional identity, how professional identity is developed in nursing, medical,

dental and dental hygiene professions, the influence of prior experiences in the field, the role of mentoring and role modeling, theories of self, a brief description of dental hygiene education, and the effects that professional organizations have on the profession of dental hygiene. Chapter III discusses the materials and methods used in this project. Chapter IV is the results section, Chapter V and VI are the discussion and conclusion sections, and the tables, appendices and bibliography will conclude this thesis.

CHAPTER II

REVIEW OF THE LITERATURE

2.1 What is a dental hygienist?

In the U.S. a dental hygienist is a “licensed primary healthcare [sic] professional, oral health educator, and clinician who provides preventive, educational, and therapeutic services supporting total health for the control of oral diseases and the promotion of oral health.”⁶ In order to be registered to practice, the candidate must graduate from an accredited dental hygiene program, pass a written national board examination, and pass a clinical assessment examination in their state or region.² Only after the candidate has successfully finished these requirements will the state issue a license for them to practice.²

Wilkins identifies the “professional dental hygienist” as someone who applies the dental hygiene process of care by using the standards for clinical dental hygiene practice; ethical standards and core values in the ADHA Code of Ethics ([Appendix B](#)); evidence-based and best practice dental hygiene when dealing with patient care, and develops communication skills and builds rapport with persons of all ages and cultures to promote positive health behavior changes through education.⁷ Dental hygienists are college educated and must pass a national and state exam in order to practice.

2.2 Education of a dental hygienist

Health care professionals are educated in their own fields yet, they share similar beliefs, skills and knowledge.⁸ Clinical dental hygienists earn either a certificate, associate, or baccalaureate degree.⁹ There are currently 335 entry-level dental hygiene programs, 53 degree completion programs, and 21 master degree programs in the U.S.⁹ Out of the 244 Associate Degree programs, 177 programs are in community colleges.⁹ All entry-level dental hygiene programs train students for clinical practice.⁹ Dental hygiene students will have about twenty-nine hundred (2900) hours of didactic course work and six hundred sixty (660) hours of supervised clinical practice.⁹ Baccalaureate degree programs have an average of fifty (50) hours more clinical practice versus associate degree programs.⁹

Dental hygiene programs prepare students not only for clinical care, but also for careers in areas of corporate employment, public health, research, education, administration and entrepreneurship.¹⁰ In addition to these career options, the dental hygiene curriculum also provides students with the knowledge and ethical values to be a professional.¹¹ The Commission on Dental Accreditation (CODA) provides guidelines to dental hygiene programs that dental hygiene students need to be competent in prior to graduation.

2.2a Commission of Dental Accreditation (CODA) influence on professional identity development

Dental hygienists must graduate from an educational program that is accredited by the Commission on Dental Accreditation (CODA).¹² A responsibility of CODA is to uphold dental hygiene education to the highest standards.¹² To meet accreditation standards, a dental hygiene program must abide by the expectations of CODA. CODA develops standards that dental hygiene programs integrate into their programs ([Appendix C](#)).^{2,12} Not only do dental hygiene programs promote the formation of one's professional identity, students also learn about professional responsibility. One of the CODA standards is that graduates be competent in the "application of the principles of ethical decision making and professional responsibility."¹² Once a dental hygiene student graduates and becomes an oral health care professional, he/she should continue to strive for excellence, "perfecting the art and science of dental hygiene for every patient treated."² Understanding how a person develops professional identity is crucial in identifying which characteristics dental hygienists identify with professional identity.

2.3 Theories of self

A person has many "selves" that change over a lifetime.¹³ Persons can change their perception of self depending on experiences and a need to protect themselves.¹³ The development of a person is dependent on "possible selves."¹³ For example, in order for a person to become a dental hygienist, one must first come to see one self as a dental hygienist. This possible self motivates the person to study and learn the profession. There are two types of possible selves; hope and aspirations are characteristics of positive future selves, whereas fears are a negative possible self characteristic.^{13,14} Possible selves provide energy to motivate individuals to either allow or prevent an experience from happening.¹⁴ The possible positive and negative selves provide a value of focus to achieve goals. In 2009, Anderson et al. discovered

that patients who had positive thoughts, or were focused on wanting esthetic changes prior to orthognathic surgery were more satisfied with the post-surgery results.^{14,15}

In 1991, Cross and Markus investigated if people at different stages of life had different views on their “hoped-for and feared possible selves.”¹³ Results showed the common characteristics of “hoped-for selves” were *physical, personal, family, occupation, relationships and material*. Persons aged 25-39 had less “family hoped-for selves” versus persons aged 18-24 or 40-59. Whereas, persons 18-24 were more concerned with “physical” versus persons over 40 and 25-40. “Occupation” was not important for older persons.¹³ The study also looked at “feared selves” and similar results occurred. Most of the age groups characterized “physically” under “feared-for selves.”¹³ The results of this study indicated that a person’s identity development is not only forming and being maintained but it is also flexible and changes.¹³ It would seem that there is a link between self-identity and professional identity.

Inglehart et al. conducted a longitudinal study at the University of Michigan to assess how medical school students acquired a professional identity, characteristics of it and academic success.¹⁶ The results of the study indicated that medical students who chose to pursue a career in medicine through their own desires scored higher on the second National Board of Medical Examinations. Furthermore, a medical students’ professional identity contributed to their long-term success.¹⁶ Determining if dental hygiene students and Registered Dental Hygienists expectations of being an oral health care professional are the same was one of the goals for the current study.

The development of identity involves several contributing factors. The Moratorium-Achievement-Moratorium-Achievement (MAMA) cycles are how we develop ourselves.⁴ MAMA cycles can be modified depending on society and relationships. Foreclosure is the first cycle and a person starts to develop this section of their personal identity during adolescence, when a person starts to explore their identity. The next stage is Diffusion, where an individual explores different aspects of who they want to become. As a person is exploring their identity, this is the Moratorium stage. The final stage is that of identity achievement, however most people do not quit exploring and developing their identity. Foreclosure can be defined as “(all commitment, no exploration)” whereas Moratorium is “(all exploration, no commitment).”⁴ Stephen et al. focused on the variables of Foreclosure, Diffusion, Moratorium and Identity

Achievement as they are most significant to “identity reformulation process.”⁴ This information is very similar to the findings in the previous study that people change their identities over time.

The two previous studies focused on the characteristic of what causes a person’s identity first to develop and then to change over a lifetime. Hitlin focused on two different issues that he believed affect personal identity values and how those values influenced the role identity.⁵ Hitlin stated “personal identity is produced through value commitments.”⁵ In order to determine how values and identity are related in college students, the author used the Schwartz Value Survey. “Benevolence, power, universalism and achievement” were related to volunteer identity. Values of a person can be affected by demographic characteristics. It has been determined that even though a group has their own group values, each person also has their own individual values.⁵ Values are connected to several different identities.⁵

All of these studies can be used to explore how dental hygienists form their professional identities. The process of developing a personal and professional identity is very complex. This provides a preview into the challenges that have to be considered when one attempts to define the development and evolution of one’s professional identity.

Research has shown that persons can lose their identity when their “values, attitudes, roles, identifications” are not as important to them or if they no longer satisfy them.⁴ Research showed that if nurses were pleased with their profession, they set professional goals, provided a higher level of care for patients and received positive feedback from patients.¹⁷ Whereas, those who were not pleased with their profession complained and were not active with their work.¹⁷

Sabanciogullari and Dogan studied if there was a correlation between retention of nurses and their professional identity and job satisfaction.¹⁷ These authors used Cowin et al.’s definition of professional identity¹⁸ which states that professional is “the professional self-perception or self-concept of the nurse regarding their nursing abilities in general.”¹⁷ The authors argued that it is possible that if a person has a strong professional identity, they may want to learn more, and use these skills in their profession which could increase their satisfaction in the workplace. Their results were consistent with the finding in other studies that showed that there is a correlation between professional identity, satisfaction in the profession and nurses leaving the profession. Nurses were more likely to leave the profession if they were not satisfied with their job. In order to help achieve nurses staying in the profession, developing a positive professional identity and high satisfaction with the profession are important.¹⁷

A study in Pennsylvania examined if there was a correlation between job satisfaction and leaving the profession among dentists and dental hygienists.¹⁹ Compared to nurses, dental hygienists were more satisfied with their profession. Dental hygienists; reasons for being unsatisfied with their career were: working more than one job to obtain full-time employment, part-time employment, and working in a public health setting. Compared to dental hygienists, dentists who employ a dental hygienists were more likely to be satisfied with their career and had no intention of leaving the profession in the next six years.¹⁹ While this study explored the concepts of job satisfaction and career longevity, it did not incorporate the theme of how professional identity plays into these outcomes. In addition to theories of self, professions can also influence a persons' professional identity.

2.4 Definition of a profession

What is a profession? According to Welie, a profession consists of providers who are not only dedicated to putting the needs of others before their own, but also having the trust of others that the provider will put their needs first.¹¹ Wilkins et al. further expands upon the definition of a profession by stating that it requires a college education, high standards, continuing education, and provides services to others.⁶ Beemsterboer also states that a profession requires professionals to have college education, specialized skills and information that provide a service to others, standards that are determined and overseen by a committee, recognition by society, a code of ethics, and an association to assist in the duties of the profession.² Beemsterboer does not limit the definition of a profession just to one discipline, she also includes medical, dental, ministry and law.² For the purpose of this literature review, Beemsterboer's definition of a profession will be used.

Dental hygiene is a profession because it meets the criteria mentioned in Beemsterboer's definition. The profession of dental hygiene has progressed since its creation in 1913 in Bridgeport, Connecticut.²⁰ In 1906, Irene Newman, an assistant for Dr. Alfred C. Fones, became the first dental hygienist to provide prophylactic services on patients. In 1907, a new law stated that dentists could not hire an unregistered assistant to provide prophylactic treatments unless these assistants were trained and only performed specific duties. Eventually, dentists started noticing a need for dental hygienists and in June 1914, twenty-seven (27) women graduated as dental hygienists from an eight-month course in Bridgeport, Connecticut. These pioneers organized the Connecticut Dental Hygienists' Association and had their first yearly convention

in 1915. These early dental hygienists were employed in dental offices, public schools, and in hospitals.²⁰

A profession is associated with a college education. Currently, dental hygienists must graduate from an accredited dental hygiene program in a college or university, pass a written national board examination, complete either a state or regional examination, and obtain a state license to practice.² Advancements have been made from the initial scope of practice of the early 20th century. Dental hygiene education teaches students about the profession's Code of Ethics, its professional associations, and the Standards of Clinical Dental Hygiene Practice established by the American Dental Hygienists' Association (ADHA).²¹ In addition, students learn about their professional duties and expectations society has placed on dental hygiene and dentistry. Dental hygienists accept this professional responsibility by reciting the dental hygiene oath.² The oath refers to dental hygienists as professionals. By taking the oath, dental hygienists pledge to maintain a professional commitment. Beemsterboer (2010), cited the ADHA oath and part of it states, "...and to uphold the highest standards of professional competence and personal conduct ([Appendix A](#))."²

Dental hygienists were being educated and utilized in the U.S. for forty years before they were able to practice in Canada.²² Until 1968, only women could be educated and registered as dental hygienists in Canada. Furthermore, many practice acts in the U.S. specified that only women could be dental hygienists. This was deliberate because it was feared that a male dental hygienist would try to work outside the scope and practice without a dentist. In Ontario, Canada, dental hygiene struggled to achieve professional status because dental hygienists were women. Research indicates that there is a link between gender and professional status. Men were able to obtain professional status easier than women because they were in male-dominated professions. Dental hygiene, like nursing, is predominately female. Female professions have had fewer rights and are less likely to be recognized as professionals. Both authors, Melosh and Kinnear, indicated in their writings that nursing could not be classified as a profession because it was not masculine. However, this barrier was not stopping professions dominated by women from obtaining professional status. Many female-dominated professions, composed of college-educated members, created professional associations and lobbied to be self-regulated.²²

Acknowledging dental hygiene as a profession was a goal of the dental hygiene leaders of Ontario.²² Dental hygiene is no longer a subordinate auxiliary occupation. The Ontario Dental

Hygienists' Association (ODHA) and the Canadian Dental Hygienists' Association (CDHA) were created in 1963. Dental hygienists wanted to be included in how the field would progress in the future. However, they did not know how to move it forward. The dental hygiene professional project became clearer after the government started a review of the health care division, known as the Health Professions Legislative Review (HPLR) in the early 1980s. It was not until 1991, when the Regulated Health Professions Act was passed, that dental hygienists were able to gain independence from dentistry and develop their goals.²²

The HPLR allowed dental hygienists to own the College of Dental Hygienists of Ontario and this contributed to the establishment of professional recognition and status.²² This professional project challenged the way professions and professionals are viewed as male-dominated. These efforts served to slowly change these gender-related misconceptions. While dental hygiene is still dominated by women, more men are entering the profession, and more women are becoming dentists. Dentistry is not the male-dominated profession that it once was.²² Professional identity is different from a profession because it involves an individual incorporating specific characteristics of the profession to develop their identity.

2.5 Definition of professional identity

Every occupation has its own way of developing a professional identity which separates it from others.¹ However, all occupations incorporate similar “attitudes, values, knowledge, beliefs and skills.”^{1,23,24,25} In 2009, Crossley and Vivekananda-Schmidt stated that “professional self-identity is a ‘state of mind’ – identifying one’s-self as a member of a professional group.”²⁶ Different persons identify different characteristics as part of their professional self-identity depending on their social, demographic and personality factors. Crossley and Vivekananda-Schmidt determined that students need to develop professional self-identity in order to be confident professionals.²⁶ Research by Adams et al. discussed how the Social Identity Theory is the foundation for professional identity.²³ It takes time for a person to develop their professional identity.²³ Professional identity is defined as “the attitudes, values, knowledge, beliefs and skills that are shared with others within a professional group and relates to the professional role.”^{1,23,27} Professional identity can be lost if “values, attitudes, roles, and identifications” change and are no longer as important to an individual.⁴ Adams et al.’s definition of professional identity will be used for this literature review. Professional identity is developed through education, mentoring,

and clinical experience. The characteristics of professional identity can vary depending on these factors.

2.6 Characteristics and development of professional identity

A study conducted from May 2008 to August 2010 and published in 2011 investigated the relationships of medical students with their patients and preceptors.²⁸ By providing medical students with experiences involving an opportunity of learning in a community setting, the study found that students developed their professional identity, including characteristics such as caring, listening to patients with empathy and being responsible.²⁸ Personal traits and personal attributes can also affect the development of a professional identity. In addition to experiences in a clinical setting, medical education is another way for students to develop professional identity.²⁹ A study in Canada evaluated how confidence, capability and suitability affect professional identity. Students learn confidence through the use of evidence-based medicine. Students learn to be capable professionals, implying that the student physician is prepared to act when needed. The students also learn how to be suitable, suggesting they understand and speak the language of a physician. Furthermore, the study found that characteristics of professional identity included: competence, caring and benevolence.²⁹

Vivekananda-Schmidt and Crossley discovered nine themes for professional practice recurring in the literature including: “teamworking, communication, patient or client assessment, cultural awareness, ethical awareness, using patient or client records, dealing with emergencies, reflective practice and teaching.”²⁶ They used this information to develop a Professional Self Identity Questionnaire (PSIQ) survey to measure professional self-identity in student medical doctors. Results of this study indicated that students’ scores improved over the five-year study period and had a strong correlation with teamwork, conducting assessments and dealing with emergencies. In addition, they found that students who had worked in a healthcare field before medical school were more aware of teamwork and ethics.²⁶ Exploring how medical and nursing students develop professional identity could provide insight into how dental hygiene students develop professional identity.

2.6a Professional identity development of medical and nursing students

Professional identity research has been conducted with medical and nursing students, using four themes, namely, prior experience in the field or first career option, race/gender, feeling of belonging in the profession, and reflecting on experiences during the preclinical

training.^{1,30,31} These themes were all found to be significant in the development of a professional identity. Furthermore, these themes were useful in understanding why students continue with medical and nursing programs.

In nursing educational programs, one venue for developing a professional identity is through the clinical portion of the program. This is where students have a hands-on experience with patients and observe other nurses interact with patients.¹ The students who had prior experience in the field or chose the career as their first choice were more likely to continue with their education. This also influenced their professional identity. Research by Worthington et al. determined the “psychometric properties of the 9-item Macleod Clark Professional Identity Scale (MCPIS-9)” and studied the connection between professional identity and retention of nursing students.¹ They analyzed data from 540 nursing students. The majority of them were female and spoke English. Even though nursing was indicated as the first choice of career for many of the respondents, the results indicated that students who scored low in professional identity were less likely to finish nursing school. Those students who had not worked in the field before had a higher chance of not finishing the program. However, students who had worked in the field before or had chosen nursing as their first career choice, scored high on the MCPIS-9 and were more likely to continue with the nursing program.¹

Gender and race was the second theme associated with a developing professional identity. As previously noted, nursing is largely dominated by females and many male nursing students feel they have to explain why they chose the profession.¹ Male nursing students may have less well developed professional identities because nursing programs might not have enough male mentors. Male nursing students tend to seek positions in critical and emergency care. The study concluded that programs should encourage these fields which could assist in developing male nursing students’ professional identity.¹ Race and gender impacts professional identity and further research is needed in this area.³⁰

Feeling of belonging in the profession was the third theme that has emerged in research concerning the development of professional identity. In 2008, Deppoliti published a qualitative study that identified responsibility, continued learning, and perfection as characteristics of nurses’ professional identity.³⁰ Feeling that the nurse belonged in their place of employment, having a successful orientation, knowing how much care to give, the state board examination, achieving charge nurse status, and developing new skills were all paths that helped develop

nurses' professional identity. This study found a strong link between professionalism and education. Nurses reported that it was important to balance challenges of work and having a good support team. The authors also identified that the longer nurses were working, the higher their confidence was in communicating with physicians.³⁰ Furthermore, a longitudinal study conducted in Indiana found that professional identity of nursing students continued to develop over time.²⁵ However, nursing students' feeling of belonging in the profession did not significantly change over the course of the study. Using a linear regression analysis, the authors showed that caring and growth of spirituality were predictors of a nursing student feeling like they belonged in the nursing field.²⁵

The fourth theme of the research was reflecting on experiences during the preclinical training. A qualitative study in Finland analyzed data from preclinical medical students to assess their development of identity and professional self-reflection.³¹ This study lasted six years and recruited 110 medical students. The students wrote professional reflections in journals and were interviewed. Using two independent raters, the journals were divided into four qualitative groups and the interviews were divided into four subgroups. At the end of the study, twenty (20) students were classified in the *achieved professional identity*, twenty-nine (29) were in the *active exploration of specific alternatives*, twenty-one (21) were in the *vague fantasies and tentative ideas*, and twenty-two (22) were in the *diffused identity status*. Students typically did not have a grasp of professional identity until they had experience in clinical courses. Niemi reminds readers that identity development does not happen the same way every time and indicated that more research needs to be done on how professional identity is accomplished.³¹

After nursing students graduate and become nurses, it is unclear if their ideas about professional identity change.²⁵ Similarly, no literature exists on whether or not the professional identity of a dental hygienist changes post-graduation. Educational programs enhance professional identity development in dental and dental hygiene students.

2.6b Professional identity development of dental and dental hygiene students

Contributions to the development of professional identities in dental and dental hygiene education were made by the American Dental Education Association (ADEA) and the Commission on Dental Accreditation (CODA). Both organizations created competencies for both professions. Learning about empathy, providing patient-centered care, determining patients' needs, and dealing with diverse populations are necessary areas of study in dental and dental

hygiene education.^{3,12,32} These competencies will allow future practitioners to provide care to patients from diverse backgrounds in a variety of settings.³

A study conducted at the University of North Carolina School of Dentistry assessed attitudes of dental students in their senior year regarding clinical rotations outside of the dental school.³ Analyses of reflection essays identified personal and professional growth; enhanced awareness; and commitment to service as prominent themes. By participating in the clinical rotations, students improved their skills of empathy, communication and self-confidence and some students were reminded of why they chose a career in dentistry, thus creating an awareness of their professional identity. Clinical rotations outside of dental schools can influence the professional development of dental students.³ This research is similar to the literature regarding the effect of clinical rotations in the education of medical and nursing students.

Morison et al. conducted a qualitative research study in the United Kingdom to investigate the roles and identities of dental and dental care professional (DCP) students.³³ DCP included dental nursing and dental hygiene students. The study indicated that being responsible for care of patients and clinical experiences were factors in developing the students' professional identity. Dental students appeared to be lacking confidence in their role of being a professional and their professional identity. Dental hygiene students presented with higher confidence in their professional identity. This finding could be due to role models these students had, prior dental nurse experience, or the role they had with treating patients. However, some members of the team did not place as much value on the dental hygienist's role in patient care. This could cause issues with dental hygiene students' professional identity development. If other professions do not value the role of the dental hygienist, this can cause the profession to appear to have a lower professional identity status. The authors recommended that curriculums include skills for developing team identity and leadership for dental and dental care professionals.³³

Interprofessional education (IPE) is important for educating professionals on how to be team players and increase communication skills.³⁴ It can also be an integral tool for developing professional identity. The Readiness for Interprofessional Learning Scale (RIPLS) was used to investigate how dental and dental care professional students felt about interprofessional education. The subscales of this scale focus on "teamwork and collaboration; professional identity; roles and responsibilities."³⁴ In addition, a "dental and dental care professional roles and responsibilities" survey was included to determine what the students knew about their co-

workers' job duties.³⁴ The results indicated that IPE would be useful in creating awareness about teamwork and communication skills for dental and dental care professionals. Many of the students agreed that they were all responsible for certain tasks when it came to treating patients. However, the dental team needed a better understanding of the responsibilities of dental team members. This study indicated that there was a misunderstanding between team members regarding their roles and responsibilities. Educators need to be aware of how professional identity is developed through IPE and how to incorporate IPE into their curriculum.³⁴ This will help create a strong healthcare team. In addition to curricula providing professional identity development there might be other factors that influence professional identity.

2.6c Factors that influence professional identity

Professional identity is influenced by clinical rotations, clinical mentors, and educational programs.^{11,24,27,29,35} In 2015, Vivekananda-Schmidt et al. discussed how medical students' personal identity was developed prior to entering into medical school.³⁶ Once in medical school, the student incorporates the profession's values and beliefs into his or her professional identity. Thus, characteristics of professionalism can have an impact on professional identity.³⁶ Even though nursing, medicine, dental hygiene, and dentistry are different professions, they all have similar characteristics of professional identity. Furthermore, interprofessional education can increase awareness of a person's professional identity.³⁷

A Canadian study published in 2010 evaluated how dental, medical, dental hygiene, nursing, occupational therapy, pharmacy and physical therapy students saw their roles as part of a patient-centered care team.³⁷ Students were divided into three groups, a control group, education intervention group and an immersion experiment group. Each group completed a Student Stereotypes Rating Questionnaire (SSRQ) to determine their perceptions of other health professions during an orientation meeting. The control group was finished with the study after the orientation meeting. The education intervention and immersion experiment groups attended two and a half days of training and completed the SSRQ for a second time. The education intervention group was finished with the study after this training. The immersion experiment group then observed other health care professionals working with patients. The results of this study indicated that at baseline the dental hygiene professional was evaluated low on academic ability and decision-making from other health professional students. However, after incorporating the students' learning together and learning more about their roles in the team,

dental hygiene was perceived as a more important team member.³⁷ This finding might suggest that not only are other health care professionals unaware of what a dental hygienist is, the public might be unaware as well and additionally, might also be unaware of the credentials that a dental hygienist has. This state of affairs can have a detrimental impact on dental hygienists' professional identity and should be a call for action to develop more research related to the professional identity of a dental hygienist. Worthington et al. showed in their research that there was a correlation between prior nursing experience and finishing a nursing program.¹

2.6d Prior experience in the field

Research indicates that both nursing and medical students with prior experiences in their fields developed a stronger professional identity.^{11,24,27,29,35} No research so far explored if this finding can be generalized to dental hygiene students and if a dental hygienist is influenced by prior experience in dentistry. It could be argued that dental hygienists with prior experiences in the field might also develop a stronger professional identity. Society could be an influencing factor in the development of professional identity.

2.6e Expectations of the public

In 2014, Brennan et al. discussed how “professionalism is an indispensable element in the compact between the medical profession and society that is based on trust and putting the needs of patients above all other considerations.”²⁷ Patients who trust their medical doctor are more likely to follow through with recommended treatment. Excellence, skills, and being accountable are a few characteristics associated with professionalism and these are fundamental to creating patient trust. Furthermore, teamwork and communication are important for a team-based model which increases efficiency and satisfaction for patients and employees.²⁷

In the U.S, states differ in the levels of supervision they require for dental hygienists and in the procedures they permit dental hygienists to perform.³⁸ Most states require dental hygienists to work under the general supervision of a dentist. This means that the dentist examines, diagnoses and develops treatment plans before assigning patients to the dental hygienist, but does not need to be present when the dental hygienist provides the treatment to patients. Direct supervision requires a dentist to be present and indirect supervision indicates that the dentist must be in the office and allow the procedure. Direct access means that the dental hygienist can see the patient without the dentist determining the treatment plan.^{11,38} In a direct access model, a dental hygienist provides preventative dental hygiene services to patients who have not seen a

dentist first. Whether a dental hygienist is working under direct, indirect, general or direct access supervision, patients expect the dental hygienist to provide appropriate treatment, identify suspicious caries and oral pathology, give advice on oral hygiene and help them prevent oral diseases. Most importantly, the public trusts that the dental hygienist will provide them with the highest standards of care, be responsible and protect their rights.² In addition to highly defined clinical skills, dental hygiene students need to learn the attitudes and ethics incorporated in professional responsibility.¹¹ An example of a value taught in the dental hygiene program is that of beneficence, which is a very important value for dental hygienists to embrace.¹¹ According to the ADHA, beneficence means that dental hygienists encourage health promotion and disease prevention to promote overall health in individuals.³⁹ Dental hygiene students observe faculty during the clinical portion of their training and this might contribute to the development of professional identity.

2.6f Mentoring and role modeling

Mentoring and having positive role models also play a key role in the development of a professional identity. Brennan et al. investigated how medical students developed professional attitudes and behaviors during their residencies and fellowships.²⁷ Their study concluded that faculty in medical schools can shape the professional values and behaviors in their students. The authors further recommended that faculty watch for and correct students when they are not acting in a professional manner.²⁷ Although this study focused on the medical profession, these elements are also incorporated in dental hygiene education programs.

Medical, dental, nursing and dental hygiene students all participate in clinical rotations as part of their curriculum. These clinical rotations offer students an opportunity to be mentored by registered providers. Some nursing programs have incorporated a clinical rotation using interprofessional learning (IPL).⁸ With IPL, nursing and medical students treat patients as a team, which allows students to gain experience as a future professional and learn more about other professional roles. Hood et al. conducted a study of senior nursing students to determine the development of their professional identity and experience in a clinical placement in a hospital rehabilitation ward. Five themes emerged from the focus group interviews: having autonomy, understanding the role of a nurse, understanding roles of other professionals, interacting and communicating with others, and being a part of a healthcare team. By participating in clinical placements nursing students understood more about what their role as a provider is. This is

similar to dental hygiene students and the experience they gain in clinical placements outside of the dental school. The clinical rotation provided students with an opportunity to gain responsibility and teamwork skills which helped develop their professional identity. According to this study, nursing students who graduate with experience of a clinical rotation are more prepared and competent to work compared to those who do not have the clinical rotation experience.⁸

Students in their third year of nursing school participated in a qualitative research study consisting of observations and discussions.²⁴ The purpose of the study was to determine how students felt about the theory portion of their training and their clinical experience and if this education impacted their professional identity development. Clinical observations took place in a primary care facility and a hospital over a four month period. Results of the study showed that having classroom-based and clinical experiences was necessary for nursing students. Students were able to define their identity in the role of a nurse. Having a clinical nurse as a mentor who also taught students the “ideas, values and attitudes” of being a nurse helped to create their identity.²⁴ Theory courses, throughout their education, helped students feel confident with issues that can occur in a workday. During the nursing program, students learned the “norms, values, behaviors, attitudes and culture of the profession” which help develop their professional identity.²⁴ Clinical requirements are an important aspect of health care profession education. Students gain a better understanding of the nursing profession by placement in clinical rotations and education in the nursing program.²⁴

These findings are applicable to the professional identity development of dental hygiene students. Transitioning from being a student to becoming a clinician can be challenging for recent dental hygiene graduates.³⁵ Having a practicing dental hygienist as a mentor can be beneficial for new graduates because it increases their gratification and “professional growth.”³⁵ Blanchard et al. created a pilot study investigating if dental hygiene programs offer mentorship opportunities as students graduate and move into being a professional. Of the 139 dental hygiene programs surveyed, 25.9% of the programs indicated that their program included a mentorship program. This study did not ask what the mentorship experiences were nor did it ask how long the mentorship program was in the curriculum. Some of the student dental hygienists had mentorship opportunities with practicing dental hygienists and the students valued this experience. Mentoring programs allowed students to work on time management, network with

other dental hygienists, reinforce the dental hygiene education, and allowed students to connect with potential employers and professional organizations. Of the weaknesses noted, some of the programs did not offer formal mentoring program, mentors varied, support from the faculty or professional communities was limited. A majority of the programs (74%) did not have a mentoring program in their curriculum because time and limited faculty and mentor volunteers were factors. Offering a mentorship program can allow the students to increase their professional knowledge and confidence, while mentors can learn about the concerns of the student.³⁵ In addition to role models and mentoring, professional associations contribute to a persons' development of professional identity.

2.7 Roles and expectations of associations in the development of professional identity

A trait of a profession is that it has a professional organization.^{2,40} Professional organizations offer benefits to members and the public.⁴¹ A few of these benefits include continuing education seminars, access to professional journals, scholarship opportunities, and networking opportunities. DeLeskey used the exchange theory to describe how members made choices regarding joining a professional organization. Persons chose to become members of an organization because the benefits they receive are worth the cost. However, not all members are drawn to the benefits that are offered. Some people indicate that they do not have time or money to join the organization.⁴¹

The American Society of PeriAnesthesia Nurses (ASPAN) is one organization that attempted to understand which attitudes might affect their membership numbers.⁴¹ In 2000, present and past members of this organization received a Professional Association Membership Questionnaire (PAMQ) in the mail that assessed why members did or did not join their professional association. The survey asked questions concerning which benefits affected their decision to join. The answer "improvement of my work" was less important for nonmembers compared to members. Members reported that having "improvement of their work" was an important reason for them to join the organization.⁴¹ Both groups rated "education, professionalism, improvement of my profession, maintenance of professional standards, and self-improvement" as important factors for joining the organization.⁴¹ In response to the question why a person was no longer a member, some respondents did not renew because they were not practicing perianesthesia nursing anymore and others did not renew because of cost and time. "Self-improvement, education, new ideas, programs, professionalism, validation of ideas,

improvement of their work, and maintenance of professional standards” were reasons why perianesthesia nurses were members of the ASPAN.⁴¹ The Exchange Theory suggests that nonmembers did not feel that the costs, that included “time, effort, commitment, and financial requirements”, were worth the benefits.⁴¹ Many nonmembers know the importance of the professional organization and blamed the association fees as the reason they were not members. A recommendation was that health care administrators should pay for nurses to be members of their professional organization as a way to create an area where nurses can learn and develop as a professional.⁴¹

During the 1970s, professional organizations had the highest number of members and during the past fifteen years organizations have struggled to maintain their importance with professionals.^{40,41} Bauman found that the Mental Health Counselors Association had approximately 7% members, the International Association of Marriage and Family Counselors had about 10% and the American School Counselor Association had 11% membership.⁴⁰ The decline in membership in professional organizations is a concern for several different groups. In 1983, Yeager and Kline discovered a correlation between joining a professional organization and a professional having more education, experience in the field, income levels, and not working in a public health setting. Furthermore, if a person perceived that being a member of the organization would be of value to them, they were more likely to join.⁴⁰

In 2008, Bauman surveyed 332 women and 115 men school counselors to investigate why they joined their professional organization.⁴⁰ The respondents’ demographic background did not affect whether they were members of the organization. Four themes emerged as reasons why these counselors joined an organization, namely “professional organization, work environment, personal or individual characteristics, and profession.”⁴⁰ Furthermore, this study identified two beliefs that were linked to being a member of the profession. The first belief was that it is important for a professional to be a member of the professional organization and the second belief was that advancing of the profession occurs because of the professional organization. However, this study also found that many respondents indicated that the cost for being a member was a deterrent to join an organization. Not knowing enough about the organization was another reason for some counselors to not be a member. The author also determined that school districts did not promote the value of membership in a professional organization. Expectancy value theory suggests that if school districts would support membership in the association, counselors

would also. Social Identity Theory would predict that self-esteem could improve in counselors if they were a member. Organizational Justice Theory would suggest that recruiting and maintaining membership is important. The themes that emerged from this study were correlated and the school counseling organization had been important for the profession in many ways.⁴⁰

Creating professional identity through student membership in organizations is a ubiquitous feature of health profession associations. It is an opportunity to introduce students to the profession outside of didactic, textbook learning, and foster future engagement. Being a member of a professional organization is not a tangible benefit. Students might therefore, have a hard time understanding the importance of the organization.⁴² The American Dental Hygienists' Association has a membership category for dental hygiene students in every dental hygiene program in the U. S. The Student American Dental Hygienists' Association (SADHA), now the American Dental Hygienists' Association Student Chapter, encourages Student Chapter advisors to mentor students and develop their professionalism. Dental hygiene programs should offer their students an avenue to learn about leadership and career options. According to Furgeson et al., professional associations inform the public about the profession, what is expected of the professionals, support the beliefs of the profession and assist with advancing the profession. These authors sent a survey to 277 SADHA advisors in October 2006 received 186 responses. The advisors indicated that 13.4% of their chapters did not participate with any ADHA components or constituents. Advisors also reported that 41.4% of the SADHA chapters were not involved with dental hygiene legislation. Dental hygiene students should be given more opportunity to learn about advocacy, leadership and career options. When asked if SADHA was used to mentor future career development, 65% of the respondents indicated they had guest speakers, 17.4% had career fairs and 3% had research days. Guest speakers provided information about current products, degree-completion, research and corporate opportunities for the dental hygienist, and the Advanced Dental Hygiene Practitioner. When asked if advisors recommended their students participate in professional development and leadership opportunities at the ADHA Annual Session, 57% reported students occasionally applied to be student delegates and 16.3% indicated their students never had applied. SADHA advisors indicated that ADHA should focus on developing relationships with dental hygienists who were not members of ADHA and nurture a relationship with SADHA.⁴² The professional association can be a vehicle for future practitioners to achieve professional identity.

2.7a Potential influences of dental/dental hygiene associations on professional identity

The American Dental Hygienists' Association and the American Dental Education Association are all instrumental in the development of professional identity within the profession of dental hygiene. The following sections will discuss the roles and expectations of these Associations.

2.7b American Dental Hygienists' Association (ADHA)

The American Dental Hygienists' Association (ADHA) became an organization in 1923.⁴³ The organization was formed in order for dental hygienists to be able to communicate with each other and to represent dental hygienists.⁴⁴ The mission of ADHA is "To advance the art and science of dental hygiene."⁴⁴ ADHA "works to ensure access to quality oral health care, increase awareness of the cost-effective benefits of prevention, promote the highest standards of dental hygiene education, licensure, practice and research, represent and promote the interests of dental hygienists."⁴⁴

ADHA developed evidence-based *Standards of Clinical Dental Hygiene Practice* in 1985 and updated the *Standards* in 2008.²¹ The *Standards* were created to help dental hygienists with patient-centered care and to promote collaboration with other health professionals. The *Standards* outline the expectations of the professional role for a dental hygienist and provide a guide for dental hygienists to assist in their relationship with patients. Another way these *Standards* can be used is to educate lawmakers, the public and other health care professionals about what the profession of dental hygiene is.²¹

The ADHA Code of Ethics consists of core values which include individual autonomy and respect for human beings, confidentiality, societal trust, non-maleficence, beneficence, justice, fairness and veracity.³⁹ Dental hygienists are trained to uphold the purpose, beliefs and values that support the ADHA ethics. Furthermore, dental hygienists have a professional responsibility to themselves, their profession, family and friends, patients, co-workers, employees, employers, community and society, and to research.³⁹

The nursing, medical and dental professions also have ethical values and make a commitment to society that they will abide by high standards of conduct.^{45,46,47} Similar to dental hygiene educational programs, dental schools provide a mechanism for dental students to learn about ethical standards.⁴⁵ The American Dental Association (ADA) Code of Ethics mimics the ADHA core values by addressing issues of patient autonomy, nonmaleficence, beneficence,

justice, and veracity.⁴⁵ The American Nurses Association Code of Ethics revolves around nine provisions.⁴⁶ A few examples of these provisions are that nurses are expected to practice with compassion and respect, are committed to patients, fairness and social justice.⁴⁶ A few examples of the American Medical Association (AMA) medical ethics are that physicians should provide medical care with respect for human dignity, be professional, protect and respect patient rights.⁴⁷

2.7c American Dental Education Association (ADEA)

The American Dental Education Association (ADEA) has incorporated the concept of professionalism in six core values in dental hygiene education programs.¹¹ The six core values are competence, fairness, integrity, responsibility, respect, and service-mindedness ([Appendix D](#)).³² Competence means to have the knowledge, skills, and professional behavior to provide treatment to patients. Fairness is the ability to consider everything to provide the best treatment to all populations. Integrity is being honest with everything that you do and holding yourself to the highest standards. Responsibility acknowledges that patients trust dental hygienists and they have to be responsible for their actions. This also involves lifelong learning to keep current with technology. Respect involves being aware of cultural sensitivity and privacy of patients. Service-mindedness is being understanding of patients' needs and deals with beneficence.³² These core values are integrated into dental hygiene education programs and can help dental hygiene students develop their own sense of professional identity. By incorporating the ADHA Code of Ethics and ADEA concepts of professionalism throughout the dental hygiene program, students are better able to develop a professional identity.

2.8 Dental hygiene education and professional identity

As students begin their education, they do not fully understand what it means to be a professional.¹¹ In 2008 to 2009, Blue conducted a study to determine if a new curriculum design helped dental hygiene students develop their professional identity and responsibility. Students provided dental care outside of the dental school for ten weeks. The purpose of this “service-learning rotations” was for the students to learn first-hand about “culture, lifestyle, and behaviors” that affect a person’s health.¹¹ In addition, research indicated that clinical rotations had an impact on a student’s professional identity development. Educators needed to remember that identity development occurs over a lifetime and they can not expect students to completely understand what it means to be a professional. A survey was used to assess the dental hygiene students’ thoughts about societal expectations, dentist/student responsibility, personal efficacy,

access to care, who should receive free care and the student volunteer experience. Changes to the University of Minnesota dental hygiene curriculum incorporated clinical experiences that would help develop a student's professional identity based on ethics. The students' scores increased as they went through the program; they felt that everyone deserves dental care, and they developed a desire to care for the underserved. The study also revealed that the University of Minnesota dental hygiene program taught students how to be skilled dental hygienists but also be aware of issues dealing with community oral health, social responsibility and ethical issues that were associated with serving the public.¹¹

It is important to remember that a student's values and actions are influenced by their role models.²⁷ Educational programs that incorporate professionalism into their curriculum help students develop their professional self-identity (PSI).³⁶ Dentists' and doctors' professional identity evolves throughout their education and career.³⁶ Developing professional identity is a challenge and could be explored more in the dental hygiene profession.

2.9 Gaps in the Literature

This review of the literature contained more information from other health professions on how they develop professional identity and the characteristics they associate with professional identity than what is available from the profession of dental hygiene. There clearly is a need for more research on the development and characteristics of professional identity for dental hygienists.

2.10 Summary

In order to be classified as a profession, a discipline has to have college education, specialized skills and information that provide a service to others, standards are determined and overseen by a committee, be recognized by society, a code of ethics, and an association to assist in the duties of the profession.² Professional identity is defined as "the attitudes, values, knowledge, beliefs and skills that are shared with others within a professional group and relates to the professional role."^{1,23,27} It is true that many professions in the past were dominated by males. However, dental hygiene can be classified as a "true profession."² Dental hygienists have a professional organization, are taught professional traits, ethics and skills by an accredited dental hygiene program. Dental hygiene programs are incorporating developing students' professional identity. Professional identity changes as we progress through life and can be lost.⁴

Dental hygienists and nurses share similar beliefs and values and develop professional identity similarly.

The review of literature indicates that professional identity characteristics are unique to each profession. More research exists regarding professional identity among the medical and allied health professions than the dental hygiene profession. The goal of the current study was to determine which qualities and characteristics Registered Dental Hygienists and dental hygiene students associate with the development of their professional identity. Another goal of this study was to determine if there is an association between being a member of American Dental Hygienists' Association, and one's perception of being a professional. This study had three aims to determine which qualities and characteristics dental hygiene students consider when becoming a Registered Dental Hygienist. The hypothesis was that as dental hygiene students progress through the dental hygiene program they begin to develop a sense of professional identity and that they will share common themes as they progress towards becoming an oral health care professional. The second aim was to determine which qualities and characteristics dental hygiene students (currently and prospectively) and Registered Dental Hygienists (currently and retrospectively) associate with being an oral health care professional, specifically in the area of expectations of self.

The hypothesis was that dental hygiene students and Registered Dental Hygienists share the same expectations of being an oral health care professional. The final aim was to determine which qualities and characteristics Registered Dental Hygienists associate with being an oral health care professional, specifically in the area of membership in their professional association. The hypothesis was that being an active member of ADHA provided a mechanism for Registered Dental Hygienists to expand upon their concepts of professional identity.

The results of this study will benefit the dental hygiene profession. By determining which characteristics Registered Dental Hygienists identify with professional identity, dental hygienists can use this study to inform the public and policy makers that we are professionals in our profession and have similar values and beliefs. In addition, the review of literature indicates that dental hygiene students develop their professional identity throughout the dental hygiene program. Dental hygiene educators are the ones who are shaping dental hygiene students into the professionals they will become. This research can assist dental hygiene educators in incorporating professional identity development into their curricula.

CHAPTER III

MATERIALS AND METHODS

3.1 General Approach and Study Design

In order to identify themes related to dental hygiene students' professional identity, two independent raters coded essays that dental hygiene students at the University of Michigan had written as part of a Professional Identity Assignment. The themes that were identified in this qualitative study were then used to develop a survey for dental hygiene students in the State of Michigan and a survey for Registered Dental Hygienists in the State of Michigan. The dental hygiene student survey asked the students first to answer the questions related to their professional identity by thinking about their current situation and then again while referring to their future self. The Registered Dental Hygienists answered the survey questions also twice, once with a current perspective and once while thinking back to their professional identity when they were students. The dental hygiene student survey was piloted with two dental hygiene students and the survey for the Registered Dental Hygienists with six Registered Dental Hygienists. The feedback provided by these respondents was used to revise and finalize the survey.

3.2 Source population

Respondents in the Qualitative Study: The students in the University of Michigan Dental Hygiene Classes of 2015, 2016, and 2017 completed a Professional Identity Assignment designed to elicit students' understanding and perceptions of what it means to be a professional dental hygienist.

Procedure: In order to identify themes that could be used to create closed-ended questions for the survey used with dental hygiene students and clinicians, the responses to the first assignment question, "What do you expect of yourself as you work toward becoming a dental hygienist?", were coded independently by two raters. Qualitative data were collected from 20 DH3 students from the Class of 2015 during the Winter semester of 2013. Students in the Class of 2016 responded twice to this same assignment. The first data collection occurred when

the students were in the first year of their program (DH2). While all 22 students from the Class of 2016 completed the assignment in the Fall 2013 semester, the instructor kept six student assignments and these six were used for the data collection. During the second data collection for the Class of 2016, data were collected from 19 students during the Winter 2015 semester, their second year of the program (DH3). And finally, data from 25 students from the Class of 2017 were collected in the Fall 2014 semester, their first year of the program (DH2).

Potential coding categories were discussed by Jerelyn Champine (JC), Janet Kinney (JK), and Marita Inglehart (MI). JC and JK then coded the data in a first preliminary analysis. All three researchers then discussed any discrepancies and resolved any controversial coding decisions.

Limitations: Assignments for only six of the 22 students were returned to the instructor from the Class of 2016 in their DH2 year to be included in the study. The data were self-reported.

Respondents in the Quantitative Study – Part a: Dental hygiene student study: At the time of the data collection, approximately 650 students were enrolled in dental hygiene programs in the State of Michigan. These students received a recruitment email that informed them about the study and asked them to respond to an anonymous web-based survey. Participation in the survey was voluntary.

Procedure: An email was sent to the thirteen dental hygiene program directors in Michigan, asking them to forward a recruitment email to their students, encouraging their voluntary participation in the survey ([Appendix E](#)). A weblink to the student survey was provided in this recruitment email to allow interested students to access the survey and participate in the study ([Appendix F](#)).

Limitations: It is possible that the program directors did not forward the email to their students to encourage their participation in this study. Dental hygiene students may have a difficult time answering questions about their future expectations of being a Registered Dental Hygienist. The level of participation may restrict the representativeness of the data collected. The data were self-reported which could affect the validity of the study.

Inclusion and Exclusion Criteria: Any undergraduate/entry level dental hygiene student in Michigan was eligible to participate in the study. Dental hygiene students were excluded if they were Registered Dental Hygienists enrolled in a degree completion program.

Participant Recruitment Strategy: Dental hygiene students were recruited through their dental hygiene program directors. Dental hygiene students were asked to complete the survey online. Participation in the survey was voluntary.

Data Elements: Surveys for dental hygiene students consisted of questions regarding demographics and their current expectations of themselves as they study to become a Registered Dental Hygienist. The students were then asked to look ahead five years and consider how important they believe the same expectations of themselves might be when they would be Registered Dental Hygienists.

Data Collection Procedures: Dental hygiene students completed the survey online and the data were downloaded from this website as an excel file and imported into SPSS (Version 22. IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.).

Respondents in the Quantitative Study – Part b: Registered Dental Hygienist study: A sample of 1,200 Registered Dental Hygienists in Michigan received a paper copy of the survey through postal mail. The mailing included a cover letter, the survey and a stamped return envelope. Participation in the survey was voluntary. In addition, 1,059 Registered Dental Hygienists were informed about the study through the Newswire, an electronic publication of the Michigan Dental Hygienists' Association (MDHA).

Procedure: A hard copy cover letter and survey was mailed to a random sample of 1,200 Registered Dental Hygienists in Michigan. The mailed survey was also available in an electronic version. A letter was included in the MDHA Newswire to recruit an additional 1,059 Registered Dental Hygienists ([Appendix G](#), [H](#)).

Limitations: There are 10,292 Registered Dental Hygienists in the State of Michigan. Although web surveys are a more cost effective method of conducting surveys, paper-and-pencil surveys are the preferred method of receiving a survey.⁴⁸ Hardigan et.al, studied the response rate of mailing versus web-based surveys for dentists using three groups, choice, postal mail and electronic. This study concluded that when given a choice of completing the survey via postal mail or electronic, 94% of the dentists returned the survey via postal mail. Twenty-five percent of the dentists who participated in the mail group returned the survey, whereas only 11% of the dentists in the electronic group replied to the survey electronically.⁴⁸ Based on the information from Hardigan et al, it was estimated that approximately 2,573 surveys for this study would be

completed and returned via postal mail. However, due to costs, it was necessary to mail a smaller amount of surveys. A random sample of 1,200 Registered Dental Hygienists were sent a paper survey. Even though the list of Registered Dental Hygienists was current, there was the potential for some surveys being returned as undeliverable. Some dental hygienists may currently be living in another state; however, they still have a current Michigan dental hygiene license. Another issue was that the Registered Dental Hygienists may not remember their expectations of becoming a dental hygienist from when they were students. Therefore, the level of participation may restrict the representativeness of the data collected. Lastly, the data is self-reported which can create problems with validity because participants might not understand a question completely, respond to a question based on how they think the researcher wants, or may not be able to recall retrospective thoughts.

Inclusion and Exclusion Criteria: Randomly selected Registered Dental Hygienists in Michigan were eligible to participate in the study. Dental hygienists were excluded in this study if they did not have an active license to practice dental hygiene in Michigan.

Participant Recruitment Strategy: Registered Dental Hygienists were recruited through a random selection by a computer. There was no incentive for participating in the study.

Data Elements: Surveys for the Registered Dental Hygienists consisted of questions regarding demographics and their current and retrospective expectations of themselves being an oral health care professional.

Data Collection Procedures: Registered Dental Hygienists' surveys were completed and returned. Data was entered into the SPSS (Version 22.0; IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.) for analysis.

3.3 Questionnaire Content

The survey for dental hygiene students consisted of two sections, a current section and a prospective section ([Appendix F](#)). The themes identified using the pilot data were listed in both sections. Dental hygiene students were asked about demographics and their current expectations of themselves as they study to become a Registered Dental Hygienist, rating the questions on a scale from 1 (not at all important) to 5 (very important). The students were then asked to look ahead five years and consider how important they believe the same expectations of themselves might be as a Registered Dental Hygienist, again using a rating scale from 1 (not at all important) to 5 (very important). This section of the survey was prospective in nature.

The survey for the Registered Dental Hygienists in Michigan consisted of two sections, a current section and a retrospective section ([Appendix H](#)). The themes identified using the pilot data were listed in both sections. Registered Dental Hygienists were asked questions about demographics and their current expectations of themselves being an oral health care professional, rating the questions on a scale from 1 (not at all important) to 5 (very important). Participants then responded to questions based upon when they were in dental hygiene school and the expectations they had of themselves at that time. The same rating scale was used. This section of the survey was retrospective in nature.

3.4 Statistical Analysis

Qualitative data were coded by JC, JK, and MI. Several themes emerged from the student data. A few of the themes were: working hard, being knowledgeable and educated, having good chairside rapport with patients, helping patients achieve good oral health, and upholding the ADHA Code of Ethics.

The data for the dental hygiene students and the Registered Dental Hygienists were analyzed with SPSS (Version 22.0; IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.). Descriptive statistics such as frequency distributions, percentages, and measures of central tendency and variation were used to provide an overview of the findings. Four factor analyses (Extraction Method: Principal Component Analysis; Rotation Method: Varimax Rotation) were used to determine the factor structure of the four sets of 19 professional self-related items (dental hygiene students' current and prospective ratings, and Registered Dental Hygienists' current and retrospective ratings). The results showed that these 19 items loaded on 5 factors. In order to determine if sub scales could be constructed for the items loading on each of these factors, Cronbach alpha inter-item consistency coefficients were computed to determine the reliability of these potential subscales. Following the recommendation of DeVellis (2003), alphas between 0.7 and 0.8 were considered "acceptable," alphas between 0.8 and 0.9 were considered "good," and alphas over 0.9 were considered "excellent."⁴⁹ Sub scale indices were therefore computed if the items in the subscale had a Cronbach alpha reliability index of .70 or higher. In this case, the responses to the items were averaged to create an index.

Inferential statistics, specifically independent t-tests, were used to determine whether the average current responses of hygiene students and professionals were significantly different.

Repeated measurement Analyses of Variance (ANOVAs) were used to compare more than two means. Pearson correlation coefficients were computed to determine relationships between indices. A $p < 0.05$ was used as the level of significance for all inferential tests.

3.5 Sample Size Estimation

An a priori power analysis was conducted using G3.1.3 Power Analysis Program (<http://www.psych.uni-dusseldorf.de/abeilungen/aap/gpower3/>) to compute the sample size needed when conducting an independent sample t-test to determine whether the means of two groups (dental hygiene students and Registered Dental Hygienists) were significantly different. Assuming a two-sided hypothesis, an alpha error probability of 0.05, a medium effect size of .20 on a 5-point scale, and a power of 0.80, the results showed that a sample size of 394 respondents was required for each group.

A recruitment letter (see [Appendix E](#)) and survey (see [Appendix F](#)) were emailed to the thirteen dental hygiene program directors in the State of Michigan with a request to forward a recruitment email to their students for recruitment purposes. At the time of the survey, an estimated 650 dental hygiene students attended dental hygiene programs in the State of Michigan. Out of 10,292 Registered Dental Hygienists in Michigan, the survey was sent to a random sample of 1,200 (see [Appendix G, H](#)). The Registered Dental Hygienists' addresses were verified through the United States Postal Service CASS certification and the National Change of Address (NCOA) database to ensure that addresses were deliverable.

3.6 Protection of Human Subjects

This research project consisted of an anonymous survey of dental hygiene students and Registered Dental Hygienists. Participation in the survey was voluntary. This study was submitted to the University of Michigan Institutional Review Board for the Behavioral and Health Sciences for approval. The research was approved and determined to be exempt from IRB oversight on April 3, 2015 (HUM00100425) ([Appendix I](#)). There was no more than a minimal risk to participants, and there was no direct benefit for participation nor consequence for non-participation.

3.7 Consultants/Collaborators

Dr. Phyllis Beemsterboer, MS, Ed D, FACD, agreed to be a consultant in this study ([Appendix J](#)). She is the Professor and Associate Dean for Academic Affairs at the Oregon Health and Science University (OHSU) School of Dentistry and Associate Director OHSU Center of Ethics in Health Care.

CHAPTER IV

RESULTS

4.1 Response Rate

Respondents Study Part a (Dental hygiene students): During 2015, approximately 650 dental hygiene students were enrolled in dental hygiene programs in the State of Michigan. Their dental hygiene program directors were asked to forward a recruitment letter to their students and ask them to either respond to an attached survey by printing it out and returning it or by using a weblink provided in the email to access a web-based survey. One hundred eighty-nine (n=189) students completed the survey online and thirty-two surveys were returned via postal mail. A total of two hundred twenty-one (n=221) dental hygiene students participated in the survey. The response rate for the dental hygiene students was 34%. Six students who completed the survey were excluded because they indicated that they were Registered Dental Hygienists at the time of the survey. Therefore, the total number of dental hygiene students who participated in the survey was two hundred fifteen (n=215).

4.2 Demographic statistics for respondents study Part a

The demographic statistics of the respondents are provided in [Table 1](#). Of the 215 respondents, 98% (n=210) were female and 2% (n=5) were male. The ages ranged from 20-50 years, with a mean age of 24.71 (SD ± 5.04). The majority of respondents were White/Caucasian (79% n=169), while 5% (n=10) were African American, 4% (n=9) were Asian and 12% (n=25) reported “other”. Forty-six percent (n=22) of the respondents indicated that they were married and 18% (n=39) had children. Sixty percent (n=128) were working and going to dental hygiene school. Dental hygiene students reported that 24% (n=51) had been a dental assistant prior to attending dental hygiene school.

At the time of this research project, there were thirteen (13) dental hygiene programs in Michigan, of which twelve (12) participated in the survey ([Table 2](#)). There was equal representation from the schools. Forty-one percent (n=87) of the dental hygiene students will

graduate in 2016. Prior to dental hygiene school, 17% (n=37) of the dental hygiene students reported having an associate degree and 10% (n=21) had a bachelor degree. In addition, less than 1% (n=3) indicated that they had a second associate degree and less than 1% (n=2) had a master's degree. Sixty-four percent (n=136) of the students reported being student chapter members of the American Dental Hygienists' Association (ADHA). Twenty-four students (n=24) reported holding leadership positions in their school's Student Chapter.

4.3 Dental hygiene students rate *their current professional expectations of themselves*

Dental hygiene students were asked to rate their current professional expectations of themselves on a scale of one to five, with 1 being not at all important and 5 being very important. These questions were based on themes extrapolated from the pilot data (Table 3). Over 90% of the respondents rated (a) *being knowledgeable and educated*, (b) *helping patients achieve good oral health*, (c) *striving for excellence in patient care*, (d) *working hard*, and (e) *having good chairside rapport with patients* as very important to them. Seventy-two percent (n=153) of the respondents rated *advocating for the dental hygiene profession* as very important. Sixty-four percent (n=134) rated *providing community service* as very important. Regarding *being a student member of the ADHA*, 35% (n=75) indicated this characteristic as being very important.

4.4 Open-ended question, *other important current issues for dental hygiene students*

Dental hygiene students were asked in an open-ended question, *are there any other issues that are very important to you right now?* (Table 4). The responses were separated into four categories, *Academic*, *Self/Family*, *Profession*, and *Job related* issues. Twenty-three percent (n=49) of the respondents answered this question. *Academic related* issues was the first category of importance for ten percent of the dental hygiene students. The top three issues were, *complete program/course requirements/graduating*, *passing boards*, and *studying hard/getting good grades/perfect scores*.

Self/Family related issues was the second category of importance for 8% (n=16) of the students. The top three issues were, *manage study time/balance work load/time management* for 4% (n=8) of the students, *having a family/raising kids* for 1% (n=2), and 1% (n=2) indicated that *family support* was a concern.

Profession related issues was the third category of importance for 6% (n=11) of the students. A few examples of concern were; *advance the profession to create jobs* for 2% (n=4),

protecting education requirements for 1% (n=2), and *access to care for all patients* for 1% (n=2) of the students.

Job related issues was the fourth category of important concerns for 3% (n=5) of the dental hygiene students. *Community outreach, finding a dentist to work for and be the best hygienist* were among the top issues for the students.

4.5 Dental hygiene students rate *their prospective professional expectations of themselves*

Dental hygiene students were asked to rate their future professional expectations of themselves on a scale of one to five, with 1 being not at all important and 5 being very important. These questions were based on themes extrapolated from the pilot data ([Table 5](#)). Over 92% of the respondents rated (a) *being knowledgeable and educated*, (b) *having good chairside rapport with patients*, (c) *helping patients achieve good oral health*, (d) *being professionally responsible in work-related matters*, and (e) *exceeding my employer's expectations* as very important to them.

Eighty-two percent of the respondents rated *advocating for the dental hygiene profession* as very important. Seventy-one percent rated *providing community service* as very important and fifty-five percent rated *being a member of the ADHA* as being very important to them.

4.6 Dental hygiene students prospective perception of other issues of importance as a Registered Dental Hygienist

To gain an understanding of a prospective view for the students, the survey asked the students to think forward five (5) years and identify issues that would be important to them. These responses were separated into three categories, *Job, Profession* and *Self/Family related* issues ([Table 6](#)). Fifty-two percent (n=111) of the dental hygiene students answered this question. The most commonly mentioned category for the students pertained to *Job related* issues, 37% (n=79). In this category, five percent (n=10) identified that *health benefits* were a concern, 4% (n=9) were concerned with *finding employment*, and 4% (n=8) mentioned *job security issues*.

Profession related issues was the second category of importance for 22% (n=46) of the dental hygiene students. Nine percent (n=19) mentioned they were concerned with *being up-to-date with continuing education/technology/lifelong learning*. Other concerns dealt with *future rules and regulation changes*, and *community outreach*.

The final category of concern in five years was *Self/Family related* issues for 12% (n=24) of the students. A few examples of concern for the dental hygiene students were *furthering education/getting more degrees, spending time with family, and being financially stable*.

4.7 Open-ended question, most important characteristics of being a future Registered Dental Hygienist

Dental hygiene students were asked to identify what they perceived as the three (3) most important characteristics of being a Registered Dental Hygienist ([Table 7](#)). These questions were separated into the same categories of *Profession, Job, and Self/Family related* issues. Eighty-two percent (n=176) of the dental hygiene students answered this question and most identified three important characteristics.

The most important characteristics for the dental hygiene students were in the category of *Profession related* issues. Dental hygiene students indicated that *knowledgeable about new research/CE/lifelong learning* were important to 31% (n=66) of them. Twenty-three percent (n=49) reported having *compassion/caring/empathy/sincere/understanding* as important. Another 21% (n=46) indicated that *being a skilled clinician/highly educated/competent/intelligent/detail oriented* were important.

The second most important category for 85% (n=174) of the students was *Job related* issues. Respondents reported that *being ethical/non-maleficence/nonjudgmental/unbiased* were important for 12% (n=25). *Organization and time management skills* were important to 11% (n=23) of the students. *Hard working* was reported as being important from 9% (n=19) of the students.

The last category of importance dealt with *Self/Family related* issues for 5% (n=10) of the students. *Having a positive attitude and personality, balancing work and home, and being a leader/outgoing* were important to them.

4.8 Open-ended question, least important characteristics of being a future Registered Dental Hygienist

Dental hygiene students were asked to identify what they perceived as the three (3) least important characteristics of being a Registered Dental Hygienist ([Table 8](#)). This question was divided into the three categories of *Self, Job and Academic related* issues. There were 33% (n=72) students who answered this question. Of those who responded, 22% (n=48) provided three responses.

The first category *Self related* issues was identified as the least important characteristic for 40% (n=89) of the students. Characteristics of *being shy/sensitive/personality/talking/humorous/modesty/emotions* were least important to 5% (n=11) of the dental hygiene students. Furthermore, 5% (n=10) mentioned characteristics of *being rude or impatient* as being unimportant. *Being an ADHA member* was not important for 4% (n=9) of the dental hygiene students.

Twenty-nine percent (n=60) of the students identified three least important characteristics in the category of *Job related* issues. The dental hygiene students indicated *time management, making the most money and production* and *providing community service* as being unimportant to them.

Academic related issues category was the last category of unimportance to thirteen percent (n=29) of the students. The least important characteristics were *studying hard/grades/perfectionist/brains/being the best, popularity/outgoing/power/having everyone in office like me* and *where degree is from/importance of levels of profession/status*.

4.9 Response Rate

Respondents study Part b (Registered Dental Hygienists): A random sample of twelve hundred (n=1200) Registered Dental Hygienists in Michigan were mailed a hard copy survey included a stamped return envelope and a weblink to complete the survey online. In addition, a convenience sample of one thousand fifty-nine (n=1059) Registered Dental Hygienists were asked to participate in the survey through the Michigan Dental Hygienists' Association electronic Newswire. Thirteen (13) surveys were returned as undeliverable by the postal service. Three hundred fifty-two (n=352) Registered Dental Hygienists participated in the survey; 28% replied via postal mail, .005% completed through the weblink and .01% through the survey online. The total response rate for the Registered Dental Hygienists was 16%.

4.10 Demographic statistics for respondents study Part b

Of the dental hygienists who completed the survey, 90% (n=303) were identified as a practicing Registered Dental Hygienist, 4% (n=14) were retired, 3% (n=9) were dental hygiene educators, 2% (n=7) were substituting as a dental hygienist, and 2% (n=5) had an active dental hygiene license but were also a dentist ([Table 9](#)). Of the respondents, 100% (n=352) were females with a mean age of 47.55 (SD ± 12.48), with a range of 23-75. Majority of the respondents were White/Caucasian, 95% (n=327). Eighty-one percent (n=281) indicated that

they were married and 82% (n=288) had children. Forty-one percent (n=144) of the Registered Dental Hygienists reported being dental assistants prior to becoming a Registered Dental Hygienist.

4.11 Overview of the education-related responses for Registered Dental Hygienists

The majority of Registered Dental Hygienists respondents reported graduating from a dental hygiene program in Michigan, whereas, only 9% (n=30) reported graduating from a program outside of Michigan ([Table 10](#)). Sixteen percent (n=57) of respondents graduated from Ferris State University, 15% (n=53) graduated from the University of Michigan, 13% (n=44) graduated from University of Detroit Mercy. The mean year of respondents receiving their dental hygiene degree was 1991 (SD ± 13.32), range of 1959-2015. Three-fourths (75%) of the respondents reported also having either an associate or a bachelor degree. The mean year for receiving that degree was 1993 (SD ± 13.13) with a range of 1971-2016. Twenty-nine percent (n=10) indicated they had a second degree, which was a master's degree. In addition, 21% (n=7) indicated their second degree was a bachelor's degree. The mean year for the second degree was 1998 (SD ± 14.06) with a range of 1972-2016.

4.12 Overview of work situation for Registered Dental Hygienists

The respondents were asked a series of questions focusing on the practice settings where they worked. The majority 85% (n=296) of Registered Dental Hygienists worked in clinical practice ([Table 11](#)). Of the respondents, 56% (n=198) were in a solo practice, 26% (n=92) group practice, 8% (n=28) specialty practice, and 5% (n=17) community dental clinic. Twenty-seven percent (n=31) of respondents indicated they worked in an alternative work setting, of which, 7% (n=23) were in education and 1% (n=5) in a government setting. The mean number of years worked in the field of dental hygiene was 22.99 (SD ± 11.54), ranging from 0.05-55 years. The mean number of worked hours per week was 25.60 (SD ± 11.54) with a range of 0-50. The type of community the dental hygienists worked in ranged from rural to large city. Forty-nine percent (n=157) worked in a moderate-sized community (population of 25,000-250,000). Whereas, 26% (n=82) worked in a small town/city (population of 5,000-24,999), 14% (n=44) in a large city (population over 250,000) and 12% (n=37) in a rural area (under 5,000 population). The majority of dental offices participated with patients' dental insurance plans. The mean number of patients covered by employer-based insurance companies is 42.82 ±34.28 with a range of 0-99. A mean of 32.92 (SD ± 31.65) of patients were self-pay with a range of 0-100. A mean of 22.68 (SD ±

29.79) with a range of 0-100 of patients were covered by government programs. Donated services consisted of a mean for 1.57 (SD \pm 7.26) for patients with a range of 0-99.

4.13 Overview of Professional Organization Affiliations for Registered Dental Hygienists

Information regarding any professional organization memberships was also obtained ([Table 12](#)). As dental hygiene students, 82% (n=282) of the Registered Dental Hygienists reported being a student member of the American Dental Hygienists' Association (ADHA). Twenty percent (n=70) were active members of ADHA at the time of the survey. The mean years as a member of ADHA was 17.65 (SD \pm 14.18) with a range of 0-53. Seventeen percent (n=53) of the Registered Dental Hygienists reported having had a leadership position in the ADHA. When asked if they were members of any professional organizations at the time of the survey, 20% (n=43) were members of dental-related organizations, 5% (n=15) non dental-related organizations, and 3% (n=9) academic organizations. A few of the respondents, 15% (n=52) had been previous members of dental-related organizations. While 2% (n=8) were previous members of academic and 2% (n=6) non dental-related organizations.

4.14 Registered Dental Hygienists rate *their current expectations of themselves*

Registered Dental Hygienists were asked to rate their current professional expectations of themselves on a scale of one to five, with 1 being not at all important and 5 being very important. These questions were based on themes extrapolated from the pilot data ([Table 13](#)). Over 83% of the respondents rated (a) *having good chairside rapport with patients*, (b) *being knowledgeable and educated*, (c) *striving for excellence in patient care*, (d) *being professionally responsible in work-related matters*, (e) *helping patients achieve good oral health* as very important to them. Thirty-two percent (n=109) of the respondents rated *advocating for the dental hygiene profession* as very important. Twenty-eight percent (n=99) rated *providing community service* as very important. Regarding *being a member of the ADHA*, 15% (n=49) indicated this characteristic as being very important.

4.15 Open-ended question, *other important current issues for Registered Dental Hygienists*

Registered Dental Hygienists were asked in an open-ended question, *are there any other issues that are very important to you right now?* ([Table 14](#)). The responses were separated into three categories; *Job*, *Self/Family*, and *Profession related* issues. Twenty-eight percent (n=97) of the respondents answered this question. Twenty percent (n=68) indicated that *Job related* issues was most important for them at the time they completed this survey. The top three issues were

compensation/wage, work place benefits (health insurance and 401K), and educating patients/systemic disease link/motivate patients to achieve oral health.

The second category of importance was *Self/Family related* issues for 6% (n=23) of the Registered Dental Hygienists. The three most important issues in this category were, *retirement/what can I do with clinical skills after retiring/when to retire, health/wellness/ergonomics and family.*

The *Profession related* issues was the final category of importance to 4% (n=20) of the Registered Dental Hygienists. *Future of the profession/changes in dentistry, increased access to care/dental insurance for patients, and maintaining clinical skills/competence* were among the most important issues in this category.

4.16 Registered Dental Hygienists rate *their retrospective professional expectations of themselves*

Registered Dental Hygienists were asked to rate their past professional expectations of themselves on a scale of one to five, with 1 being not at all important and 5 being very important. These questions were based on themes extrapolated from the pilot data ([Table 15](#)). Over 81% of the respondents rated (a) *meeting the expectations of the dental hygiene program*, (b) *being knowledgeable and educated*, (c) *working hard*, (d) *striving for excellence in patient care* and (e) *education and development of clinical skills* very important. Forty-one percent (n=143) indicated *advocating for the dental hygiene profession* as very important. Twenty-nine percent (n=101) reported *being a student member of ADHA* as very important and 36% (n=125) rated *providing community service* as very important.

4.17 Registered Dental Hygienists retrospective perception of other important issues as a dental hygiene student

In order to gain a retrospective view for Registered Dental Hygienists, the survey asked respondents to identify issues of importance when they were dental hygiene students. These questions were separated into four categories, *Academic, Job, Professional* and *Self/Family related* issues ([Table 16](#)). Fifty-nine percent (n=208) of the Registered Dental Hygienists answered this question. About half of the Registered Dental Hygienists were concerned with *Academic related* issues, 54% (n=193). The top three issues were *passing boards, studying hard/getting good grades/perfect scores/passing classes, and learning the profession, developing clinical skills, etc.*

The second category of importance for 16% (n=57) of the Registered Dental Hygienists when they were students was *Job related* issues. Thirteen percent (n=47) were concerned most with *finding a good dentist to work for/ finding a job. Staying current on products and learning new techniques* and *finding employment with benefits and being a team player* were important issues.

The third category was *Profession related* issues, 4% (n=12) of the Registered Dental Hygienists indicated that this was important when they were students. *Advocating for the profession/politics in dental hygiene, community outreach/community service, and advocating for membership into ADHA/being an officer of the student chapter* were all important.

Self/Family related issues was the fourth category of importance for 8% (n=27) of the Registered Dental Hygienists. *Making money to support self/paying off student loans/wages, balancing school/work/family/social life and being a healthy individual* were among the top issues for Registered Dental Hygienists when they were students.

4.18 Open-ended question, most important characteristics of being a Registered Dental Hygienist

Registered Dental Hygienists were asked to identify what they perceived as the three (3) most important characteristics of being a Registered Dental Hygienist ([Table 17](#)). These questions were separated into two categories, *Job* and *Profession related* issues. Ninety percent (n=317) of the Registered Dental Hygienists answered this question and 85% (n=299) identified three important characteristics.

Of the top three for *Job related* most important issues, the first were *being a skilled clinician/highly educated/competent/intelligent/detail oriented/knowledge/proficient*, important to 40% (n=142) of the respondents. Second, *providing the best patient care/quality patient care/excellent patient care/thorough/gentle* were rated important for 24% (n=84). Third, 24% (n=83) indicated that *good patient rapport/chairside manner/good people skills/being nice/mannerism/being perceptive* were important.

For the category of *Profession related* issues, 21% (n=73) reported having *compassion/caring/empathy/sincerity/understanding/sympathy* as an important characteristic of being a Registered Dental Hygienist. Second, 14% (n=48) indicated being *professional/professionalism* as important. Third, 13% (n=44) indicated that being *ethical/non-*

maleficence/nonjudgmental/unbiased/level headed were important characteristics of being a Registered Dental Hygienist.

4.19 Open-ended question, *least important characteristics of being a Registered Dental Hygienist*

Registered Dental Hygienists were asked to identify what they perceived as the three (3) least important characteristics of being a Registered Dental Hygienist ([Table 18](#)). These questions were separated into the three categories of *Job*, *Profession*, and *Academic related* issues. Fifty-one percent (n=180) of the respondents answered this question and 25% (n=89) provided three least important characteristics.

Job related issues was identified as the least important characteristics for 65% (n=229) of the Registered Dental Hygienists. Nine percent (n=31) indicated that *making the most money/only wanting a paycheck/profit/production* were least important. Seven percent (n=26) indicated that *not being a team player/not being flexible/friendships with co-workers/building professional relationships* were least important. Furthermore, *appearance* was indicated as a least important characteristic for 7% (n=24) of the respondents.

Profession related issues was least of a concern for 34% (n=119) of the Registered Dental Hygienists. Thirteen percent (n=47) indicated that *being a member of the ADHA/member of organized dentistry* were least important characteristics. Five percent (n=16) reported *advocating the dental hygiene profession* was a least important characteristic. Finally, 3% (n=11) found that *being shy/sensitive/personality/talking/humorous/modesty/emotional/reserved* were least important characteristics of being a Registered Dental Hygienist.

There were 16% (n=50) of the Registered Dental Hygienists who discussed *Academic related* issues. *Where your degree is from/importance levels or profession/status/economic status/how many degrees you have* were least important for 5% (n=17) of the Registered Dental Hygienists. Five percent (n=16) did not feel it was important to *study hard/grades/perfectionist/brains/being the best/workaholic*. Another 2% (n=7) indicated that *popularity/outgoing/power/having everyone in office like me/competitiveness* were unimportant.

4.20 Comparison of average importance ratings of professional characteristics: dental hygiene students vs. Registered Dental Hygienists

The dental hygiene students identified 19 characteristics that they associate with professional identity. These 19 characteristics were loaded on five subscales *Professional Pride*, *Work ethic*, *Patient relations*, *Professional ambition* and *Single item measures* (Table 19). To determine the average importance ratings of aspects of professional characteristics for Registered Dental Hygienists and dental hygiene students, an independent t-test was used to identify if there were significant differences between how they rated themselves currently (Table 20). The first category was *Professional pride*, a *Professional pride Index* was created and the dental hygiene students and Registered Dental Hygienists combined Cronbach's alpha was .805, the dental hygiene students current alpha was .798, while the Registered Dental Hygienists current alpha was .726. *Receiving pride and satisfaction from my work* was significantly different between the dental hygiene students 4.85 (SD \pm .421) and Registered Dental Hygienists 4.75 (SD \pm .505), $p=0.011$. *Having a balance between work and personal life* was significantly different between the dental hygiene students 4.83 (SD \pm .432) and the Registered Dental Hygienists 4.74 (SD \pm .557), $p=0.032$. *Being a lifelong learner* was significantly different between dental hygiene students 4.77 (SD \pm .512) and Registered Dental Hygienists 4.63 (SD \pm .599), $p=0.002$. *Providing community service* was significantly different between the dental hygiene students 4.52 (SD \pm .713) and Registered Dental Hygienists 3.80 (SD \pm 1.049), $p<0.001$.

The *Work ethic* category, showed a Cronbach's alpha index for both Registered Dental Hygienists and dental hygiene students of .673. Dental hygiene students current Cronbach's alpha was .738 and the Registered Dental Hygienists current alpha was .551. There was a significant difference between the dental hygiene students 4.92 (SD \pm .298) and the Registered Dental Hygienists 4.71 (SD \pm .641), $p<0.001$ for the characteristic of *working hard*. The characteristic *being organized*, there was no significant difference between the Registered Dental Hygienists 4.77 (SD \pm .486) and the dental hygiene students 4.85 (SD \pm .431), $p=0.053$. The characteristic of *being knowledgeable and educated* there was no significant difference between the dental hygiene students 4.92 (SD \pm .299) and the Registered Dental Hygienists 4.89 (SD \pm .340), $p=0.225$.

Under the *Patient relations* category, the *Patient relations Index* Cronbach's alpha for both were .779; students current alpha was .800 and Registered Dental Hygienists current alpha

was .745. The characteristic *Having good chairside rapport with patients* was not significantly different between dental hygiene students 4.90 (SD ± .349) compared to Registered Dental Hygienists 4.90 (SD ± .420), $p=0.998$. The characteristic *Helping patients achieve good oral health* was significantly different between the dental hygiene students 4.92 SD ± .282) and Registered Dental Hygienists 4.82 (SD ± .436), $p=0.001$. The characteristic *Striving for excellence in patient care* was not significantly different between dental hygiene students (SD ± 0344) and Registered Dental Hygienists 4.84 (SD ± .464), $p=0.109$.

The *Professional ambition category* showed a Cronbach's alpha index combined for dental hygiene students and Registered Dental Hygienists of .804. The dental hygiene students current Cronbach's alpha was .905 and the Registered Dental Hygienists was .743. For the characteristic of *exceeding my future employer's expectations*, there was a significant difference between the dental hygiene students 4.86 (SD ± .414) and the Registered Dental Hygienists 4.47 (SD ± .723), $p<0.001$. For the characteristic of *exceeding my patients' expectations*, there was a significant difference between the dental hygiene students 4.87 (SD ± .401) and the Registered Dental Hygienists 4.74 (SD ± .516), $p=0.001$.

The characteristic of *being a member of ADHA* was evaluated as a single item and there were significant differences for this category for the dental hygiene students 4.25 (SD ± 1.009) versus Registered Dental Hygienists 2.66 (SD ± 1.324), $p<0.001$. The characteristic of *advocating for the dental hygiene profession* was also evaluated as a single item. There was a significant difference between dental hygiene students 4.65 (SD ± .632) and the Registered Dental Hygienists 3.77 (SD ± 1.112), $p<0.001$. The characteristic of *Upholding the ADHA Code of Ethics* rating was significantly different between the Registered Dental Hygienists 4.58 (SD ± .823) and student dental hygienists 4.78 (SD ± .941), $p<0.001$.

4.21 Comparison of current vs. retrospective average importance ratings of professional characteristics for Registered Dental Hygienists

In determining the average importance ratings of aspects of professional characteristics for Registered Dental Hygienists, a dependent t-test was used to identify if there were significant differences between how they rated themselves currently and retrospectively, when they were dental hygiene students ([Table 21](#)). The professional characteristics were divided into four rating categories, *Professional pride*, *Work ethic* and *Patient relations and Professional ambition*. A few characteristics were single item measurements. A *Professional pride index* was created and

the current Cronbach's alpha for the Registered Dental Hygienists was .726 and the past Cronbach's alpha was .803. There was a significant difference for the characteristic of *being professionally responsible in work-related matters* between when the Registered Dental Hygienist was a student versus being a Registered Dental Hygienist. For the characteristic of *having a balance between work and personal life* there was a significant difference between the present time 4.75 (SD \pm .551) and past 4.03 (SD \pm 1.136), $p < 0.001$. The current average was 4.75 (SD \pm .510) and past average was 4.63 (SD \pm 6.89), $p < 0.001$. There was a significant difference between the present 4.62 (SD \pm .608) and past 4.37 (SD \pm .913), $p < 0.001$, for the characteristic *being a lifelong learner*. For the characteristic of *providing community service*, there was no significant difference between the current average 3.79 (SD \pm 1.053) and the past 3.76 (SD \pm 1.212), $p = 0.700$.

The *Work ethic Index* Cronbach's alpha for Registered Dental Hygienist currently was .551, whereas the past alpha was .717. There was a significant difference for *working hard*, $p = 0.012$ and *being knowledgeable and educated*, $p = 0.026$. However, there was no significant difference between the current 4.76 (SD \pm .499) and the past 4.70 (SD \pm .629), $p = 0.011$ for the characteristic of *being organized*.

For the category of *Patient relations*, the current Cronbach's alpha for Registered Dental Hygienists was .745, whereas the past Cronbach's alpha was .763. There was a significant difference between the current and past for the characteristics of *having good chairside rapport with patients* ($p < 0.001$) and *helping patients achieve good oral health* ($p = 0.011$). There was no significant difference between the current 4.89 (SD \pm .479) and the past 4.79 (SD \pm .470), $p = 0.151$ for the *striving for excellence in patient care* characteristic.

The *Professional ambition index* current Cronbach's alpha for Registered Dental Hygienists was .743 and the past was .795. There was no significant difference with the characteristic of *exceeding my future employer's expectations* between the current 4.48 (SD \pm .732) and the past 4.55 (SD \pm .736), $p = 0.215$. There was a significant difference with the characteristic of *exceeding my patients' expectations* with the dental hygienists current 4.73 (SD \pm .521) versus the past 4.65 (SD \pm .639), $p = 0.024$.

Single item measures included the characteristic of *being a member of ADHA*, there was a significant difference between the current 2.66 (SD \pm 1.319) and the past 3.46 (SD \pm 1.396), $p < 0.001$. There was no significant difference for the characteristic *Upholding the ADHA Code of*

Ethics; the current 4.58 (SD \pm .608), past 4.55 (SD \pm .825), $p=0.611$. *Advocating for the dental hygiene profession*, there was no significant difference between the dental hygienist current 3.77 (SD \pm 1.102) and past 3.87 (SD \pm 1.186), $p=0.153$.

4.22 Comparison of current vs. prospective average importance ratings of professional characteristics for dental hygiene students

In determining the average importance ratings of aspects of professional characteristics for dental hygiene students, a paired t-test was used to identify if there were significant differences between how they rated themselves currently and prospectively (when they would be Registered Dental Hygienists) (Table 22). The four rating categories were *Professional pride*, *Work ethic*, *Patient relations* and *Professional ambition*. There were also single item measurements. The *Professional pride index Cronbach's alpha* for the current dental hygiene students was .798, and the prospective *Cronbach's alpha* was .829. When examining the *Professional pride ratings* of the dental hygiene students, significant differences were seen in the current and future characteristics for *receiving pride and satisfaction from work* 4.85 (SD \pm .422) vs. 4.90 (SD \pm .332), $p=0.016$. For the characteristic of *being professionally responsible in work-related matters*, there was not a significant difference for the dental hygiene students currently 4.88 (SD \pm .359) and the future 4.90 (SD \pm .340), $p=0.058$. The characteristic of *being a lifelong learner* was significantly different between current and future 4.77 (SD \pm .513) vs. 4.82 (SD \pm .440), $p=0.094$, for the dental hygiene students.

The *Work ethic index Cronbach's alpha* for the dental hygiene students currently was .738 and the future was .763. For the *Work ethic ratings* category, there were no significant differences for the characteristics of *working hard* ($p=0.158$), being *organized* ($p=0.853$) and *being knowledgeable and educated* ($p=1.00$) for the current and future aspects for the dental hygiene students.

The *Patient relations index Cronbach's alpha* for the dental hygiene students currently was .800 and the future .881. For the *patient relations ratings*, the dental hygiene students did not report any significant differences between the current and future aspects for the characteristics of *having good chairside rapport with patients* ($p=0.132$), *helping patients achieve good oral health* ($p=0.764$), and *striving for excellence in patient care* ($p=0.819$).

Single items included the characteristic of *being a student member of ADHA*, there was a significant difference for the dental hygiene students 3.84 (SD \pm 1.085) vs. 4.424 (SD \pm 1.013),

$p < 0.001$. *Advocating for the dental hygiene profession* was also significant 4.65 (SD \pm .634) vs. 4.77 (SD \pm .560), $p < 0.001$. There was no significant difference between the current and future aspects for dental hygiene students for the characteristic *upholding the ADHA Code of Ethics* 4.78 (SD \pm .492) vs. 4.81 (SD \pm .520), $p = 0.251$.

4.23 Comparison of average importance ratings of professional characteristics: prospective dental hygiene students vs. current Registered Dental Hygienists

In comparing the average importance ratings of aspects of professional characteristics for dental hygiene students prospectively (when they would be Registered Dental Hygienists) versus Registered Dental Hygienists currently, an independent t-test was used to identify if there were significant differences between the two groups ([Table 23](#)). The four categories of *Professional pride*, *Work ethic*, *Patient relations* and *Professional ambition* were evaluated. The dental hygiene students' future Cronbach's alpha for the *Professional pride* was .829 and the Registered Dental Hygienists current Cronbach's alpha was .726. The *Work ethic* index Cronbach's alpha for the dental hygiene students future was .763 and the Registered Dental Hygienists current was .551. The *Patient relations index Cronbach's alpha* for the future dental hygiene students was .881 and the Registered Dental Hygienists current *Cronbach's alpha* was .745. The *Professional ambition index Cronbach's alpha* for the dental hygiene students in the future was .937 and the current Registered Dental Hygienists was .743.

Receiving pride and satisfaction from my work, having a balance between work and personal life, being a lifelong learner, providing community service, and building professional relationships were all identified as significant differences between dental hygiene students and Registered Dental Hygienists ($p < 0.001$, respectively).

There was a significant difference between dental hygiene students and Registered Dental Hygienists for the characteristics of *working hard* ($p < 0.001$). There was no significant difference between the dental hygiene students and Registered Dental Hygienists for the characteristic of *being knowledgeable and educated* ($p = 0.205$).

Comparing dental hygiene students and Registered Dental Hygienists, there was no significant difference for *having good chairside rapport with patients* ($p = 0.470$) and *striving for excellence in patient care* ($p = 0.092$). There was a significant difference between dental hygiene students and Registered Dental Hygienists for the characteristic of *helping patients achieve good oral health* ($p < 0.001$).

When examining the characteristics of *Upholding the ADHA Code of Ethics and advocating for the dental hygiene profession, exceeding my future employer's expectations and exceeding my patient's expectations* there was a significant difference between the dental hygiene students and Registered Dental Hygienists ($p < 0.001$, respectively).

4.24 Comparison of average importance ratings of professional characteristics: current dental hygiene students vs. retrospective Registered Dental Hygienists

In comparing the average importance ratings of aspects of professional characteristics for dental hygiene students currently versus Registered Dental Hygienists retrospectively (when they were dental hygiene students), an independent t-test was used to identify if there were significant differences between the two groups (Table 24). The *Cronbach's alpha* for the *Professional pride index* for the dental hygiene students currently was .798 and the Registered Dental Hygienists retrospectively was .803. The category of *Professional pride rating*, there was a significant difference between dental hygiene students' current expectations versus the Registered Dental Hygienists retrospective expectations for *receiving pride and satisfaction from my work, being professionally responsible in work-related matters, having a balance between work and personal life, being a lifelong learner, providing community service, and building professional relationships* ($p < 0.001$, respectively).

The *Work ethic index*, *Cronbach's alpha* for the dental hygiene students currently was .738 and the Registered Dental Hygienists in the past was .551. Dental hygiene students and the Registered Dental Hygienists ratings of *Work ethic* was significantly different for the characteristics of *working hard, being organized, and being knowledgeable and educated* ($p < 0.001$, respectively).

The *Patient relations index* *Cronbach's alpha* for the dental hygiene students currently was .800 and the Registered Dental Hygienists retrospectively was .763. There were significant differences reported for the characteristics of *having good chairside rapport with patients, helping patients achieve good oral health and striving for excellence in patient care* between the dental hygiene students currently and the Registered Dental Hygienists when they were students, $p < 0.001$, respectively.

The *Professional ambition index* *Cronbach's alpha* currently for the dental hygiene students was .905 and the past Registered Dental Hygienists was .795. For the characteristic of *exceeding my future employer's expectations* there was a significant difference between the

dental hygiene students currently 4.86 (SD \pm .414) and the Registered Dental Hygienists retrospectively 4.55 (SD \pm .721), $p < 0.001$.

The dental hygiene students and Registered Dental Hygienists were significantly different when comparing the characteristics of *upholding the ADHA Code of Ethics* and *advocating for the dental hygiene profession* ($p < 0.001$, respectively).

4.25 Comparison of average importance ratings of professional characteristics for current and prospective dental hygiene students and current and retrospective Registered Dental Hygienists

In comparing the average importance ratings of aspects of professional characteristics for dental hygiene students currently and Registered Dental Hygienists retrospectively (when they were dental hygiene students) versus dental hygiene students prospectively (when they would be Registered Dental Hygienists) and Registered Dental Hygienists currently, a univariate ANOVA test was used to identify if there were significant differences between the two groups ([Table 25](#)). The category of *Professional pride ratings, receiving pride and satisfaction from my work* 4.85 (SD \pm .421) vs. 4.65 (SD \pm .652) vs. 4.90 (SD \pm .355) vs. 4.75 (SD \pm .505), $p < 0.001$. There was a significant difference between the students and Registered Dental Hygienists for *being professionally responsible in work-related matters* 4.88 (SD \pm .357) vs. 4.63 (SD \pm .683) vs. 4.90 (SD \pm .344) vs. 4.82 (SD \pm .445), $p < 0.001$. For the characteristic of *having a balance between work and personal life*, there was a significant difference between the two groups 4.83 (SD \pm .432) vs. 4.06 (SD \pm 1.110) vs. 4.89 (SD \pm .384) vs. 4.74 (SD \pm .557), $p < 0.001$. For the characteristic of *being a lifelong learner*, the significant difference was 4.77 (SD \pm .512) vs. 4.37 (SD \pm .905) vs. 4.83 (SD \pm .437) vs. 4.63 (SD \pm .599), $p < 0.001$. There was a significant difference between the two groups for the characteristic of *providing community service*, 4.52 (SD \pm 7.13) vs. 3.77 (SD \pm 1.173) vs. 4.60 (SD \pm .717) vs. 3.80 (SD \pm 1.049), $p < 0.001$. There was also a significant difference between the dental hygiene students and the Registered Dental Hygienists for the characteristic of *building professional relationships* 4.80 (SD \pm .470) vs. 4.05 (SD \pm 1.048) vs. 4.84 (SD \pm .427) vs. 3.96 (SD \pm .966), $p < 0.001$.

The category of *Work ethic ratings*, significant differences were reported for the comparison of the dental hygiene students current and Registered Dental Hygienists retrospectively versus the dental hygiene students prospectively and Registered Dental

Hygienists current expectations of the professional characteristics of *working hard* ($p < 0.001$), *being organized* ($p = 0.001$) and *being knowledgeable and educated* ($p = 0.008$).

There were significant differences between the dental hygiene students and Registered Dental Hygienists for the *Patient relations ratings*. The characteristics that were under this category were *having good chairside rapport with patients, helps patients achieve good oral health* ($p < 0.001$, respectively) and *striving for excellence in patient care* ($p = 0.004$).

When examining the *advocating for the profession* category of the dental hygiene students and Registered Dental Hygienists, significant differences were seen for *upholding the ADHA Code of Ethics* 4.78 (SD \pm .491) vs. 4.56 (SD \pm .827) vs. 4.81 (SD \pm .516) vs. 4.58 (SD \pm .823), $p < 0.001$. There was a significant difference between the dental hygiene students and the Registered Dental Hygienists for the characteristic of *advocating for the dental hygiene profession* 4.65 (SD \pm .632) vs. 3.87 (SD \pm 1.178) vs. 4.76 (SD \pm .561) vs. 3.77 (SD \pm 1.112), $p < 0.001$.

For the category of *professional ambition*, the characteristic of *exceeding my future employer's expectations*, there was a significant difference between the dental hygiene students and Registered Dental Hygienists 4.86 (SD \pm .414) vs. 4.55 (SD \pm .721) vs. 4.90 (SD \pm .356) vs. 4.47 (SD \pm .723), $p < 0.001$. There was a significant difference between the two groups for *exceeding my patient's expectations* 4.87 (SD \pm .401) vs. 4.64 (SD \pm .635) vs. 4.91 (SD \pm .334) vs. 4.74 (SD \pm .516), $p < 0.001$.

There was a significant difference for the characteristic of *being a member of ADHA* between the two groups 3.84 (SD \pm 1.090) vs. 3.43 (SD \pm 1.394) vs. 4.25 (SD \pm 1.009) vs. 2.66 (SD \pm 1.324), $p < 0.001$.

4.26 Comparison of current average importance ratings of professional characteristics for dental hygiene students and Registered Dental Hygienists stratified by having previous dental assisting experience

In comparing the average importance ratings of aspects of professional characteristics for dental hygiene students with and without dental assisting experience, an independent t-test was used to determine if there were significant differences between the two groups. The same comparison was done for Registered Dental Hygienists ([Table 26](#)). The mean age of dental hygiene students with previous dental assisting experience was 25.27 years, while those without was 24.53 and the mean age of Registered Dental Hygienists with previous dental assisting

experience was 48.03 years and without was 47.26. For the category of *Professional pride* there were no significant differences for the dental hygiene students if they had or had not had dental assisting experience for *receiving pride and satisfaction from my work* 4.82 (SD ± .434) vs. 4.86 (SD ± .417), $p=0.630$. For the Registered Dental Hygienists for this characteristic, there was no significant difference with or without dental assisting experience, 4.73 (SD ± .536) vs. 4.76 (SD ± .485), $p=0.581$. For the category of *being professionally responsible in work-related matters* there was no significant difference between having prior dental assisting experience for dental hygiene students 4.86 (SD ± .401) vs. 4.88 (SD ± .343), $p=0.748$. The Registered Dental Hygienists for the same characteristic, there was no significant difference between having prior dental assisting experience 4.83 (SD ± .429) vs. 4.80 (SD ± .458), $p=0.541$. There was no significant difference for dental hygiene students with prior dental assisting experience for the characteristic of *having a balance between work and personal life* 4.82 (SD ± .434) vs. 4.84 (SD ± .433), $p=0.841$. There was a significant difference for the Registered Dental Hygienists for this category if they had prior dental assisting experience 4.83 (SD ± .427) vs. 4.68 (SD ± .628), $p=0.006$.

For the category of *Work ethic*, there was no significant difference for dental hygiene students with prior dental assisting experience for the characteristic of *working hard* 4.82 (SD ± .478) vs. 4.96 (SD ± .204), $p=0.058$. There was no significant difference for Registered Dental Hygienists with prior dental assisting experience for the same characteristic 4.66 (SD ± 6.91) vs. 4.74 (SD ± .607), $p=0.281$. For the characteristic of *being organized* there was no significant difference for dental hygiene students if they had prior dental assisting experience 4.80 (SD ± .491) vs. 4.86 (SD ± .411), $p=0.392$. The Registered Dental Hygienists there was no significant difference for the same characteristic 4.77 (SD ± .472) vs. 4.77 (SD ± .498), $p=0.932$.

There was no significant difference for dental hygiene students with prior dental assisting experience for the characteristic of *having good chairside rapport with patients* 4.88 (SD ± .382) vs. 4.90 (SD ± .339), $p=0.746$. For the same characteristic there was no significant difference for Registered Dental Hygienists with prior dental assisting experience 4.88 (SD ± .443) vs. 4.91 (SD ± .406), $p=0.497$. There was no significant difference for dental hygiene students with prior dental assisting experience for *helping patients achieve good oral health* 4.84 (SD ± .418) vs. 4.95 (SD ± .218), $p=0.084$. Registered Dental Hygienists with prior dental assisting experience

was not significantly different for the same characteristic 4.78 (SD \pm .525) vs. 4.85 (SD \pm .360), $p=0.170$.

For the category of *Advocate for profession*, the dental hygiene students with prior dental assisting experience there was no significant difference for the characteristic of *upholding the ADHA Code of Ethics* 4.69 (SD \pm .547) vs. 4.81 (SD \pm .469), $p=0.163$. For Registered Dental Hygienists with prior dental assisting experience there was no significant difference for the same characteristic 4.61 (SD \pm .754) vs. 4.55 (SD \pm .871), $p=0.558$. *Advocating for the dental hygiene profession* characteristic, there was no significance difference for dental hygiene students with prior dental assisting experience 4.76 (SD \pm .473) vs. 4.61 (SD \pm .671), $p=0.080$. There was no significant difference for the same characteristic for Registered Dental Hygienists with previous dental assisting experience, 3.86 (SD \pm 1.098) vs. 3.69 (SD \pm 1.118), $p=0.164$.

For the category of *Professional ambition*, there were no significant differences for the dental hygiene students with prior dental assisting experience for the characteristics of *exceeding my future employer's expectations* ($p=0.359$) or *exceeding my patients' expectations* ($p=0.328$). There were no significant differences for the Registered Dental Hygienists for the characteristics of *exceeding my future employer's expectations* ($p=0.484$) or *exceeding my patients' expectations* ($p=0.511$).

For the characteristic of *being a member of ADHA*, there was no significant difference for dental hygiene students with prior dental assisting experience 4.00 (SD \pm 1.114) vs. 3.79 (SD \pm 1.081), $p=0.229$. For the same category, there was no significant difference for Registered Dental Hygienists with prior dental assisting experience 2.65 (SD \pm 1.321) vs. 2.66 (SD \pm 1.325), $p=0.917$.

4.27 Comparison of current average importance ratings of professional characteristics for dental hygiene students and Registered Dental Hygienists stratified by being a member of the American Dental Hygienists' Association

In comparing the average importance ratings of aspects of professional characteristics for dental hygiene students who are and are not members of the professional organization (ADHA), an independent t-test was used to determine if there were significant differences between the two groups. The same comparison was done for Registered Dental Hygienists ([Table 27](#)). The mean age of a dental hygiene student member was 24.43 and not a member was 25.19, whereas a Registered Dental Hygienist member mean age was 51.72 and not a member was 46.49.

For the *professional pride ratings, receiving pride and satisfaction from my work* was significant among the Registered Dental Hygienists if they were a member of the professional organization 4.88 (SD ± .365) vs. 4.71 (SD ± .530), $p=0.002$. There was no significant difference if a dental hygiene student was a member or not a member 4.83 (SD ± .448) vs. 4.87 (SD ± .737), $p=0.524$. There were significant differences for Registered Dental Hygienists for the characteristics of *providing community service* ($p=0.004$) and *being professionally responsible in work-related matters* ($p=0.009$) if they were a member of the professional organization. There were no significant differences for dental hygiene students being or not being a student member of the professional organization for the characteristics of *providing community service* ($p=0.788$) and *being professionally responsible in work-related matters* ($p=0.274$).

There were no significant differences in the *Work ethic ratings* among the dental hygiene students and Registered Dental Hygienists if they were a member or not a member of the professional organization. *Working hard* characteristic was not significantly different for dental hygiene students ($p=0.673$) and Registered Dental Hygienists ($p=0.780$). For the characteristic of *being organized*, there was no significant difference for dental hygiene students if they were or were not a member of the ADHA ($p=0.156$). This characteristic was not significantly different for the Registered Dental Hygienists who were or were not members of the ADHA ($p=0.051$).

There was a significant difference in the characteristic *striving for excellence in patient care* for dental hygiene students if they were a member or were not a member of the ADHA 4.86 (SD ± .406) vs. 4.96 (SD ± .194), $p=0.019$. For the same category, there was no significant difference for Registered Dental Hygienists if they were or were not a member of ADHA 4.76 (SD ± .755) vs. 4.87 (SD ± .353), $p=0.289$.

For the *Advocate for profession, upholding the ADHA Code of Ethics* was significantly different for Registered Dental Hygienists that were and were not a member of ADHA ($p=0.002$). This characteristic was not significantly different for dental hygiene students who were or were not a member of ADHA ($p=0.316$). *Advocating for the dental hygiene profession* was significantly different for Registered Dental Hygienists who were or were not members of ADHA 4.49 (SD ± .797) vs. 3.59 (SD ± 1.107), $p<0.001$. For the dental hygiene students, *advocating for the dental hygiene profession* was not as significantly different if they were or were not a member of ADHA 4.59 (SD ± .675) vs. 4.76 (SD ± .539), $p=0.056$.

Professional ambition category was not significantly different for the dental hygiene students nor the Registered Dental Hygienists who were or were not members of ADHA. *Exceeding my future employer's expectations* was not significantly different if the dental hygiene student was or was not a member ($p=0.514$). The same characteristic for the Registered Dental Hygienist member or not a member, there was no significant difference ($p=0.125$). *Exceeding my patients' expectations* was not significantly different for dental hygiene students whether they were or were not members 4.90 (SD \pm .324) vs. 4.82 (SD \pm .506), $p=0.197$. For the same characteristic, there was no significant difference for the Registered Dental Hygienists who were or were not members of ADHA 4.79 (SD \pm .591) vs. 4.72 (SD \pm .496), $p=0.329$.

Being a member of ADHA there was a significance difference for the dental hygiene students if they were or were not a member 3.99 (SD \pm 1.026) vs. 3.59 (SD \pm 1.156), $p=0.012$. This characteristic was significantly different for Registered Dental Hygienists who were or were not a member of ADHA 4.33 (SD \pm .934) vs. 2.23 (SD \pm 1.036), $p<0.001$.

CHAPTER V

DISCUSSION

Existing literature indicates that a person's professional identity is developed by similar attitudes, values, knowledge and skills that are shared by a group and relate to a professional role.^{1,23,27} Furthermore, a person's professional identity can be developed or lost if their attitudes change.⁴ The purpose of this study was to determine what qualities and characteristics Registered Dental Hygienists and dental hygiene students associate with the development of professional identity. The first specific aim was to determine what qualities and characteristics dental hygiene students consider to be important when becoming a Registered Dental Hygienist, specifically in the area of expectations of self. The second specific aim of this study was to determine what qualities and characteristics dental hygiene students and Registered Dental Hygienists associate with being oral health care professionals, (a) currently (students and Registered Dental Hygienists), (b) retrospectively (Registered Dental Hygienists), and (c) prospectively (students), specifically in regards to expectations of self. The final aim was to determine what qualities and characteristics Registered Dental Hygienists associate with being oral health care professionals, specifically in the area of membership in their professional association.

Professional identity is defined as, "the attitudes, values, knowledge, beliefs and skills that are shared with others within a professional group and relates to the professional role." ^{1,23,27} Professional identity is dynamic, and can be both developed or lost; based on experience, if their values and attitudes change, or if it is not as important to them anymore.⁴ People develop their identity through Moratorium-Achievement-Moratorium-Achievement (MAMA) cycles. Although the last stage of this cycle is Achievement, most people continue to explore and develop their identities.⁴

Based on the similarities that exist between the nursing and dental hygiene professions, developing an understanding of how nurses develop professional identity can assist the dental hygiene profession in assessing how dental hygienists develop their professional identity. The review of the literature also determined that nursing students develop professional identity

through the clinical portion of the nursing educational program by having hands-on experience with patients and observing other nurses interact with patients.¹ Furthermore, the study from the University of North Carolina School of Dentistry found that clinical rotations outside of dental schools can influence the professional development in dental students.³

There were two hundred and fifteen (215) dental hygiene students (34% response rate) and three hundred fifty-two (352) Registered Dental Hygienists (16%) who participated in this research study. The majority of dental hygiene students and Registered Dental Hygienists who responded were Caucasian females. Twenty-four percent (24%) of the dental hygiene students and forty-one percent (41%) of the Registered Dental Hygienists had prior dental assisting experience. Sixty-four percent of the dental hygiene students and eighty-two percent of the Registered Dental Hygienists were members of the American Dental Hygienists' Association Student Chapter. Only twenty percent (20%) of the Registered Dental Hygienists were active members of the American Dental Hygienists' Association (ADHA). Some dental hygiene programs require students to be members of the Student Chapter and this could be a reason that membership numbers are higher for student respondents. The average number of years a Registered Dental Hygienist was a member of the ADHA was eighteen (18) years and seventeen percent (17%) held leadership positions.

5.1 Dental hygiene students expectations of self

The qualitative study of this research project was conducted to assess a reflective assignment that the dental hygiene students at the University of Michigan completed and aligns with the first aim of this study, to determine which qualities and characteristics dental hygiene students consider when becoming a Registered Dental Hygienist, specifically in the area of expectations of self. The results of this study supported the hypothesis of our first aim, that as dental hygiene students progress through the dental hygiene program, they begin to develop a sense of professional identity. Common themes did exist among dental hygiene students as they progressed toward becoming an oral health care professional. This study concluded that the dental hygiene students identified nineteen (19) qualities and characteristics of expectations of self for being a Registered Dental Hygienist. (Table 19) These characteristics fell into five major subscales: Professional pride, Work ethic, Patient relations, Professional ambitions and Single Measure Items. The majority of the characteristics dealt with clinical aspects of the role of a dental hygienist instead of an advocating role.

This current study supports existing research which indicates that nursing, medical and dental hygiene programs incorporate opportunities for students to develop professional identity while they are in school.^{1,11,24,26,31} To investigate this further, dental hygiene students were asked in a survey question to rate their current professional expectations of themselves as they study to become Registered Dental Hygienists on a scale of one to five, with 1 being not at all important and 5 being very important ([Table 3](#)). Not surprisingly, characteristics related to clinical skills were ranked higher than characteristics related to non-clinical skills. The Commission on Dental Accreditation dictates that dental hygiene students will graduate with a minimum of twenty-nine hundred (2900) hours of competency-based didactic course work and six hundred sixty (660) hours of supervised clinical practice.⁹ This could explain why dental hygiene students identified so many clinical themes as they evaluated their expectations of self.

Over 90% of the respondents rated the following top five characteristics as being very important to them; *being knowledgeable and educated, helping patients achieve good oral health, striving for excellence in patient care, working hard, and having good chairside rapport with patients*. Interestingly, 72% (n=153) of the respondents rated *advocating for the dental hygiene profession* as very important. Sixty-four percent (n=134) rated *providing community service*. Alarming, only 35% (n=75) of them indicated *being a student member of the ADHA*, as very important. This finding raises the question, who will advocate if the ADHA does not have sufficiently high numbers of members? Although, the authors did not ask a question regarding why students were or were not members of their professional organization, one could argue that it is important to increase ADHA visibility in dental hygiene programs to increase student awareness of and involvement in the professional organization.

5.2 Comparison of dental hygiene students and Registered Dental Hygienists expectations of self

The bivariate analysis conducted indicated that this study statistically does not support the hypothesis of our second aim, that Registered Dental Hygienists' expectations of being an oral health care professional are the same as those of dental hygiene students. However, evaluating the data, one has to wonder if there is much meaningful difference between a rating of important and very important ([Table 25](#)). Fifteen of the nineteen characteristics of professional expectations were rated as being important to all of the dental hygiene students and Registered Dental Hygienists who participated in this survey. For example, statistically evaluating the

characteristic of *receiving pride and satisfaction from my work*, dental hygiene students current rating was 4.85 (SD \pm .421) while the Registered Dental Hygienists retrospectively rated this as a 4.65 \pm .652. Then we have the dental hygiene students prospective rating at 4.90 (SD \pm .355) and the Registered Dental Hygienist current rating at 4.75 (SD \pm .505) giving us a $p < 0.001$. Although there is a statistical difference between the dental hygiene students and Registered Dental Hygienists, both groups answered this question as being important to them. One has to ask, is there a meaningful difference between a 4.65 and 4.90? Statistically 4.90 is closer to 5 than 4.65, however, looking at the big picture a 4.65 and 4.90 can both be classified as an *important* rating according to the ranking scale used in this survey.

In regards to the characteristic of *providing community service* there are statistical and clinical differences between the dental hygiene students and Registered Dental Hygienists. Dental hygiene students determined this characteristic was more important to them than the Registered Dental Hygienists. Research indicates that more programs are providing students with clinical rotations working with underserved populations and this could affect why dental hygiene students answered this more importantly than Registered Dental Hygienists.^{3,11,24} The Commission on Dental Accreditation (CODA) determines that it takes a minimum of two (2) years for students to gain psychomotor skills and learn the academic portion to become a dental hygienist.¹² In addition, CODA requires that dental hygiene students be competent in preventing oral disease and promoting health in community-based programs.¹²

5.3 Professional identity as it relates to being a member of the professional association

This study does not support the hypothesis of our third and final aim that being an active member of the American Dental Hygienists' Association (ADHA) provides a mechanism for a Registered Dental Hygienist to expand upon their concepts of professional identity ([Table 27](#)). There were very few differences found in the perceptions of professional identity characteristics of ADHA members versus non-members among Registered Dental Hygienists. There was a meaningful and statistically significant difference for the characteristic of *providing community service*, members rated this at a 4.09 (SD \pm .859), whereas, non-members rated it at a 3.73 (SD \pm 1.081). The characteristic of *building professional relationships* was also significantly different between members of the ADHA and non-members. Furthermore, the characteristics of *advocating for the dental hygiene profession* and *being a member of ADHA* were significantly different between Registered Dental Hygienists members and non-members of ADHA. These

results are not surprising though, if you were a member of your professional organization, you would value being a member and advocating for your profession. In total, there were nine characteristics of professional identity that were more important to a Registered Dental Hygienist if they were a member of the professional organization. Interestingly, while a high percentage of Registered Dental Hygienists were not members of the ADHA, this was not a factor in how high they responded to several of the themes.

Although this aim focused on Registered Dental Hygienists, analysis was conducted on data from the dental hygiene students to determine if belonging to the professional organization as a student member provided them an opportunity to expand upon their concepts of professional identity. The study does not support that hypothesis for dental hygiene students, as there were only two differences found in the responses of dental hygiene student ADHA student chapter members versus non-members.

It is important to note that, for the characteristic of *being a member of ADHA*, the Registered Dental Hygienists and dental hygiene students are clinically and statistically different on their importance ratings ([Table 25](#)). Surprisingly, dental hygiene students rated this characteristic higher in the future than currently and Registered Dental Hygienists rated this characteristic higher in the past than currently. Research shows that students have been influenced to join a professional organization when their professors encourage and discuss the benefits of membership.⁴⁰ In another question in the survey, Registered Dental Hygienists were asked to rank their current professional expectations of themselves for the characteristic of *being a member of ADHA*, only 15% (n=49) indicated that this was very important and 24% (n=79) indicated that this was not at all important ([Table 13](#)). It is not surprising that membership in professional organizations are declining.^{40,41} One reason that Registered Dental Hygienists and dental hygiene students do not value membership in the professional organization is that others around them may not value it.⁴⁰ A limitation to this study is that the authors did not ask why a respondent did not belong to their professional organization. This answer could potentially provide more insight as to why Registered Dental Hygienists and dental hygiene students do not value being a member of their professional organization. However, we can suspect this answer through proven research, that most people do not join a professional organization because of the cost, lack of tangible benefits and lack of mentorship.^{40,41,42}

To summarize, dental hygiene students and Registered Dental Hygienists, whether they were a member or not of the ADHA, all indicated that most all of the nineteen characteristics were important to them. This study supports existing literature that, overall, there will not be significant differences in the results of studies whether you are or are not a member of a professional organization.⁴¹ Perhaps this is because the values and beliefs acquired as professionals are not influenced by an organization but more so by the profession itself.

5.4 Dental hygiene students current and Registered Dental Hygienists retrospective issues of importance

An open-ended survey question asked dental hygiene students to identify other issues of importance for them currently ([Table 4](#)). Registered Dental Hygienists were asked to think back to when they were dental hygiene students and identify what concerned them at that time ([Table 16](#)). Comparing the results, both groups were concerned with *passing the boards, studying hard and completing the program*. Dental hygiene students were more concerned with *advancing the profession to create jobs* while Registered Dental Hygienists were concerned with *finding a good dentist to work for/finding a job*. Both groups identified *community outreach* as important. Registered Dental Hygienists were concerned, when they were students, with *making money to support self/pay off student loans/wages*; current dental hygiene students are most concerned with *managing study time/balance work load/time management*. Comparing these findings, it is evident that dental hygiene students have similar concerns related to the categories of *Academic, Self/family, Profession and Job related issues*. This supports existing literature that indicates that the clinical portion of the educational programs increase students' awareness of personal and professional identity growth.^{3,24,31}

5.5 Dental hygiene students prospective and Registered Dental Hygienists current issues of importance

Another open-ended survey question asked dental hygiene students what issues would be of importance to them in the future as Registered Dental Hygienists ([Table 6](#)). Registered Dental Hygienists were asked to discuss current issues of importance to them ([Table 14](#)). Both groups were concerned with *health benefits, finding employment, and educate/motive patients*. Registered Dental Hygienists were concerned with *retirement/what can I do with clinical skills after retire/when to retire, health/wellness/ergonomics and family*. However, dental hygiene students were concerned with *furthering education/getting more degrees, spending time with*

family/raising a family and being financially stable. Registered Dental Hygienists were concerned with the future of the profession/changes in dentistry, increase access to care/dental insurance for patients and maintain clinical skills/compensation. Dental hygiene students indicated that in the future they would be concerned with being up-to-date with CE/technology/lifelong learning, concerns with future rules and regulation changes and community outreach.

These tables indicate that dental hygiene students currently and prospectively have the same concerns that Registered Dental Hygienists had retrospectively and currently. This supports existing research that indicates that professionals develop similar values and beliefs based on the profession they are in.^{1,8,23,26}

5.6 Dental hygiene students and Registered Dental Hygienists three most important characteristics of being a Registered Dental Hygienist

Dental hygiene students and Registered Dental Hygienists were asked to list three most important characteristics of being a Registered Dental Hygienist ([Table 7](#), [Table 17](#)). Dental hygiene students indicated that *being knowledgeable about new research/CE/lifelong learning, compassion/caring/empathy/sincere/understanding* and *skilled clinician/highly educated/competent/intelligent/detail oriented* and *being professional/professionalism* were important to them. They also indicated that being *ethical/nonmaleficence/nonjudgmental/unbiased, organized/time management skills, and hard working* were important. Lastly, they indicated having a *positive attitude/personality, balancing work and home, and leader/outgoing* as important to them as a Registered Dental Hygienist.

Registered Dental Hygienists indicated being *skilled clinician/highly educated/competent/intelligent/detail oriented/knowledge/proficient, provide best patient care/quality patient care/excellent patient care/thorough/gentle and good patient rapport/chairside manner/good people skills/being nice/mannerism/being perceptive* as important characteristics of being a Registered Dental Hygienist. Furthermore, they also indicated that *compassion/caring/empathy/sincere/understanding/sympathy, professional/professionalism, and honest/trustworthy/integrity* were important characteristics.

This study supports the existing literature because both groups indicated that having *caring and compassion* are important characteristics of being a Registered Dental Hygienist. The study by Konkin and Suddards, conducted between 2008 and 2010, determined that caring and

compassion are characteristics of professional identity that can be enhanced during a student's education.²⁸ Another study by MacLeod discusses how caring is a characteristic of professional identity and how important it is that students learn how to be caring individuals.²⁹

5.7 Dental hygiene students and Registered Dental Hygienists three least important characteristics of being a Registered Dental Hygienist

Lastly, dental hygiene students and Registered Dental Hygienists were asked to identify the three least important characteristics of being a Registered Dental Hygienist ([Table 8](#), [Table 18](#)). Registered Dental Hygienists and dental hygiene students mentioned *making the most money/only wanting a paycheck/profit/production, appearance, personality traits, studying hard/grades/Perfectionist/brains/being the best/workaholic, where degree is from, popularity/outgoing/power/having everyone in the office like me/competitiveness, and being ADHA member/leadership/member organized dentistry*. Registered Dental Hygienists also mentioned that *not being a team member/not being flexible/friendships with co-workers/building professional relationships* were least important for them. Dental hygiene students indicated that *time management issues* was unimportant to them. This finding raised a question regarding if there was a connection between time management and academic success among dental hygiene students and should be looked at in future studies.

The dental hygiene profession needs to be aware of these characteristics identified as least important to the Registered Dental Hygienists and dental hygiene students. Clearly, the data from this study suggests that out of the nineteen themes, Registered Dental Hygienists and dental hygiene students value least *being a member of the professional organization, advocating for the profession and providing community service*. It is evident that dental hygiene students indicated a higher importance over the Registered Dental Hygienists. However, it makes us wonder what happens after students graduate, why do they lose value in this aspect of their professional identity?

5.8 Limitations

There were some limitations to this study. First, the authors did not take into account that Registered Dental Hygienists could have a license to practice in Michigan but not be living in the state. These dental hygienists may have a different scope of practice that could influence their professional identity. Furthermore, a dental hygienist who might also be a dual-licensed as a dentist could answer questions differently based on their expanded professional identity. The

length of the survey was another limitation. The Registered Dental Hygienists' survey was four pages and the student survey was three pages in length. Although there were page numbers on the survey, some people did not flip over the first page to complete the second page. The survey asked questions regarding where dental hygienists were employed and the percentage of dental insurance coverage accepted at offices. This study did not assess if these answers influenced professional identity and may not have been needed in the survey. Some Registered Dental Hygienists did not complete the survey question asking to rate their current expectations of their professional characteristics. Also, some of the Registered Dental Hygienists and dental hygiene students did not provide answers to the open-ended questions, which limited the authors from gaining their perspective on these questions. Another limitation is that respondents may have completed the survey because they felt obligated and provided answers in a satisfying manner.⁵⁰

Even though the length of the survey was a limitation, it was also a strength of the study. This was the first study, to the authors' knowledge, that looked at the current and prospective aspect for dental hygiene students and the current and retrospective aspect for Registered Dental Hygienists in regards to how they perceive the importance of professional expectations of themselves as oral health care professionals. Future studies will be able to use a more concise survey instrument with the nineteen common themes of professional expectations, which could lead to a higher response rate. Another important study might ask dental hygiene students and Registered Dental Hygienists where they learned about professional identity.

Another limitation of this study was with the design of the questions asking participants to rank on a scale of one to five, with 1 being not at all important and 5 being very important. These questions lacked clarification of what the values in between meant. Some participants circled two values for the same question, and these answers were excluded from the analysis. Because of the wording of the open-ended questions, the intent of those questions could have been misinterpreted.

Another limitation was that the level of participation may restrict the representativeness of the data collected. These research findings may not be representative of dental hygiene students and Registered Dental Hygienists across the nation.

CHAPTER VI

CONCLUSION

This research project used a cross-sectional study design to determine what qualities and characteristics Registered Dental Hygienists and dental hygiene students associate with the development of professional identity. In addition, a secondary goal of this research was to determine if there was an association between being a member of our professional organization, the American Dental Hygienists' Association, and one's perception of being a professional.

This study was unique as it evaluated dental hygiene students currently and prospectively and Registered Dental Hygienists currently and retrospectively to determine the importance of aspects of professional characteristics associated with being an oral health care professional. This study was approved and deemed exempt on April 3, 2015 (HUM00100425) by the University of Michigan Internal Review Board for Behavioral and Health Sciences.

Dental hygiene students were recruited through their dental hygiene program directors. Dental hygiene students were asked to complete the survey online and their participation was voluntary. A hard copy cover letter and survey was mailed to a random sample of 1,200 Registered Dental Hygienists in Michigan. The mailed survey was also available in an electronic version. A letter was included in the MDHA Newswire to recruit 1,059 member and non-member Registered Dental Hygienists. Data was collected and entered into the SPSS 22 software program for analysis. Descriptive statistics such as frequencies, percentages and means were computed to provide an overview of the responses of the closed-ended questions. Independent and dependent t-tests and ANOVAs were used to compare means of respondent subgroups. This study indicated that significant differences exist between Registered Dental Hygienists and dental hygiene students with regards to their characteristics of professional identity and expectations of professional identity. However, it is important to note the clinical significance indicated that the majority of the nineteen characteristics were important to both groups. Furthermore, it is evident that professional association membership, providing community service, and advocating for the profession were undervalued by Registered Dental Hygienists as

a characteristic of professional identity. The dental hygiene students indicated that these three characteristics were more important than the Registered Dental Hygienists, but will their values change after they graduate?

Descriptive statistics, such as frequencies, percentages and means, were computed to provide an overview of the responses of the open-ended questions. This study identified that dental hygiene students shared similar concerns and identified similar important and least important characteristics of being a Registered Dental Hygienist. Most of the concerns and important characteristics are related to the clinical aspect of dental hygiene.

The results of this study will benefit the dental hygiene profession. The review of literature conducted in this study indicated that professional identity characteristics are unique to each profession. This study fills a gap in the literature by determining that Registered Dental Hygienists and dental hygiene students identified nineteen characteristics that they associate with professional identity. These characteristics were separated into five groups of *Professional Pride*, *Work Ethic*, *Patient Relations*, *Professional Ambition* and *Single Item Measures*. The profession of dental hygiene can use this study to inform the public and policy makers that dental hygienists are professionals and have similar values and beliefs. The results are also important for dental hygiene educators. Dental hygiene educators are the ones who are shaping dental hygiene students into the professionals they will become. The review of literature indicated that dental hygiene students learn about professional identity throughout the dental hygiene program. Clinical rotations and modeling by professors influences professional identity in students and these characteristics stay with them after they graduate.

This study concluded that dental hygiene students and Registered Dental Hygienists share similar beliefs regarding the characteristics of professional identify. Furthermore, this study identified that the profession as a whole needs to value belonging to the professional organization and advocating for the profession in order to move the profession forward. This study unveiled that more research should be conducted on why dental hygiene students and Registered Dental Hygienists do not value advocating for their profession, membership in their professional organization and providing community service. Also, more research is needed to determine why dental hygiene students see the primary role of a Registered Dental Hygienist as more of a clinical role than an advocating role. Further studies could assess where dental hygiene students learn and develop their professional identity in the dental hygiene curriculum. In

addition, dental hygiene students indicated that time management issues are unimportant to them. Another future study could investigate if there is a connection between time management and academic success among dental hygiene students.

TABLES

Table 1: Overview of dental hygiene students' background characteristics

Background Characteristics	Frequencies N=215	Percentages
Gender:		
Male	5	2%
Female	210	98%
Age	Mean: 24.71	SD/Range: 20-50
Ethnicity/race:		
White/Caucasian	169	79%
African American	10	5%
Asian	9	4%
Hispanic	1	1%
Other	24	11%
Married: Yes	46	22%
Children: Yes	39	18%
Working and going to school: Yes	128	60%
Dental Assistant prior to DH school: Yes	51	24%

Table 2: Overview of education-related responses for dental hygiene students

Educational Responses	Frequencies N=215	Percentages
Dental Hygiene College:		
University of Detroit Mercy	49	23%
University of Michigan	33	15%
Kalamazoo Valley Community College	29	14%
Lansing Community College	19	9%
Oakland Community College	19	9%
Kellogg Community College	18	8%
Delta College	16	7%
Wayne Community College	10	5%
Grand Rapids Community College	8	4%
Mott Community College	5	2%
Ferris State University	4	2%
Baker College of Port Huron	3	1%
Other	2	1%
Graduation Year:		
2014	1	1% ¹
2015	66	31%
2016	87	41%
2017	53	25%
2018	8	4%
Prior 1 st degree:		
Associate degree	37	17% ²
Bachelor degree	21	10%
Dental Assisting	2	1%
Master degree	1	1%
High School	1	1%
Other	7	3%
Prior 2 nd degree:		
Associate degree	3	1% ²
Master degree	2	1%
Dental Assisting	2	1%
Bachelor degree	1	0%
Student member of ADHA: Yes	136	64%
Leadership position in the Student Chapter of ADHA: Yes	24	11%

Legend: 1 Percentages might not add up to 100% due to rounding.

2 Percentages were computed as the percentage of students in the sample (N=215)

Table 3: Frequency distributions/percentages of dental hygiene students' current responses concerning the importance of professional expectations of themselves

Expectations	1¹	2	3	4	5	Mean
Being knowledgeable and educated	0 0%	0 0%	2 1%	12 6%	197 93%	4.92
Helping patients achieve good oral health	0 0%	0 0%	1 1%	14 7%	197 93% ²	4.92
Striving for excellence in patient care	0 0%	0 0%	2 1%	13 6%	195 93%	4.92
Working hard	0 0%	0 0%	2 1%	12 6%	199 93%	4.92
Having good chairside rapport with patients	0 0%	0 0%	3 1%	16 8%	193 91%	4.90
Meeting the expectations of the dental hygiene program	0 0%	0 0%	3 1%	15 7%	190 91% ²	4.90
Education and development of clinical skills	0 0%	0 0%	1 1%	21 10%	189 90% ²	4.89
Exceeding my patients' expectations	0 0%	0 0%	5 2%	17 8%	188 90%	4.87
Being professionally responsible in work-related matters	0 0%	0 0%	2 1%	22 10%	187 89%	4.88
Exceeding my future employer's expectations	0 0%	0 0%	5 2%	20 10%	184 88%	4.86
Being organized	0 0%	1 1%	3 1%	23 11%	185 87%	4.85
Receiving pride and satisfaction from my work	0 0%	0 0%	5 2%	22 10%	184 87% ²	4.85
Having a balance between work and personal life	0 0%	1 1%	2 1%	28 13%	180 85%	4.83
Being a lifelong learner	0 0%	0 0%	9 4%	30 14%	172 82%	4.77
Building professional relationships	0 0%	0 0%	6 3%	31 15%	173 82%	4.80
Upholding the ADHA Code of Ethics	0 0%	0 0%	7 3%	33 16%	171 81%	4.78
Advocating for the dental hygiene profession	0 0%	3 1%	9 4%	47 22%	153 72% ²	4.65
Providing community service	0 0%	2 1%	21 10%	54 26%	134 64% ²	4.52
Being a student member of ADHA	5 2%	21 10%	52 25%	59 28%	75 35%	3.84

Legend: 1 The answers ranged from 1=Not at all important to 5=Very Important.

2 Note that the percentages might not add to 100% due to rounding.

Table 4: Frequencies of open-ended responses concerning other issues of importance currently for dental hygiene students

Number of responses	Frequencies N=215	Percentages
No response	166	77%
One response	45	21%
Two responses	4	2%
Academic related issues		
Complete program / course requirements / graduating	5	2%
Passing boards	5	2%
Study Hard / Getting good grades / perfect scores	4	2%
Dental students and faculty treat DH students less	2	1%
Being a role model / motivate classmates	1	.5%
Good rapport with professors	1	.5%
Need fair calibrated test for ADEX CDCA exam	1	.5%
Stress of school	1	.5%
Students shouldn't be responsible to get patients	1	.5%
TOTAL	21	10%
Self/Family related issues		
Manage study time / balance work load / time management	8	4%
Having a family / raising kids	2	1%
Family support	2	1%
Making money to support self	1	.5%
Being a healthy individual	1	.5%
Meet personal goals	2	1%
TOTAL	16	8%
Profession related issues		
Advance the profession to create jobs	4	2%
Advocate for membership into ADHA	1	.5%
Protecting education requirements	2	1 %
Access to care for all patients	2	1%
Fluoride controversy	1	.5%
Qualifications to get into hygiene school should be harder	1	.5%
TOTAL	11	6%

Table 4 (continued): Frequencies of open-ended responses concerning other issues of importance currently for dental hygiene students

Job related issues	Frequencies N=215	Percentages
Community outreach	1	.5%
Finding a good DDS to work for	1	.5%
Be best hygienist	1	.5%
Meet employer expectations	1	.5%
Empathy / compassion for patients	1	.5%
TOTAL	5	3%
Total number of all responses	53	27%

Table 5: Frequency distributions/percentages of dental hygiene students' prospective responses concerning the importance of professional expectations of themselves

Expectations	1¹	2	3	4	5	Mean
Being knowledgeable and educated	0 0%	0 0%	1 1%	14 7%	197 93% ²	4.92
Having good chairside rapport with patients	0 0%	0 0%	2 1%	13 6%	198 93%	4.92
Helping patients achieve good oral health	0 0%	0 0%	1 1%	13 6%	198 93%	4.93
Being professionally responsible in work-related matters	0 0%	0 0%	3 1%	15 7%	194 92%	4.90
Exceeding my employer's expectations	0 0%	0 0%	4 2%	13 6%	197 92%	4.90
Exceeding my patients' expectations	0 0%	0 0%	3 1%	13 6%	194 92% ²	4.91
Having a balance between work and personal life	0 0%	1 1%	2 1%	17 8%	193 91% ²	4.89
Receiving pride and satisfaction from my work	0 0%	0 0%	2 1%	18 9%	193 91% ²	4.90
Striving for excellence in patient care	0 0%	0 0%	3 1%	17 8%	193 91%	4.89
Working hard	0 0%	0 0%	2 1%	18 9%	192 91% ²	4.90
Being organized	0 0%	2 1%	2 1%	21 10%	187 88%	4.85
Building professional relationships	0 0%	0 0%	5 2%	24 11%	184 86% ²	4.84
Being a lifelong learner	0 0%	0 0%	5 2%	27 13%	181 85%	4.83
Upholding the ADHA Code of Ethics	1 1%	0 0%	6 3%	24 11%	182 85%	4.81
Advocating for the dental hygiene profession	0 0%	2 1%	8 4%	29 14%	174 82% ²	4.76
Providing community service	1 1%	2 1%	17 8%	41 19%	152 71%	4.60
Being a member of ADHA	4 2%	11 5%	31 15%	49 23%	118 55%	4.25

Legend: 1 The answers ranged from 1=Not at all important to 5=Very Important.

2 Note that the percentages might not add to 100% due to rounding.

3 Blue highlight signifies greater distribution of ratings

Table 6: Frequencies of open-ended responses concerning other issues of importance prospectively (in the next five years) for dental hygiene students

Number of responses	Frequencies N=215	Percentages
No responses	104	48%
One Response	77	36%
Two responses	30	14%
Three responses	4	2%
Job related issues		
Health Benefits	10	5%
Finding employment	9	4%
Job security	8	4%
Educate / motivate patients	7	3%
Good employment / work environment	6	3%
Knowledge / maintain skills / patients being comfortable in my skills / ergonomics	6	3%
Good rapport with co-workers	5	2%
Patient having good oral hygiene	4	2%
Being paid what I'm worth	3	1%
Be the best can be	3	1%
Enjoy your job	3	1%
Being caring / trusting / empathetic	2	1%
Keep patients happy and comfortable	2	1%
Provide great patient care	2	1%
Team player	2	1%
Being experienced with all patient types	1	.5%
Fear of lawsuits over minor issues	1	.5%
Flexible schedule	1	.5%
Hardworking	1	.5%
Keep office current skills / technology	1	.5%
Mastering profession	1	.5%
No work related injuries	1	.5%
TOTAL	79	37%
Profession related issues		
Being up-to-date with CE / technology / Lifelong learning	19	9%
Concerns with future rules and regulation changes	6	3%
Community Outreach	4	2%
Inform public of what dental hygienist is / advocate	4	2%
Be member of professional organization (ADHA)	3	1%
Protecting dental hygiene profession	3	1%
Access to care	2	1%
Advance the scope of practice	2	1%
Upholding standards / ethics	2	1%
Reciprocity across states	1	.5%
TOTAL	46	22%

Table 6 (continued): Frequencies of open-ended responses concerning other issues of importance prospectively (in the next five years) for dental hygiene students

Self/Family related issues	Frequencies N=215	Percentages
Furthering education / getting more degrees	12	6%
Spending time with family / raising a family	9	4%
Being financially stable	2	1%
Avoid burnout	1	.5%
TOTAL	24	12%
Total number of all responses	149	71%

Table 7: Frequencies of open-ended responses concerning three most important characteristics of being a Registered Dental Hygienist for dental hygiene students

Number of responses	Frequencies	Percentages
No response	39	18%
One response	2	1%
Two responses	4	2%
Three responses	170	79%
Profession related issues		
Knowledge about new research / CE / Lifelong learning	66	31%
Compassion / caring / empathy / sincere / understanding	49	23%
Skilled clinician / highly educated / competent / intelligent / detail oriented	46	21%
Professional / professionalism	38	18%
Provide patient education / health promotion / prevention / good oral hygiene / educator	38	18%
Polite / kindness / considerate / friendly / personable / patience / charismatic / courteous / respect	37	17%
Provide best patient care / quality patient care / excellent patient care / thorough	35	16%
Honest / trustworthy / integrity	18	8%
Passion	9	4%
TOTAL	336 ¹	156%
Job related issues		
Ethical / non-maleficence / nonjudgmental / unbiased	25	12%
Organized/time management skills	23	11%
Hard working	19	9%
Good patient rapport / chairside manner / good people skills / being nice / mannerism	15	7%
Striving to better lives of patients/patient focused / patient achieve oral health / Achieve success with patients/care giver	13	6%
Work well with others / Team player / team work/helpful	11	5%
Adaptable/respectable / responsible / multi-tasker	10	5%
Communication skills / listen to patients	9	4%
Efficient / experience	8	4%
Dedicated / determined / strong willed	8	4%
Perfection / be best I can be	7	3%
Confidence	6	3%
Meet patient needs / Serve community / help people	5	3%
Infection control / safety procedures	4	3%
Motivated / reliable / energy / encouraging	4	2%
Confidential / HIPPA	2	1%
Beneficence / putting patient first / doing what's best for patient	2	1%
Cleanliness	1	.5%
Exceeding employer's expectations	1	.5%
Working for an approachable dentist	1	.5%
TOTAL	174	85%

Table 7 (continued): Frequencies of open-ended responses concerning three most important characteristics of being a Registered Dental Hygienist for dental hygiene students

Self/Family related issues	Frequencies N=215	Percentages
Positive attitude / personality	5	2%
Balance work and home	2	1%
Leader / outgoing	2	1%
Being a member of ADHA	1	.5%
TOTAL	10	5%
Total number of all responses	520 ¹	

Legend: 1 Note: Each student was asked to name their three most important characteristics. A total of 170 participants responded to this question. The total frequencies add up to more than N=215.

Table 8: Frequencies of open-ended responses concerning three least important characteristics of being a Registered Dental Hygienist for dental hygiene students

Number of responses	Frequencies N=215	Percentages
No response	143	66%
One response	14	7%
Two responses	10	5%
Three responses	48	22%
Self related issues		
Shy / sensitive / personality / talking / humorous / modesty / emotional	11	5%
Rude / pushy / snobby / attitude / ego / not being pleasant / not smiling / bossy / not courteous / excuses / impatient / opinionated / animated	10	5%
ADHA member	9	4%
Appearance / having perfect hairstyle / teeth / color of scrubs / size of hands	9	4%
Gender / age / race / ethnicity / personal beliefs / religion	7	3%
Lifelong learning / lack of desire to continue learning / CE	7	3%
Unmotivated / lazy / complacent / uninvolved in work / inattentive / uncommitted / not dedicated	7	3%
Advocating for dental hygiene profession	5	2%
Unsympathetic / uncaring / lack of patient bonding	5	2%
Enthusiasm / imaginative / creative	3	1%
Professionalism / unprofessional	3	1%
Adventurous / risk taker	2	1%
Ability to place temp crowns / remove sutures	1	.5%
Being gentle	1	.5%
Being involved in research	1	.5%
Careless	1	.5%
Forgiving	1	.5%
Honesty	1	.5%
Not teaching good oral hygiene	1	.5%
Observant	1	.5%
Enthusiasm/imaginative / creative	3	1%
Professionalism / unprofessional	3	1%
Adventurous / risk taker	2	1%
Ability to place temp crowns / remove sutures	1	.5%
Being gentle	1	.5%
Being involved in research	1	.5%
Careless	1	.5%
Forgiving	1	.5%
Honesty	1	.5%
Not teaching good oral hygiene	1	.5%
Observant	1	.5%
Poise	1	.5%
Uneducated	1	.5%

Table 8 (continued): Frequencies of open-ended responses concerning three least important characteristics of being a Registered Dental Hygienist for dental hygiene students

Self related issues (continued)	Frequencies N=215	Percentages
Unfocused	1	.5%
TOTAL	89	40%
Job related issues		
Time management / Not managing time / efficiency / schedule / rushing to catch up on schedule / overloaded schedule	12	6%
Making the most money / only wanting a paycheck / profit / production	11	5%
People I serve / community service / providing community service	6	3%
Hours / getting home early	5	2%
Location of office / travel time to work / working in private practice	5	2%
Not being a team player / not being flexible / friendships with co-workers / building professional relationships	5	2%
Technique / going over every step of procedure / learning obsolete equipment	4	2%
Exceeding patient's expectations	3	2%
Agreeing with dentist when they are incorrect	1	.5%
Esthetics and not treating disease	1	.5%
Exceeding employer's expectations	1	.5%
Interpersonal communication skills	1	.5%
Not knowledgeable	1	.5%
Patients should come first	1	.5%
People/patients not being on time	1	.5%
Promoting brand name dental products / upselling products	1	.5%
Treating patients differently	1	.5%
TOTAL	60	29%
Academic related issues		
Study hard / grades / perfectionist / brains / being the best	8	4%
Popularity / outgoing / power / having everyone in office like me	5	2%
Where degree is from / importance of levels of profession / status	5	2%
Previous background / assistant prior to dental hygiene school	3	1%
Being organized	1	.5%
Recognition	1	.5%
Mixing personal / professional life	2	1%
Personal life / family life / food preference / recreational activities	4	2%
TOTAL	29	13%
Total number of all responses	178¹	82%

Legend: 1 Note: Each student was asked to name their three least important characteristics. A total of 48 participants responded to this question.

Table 9: Overview of the Registered Dental Hygienists' background characteristics

Background characteristics	Frequencies N=352	Percentages
Group		
Dental Hygienist	303	90% ¹
Dental Hygienist retired	14	4%
Dental Hygiene Educator	9	3%
Dental Hygienist Sub	7	2%
Dental Hygienist/Dentist	5	2%
Gender		
Female	352	100%
Age	Mean: 47.55	SD/Range: 12.487/23-75
Ethnicity/race		
White/Caucasian	327	95%
African American	3	1%
Biracial	3	1%
Hispanic	3	1%
American Indian	1	0%
Other	7	2%
Married: Yes	281	81%
Children: Yes	288	82%
Dental Assistant: Yes	144	41%

Legend: 1 Percentages might not add to 100% due to rounding.

Table 10: Overview of education-related responses for Registered Dental Hygienists

Educational Responses	Frequencies N=352	Percentages
Dental Hygiene College:		
Ferris State University	57	16% ¹
University of Michigan	53	15%
University of Detroit Mercy	44	13%
Grand Rapids Community College	34	10%
Other	34	10%
Mott Community College	30	9%
Oakland Community College	24	7%
Lansing Community College	22	6%
Delta College	15	4%
Kellogg Community College	13	4%
Kalamazoo Valley Community College	12	3%
Wayne County Community College	7	2%
Baker College of Port Huron	4	1%
Baker College of Auburn Hills	3	1%
Year received dental hygiene degree	Mean: 1991	SD/Range: 13.32/1959-2015
1 st Degree:		
Associate degree	33	21% ¹
Bachelor degree	85	54%
Master degree	8	5%
Dental Assisting	10	7%
Dentist	4	3%
Other	14	9%
Year received 1 st Degree	Mean: 1993	SD/Range: 13.13/1971-2016
2 nd Degree:		
Associate degree	5	15%
Bachelor degree	7	21%
Master degree	10	29%
Dental Assisting	2	6%
Dentist	1	3%
Other	9	26%
Year received 2 nd Degree	Mean: 1998	SD/Range: 14.06/1972-2016

Legend: 1 Percentages might not add up to 100% due to rounding.

Table 11: Responses concerning the work situation for Registered Dental Hygienists

Work situation	Frequencies N=352	Percentages
Clinical Practice: Yes	296	85%
Type of Clinical Practice		
Solo Practice	198 ¹	56% ¹
Group Practice	92	26%
Specialty Practice	28	8%
Community Dental Clinic	17	5%
Alternative Work Setting: Yes	31	27%
Alternative work setting		
Education	23	7%
Government	5	1%
Research	0	0%
# years working in dental hygiene	Mean: 22.99	SD / Range 13.18 / .05-55
# hours worked per week currently	Mean: 25.60	SD / Range 11.54 0-50
Type of Community		
Rural (<5,000 population)	37	12%
Small town/city (5,000-24,999)	82	26%
Moderate-sized (25,000-250,000)	157	49%
Large city (>250,000)	44	14%
% of patients are covered by	Mean:	SD / Range
Government programs	22.68	29.79/0-100
Self-pay	32.92	31.65/0-100
Donated services	1.57	7.26/0-100
Additional Insurance	42.82	34.28/0-99

Legend: 1 Note that 49 respondents worked in two practice settings.

Table 12: Professional Organization Affiliations for Registered Dental Hygienists

Professional Organization Affiliations	Frequencies N=352	Percentages
As dental hygiene student, member of American Dental Hygienists' Association (ADHA): Yes	282	82%
Current Member of ADHA: Yes	70	20%
# of years as a member of ADHA	Mean 17.65	SD / Range 14.18/0-53
Leadership position in ADHA: Yes	53	17%
Other Current Professional Organizations:		
Dental-related organizations	43	20%
Non dental-related organizations	15	5%
Academic organization	9	3%
Previous Professional Organizations:		
Dental-related organizations	52	15%
Non dental-related organizations	8	2%
Academic organization	6	2%

Table 13: Frequency distributions/percentages of Registered Dental Hygienists' current responses concerning the importance of professional expectations of themselves

Expectations	1¹	2	3	4	5	Mean
Having good chairside rapport with patients	2 1%	0 0%	2 1%	23 7%	310 92% ²	4.90
Being knowledgeable and educated	0 0%	0 0%	3 1%	31 9%	304 90%	4.89
Striving for excellence in patient care	2 1%	0 0%	2 1%	40 12%	291 87% ²	4.84
Being professionally responsible in work-related matters	0 0%	1 0%	5 2%	49 15%	283 84% ²	4.82
Helping patients achieve good oral health	1 0%	0 0%	1 0%	55 16%	281 83% ²	4.82
Being organized	0 0%	1 0%	7 2%	60 18%	270 80% ²	4.77
Having a balance between work and personal life	0 0%	2 1%	14 4%	53 16%	269 80% ²	4.74
Working hard	2 1%	1 0%	19 6%	50 15%	264 79% ²	4.71
Receiving pride and satisfaction from my work	0 0%	1 0%	8 2%	67 20%	263 78%	4.75
Exceeding my patients' expectations	1 0%	0 0%	6 2%	73 22%	257 76%	4.74
Upholding the ADHA Code of Ethics	5 2%	6 2%	24 7%	55 17%	244 73% ²	4.58
Being a lifelong learner	0 0%	3 1%	12 4%	94 28%	230 68% ²	4.63
Exceeding my employer's expectations	2 1%	4 1%	22 6%	114 34%	197 58%	4.47
Building professional relationships	6 2%	19 6%	71 21%	128 38%	112 33%	3.96
Advocating for the dental hygiene profession	14 4%	28 8%	89 26%	99 29%	109 32% ²	3.77
Providing community service	11 3%	26 8%	81 24%	120 36%	99 28% ²	3.80
Being a member of your professional Association (ADHA)	79 24%	83 25%	95 28%	30 9%	49 15% ²	2.66

- Legend: 1 The answers ranged from 1=Not at all important to 5=Very Important.
 2 Note that the percentages might not add to 100% due to rounding.
 3 Blue highlight signifies greater distribution in ratings

Table 14: Frequencies/percentages of open-ended responses concerning other issues of importance at the current time for Registered Dental Hygienists

Number of responses	Frequencies N=352	Percentages
No response	255	72%
One response	84	24%
Two responses	12	3%
Three responses	1	0%
Job related issues		
Compensation / wages issues	10	3%
Work place benefits (health, 401K)	9	3%
Educate patients / systemic disease link / motive patients to achieve oral health	8	2%
Finding a job / keeping long term employment	7	2%
Lack of jobs / oversaturated market	6	2%
Patient care / proper treatment plans	5	1%
Respect from employers	5	1%
Production over patient care	4	1%
Stay current on drugs and systemic diseases	3	1%
Teamwork	3	1%
Achieving patient satisfaction	2	1%
Develop rapport with patients	2	1%
Hygienists are not allowed enough time to treat patients	2	1%
Employer strives for quality of work over production	1	0%
Stay current on OSHA standards	1	0%
TOTAL	68	20%
Self/Family related issues		
Retirement / what can I do with clinical skills after retire / when to retire	9	3%
Health / wellness / ergonomics	8	2%
Family	3	1%
Being responsible adult	1	0%
Further education	1	0%
Multiple interests / hobbies	1	0%
TOTAL	23	6%
Profession related issues		
Future of the profession / changes in dentistry	5	1%
Increase access to care / dental insurance for patients	5	1%
Maintain clinical skills / compensation	4	1%

Table 14 (continued): Frequencies/percentages of open-ended responses concerning other issues of importance at the current time for Registered Dental Hygienists

Profession related issues: continued	Frequencies N=352	Percentages
Patients be accountable for needed dental work / don't rely on insurance benefits	3	1%
Decrease supervision in all states	1	0%
Hygienists not valuing profession	1	0%
Promote student success clinically and professionally	1	0%
TOTAL	20	4%
Total number of all responses	111	30%

Table 15: Frequency distributions/percentages of Registered Dental Hygienists' retrospective responses concerning the importance of professional expectations of themselves

Expectations	1¹	2	3	4	5	Mean
Meeting the expectations of the dental hygiene program	0 0%	0 0%	3 1%	41 12%	303 87%	4.86
Being knowledgeable and educated	0 0%	0 0%	4 1%	48 14%	295 85%	4.84
Working hard	0 0%	0 0%	10 3%	48 14%	289 ² 83%	4.80
Striving for excellence in patient care	0 0%	0 0%	9 3%	55 16%	282 82% ²	4.79
Education and development of clinical skills	0 0%	0 0%	11 3%	56 16%	281 81%	4.78
Being organized	0 0%	4 1%	19 6%	53 15%	270 78%	4.70
Helping patients achieve good oral health	1 0%	1 0%	13 4%	62 18%	271 78%	4.73
Having good chairside rapport with patients	1 0%	3 1%	25 7%	59 17%	260 75%	4.65
Receiving pride and satisfaction from my work	2 1%	0 0%	22 6%	71 20%	253 73%	4.65
Being professionally responsible in work-related matters	2 1%	1 0%	25 7%	68 20%	250 72%	4.63
Exceeding my patients' expectations	0 0%	3 1%	21 6%	72 21%	250 72%	4.64
Upholding the ADHA Code of Ethics	6 2%	5 2%	24 7%	64 19%	245 71% ²	4.56
Exceeding my future employer's expectations	1 0%	6 2%	23 7%	88 25%	229 66%	4.55
Being a lifelong learner	6 2%	7 2%	44 13%	85 25%	204 59% ²	4.37
Having a balance between work and personal life	10 3%	22 6%	78 22%	65 19%	173 50%	4.06
Building professional relationships	7 2%	23 7%	70 20%	91 26%	156 45%	4.05
Advocating for the dental hygiene profession	17 5%	26 8%	84 24%	76 22%	143 41%	3.87
Being a student member of ADHA	54 16%	29 8%	77 22%	84 24%	101 29% ²	3.43
Providing community service	18 5%	26 8%	97 28%	77 22%	125 36% ²	3.77

Legend: 1 The answers ranged from 1=Not at all important to 5=Very Important.
2 Note that the percentages might not add to 100% due to rounding.
3 Blue highlight signifies greater distribution of ratings

Table 16: Frequencies of open-ended retrospective responses concerning other issues of importance for Registered Dental Hygienists as dental hygiene students

Number of responses	Frequencies N=352	Percentages
No response	144	41%
One response	140	40%
Two responses	55	16%
Three responses	13	4%
Academic relates issues		
Passing boards	39	11%
Study Hard / getting good grades / perfect scores / passing classes	39	11%
Learning profession / develop clinic skills / time management in practice / high standards of ethics / being good at profession / building confidence / independence / work professional manner / patient care	29	8%
Complete program / course requirements / graduating	28	8%
Manage study time/balance work load/time management	11	3%
Educating patients / community / communication skills	8	2%
Retaining information / being knowledgeable	7	2%
Patients trust / make them happy / comfortable	6	2%
Quality education / properly educated	6	2%
Good rapport with professors / classmates / networking	5	1%
Be best hygienist / student	4	1%
Meeting patients' expectations / achieve oral health	4	1%
Instructor integrity	3	1%
Being a role model / motivate classmates / study partners	2	1%
Getting qualified patients	1	0%
Stress of school	1	0%
TOTAL	193	54%
Job related issues		
Finding a good dentist to work for / finding a job	47	13%
Staying current on products / learning new techniques	4	1%
Employment with benefits	2	1%
Team player	2	1%
Flexibility of working part or full time	1	0%
Respect from dentist	1	0%
TOTAL	57	16%
Profession related issues		
Advocate for the profession / politics in dental hygiene	5	1%
Community outreach / community service	3	1%
Advocate for membership into ADHA / being an officer of Student chapter	2	1%
Access to care for all patients	2	1%
TOTAL	12	4%

Table 16 (continued): Frequencies of open-ended retrospective responses concerning other issues of importance for Registered Dental Hygienists as a dental hygiene student

Self/family related issues	Frequencies N=352	Percentages
Making money to support self / pay off student loan / wages	17	5%
Balance school / work / family / social life	6	2%
Being a healthy individual	3	1%
Furthering education	1	0%
TOTAL	27	8%
Total number of all responses	289	82%

Table 17: Frequencies/percentages of open-ended responses by Registered Dental Hygienists concerning three most important characteristics of being a Registered Dental Hygienist

Number of responses	Frequencies N=352	Percentages
No response	35	10%
One response	5	1%
Two responses	13	4%
Three responses	299	85%
Job related issues		
Skilled clinician / highly educated / competent / intelligent / detail oriented / knowledge / proficient	142	40%
Provide best patient care / quality patient care / excellent patient care / thorough / gentle	84	24%
Good patient rapport / chairside manner / good people skills / being nice / mannerism / being perceptive	83	24%
Provide patient education / health promotion / prevention / good oral hygiene / educator	53	15%
Knowledge about new research / CE / Lifelong learning / professional development	51	15%
Work well with others / team player / team work / helpful / rapport with dentist / co-workers / building relationships	38	11%
Striving to better lives of patients / patient focused / patient achieve oral health / achieve success with patients / care giver	33	9%
Communication skills / listen to patients	30	9%
Organized / time management skills	30	9%
Hard working	21	6%
Passion / enjoyment / pride satisfaction from work	16	5%
Adaptable / respectable / responsible / multi-tasker / flexibility	14	4%
Meet patient needs / serve community / help people / patient advocate	14	4%
Perfection / be best I can be / role model	9	3%
Infection control / safety procedures / safe environment / ergonomics	8	2%
Beneficence / putting patient first / doing what's best for patient / compliance	7	2%
Efficient / experience	6	2%
Confidence / self-critical/accountable	4	1%
Working for approachable dentist / respected by dentist / good environment	4	1%
Job opportunities / flexible hours	2	1%
Wages	2	1%
Avoid office politics / drama	1	0%

Table 17 (continued): Frequencies/percentages of open-ended responses by Registered Dental Hygienists concerning three most important characteristics of being a Registered Dental Hygienist

Job related issues (continued)	Frequencies N=352	Percentages
Confidential / HIPPA	1	0%
TOTAL	653	188%
Profession related issues		
Compassion / caring / empathy / sincere / understanding / sympathy	73	21%
Professional / professionalism	48	14%
Honest / trustworthy / integrity	44	13%
Ethical / non-maleficence / nonjudgmental / unbiased / level headed	42	12%
Polite / kindness / considerate / friendly / personable / patience / charismatic / courteous / respect / conscientious	33	9%
Balance work and home	11	2%
Dedicated / determined / strong willed / independent	6	2%
Motivated / reliable / energy / encouraging / open-minded / dependable	6	2%
Advocate for profession	5	2%
Positive attitude / personality	5	2%
Being member of ADHA	2	1%
Cleanliness	2	1%
Fast Learner	1	0%
Leader / outgoing	1	0%
TOTAL	279	81%
Total number of responses	932	

Legend: 1 Note: Each Registered Dental Hygienist was asked to name their three most important characteristics. A total of 299 participants responded to this question. The total frequencies add up to more than N=352.

Table 18: Frequencies of open-ended responses by Registered Dental Hygienists concerning three least important characteristics of being a Registered Dental Hygienist

Number of responses	Frequencies N=352	Percentages
No responses	172	49%
One responses	51	15%
Two responses	40	11%
Three responses	89	25%
Job related issues		
Making the most money / only wanting a paycheck / profit / production	31	9%
Not being a team player / not being flexible / friendships with co-workers / building professional relationships	26	7%
Appearance / having perfect hairstyle / teeth/ color of scrubs / size of hands / attractiveness / strength	24	7%
Promoting brand name dental products / upselling products / selling the practice	21	6%
Time management / Not managing time / efficiency / schedule / rushing to catch up on schedule / overloaded schedule	21	6%
Gender / age / race / ethnicity / personal beliefs / religion	20	6%
People I serve / community service / providing community service	18	5%
Being organized	8	2%
Clinical skills / computer skills / office management skills	7	2%
Exceeding employer's expectations / pleasing employer	7	2%
Hierarchy of dental staff / not being respected by dentist or staff	7	2%
Hours / getting home early	7	2%
Satisfaction in work / stressed out / office drama / pride	5	2%
Ergonomic issues / expecting long-term care	4	1%
Fair / no office gossip	4	1%
Hard to find employment / employment with benefits	2	1%
Mixing personal / professional life / balance work / personal life	2	1%
Location of office / travel time to work / working in private practice	2	1%
Strict recall / being responsible for recare	2	1%
Aseptic	1	0%
Common sense and treatment	3	1%
Can't expect patients to achieve optimal health	1	0%
Exceeding patient's expectations	1	0%
Explaining your knowledge	1	0%
Not knowledgeable / lack of common sense	1	0%
Not teaching good oral hygiene	1	0%
Patients should come first	1	0%
Treating patients differently / not customizing care	1	0%
TOTAL	229	65%
Profession related issues		
ADHA member / leadership / member organized dentistry	47	13%
Advocating for dental hygiene profession	16	5%

Table 18 (continued): Frequencies of open-ended responses by Registered Dental Hygienists concerning three least important characteristics of being a Registered Dental Hygienist

Profession related issues (continued)	Frequencies N=352	Percentages
Shy / sensitive / personality / talking / humorous / modesty / emotional / reserved	11	3%
Rude / pushy / snobby / attitude / ego / not being pleasant / not smiling / bossy / not courteous / excuses / impatient / opinionated / animated	5	2%
Lifelong learning / lack of desire to continue learning / CE	4	1%
Loyalty / friendliness	4	1%
Upholding ADHA Code of Ethics / ethics	4	1%
Excessive knowledge	3	1%
Goal-oriented	2	1%
Professionalism / unprofessional / spelling	2	1%
Progressive / assertiveness	2	1%
Self-reliant	2	1%
Taking patient issues personally	2	1%
Too picky / ultra-critical	2	1%
Unsympathetic / uncaring / lack of patient bonding	2	1%
Brave	1	0%
Compatible	1	0%
Energetic	1	0%
Enthusiasm / imaginative / creative	1	0%
Interpersonal communication skills / personal skills	1	0%
Original	1	0%
Paying for license	1	0%
Personally involved with patients	1	0%
Thinking you can change things for the better	1	0%
Trust	1	0%
Unmotivated / lazy / complacent / uninvolved in work / Inattentive / uncommitted / not dedicated	1	0%
TOTAL	119	34%
Academic related issues		
Where degree is from/Importance of levels of profession / status / economic status / how many degrees you have	17	5%
Study hard / grades / perfectionist / brains / being the best / workaholic	16	5%
Popularity / outgoing / power / having everyone in office like me / competitiveness	7	2%
Previous background / assistant prior to dental hygiene school / experience	3	1%
Ability to place temp crowns / remove sutures / chairside assisting / lab work	3	1%
Position held in dental hygiene program	2	1%
Technique / going over every step of procedure / learning obsolete equipment	2	1%
TOTAL	50	16%
Total number of all responses	398	

Legend: 1 Note: Each Registered Dental Hygienist was asked to name their three least important characteristics. A total of 89 participants responded to this question. The total frequencies add up to more than N=352.

Table 19: Overview of the 19 characteristics and 5 subscales used for the survey questions of the dental hygiene students (current and prospectively) and Registered Dental Hygienists (current and retrospectively) regarding expectations of themselves.

Subscales	Characteristics	DHs Currently	DHs Prospectively	RDHs Currently	RDHs Retrospectively
Work ethic	• Working hard	Yes	Yes	Yes	Yes
	• Being organized	Yes	Yes	Yes	Yes
	• Being knowledgeable and educated	Yes	Yes	Yes	Yes
Patient Relations	• Having good chairside rapport with patients	Yes	Yes	Yes	Yes
	• Helping patients achieve good oral health	Yes	Yes	Yes	Yes
	• Striving for excellence in patient care	Yes	Yes	Yes	Yes
Professional Pride	• Receiving pride and satisfaction from my work	Yes	Yes	Yes	Yes
	• Being professionally responsible in work-related matters	Yes	Yes	Yes	Yes
	• Having a balance between work and personal life	Yes	Yes	Yes	Yes
	• Being a lifelong learner	Yes	Yes	Yes	Yes
	• Providing community service	Yes	Yes	Yes	Yes
	• Building professional relationships	Yes	Yes	Yes	Yes
Professional Ambition	• Exceeding my future employer's expectations	Yes	Yes	Yes	Yes
	• Exceeding my patients' expectations	Yes	Yes	Yes	Yes
Single Item Measures	• Upholding the ADHA Code of Ethics	Yes	Yes	Yes	Yes
	• Advocating for the dental hygiene profession	Yes	Yes	Yes	Yes
	• Meeting expectations of dental hygiene program	Yes	No	No	Yes
	• Education and development of clinical skills	Yes	No	No	Yes
	• Being a student or active member of ADHA	Yes	Yes	Yes	Yes

Table 20: Comparison of current average importance ratings of professional characteristics: dental hygiene students (DHs) vs. Registered Dental Hygienists (RDHs)

RATINGS	DHs Mean, SD	RDHs Mean, SD	p-Value
PROFESSIONAL PRIDE			
• Receiving pride and satisfaction from my work	4.85 ± .421	4.75 ± .505	.011*
• Being professionally responsible in work-related matters	4.88 ± .357	4.82 ± .445	.081*
• Having a balance between work and personal life	4.83 ± .432	4.74 ± .557	.032*
• Being a lifelong learner	4.77 ± .512	4.63 ± .599	.002*
• Providing community service	4.52 ± .713	3.80 ± 1.049	<.001**
• Building professional relationships	4.80 ± .470	3.96 ± .966	<.001**
<i>Professional pride index</i> <i>Both: Cronbach's alpha = .805</i> <i>Students: current Cronbach's alpha = .798</i> <i>Hygienists: current Cronbach's alpha = .726</i>	4.74 ± .385	4.45 ± .467	<.001*
WORK ETHIC			
• Working hard	4.92 ± .298	4.71 ± .641	<.001*
• Being organized	4.85 ± .431	4.77 ± .486	.053
• Being knowledgeable and educated	4.92 ± .299	4.89 ± .340	.225
<i>Work ethic index</i> <i>Both: Cronbach's alpha = .673</i> <i>Students: current Cronbach's alpha = .738</i> <i>Hygienists: current Cronbach's alpha = .551</i>	4.91 ± .269	4.79 ± .367	<.001*
PATIENT RELATIONS			
• Having good chairside rapport with patients	4.90 ± .349	4.90 ± .420	.998
• Helping patients achieve good oral health	4.92 ± .282	4.82 ± .436	.001*
• Striving for excellence in patient care	4.90 ± .344	4.84 ± .464	.109
<i>Patient relations index</i> <i>Both: Cronbach's alpha = .779</i> <i>Students: current Cronbach's alpha = .800</i> <i>Hygienists: current Cronbach's alpha = .745</i>	4.91 ± .277	4.86 ± .357	.065

Table 20 (Continued): Comparison of current average importance ratings of professional characteristics: dental hygiene students (DHs) vs. Registered Dental Hygienists (RDHs)

RATINGS	DHs Mean, SD	RDHs Mean, SD	p-Value
PROFESSIONAL AMBITION			
• Exceeding my future employer’s expectations	4.86 ± .414	4.47 ± .723	<.001*
• Exceeding my patients’ expectations	4.87 ± .401	4.74 ± .516	.001*
<i>Professional ambition index</i> <i>Both: Cronbach’s alpha = .804</i> <i>Students: current Cronbach’s alpha = .905</i> <i>Hygienists: current Cronbach’s alpha = .743</i>	4.87 ± .388	4.61 ± .561	<.001*
SINGLE ITEM MEASURES			
• Being a of member ADHA	3.84 ± 1.090	2.66 ± 1.324	<.001**
• Advocating for the dental hygiene profession	4.65 ± .632	3.77 ± 1.112	<.001**
• Upholding the ADHA Code of Ethics	4.78 ± .491	4.58 ± .823	<.001*

- Legend: 1 Independent t-test
 2 *p-value <0.05
 3 **Represents significant differences between the two groups
 4 N=215 for DHs
 5 N=352 for RDHs
 6 Blue highlight signifies more than a 1.00 difference between the two groups

Table 21: Comparison of current vs. retrospective average importance ratings of professional characteristics for Registered Dental Hygienists (RDHs)

RATINGS	RDHs Current Mean, SD	RDHS Retrospectively Mean, SD	p-Value
PROFESSIONAL PRIDE			
• Receiving pride and satisfaction from my work	4.75 ± .510	4.63 ± .699	.003*
• Being professionally responsible in work-related matters	4.82 ± .450	4.63 ± .689	<.001*
• Having a balance between work and personal life	4.75 ± .551	4.03 ± 1.136	<.001*
• Being a lifelong learner	4.62 ± .608	4.37 ± .913	<.001*
• Providing community service	3.79 ± 1.053	3.76 ± 1.212	.700
• Building professional relationships	3.95 ± .970	4.03 ± 1.084	.246
<i>Professional pride Index</i>	4.45 ± .467	4.36 ± .605	.011*
<i>Hygienists Current: Cronbach's alpha = .726</i>			
<i>Hygienists Past: Cronbach's alpha = .803</i>			
WORK ETHIC			
• Working hard	4.70 ± .646	4.80 ± .461	.012*
• Being organized	4.76 ± .499	4.70 ± .629	.117
• Being knowledgeable and educated	4.89 ± .329	4.83 ± .398	.026*
<i>Work ethic index</i>	4.79 ± .367	4.78 ± .404	.786
<i>Hygienists Current: Cronbach's alpha = .551</i>			
<i>Hygienists Past: Cronbach's alpha = .717</i>			
PATIENT RELATIONS			
• Having good chairside rapport with patients	4.89 ± .434	4.64 ± .686	<.001*
• Helping patients achieve good oral health	4.82 ± .443	4.72 ± .561	.011*
• Striving for excellence in patient care	4.84 ± .479	4.79 ± .470	.151
<i>Patient relations index</i>	4.86 ± .357	4.72 ± .477	<.001*
<i>Hygienists Current: Cronbach's alpha = .745</i>			
<i>Hygienists Past: Cronbach's alpha = .763</i>			
PROFESSIONAL AMBITION			
• Exceeding my future employer's expectations	4.48 ± .732	4.55 ± .736	.215
• Exceeding my patients' expectations	4.73 ± .521	4.65 ± .639	.024*
<i>Patient ambitions index</i>	4.61 ± .561	4.60 ± .620	.855
<i>Hygienists Current: Cronbach's alpha = .743</i>			
<i>Hygienists Past: Cronbach's alpha = .795</i>			
SINGLE ITEM MEASURES			
Being a member of ADHA	2.66 ± 1.319	3.46 ± 1.396	<.001**
Upholding the ADHA Code of Ethics	4.58 ± .835	4.55 ± .825	.611
Advocating for the dental hygiene profession	3.77 ± 1.102	3.87 ± 1.186	.153

- Legend:
1. Dependent t-test
 2. *p-value <0.05
 3. **Represents significant differences between the two groups
 4. N=352
 5. Blue highlight signifies more than a 1.00 difference between the two groups

Table 22: Comparison of current vs. prospective average importance ratings of professional characteristics for dental hygiene students (DHs)

RATINGS	DHs Current Mean, SD	DHs Prospectively Mean, SD	p-Value
PROFESSIONAL PRIDE			
• Receiving pride and satisfaction from my work	4.85 ± .422	4.90 ± .332	.016*
• Being professionally responsible in work-related matters	4.88 ± .359	4.90 ± .340	.058
• Having a balance between work and personal life	4.83 ± .433	4.89 ± .387	.027*
• Being a lifelong learner	4.77 ± .513	4.82 ± .440	.094
• Providing community service	4.51 ± .714	4.60 ± .720	.018*
• Building professional relationships	4.79 ± .471	4.84 ± .430	.039
<i>Professional pride Index</i> <i>Students Current: Cronbach's alpha = .798</i> <i>Students Future: Cronbach's alpha = .829</i>	4.77 ± .352	4.83 ± .339	<.001*
WORK ETHIC			
• Working hard	4.92 ± .300	4.90 ± .337	.158
• Being organized	4.85 ± .434	4.85 ± .452	.853
• Being knowledgeable and educated	4.92 ± .301	4.92 ± .285	1.00
<i>Work ethic index</i> <i>Students Current: Cronbach's alpha = .738</i> <i>Students Future: Cronbach's alpha = .763</i>	4.91 ± .270	4.90 ± .297	.676
PATIENT RELATIONS			
• Having good chairside rapport with patients	4.90 ± .351	4.92 ± .306	.132
• Helping patients achieve good oral health	4.92 ± .284	4.93 ± .277	.764
• Striving for excellence in patient care	4.90 ± .341	4.90 ± .318	.819
<i>Patient relations index</i> <i>Students Current: Cronbach's alpha = .800</i> <i>Students Future: Cronbach's alpha = .881</i>	4.91 ± .277	4.92 ± .265	.632
PROFESSIONAL AMBITION			
• Exceeding my future employer's expectations	4.86 ± .415	4.90 ± .355	.025*
• Exceeding my patients' expectations	4.87 ± .405	4.91 ± .338	.032*
<i>Professional ambition index</i> <i>Students Current: Cronbach's alpha = .905</i> <i>Students Future: Cronbach's alpha = .937</i>	4.87 ± .388	4.90 ± .336	.275
SINGLE ITEM MEASURES			
• Upholding the ADHA Code of Ethics	4.78 ± .492	4.81 ± .520	.251
• Advocating for the dental hygiene profession	4.65 ± .634	4.77 ± .560	<.001*
• Being a member of ADHA	3.84 ± 1.09	4.24 ± 1.01	<.001**

- Legend
- 1 Paired t-test
 - 2 *p-value < 0.05
 - 3 **Represents significant differences between the two groups
 - 4 N=215
 - 5 Blue highlight signifies more than a 1.00 difference between the two groups

Table 23: Comparison of average importance ratings of professional characteristics: prospective dental hygiene students (DHs) vs. current Registered Dental Hygienists (RDHs)

RATINGS	DHs Prospectively Mean, SD	RDHs Current Mean, SD	p-Value
PROFESSIONAL PRIDE			
• Receiving pride and satisfaction from my work	4.90 ± .335	4.75 ± .505	<.001*
• Being professionally responsible in work-related matters	4.90 ± .344	4.82 ± .445	.013*
• Having a balance between work and personal life	4.89 ± .384	4.74 ± .557	<.001*
• Being a lifelong learner	4.83 ± .437	4.63 ± .599	<.001*
• Providing community service	4.60 ± .717	3.80 ± 1.049	<.001**
• Building professional relationships	4.84 ± .427	3.96 ± .966	<.001**
<i>Professional pride index</i> <i>Total Cronbach's alpha = .805</i> <i>Students future: Cronbach's alpha = .829</i> <i>Hygienists current: Cronbach's alpha = .726</i>	4.83 ± .339	4.45 ± .467	<.001*
WORK ETHIC			
• Working hard	4.90 ± .335	4.71 ± .641	<.001*
• Being organized	4.85 ± .449	4.77 ± .486	.045*
• Being knowledgeable and educated	4.92 ± .282	4.89 ± .340	.205
<i>Work ethic Index:</i> <i>Total Cronbach's alpha = .673</i> <i>Students future: Cronbach's alpha = .763</i> <i>Hygienists current: Cronbach's alpha = .551</i>	4.89 ± .297	4.79 ± .367	<.001*
PATIENT RELATIONS			
• Having good chairside rapport with patients	4.92 ± .304	4.90 ± .420	.470
• Helping patients achieve good oral health	4.93 ± .275	4.82 ± .436	<.001*
• Striving for excellence in patient care	4.90 ± .315	4.84 ± .462	.092
<i>Patient relations index</i> <i>Total Cronbach's alpha = .779</i> <i>Students future: Cronbach's alpha = .881</i> <i>Hygienists current: Cronbach's alpha = .745</i>	4.92 ± .265	4.86 ± .357	.019*

Table 23 (continued): Comparison of average importance ratings of professional characteristics: prospective dental hygiene students (DHs) vs. current Registered Dental Hygienists (RDHs)

RATINGS	DHs Prospectively Mean, SD	RDHs Current Mean, SD	p-Value
PROFESSIONAL AMBITION			
• Exceeding my future employer's expectations	4.90 ± .356	4.47 ± .723	<.001*
• Exceeding my patients' expectations	4.91 ± .344	4.74 ± .516	<.001*
<i>Professional ambition Index Total Cronbach's alpha = .804 Students future: Cronbach's alpha = .937 Hygienists current: Cronbach's alpha = .743</i>	4.90 ± .336	4.61 ± .561	<.001*
SINGLE ITEM MEASURES			
• Being a member of ADHA	4.25 ± 1.009	2.66 ± 1.324	<.001**
• Upholding the ADHA Code of Ethics	4.81 ± .516	4.58 ± .823	<.001*
• Advocating for the dental hygiene profession	4.76 ± .561	3.77 ± 1.112	<.001**

- Legend
- 1 Independent t-test
 - 2 *p-value <0.05
 - 3 **Represents significant differences between the two groups
 - 4 N=215 DHs
 - 5 N=352 RDHS
 - 6 Blue highlight signifies more than a 1.00 difference between the two groups

Table 24: Comparison of average importance ratings of professional characteristics: current dental hygiene students (DHs) vs. retrospective Registered Dental Hygienists (RDHs)

RATINGS	DHs Current Mean, SD	RDHs Retrospectively Mean, SD	p-Value
PROFESSIONAL PRIDE			
• Receiving pride and satisfaction from my work	4.85 ± .421	4.65 ± .652	<.001*
• Being professionally responsible in work-related matters	4.88 ± 3.57	4.63 ± .683	<.001*
• Having a balance between work and personal life	4.83 ± .432	4.06 ± 1.110	<.001*
• Being a lifelong learner	4.77 ± .512	4.37 ± .905	<.001*
• Providing community service	4.52 ± .713	3.77 ± 1.173	<.001**
• Building professional relationships	4.80 ± .470	4.05 ± 1.048	<.001*
<i>Professional pride index</i> <i>Total Alpha = .805</i> <i>Students current: Cronbach's alpha = .798</i> <i>Hygienists past: Cronbach's alpha = .803</i>	4.36 ± .352	4.36 ± .605	<.001*
WORK ETHIC			
• Working hard	4.92 ± .298	4.80 ± .465	<.001*
• Being organized	4.85 ± .431	4.70 ± .624	<.001*
• Being knowledgeable and educated	4.92 ± .299	4.84 ± .399	<.001*
<i>Work ethic Index:</i> <i>Total alpha = .673</i> <i>Students current: Cronbach's alpha = .738</i> <i>Hygienists past: Cronbach's alpha = .551</i>	4.91 ± .269	4.78 ± .404	<.001*
PATIENT RELATIONS			
• Having good chairside rapport with patients	4.90 ± .349	4.65 ± .677	<.001*
• Helping patients achieve good oral health	4.92 ± .282	4.73 ± .571	<.001*
• Striving for excellence in patient care	4.90 ± .344	4.79 ± .468	<.001*
<i>Patient relations index</i> <i>Total alpha = .779</i> <i>Students current: Cronbach's alpha = .800</i> <i>Hygienists past: Cronbach's alpha = .763</i>	4.91 ± .277	4.72 ± .477	<.001*

Table 24 (Continued): Comparison of average importance ratings of professional characteristics: current dental hygiene students (DHs) vs. retrospective Registered Dental Hygienists (RDHs)

RATINGS	DHs Current Mean, SD	RDHs Retrospectively Mean, SD	p-Value
PROFESSIONAL AMBITION			
• Exceeding my future employer's expectations	4.86 ± .414	4.55 ± .721	<.001*
• Exceeding my patients' expectations	4.87 ± .401	4.64 ± .635	<.001*
<i>Professional ambition Index</i> <i>Total alpha = .804</i> <i>Students current: Cronbach's alpha = .905</i> <i>Hygienists past: Cronbach's alpha = .795</i>	4.87 ± .388	4.60 ± .620	<.001*
• SINGLE ITEM MEASURES			
• Being a member of ADHA	3.84 ± 1.090	3.43 ± 1.394	<.001*
• Upholding the ADHA Code of Ethics	4.78 ± .491	4.56 ± .827	<.001*
• Advocating for the dental hygiene profession	4.65 ± .632	3.87 ± 1.178	<.001**
• Education and development of clinical skills	4.89 ± .327	4.78 ± .488	<.001*
• Meeting the expectations of the dental hygiene program	4.90 ± .347	4.86 ± .367	.268

- Legend
- 1 Independent t-test
 - 2 *p-value statistically significant if less than 0.05
 - 3 **Represents significant differences between the two groups
 - 4 N=215 DHs
 - 5 N=352 RDHs
 - 6 Blue highlight signifies more than a 1.00 difference between the two groups

Table 25: Comparison of average importance ratings of professional characteristics for current and prospective dental hygiene students (DHs) and current and retrospective Registered Dental Hygienists (RDHs)

RATINGS	DHs Current Mean, SD	RDHs Retrospectively Mean, SD	DHs Prospectively Mean, SD	RDHs Current Mean, SD	p-Value
PROFESSIONAL PRIDE					
• Receiving pride and satisfaction from my work	4.85 ± .421	4.65 ± .652	4.90 ± .335	4.75 ± .505	<.001*
• Being professionally responsible in work-related matters	4.88 ± .357	4.63 ± .683	4.90 ± .344	4.82 ± .445	<.001*
• Having a balance between work and personal life	4.83 ± .432	4.06 ± 1.110	4.89 ± .384	4.74 ± .557	<.001*
• Being a lifelong learner	4.77 ± .512	4.37 ± .905	4.83 ± .437	4.63 ± .599	<.001*
• Providing community service	4.52 ± 7.13	3.77 ± 1.173	4.60 ± .717	3.80 ± 1.049	<.001**
• Building professional relationships	4.80 ± .470	4.05 ± 1.048	4.84 ± .427	3.96 ± .966	<.001*
<i>Professional pride index</i> <i>Both: Cronbach's Alpha = .805</i>	4.77 ± .351	4.25 ± .676	4.83 ± .338	4.45 ± .469	<.001*
WORK ETHIC					
• Working hard	4.92 ± .298	4.80 ± .465	4.90 ± .335	4.71 ± .641	<.001*
• Being organized	4.85 ± .431	4.70 ± .624	4.85 ± .449	4.77 ± .486	.001*
• Being knowledgeable and educated	4.92 ± .299	4.84 ± .399	4.92 ± .282	4.89 ± .340	.008*
<i>Work ethic index</i> <i>Both: Cronbach's alpha = .673</i>	4.91 ± .269	4.78 ± .404	4.89 ± .297	4.79 ± .367	<.001*
PATIENT RELATIONS					
• Having good chairside rapport with patients	4.90 ± .349	4.65 ± .677	4.92 ± .304	4.90 ± .420	<.001*
• Helping patients achieve good oral health	4.92 ± .282	4.73 ± .571	4.93 ± .275	4.82 ± .436	<.001*
• Striving for excellence in patient care	4.90 ± .344	4.79 ± .468	4.90 ± .315	4.84 ± .464	.004*
<i>Patient relations index</i> <i>Both: Cronbach's alpha = .779</i>	4.72 ± .457	4.21 ± .876	4.78 ± .461	4.18 ± .809	<.001*

Table 25 (Continued): Comparison of average importance ratings of professional characteristics for current and prospective dental hygiene students (DHs) and current and retrospective Registered Dental Hygienists (RDHs)

RATINGS	DHs Current Mean, SD	RDHs Retrospectively Mean, SD	DHs Prospectively Mean, SD	RDHs Current Mean, SD	p-Value
PROFESSIONAL AMBITION					
• Exceeding my future employer's expectations	4.86 ± .414	4.55 ± .721	4.90 ± .356	4.47 ± .723	<.001*
• Exceeding my patients' expectations	4.87 ± .401	4.64 ± .635	4.91 ± .334	4.74 ± .516	<.001*
<i>Professional ambition Index Both: Cronbach's alpha = .804</i>	4.87 ± .388	4.60 ± .620	4.90 ± .366	4.61 ± .561	<.001*
SINGLE ITEM MEASURES					
• Being a member of ADHA	3.84 ± 1.090	3.43 ± 1.394	4.25 ± 1.009	2.66 ± 1.324	<.001**
• Upholding the ADHA Code of Ethics	4.78 ± .491	4.56 ± .827	4.81 ± .516	4.58 ± .823	<.001*
• Advocating for the dental hygiene profession	4.65 ± .632	3.87 ± 1.178	4.76 ± .561	3.77 ± 1.112	<.001**
• Education and development of clinical skills	4.89 ± .327	4.78 ± .488	Not Applicable ¹	Not Applicable ²	.002*
• Meeting the expectations of the dental hygiene program	4.90 ± .347	4.86 ± .367	Not Applicable ¹	Not Applicable ²	<.001*

- Legend: 1 Dental hygiene students were not asked this question
2 Registered Dental Hygienists were not asked this question
3 Univariate ANOVA
4 *p-value <0.05
5 **Represents significant differences between the two groups
6 N=215 DHs
7 N=352 RDHs
8 Blue highlight signifies more than a 1.00 difference between the two groups

Table 26: Comparison of current average importance ratings of professional characteristics for dental hygiene students (DHs) and Registered Dental Hygienists (RDHs) stratified by having previous dental assisting experience

	DHs: Previous DA experience			RDHs: Previous DA experience		
	Yes	No		Yes	No	
Age (Mean)	25.27	24.53		48.03	47.26	
ratings	Students: Previous DA experience Mean, SD		p-Value	Hygienists: Previous DA experience Mean, SD		p-Value
	Yes	No		Yes	No	
PROFESSIONAL PRIDE						
• Receiving pride and satisfaction from my work	4.82 ± .434	4.86 ± .417	.630	4.73 ± .536	4.76 ± .485	.581
• Being professionally responsible in work-related matters	4.86 ± .401	4.88 ± .343	.748	4.83 ± .429	4.80 ± .458	.541
• Having a balance between work and personal life	4.82 ± .434	4.84 ± .433	.841	4.83 ± .427	4.68 ± .628	.006*
• Being a lifelong learner	4.80 ± .491	4.76 ± .520	.616	4.60 ± .622	4.64 ± .586	.506
• Providing community service	4.51 ± .784	4.52 ± .691	.938	3.78 ± 1.067	3.81 ± 1.040	.753
• Building professional relationships	4.84 ± .418	4.78 ± .486	.404	3.95 ± .984	3.95 ± .954	.998
<i>Professional pride index</i> <i>Both: Cronbach's Alpha = .805</i>	4.78 ± .404	4.77 ± .333	.936	4.46 ± .485	4.44 ± .458	.723
WORK ETHIC						
• Working hard	4.82 ± .478	4.96 ± .204	.058	4.66 ± 6.91	4.74 ± .607	.281
• Being organized	4.80 ± .491	4.86 ± .411	.392	4.77 ± .472	4.77 ± .498	.932
• Being knowledgeable and educated	4.88 ± .385	4.94 ± .267	.325	4.88 ± .343	4.89 ± .340	.794
<i>Work ethic Index:</i> <i>Both: Cronbach's alpha = .673</i>	4.86 ± .376	4.92 ± .226	.294	4.77 ± .381	4.80 ± .357	.454
PATIENT RELATIONS						
• Having good chairside rapport with patients	4.88 ± .382	4.90 ± .339	.746	4.88 ± .443	4.91 ± .406	.497
• Helping patients achieve good oral health	4.84 ± .418	4.95 ± .218	.084	4.78 ± .525	4.85 ± .360	.170
• Striving for excellence in patient care	4.88 ± .382	4.91 ± .333	.667	4.81 ± .511	4.87 ± .431	.254
<i>Patient relations index</i> <i>Both: Cronbach's alpha = .779</i>	4.87 ± .372	4.92 ± .239	.375	4.82 ± .427	4.88 ± .301	.196

Table 26 (continued): Comparison of current average importance ratings of professional characteristics for dental hygiene students (DHs) and Registered Dental Hygienists (RDHs) stratified by having previous dental assisting experience

RATINGS	DHs: Previous DA experience Mean, SD		p-Value	RDHs: Previous DA experience Mean, SD		p-Value
	Yes	No		Yes	No	
PROFESSIONAL AMBITION						
• Exceeding my future employer's expectations	4.80 ± .491	4.87 ± .387	.359	4.44 ± .790	4.49 ± .674	.484
• Exceeding my patients' expectations	4.82 ± .478	4.89 ± .373	.328	4.71 ± .568	4.75 ± .479	.511
<i>Professional ambition Index Both: Cronbach's alpha = .804</i>	4.81 ± .447	4.88 ± .366	.319	4.58 ± .614	4.63 ± .522	.428
SINGLE ITEM MEASURES						
• Being a member of ADHA	4.00 ± 1.114	3.79 ± 1.081	.229	2.65 ± 1.321	2.66 ± 1.325	.917
• Upholding the ADHA Code of Ethics	4.69 ± .547	4.81 ± .469	.163	4.61 ± .754	4.55 ± .871	.558
• Advocating for the dental hygiene profession	4.76 ± .473	4.61 ± .671	.080	3.86 ± 1.098	3.69 ± 1.118	.164
• Education and development of clinical skills	4.86 ± .401	4.90 ± .301	.480	Not Applicable ¹	Not Applicable ¹	
• Meeting the expectations of the dental hygiene program	4.84 ± .464	4.92 ± .299	.288	Not Applicable ¹	Not Applicable ¹	

Legend: 1 Registered Dental Hygienists were not asked this question

2 Independent t-test

3 *p-value <0.05

4 N=215 DHs

5 N=352 RDHs

Table 27: Comparison of current average importance ratings of professional characteristics for dental hygiene students (DHs) and Registered Dental Hygienists (RDHs) stratified by being a member of the American Dental Hygienists' Association (ADHA)

	DHs: Member of ADHA		RDHs: Member of ADHA			
	Yes	No	Yes	No		
Age (Mean)	24.43	25.19	51.72	46.49		
RATINGS	DHs: Member of ADHA Mean, SD		p-Value	RDHs: Member of ADHA Mean, SD		p-Value
	Yes	No		Yes	No	
PROFESSIONAL PRIDE						
• Receiving pride and satisfaction from my work	4.83 ± .448	4.87 ± .737	.524	4.88 ± .365	4.71 ± .530	.002*
• Being professionally responsible in work-related matters	4.86 ± .392	4.91 ± .289	.274	4.91 ± .286	4.79 ± .474	.009*
• Having a balance between work and personal life	4.85 ± .399	4.81 ± .488	.475	4.75 ± .526	4.74 ± .566	.854
• Being a lifelong learner	4.82 ± .458	4.69 ± .591	.096	4.75 ± .467	4.59 ± .625	.019*
• Providing community service	4.53 ± .691	4.51 ± .737	.788	4.09 ± .859	3.73 ± 1.081	.004*
• Building professional relationships	4.80 ± .470	4.79 ± .468	.872	4.16 ± .918	3.90 ± .972	.049**
<i>Professional pride index</i> <i>Both: Alpha = .805</i>	4.78 ± .364	4.76 ± .331	.659	4.48 ± .414	4.30 ± .652	<.046**
WORK ETHIC						
• Working hard	4.92 ± .326	4.94 ± .247	.673	4.72 ± .705	4.70 ± .625	.780
• Being organized	4.82 ± .490	4.90 ± .305	.156	4.86 ± .355	4.75 ± .512	.051
• Being knowledgeable and educated	4.90 ± .346	4.96 ± .194	.109	4.93 ± .312	4.88 ± .347	.283
<i>Work ethic Index:</i> <i>Both: Cronbach's alpha = .673</i>	4.89 ± .302	4.93 ± .204	.223	4.84 ± .321	4.78 ± .377	.236
PATIENT RELATIONS						
• Having good chairside rapport with patients	4.91 ± .366	4.88 ± .360	.610	4.81 ± .723	4.92 ± .300	.216
• Helping patients achieve good oral health	4.91 ± .313	4.95 ± .222	.294	4.81 ± .580	4.82 ± .393	.821
• Striving for excellence in patient care	4.86 ± .406	4.96 ± .194	.019*	4.76 ± .755	4.87 ± .353	.289
<i>Patient relations index</i> <i>Both: Cronbach's alpha = .779</i>	4.89 ± .315	4.93 ± .196	.287	4.80 ± .614	4.87 ± .255	.370

Table 27 (continued): Comparison of current average importance ratings of professional characteristics for dental hygiene students (DHs) and Registered Dental Hygienists (RDHs) stratified by being a member of the American Dental Hygienists' Association (ADHA)

RATINGS	DHs Mean, SD		p-Value	RDHs Mean, SD		p-Value
	Yes	No		Yes	No	
PROFESSIONAL AMBITION						
• Exceeding my future employer's expectations	4.87 ± .380	4.83 ± .470	.514	4.59 ± .671	4.44 ± .733	.125
• Exceeding my patients' expectations	4.90 ± .324	4.82 ± .506	.197	4.79 ± .591	4.72 ± .496	.329
<i>Professional ambition index Cronbach's alpha = .804</i>	4.89 ± .336	4.82 ± .464	.287	4.70 ± .597	4.58 ± .550	.123
SINGLE ITEM MEASURES						
• Upholding the ADHA Code of Ethics	4.75 ± .500	4.82 ± .477	.316	4.78 ± .514	4.53 ± .878	.002*
• Advocating for the dental hygiene profession	4.59 ± .675	4.76 ± .539	.056	4.49 ± .797	3.59 ± 1.107	<.001**
• Being a member of ADHA	3.99 ± 1.026	3.59 ± 1.156	.012*	4.33 ± .934	2.23 ± 1.036	<.001**
• Education and development of clinical skills	4.89 ± .341	4.90 ± .307	.850	Not Applicable ¹	Not Applicable ¹	
• Meeting the expectations of the dental hygiene program	4.89 ± .356	4.91 ± .334	.769	Not Applicable ¹	Not Applicable ¹	

- Legend:
- 1 Registered Dental Hygienists were not asked this question
 - 2 Independent t-test
 - 3 *p-value <0.05
 - 4 **Represents significant differences between the two groups
 - 5 N=215 DHs
 - 6 N=352 RDHs
 - 7 Blue highlight signifies more than a 1.00 difference between the two groups

APPENDIX A

Dental Hygiene Oath

Available from: Beemsterboer, PL. Ethics and law in dental hygiene. 2nd ed. St. Louis (MO): Saunders Elsevier; 2009. Chapter 1, Ethics and professionalism; p 3-21.

In my practice as a dental hygienist,

I affirm my personal and professional commitment

To improve the oral health of the public,

To advance the art and science of dental hygiene,

And to promote high standards of quality care.

I pledge continually to improve my professional

Knowledge and skills, to render a full measure

Of service to each patient entrusted to my care,

And to uphold the highest standards of professional

Competence and personal conduct in the interest

Of the dental hygiene profession and the public it serves.

APPENDIX B

The American Dental Hygienists' Association Core Values

Available from http://www.adha.org/resources-docs/7611_Bylaws_and_Code_of_Ethics.pdf

Core Values

We acknowledge these values as general for our choices and actions.

Individual autonomy and respect for human beings

People have the right to be treated with respect. They have the right to informed consent prior to treatment, and they have the right to full disclosure of all relevant information so that they can make informed choices about their care.

Confidentiality

We respect the confidentiality of client information and relationships as a demonstration of the value we place on individual autonomy. We acknowledge our obligation to justify any violation of a confidence.

Societal Trust

We value client trust and understand that public trust in our profession is based on our actions and behavior.

Non-maleficence

We accept our fundamental obligation to provide services in a manner that protects all clients and minimizes harm to them and others involved in their treatment.

Beneficence

We have a primary role in promoting the well being of individuals and the public by engaging in health promotion/disease prevention activities.

Justice and Fairness

We value justice and support the fair and equitable distribution of health care resources. We believe all people should have access to high-quality, affordable oral healthcare.

Veracity

We accept our obligation to tell the truth and expect that others will do the same. We value self-knowledge and seek truth and honesty in all relationships.

Standards of Professional Responsibility

- We are obligated to practice our profession in a manner that supports our purpose, beliefs, and values in accordance with the fundamental principles that support our ethics. We acknowledge the following responsibilities:

Core Values of the American Dental Hygienists' Association (Continued)

Available from http://www.adha.org/resources-docs/7611_Bylaws_and_Code_of_Ethics.pdf

Standards of Professional Responsibility (continued)

- To Ourselves as Individuals...
- Avoid self-deception, and continually strive for knowledge and personal growth.
- Establish and maintain a lifestyle that supports optimal health.
- Create a safe work environment.
- Assert our own interests in ways that are fair and equitable.
- Seek the advice and counsel of others when challenged with ethical dilemmas. Have realistic expectations of ourselves and recognize our limitations.

To Ourselves as Professionals...

Enhance professional competencies through continuous learning in order to practice according to high standards of care. Support dental hygiene peer-review systems and quality-assurance measures. Develop collaborative professional relationships and exchange knowledge to enhance our own lifelong professional development.

To Family and Friends...

Support the efforts of others to establish and maintain healthy lifestyles and respect the rights of friends and family.

To Clients...

- Provide oral health care utilizing high levels of professional knowledge, judgment, and skill.
- Maintain a work environment that minimizes the risk of harm.
- Serve all clients without discrimination and avoid action toward any individual or group that may be interpreted as discriminatory.
- Hold professional client relationships confidential.
- Communicate with clients in a respectful manner.
- Promote ethical behavior and high standards of care by all dental hygienists.
- Serve as an advocate for the welfare of clients.
- Provide clients with the information necessary to make informed decisions about their oral health and encourage their full participation in treatment decisions and goals.
- Refer clients to other healthcare providers when their needs are beyond our ability or scope of practice.
- Educate clients about high-quality oral health care.
- Recognize that cultural beliefs influence client decisions.

Core Values of the American Dental Hygienists' Association

Available from http://www.adha.org/resources-docs/7611_Bylaws_and_Code_of_Ethics.pdf

To Colleagues...

- Conduct professional activities and programs, and develop relationships in ways that are honest, responsible, and appropriately open and candid.
- Encourage a work environment that promotes individual professional growth and development. Collaborate with others to create a work environment that minimizes risk to the personal health and safety of our colleagues.
- Manage conflicts constructively.
- Support the efforts of other dental hygienists to communicate the dental hygiene philosophy and preventive oral care.
- Inform other health care professionals about the relationship between general and oral health.
- Promote human relationships that are mutually beneficial, including those with other health care professionals.

To Employees and Employers...

- Conduct professional activities and programs, and develop relationships in ways that are honest, responsible, open, and candid.
- Manage conflicts constructively.
- Support the right of our employees and employers to work in an environment that promotes wellness.
- Respect the employment rights of our employers and employees.

To the Dental Hygiene Profession...

- Participate in the development and advancement of our profession.
- Avoid conflicts of interest and declare them when they occur.
- Seek opportunities to increase public awareness and understanding of oral health practices.
- Act in ways that bring credit to our profession while demonstrating appropriate respect for colleagues in other professions.
- Contribute time, talent, and financial resources to support and promote our profession.
- Promote a positive image for our profession.
- Promote a framework for professional education that develops dental hygiene competencies to meet the oral and overall health needs of the public.
- To the Community and Society...
- Recognize and uphold the laws and regulations governing our profession.
- Document and report inappropriate, inadequate, or substandard care and/or illegal activities by a health care provider, to the responsible authorities.
- Use peer review as a mechanism for identifying inappropriate, inadequate, or substandard care provided by dental hygienists.
- Comply with local, state, and federal statutes that promote public health and safety.
- Develop support systems and quality-assurance programs in the workplace to assist dental hygienists in providing the appropriate standard of care.
- Promote access to dental hygiene services for all, supporting justice and fairness in the distribution of healthcare resources.

Core Values of the American Dental Hygienists' Association

Available from http://www.adha.org/resources-docs/7611_Bylaws_and_Code_of_Ethics.pdf

To the Dental Hygiene Profession (continued)

- Act consistently with the ethics of the global scientific community of which our profession is a part.
- Create a healthful workplace ecosystem to support a healthy environment.
- Recognize and uphold our obligation to provide pro bono service.

To Scientific Investigation...

- We accept responsibility for conducting research according to the fundamental principles underlying our ethical beliefs in compliance with universal codes, governmental standards, and professional guidelines for the care and management of experimental subjects. We acknowledge our ethical obligations to the scientific community:
- Conduct research that contributes knowledge that is valid and useful to our clients and society.
- Use research methods that meet accepted scientific standards.
- Use research resources appropriately.
- Systematically review and justify research in progress to insure the most favorable benefit-to-risk ratio to research subjects.
- Submit all proposals involving human subjects to an appropriate human subject review committee.
- Secure appropriate institutional committee approval for the conduct of research involving animals.
- Obtain informed consent from human subjects participating in research that is based on specification published in Title 21 Code of Federal Regulations Part 46.
- Respect the confidentiality and privacy of data.
- Seek opportunities to advance dental hygiene knowledge through research by providing financial, human, and technical resources whenever possible.
- Report research results in a timely manner.
- Report research findings completely and honestly, drawing only those conclusions that are supported by the data presented.
- Report the names of investigators fairly and accurately.
- Interpret the research and the research of others accurately and objectively, drawing conclusions that are supported by the data presented and seeking clarity when uncertain.
- Critically evaluate research methods and results before applying new theory and technology in practice.
- Be knowledgeable concerning currently accepted preventive and therapeutic methods, products, and technology and their application to our practice.

APPENDIX C

American Dental Association Accreditation Standards for Dental Education Programs Commission on Dental Accreditation

Available from: http://www.ada.org/~media/CODA/Files/predoc_2013.ashx

Ethics and Professionalism

2-20 Graduates **must** be competent in the application of the principles of ethical decision making and professional responsibility.

Intent:

Graduates should know how to draw on a range of resources, among which are professional codes, regulatory law, and ethical theories. These resources should pertain to the academic environment, patient care, practice management and research. They should guide judgment and action for issues that are complex, novel, ethically arguable, divisive, or of public concern.

APPENDIX D

ADEA Statement on Professionalism in Dental Education

Available from: <http://www.adea.org/Pages/Professionalism.aspx>

Competence - Acquiring and maintaining the high level of special knowledge, technical ability and professional behavior necessary for the practice of dentistry and for effective functioning in the dental education environment.

Fairness - Demonstrating consistency and even-handedness in dealings with others.

Integrity - Being honest and demonstrating congruence between one's values, words, and actions.

Responsibility - Being accountable for one's actions and recognizing and acting upon the special obligations to others that one assumes in joining a profession.

Respect - Honoring the worth of others.

Service-mindedness - Acting for the benefit of others, particularly for the good of those the profession serves, and approaching those served with compassion.

APPENDIX E

April 17, 2015

Dear Program Director ,

My name is Jerelyn Champine, RDH, BSDH, I am a graduate student in the Master of Science Dental Hygiene Program at the University of Michigan. I am writing to ask for your help in recruiting your current dental hygiene students to participate in a survey I am distributing for my thesis research project entitled, "Dental Hygiene Students and Practicing Dental Hygienists: Perceptions of Professional Identity." Following this letter is an email and survey link for you to distribute to your students.

The purpose of this survey is to determine what professional characteristics dental hygiene students and Registered Dental Hygienists associate with their professional identity. The questions of this survey were developed from a professional identity assignment that was completed by dental hygiene students at the University of Michigan. Several themes emerged as significant "expectations of themselves" as they progressed through the dental hygiene program and moved toward becoming a Registered Dental Hygienist. The purpose of this study is to assess how dental hygiene students in the State of Michigan respond to questions regarding these themes compared to Registered Dental Hygienists in Michigan.

Anticipated outcomes of this study may help better inform the public and policy makers about the professional values and beliefs of dental hygiene students and Registered Dental Hygienists in our State. In addition, the results may also be important for dental hygiene educators as they play a significant role in helping dental hygiene students learn about professionalism and assist in shaping their professional identity.

The survey is anonymous and has IBR approval (HUM00100425). Their participation is voluntary. There is no more than a minimal risk to participants, and there will be no direct benefit for participation nor consequence for non-participation. This survey should take about ten (10) minutes to complete. Please encourage the students complete this survey by May 15, 2015.

If you have any questions, please feel free to contact me at jerelync@umich.edu.

Sincerely,

Jerelyn Champine, RDH, BSDH

Candidate for Master of Science Degree in Dental Hygiene
University of Michigan

Please forward the below email:

Dear Dental Hygiene students,

My name is Jerelyn Champine, RDH, BSDH, I am a graduate student in the Master of Science Dental Hygiene Program at the University of Michigan. I am writing to ask for your help in participating in a survey I am distributing for my thesis research project entitled, "Dental Hygiene Students and Practicing Dental Hygienists: Perceptions of Professional Identity."

The purpose of this survey is to determine what professional characteristics dental hygiene students and Registered Dental Hygienists associate with their professional identity. The questions of this survey were developed from a professional identity assignment that was completed by dental hygiene students at the University of Michigan. Several themes emerged as significant "expectations of themselves" as they progressed through the dental hygiene program and moved toward becoming a Registered Dental Hygienist. The purpose of this study is to assess how dental hygiene students in the State of Michigan respond to questions regarding these themes compared to Registered Dental Hygienists in Michigan.

Anticipated outcomes of this study may help better inform the public and policy makers about the professional values and beliefs of dental hygiene students and Registered Dental Hygienists in our State. In addition, the results may also be important for dental hygiene educators as they play a significant role in helping dental hygiene students learn about professionalism and assist in shaping their professional identity.

This survey is anonymous and has IBR approval (HUM00100425). Your participation is voluntary. There is no more than a minimal risk to participants, and there will be no direct benefit for participation nor consequence for non-participation. This survey should take about ten (10) minutes to complete. Please complete this survey by May 15, 2015.

You can access the survey at <http://lessons.umm.umich.edu/2k/jerelynsurvey/jerelynstudents>.

If you have any questions, please feel free to contact me at jerelync@umich.edu.

Sincerely,

Jerelyn Champine, RDH, BSDH
Candidate for Master of Science Degree in Dental Hygiene
University of Michigan

APPENDIX F

University of Michigan – School of Dentistry – Dental Hygiene Program

Survey of Dental Hygiene Students in the State of Michigan Concerning Their Professional Identity

Thank you for participating in this study. Responding to this survey should take about 10 minutes. Let us assure you that your responses are completely anonymous.

1. Are you male or female
2. How old are you? I am _____ years old.
3. What is your ethnicity / race? I am _____
4. Are you married: Yes No Prefer not to answer
5. Do you have any children: Yes No Prefer not to answer
6. Are you working in addition to going to dental hygiene school? Yes No
7. Were you a dental assistant prior to being in the dental hygiene program?
Yes No
8. From which college or university are you receiving your dental hygiene degree?

9. In which year will you graduate? Year: _____
10. Please list any degree(s) you obtained prior to your dental hygiene education and the years you received them:
Degree(s) _____ Year: _____
Degree(s) _____ Year: _____
11. Are you a *student member* of the American Dental Hygienists' Association (ADHA)?
Yes No
12. Did you ever hold a leadership position in the student chapter of ADHA?
Yes No

13. The next questions ask you to think about *your situation right now* as a dental hygiene student. On a scale from 1 (not at all important) to 5 (very important), how important are the following issues regarding the expectations of yourself as you study to become a Registered Dental Hygienist?

	Not at all Important			Very Important	
	1	2	3	4	5
Working hard	1	2	3	4	5
Being organized	1	2	3	4	5
Being knowledgeable and educated	1	2	3	4	5
Having good chairside rapport with patients	1	2	3	4	5
Helping patients achieve good oral health	1	2	3	4	5
Striving for excellence in patient care	1	2	3	4	5
Being a student member of ADHA	1	2	3	4	5
Upholding the ADHA Code of Ethics	1	2	3	4	5
Advocating for the dental hygiene profession	1	2	3	4	5
Receiving pride and satisfaction from my work	1	2	3	4	5
Being professionally responsible in work-related matters ¹	2	3	4	5	
Having a balance between work and personal life	1	2	3	4	5
Being a lifelong learner	1	2	3	4	5
Education and development of clinical skills	1	2	3	4	5
Providing community service	1	2	3	4	5
Building professional relationships	1	2	3	4	5
Striving for excellence in patient care	1	2	3	4	5
Exceeding my future employer's expectations	1	2	3	4	5
Exceeding my patients' expectations	1	2	3	4	5
Meeting the expectations of the dental hygiene program	1	2	3	4	5

14. Are there any other issues that are very important to you right now?

15. The next questions ask you to think to *five years from now* when you will be a Registered Dental Hygienist. On a scale from 1 (not at all important) to 5 (very important), how important will the following issues regarding the expectations of yourself be for you as a Registered Dental Hygienist?

	Not at all Important			Very Important	
	1	2	3	4	5
Working hard	1	2	3	4	5
Being organized	1	2	3	4	5
Being knowledgeable and educated	1	2	3	4	5
Having good chairside rapport with patients	1	2	3	4	5
Helping patients achieve good oral health	1	2	3	4	5
Striving for excellence in patient care	1	2	3	4	5
Being a member of your professional association (ADHA)	1	2	3	4	5
Upholding the ADHA Code of Ethics	1	2	3	4	5
Advocating for the dental hygiene profession	1	2	3	4	5
Receiving pride and satisfaction from my work	1	2	3	4	5
Being professionally responsible in work-related matters	1	2	3	4	5
Having a balance between work and personal life	1	2	3	4	5
Being a lifelong learner	1	2	3	4	5
Providing community service	1	2	3	4	5
Building professional relationships	1	2	3	4	5
Striving for excellence in patient care	1	2	3	4	5
Exceeding my employer's expectations	1	2	3	4	5
Exceeding my patients' expectations	1	2	3	4	5

16. Thinking to the future/prospectively, what other issues will be very important for you as a Registered Dental Hygienist five (5) years from now?

17. What are the three (3) *most* important characteristics of being a professional Registered Dental Hygienist?

18. What are the three (3) *least* important characteristics of being a professional Registered Dental Hygienist?

19. Please share with us any other thoughts you have concerning the professional characteristics of a Registered Dental Hygienist.

Thank you very much for participating in this study. If you have any questions about this survey or are interested in the results of this study, please feel free to contact Janet Kinney at kinneyj@umich.edu, Danielle Furgeson at furgeson@umich.edu, or Jerelyn Champine at jerelync@umich.edu.

APPENDIX G

May 1, 2015

Dear RDH,

My name is Jerelyn Champine, RDH, BSDH, I am a graduate student in the Master of Science Dental Hygiene Program at the University of Michigan. I am writing to ask for your help in participating in a survey I am distributing for my thesis research project entitled, "Dental Hygiene Students and Practicing Dental Hygienists: Perceptions of Professional Identity."

The purpose of this survey is to determine what professional characteristics dental hygiene students and Registered Dental Hygienists associate with their professional identity. The questions of this survey were developed from a professional identity assignment that was completed by dental hygiene students at the University of Michigan. Several themes emerged as significant "expectations of themselves" as they progressed through the dental hygiene program and moved toward becoming a Registered Dental Hygienist. The purpose of this study is to assess how dental hygiene students in the State of Michigan respond to questions regarding these themes compared to Registered Dental Hygienists in Michigan.

The survey is anonymous and has IBR approval (HUM00100425). Your participation is voluntary. There is no more than a minimal risk to participants, and there will be no direct benefit for participation nor consequence for non-participation. This survey should take about ten (10) minutes to complete. Please complete this survey by June 15, 2015.

For your convenience, I have enclosed a self-addressed stamped envelope for you to return this very important survey. If you prefer, you can complete this survey online at http://lessons.ummu.umich.edu/2k/jerelynsurvey/jerelynregistered_dental_hygienists.

If you have any questions, please feel free to contact me at jerelync@umich.edu.

Sincerely,

Jerelyn Champine, RDH, BSDH
Candidate for Master Degree in Dental Hygiene
University of Michigan

APPENDIX H

University of Michigan – School of Dentistry – Dental Hygiene Program Survey of Registered Dental Hygienists in the State of Michigan Concerning Their Professional Identity

Thank you for participating in this study. Responding to this survey should take about 10 minutes. Let us assure you that your responses are completely anonymous.

1. Are you male or female
2. How old are you? I am _____ years old.
3. What is your ethnicity / race? I am _____
4. Are you married: Yes No Prefer not to answer
5. Do you have any children: Yes No Prefer not to answer
6. Were you a dental assistant prior to being a dental hygienist? Yes No
7. From which college or university did you receive your dental hygiene degree?

8. In which year did you graduate? Year: _____
9. Please list any additional degree(s) you obtained and the years you received them:
Degree(s) _____ Year: _____
Degree(s) _____ Year: _____
10. Are you in clinical practice? Yes No
11. If you work in clinical practice, in which type of practice do you work? (check all that apply)
Solo Practice Group Practice Specialty Practice
Community Dental Clinic Other
If other, please specify: _____
12. If you are not in clinical practice, are you in an alternative work setting?
Yes No
13. If you are employed in an alternative work setting, in which type of setting do you work?
(check all that apply)
Education Research Government Other
If other, please specify: _____

14. How many years in total have you been working in the field of dental hygiene? _____ Years
15. How many hours per week are you currently working? _____ Hours
16. Which type of community best describes the location of the primary practice you work in?
 Rural (<5,000 population) Small town/city (5,000-24,999 population)
 Moderate-sized city (25,000-250,000 population) Large city (>250,000 population)
17. What percent of your patients are covered by:
 Government programs (i.e. Healthy Michigan, Delta Dental Healthy Kids, MICHild):
 _____% Self-pay: _____% Donated services: _____% Other: Please
 explain _____
18. When you were a dental hygiene student, were you a *student member* of the American
 Dental Hygienists' Association (ADHA)? Yes No
19. Are you currently an active (dues paying) member of ADHA? Yes No
20. If yes, how many years have you been an active member of ADHA? _____ Years
21. Have you ever held a leadership position in ADHA, Michigan Dental Hygienists'
 Association (MDHA) or your local component? Yes No
22. Please list any other professional organization in which you are currently a member.

23. List any previous professional organizations in which you were a member.

24. **The next questions ask you to think about your situation right now as a Registered
 Dental Hygienist. On a scale from 1 (not at all important) to 5 (very important), how
 important are the following issues regarding the expectations of yourself as a
 Registered Dental Hygienist?**

	Not at all Important			Very Important	
Working hard	1	2	3	4	5
Being organized	1	2	3	4	5
Being knowledgeable and educated	1	2	3	4	5
Having good chairside rapport with patients	1	2	3	4	5
Helping patients achieve good oral health	1	2	3	4	5
Striving for excellence in patient care	1	2	3	4	5
Being a member of your professional Association (ADHA)	1	2	3	4	5

Upholding the ADHA Code of Ethics	1	2	3	4	5
Advocating for the dental hygiene profession	1	2	3	4	5
Receiving pride and satisfaction from my work	1	2	3	4	5
Being professionally responsible in work-related matters	1	2	3	4	5
Having a balance between work and personal life	1	2	3	4	5
Being a lifelong learner	1	2	3	4	5
Providing community service	1	2	3	4	5
Building professional relationships	1	2	3	4	5
Exceeding my employer's expectations	1	2	3	4	5
Exceeding my patients' expectations	1	2	3	4	5

25. Are there any other issues that are very important to you right now?

26. The next questions ask you to think back to when you were a dental hygiene student. On a scale from 1 (not at all important) to 5 (very important), how important were the following issues regarding the expectations of yourself as you were studying to become a Registered Dental Hygienist?

	Not at all Important			Very Important	
Working hard	1	2	3	4	5
Being organized	1	2	3	4	5
Being knowledgeable and educated	1	2	3	4	5
Having good chairside rapport with patients	1	2	3	4	5
Helping patients achieve good oral health	1	2	3	4	5
Striving for excellence in patient care	1	2	3	4	5
Being a student member of ADHA	1	2	3	4	5
Upholding the ADHA Code of Ethics	1	2	3	4	5
Advocating for the dental hygiene profession	1	2	3	4	5
Receiving pride and satisfaction from my work	1	2	3	4	5
Being professionally responsible in work-related matters	1	2	3	4	5
Having a balance between work and personal life	1	2	3	4	5
Being a lifelong learner	1	2	3	4	5
Education and development of clinical skills	1	2	3	4	5

Providing community service	1	2	3	4	5
Building professional relationships	1	2	3	4	5
Exceeding my future employer's expectations	1	2	3	4	5
Exceeding my patients' expectations	1	2	3	4	5
Meeting the expectations of the dental hygiene program	1	2	3	4	5

27. Thinking back/retrospectively, what other issues were very important for you as a dental hygiene student?

28. What are the three (3) *most* important characteristics of being a professional Registered Dental Hygienist?

29. What are the three (3) *least* important characteristics of being a professional Registered Dental Hygienist?

30. If your perceptions of your own professional characteristics have changed from the time you were a dental hygiene student until now, to what do you attribute the change?

31. Please share with us any other thoughts you have concerning the professional characteristics of a Registered Dental Hygienist.

Thank you very much for participating in this study. If you have any questions about this survey or are interested in the results of this study, please feel free to contact Janet Kinney at kinneyj@umich.edu, Danielle Furgeson at furgeson@umich.edu, or Jerelyn Champine at jerelync@umich.edu.

APPENDIX I

To: Jerelyn Champine
From:
Thad Polk
Cc:
Jerelyn Champine
Danielle Furgeson
Janet Kinney
Jane Halaris
Marita Inglehart

Subject: Notice of Exemption for [HUM00100425]

SUBMISSION INFORMATION:

Title: Dental Hygiene Students and Registered Dental Hygienists Perceptions of Professional Identity

Full Study Title (if applicable): Dental Hygiene Students and Registered Dental Hygienists Perceptions of Professional Identity

Study eResearch ID: [HUM00100425](#)

Date of this Notification from IRB: 4/3/2015

Date of IRB Exempt Determination: 4/3/2015

UM Federalwide Assurance: FWA00004969 (For the current FWA expiration date, please visit the [UM HRPP Webpage](#))

OHRP IRB Registration Number(s): IRB00000246

IRB EXEMPTION STATUS:

The IRB HSBS has reviewed the study referenced above and determined that, as currently described, it is exempt from ongoing IRB review, per the following federal exemption category:

EXEMPTION #2 of the 45 CFR 46.101.(b):

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement),

survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Note that the study is considered exempt as long as any changes to the use of human subjects (including their data) remain within the scope of the exemption category above. Any proposed changes that may exceed the scope of this category, or the approval conditions of any other non-IRB reviewing committees, must be submitted as an amendment through eResearch.

Although an exemption determination eliminates the need for ongoing IRB review and approval, you still have an obligation to understand and abide by generally accepted principles of responsible and ethical conduct of research. Examples of these principles can be found in the Belmont Report as well as in guidance from professional societies and scientific organizations.

SUBMITTING AMENDMENTS VIA eRESEARCH:

You can access the online forms for amendments in the eResearch workspace for this exempt study, referenced above.

ACCESSING EXEMPT STUDIES IN eRESEARCH:

Click the "Exempt and Not Regulated" tab in your eResearch home workspace to access this exempt study.

A handwritten signature in cursive script that reads "Thad A. Polk". The signature is written in dark ink on a light background.

Thad Polk
Chair, IRB HSBS

APPENDIX J

Dr. Phyllis Beemsterboer agreement to consult on Professional Identity project

On Mon, Feb 23, 2015 at 3:47 PM, Phyllis Beemsterboer wrote:

Janet,

I would love to help with the professional identity project! Sounds great and of course – very important. I know the nursing folks do a bit with this area. Friday's are good for me. How about Friday, March 13th? I will put a hold on that day till I hear from you.

Sound good?

Phyllis

Phyllis Beemsterboer MS, Ed D, FACD
Professor and Associate Dean for Academic Affairs
OHSU School of Dentistry
and
Associate Director
OHSU Center of Ethics in Health Care

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