

ASSESSMENT OF THE NEED FOR A DENTAL HYGIENE  
MASTER'S PROGRAM

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A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
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TEXAS WOMAN'S UNIVERSITY  
COLLEGE OF HEALTH SCIENCES

BY  
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May 22, 2000

To the Associate Vice President for Research and Dean of the Graduate School:

I am submitting herewith a thesis written by Deborah L. Testerman entitled "Assessment Of The Need For a Dental Hygiene Master's Program." I have examined this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Health Studies.

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School

## DEDICATION

This thesis is dedicated to the memory of my grandmother, Rosemary Pfeifer Grant and Bettee Andrews. My grandmother had the faith in me that I could accomplish anything I set my mind on. A special dedication goes to Bettee Andrews who was a teacher, mentor, and role model in the dental hygiene profession.

I also dedicate this work to my husband Ron and my son Hunter, without whose patience, love, and understanding during long hours on the computer away from my family, I could not have achieved my goals.

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I wish to thank the TWU dental hygiene alumnae for responding to the questionnaire in a timely manner. Finally, I would like to share a favorite inspirational passage that has guided me throughout this process: "Trust in the Lord with all your heart, and do not rely on your own insight. In all your ways acknowledge him, and he will make your paths straight." Proverbs 3: 5-6.



## ABSTRACT

### COMPLETED RESEARCH IN HEALTH SCIENCES

Texas Woman's University, Denton, Texas

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The purpose of the study was to evaluate the need for a Master's degree program in dental hygiene at Texas Woman's University. A total of 127 respondents replied to the questionnaire making a response rate of 48%. The questionnaire obtained information about demographics, future educational needs of TWU graduates, and desire to pursue a higher education degree. The results were tabulated in frequencies and percentages using SPSS for Windows. The results of the survey suggest that the majority of the TWU dental hygiene graduates believe a graduate degree in dental hygiene would increase career opportunities. If a graduate degree were offered at TWU, the respondents would like to see a variety of courses to choose from and would need flexible and creative scheduling. The primary reasons cited to pursue a master's degree in dental hygiene were fulfillment of personal goal and enhancement of skill.

## TABLE OF CONTENTS

DEDICATION.....	iii
ACKNOWLEDGMENTS.....	iv
ABSTRACT.....	v
LIST OF TABLES.....	vii
CHAPTER I INTRODUCTION.....	1
Purpose of the Study.....	3
Research Questions.....	4
Definition of Terms.....	4
Assumptions.....	6
Limitations.....	6
Delimitations.....	7
Significance of the Study.....	7
CHAPTER II REVIEW OF THE LITERATURE.....	8
Academic Preparation of Dental Hygienists.....	8
Future Trends in Dental Hygiene Education.....	15
Dental Hygiene Curriculum for Future Roles.....	23
CHAPTER III METHODOLOGY.....	30
Participants.....	30
Instrument.....	31
Procedure.....	36
Analysis.....	37
CHAPTER IV FINDINGS.....	38
Demographics.....	38
Future Educational Needs.....	38
Desire to Pursue a Higher Education Degree.....	42
CHAPTER V SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS.....	48
Summary.....	48
Discussion.....	50
Conclusions.....	52
Recommendations.....	52

REFERENCES.....	53
APPENDICES.....	57
APPENDIX A: Human Subjects Review Committee Approval.....	57
APPENDIX B: Faculty Validation Packet.....	59
APPENDIX C: Dental Hygiene Master's Degree Need Assessment Survey.....	67
APPENDIX D: Cover Letter.....	71
APPENDIX E: Second Mailing Postcard Script.....	73

## LIST OF TABLES

TABLE 1: Validation Packet Results from Faculty Experts.....	34
TABLE 2: Focus Group Questions from Student Pilot Study.....	36
TABLE 3: Demographics.....	39
TABLE 4: Degrees in Dental Hygiene.....	40
TABLE 5: Future Educational Needs of TWU Graduates.....	44
TABLE 6: Interest in Interdisciplinary Courses for Dental Hygiene Master's Degree.....	45
TABLE 7: Desire to Pursue Higher Education Degree.....	46
TABLE 8: Reasons to Pursue a Master's Degree in Dental Hygiene.....	47

## CHAPTER I

### INTRODUCTION

The demand for dental hygienists nationwide is increasing (Brutvan, 1998; Kostas & Nathe, 1997; Miller, 1990). To meet this demand, the condition of dental hygiene education must be evaluated. Applied research must be utilized to study the need for master's degree programs. The economic, social, and political changes that have occurred over the past three decades cause dental hygiene educators to question if their graduates possess the critical thinking competency to handle problem solving and the ability to adapt to change (Brutvan, 1998). To address this problem, the dental hygiene profession is moving toward patient-centered and evidence-based care that emphasizes critical thinking skills and individualizing services for each patient (Brutvan, 1998; Javeck, Wilder, Mann, & Hunt, 1999). College and university dental hygiene programs will increasingly need to include case-based learning activities than enhance students' ability to think about what they are doing while doing it. Unfortunately, dental hygiene clinical faculty tend to be part time, young, non tenured, and new to academics (Brutvan, 1998). Dental hygiene program and faculty needs require future study.

Ring (1999) reported that three entry level associate degree dental hygiene programs have been approved by the Commission on Dental Accreditation (CDA) of the American Dental Association (ADA) during 1999. Twenty accreditation eligible programs exist nationwide, and four have submitted applications for accreditation eligible status. Therefore, in response to the growing number of programs and demands for dental

hygiene professionals, faculty academic credentials will need to increase for individuals to compete for positions in a variety of settings (Ring, 1999). Graduate programs in dental hygiene are not easily accessible, and most dental hygienists with a master's degree have the degree in areas other than dental hygiene. The profession of dental hygiene would be strengthened if hygienists had advanced degrees in their own profession (Gaston, 1999).

In 1988 The Prospectus for Dental Hygiene (Gaston, 1999, p. 36) called on the profession to “promote and support master’s degree programs in dental hygiene education to provide the faculty resources and research required to further develop the scientific basis for dental hygiene.” Nevertheless, entry level education still remains the priority, and the promotion and expansion of graduate education has been limited (Gaston 1999). A 1997 survey of dental hygiene program directors indicated there are not enough faculty of dental hygiene programs to prepare professionals for careers in dental hygiene education (Wilder, Mann, & Tishk, 1999).

Currently 12 active graduate programs in the United States grant the Master of Science degree in Dental Hygiene or Dental Hygiene Education. These programs are geographically unevenly distributed, and access is limited in some parts of the U.S. The current Master’s degree programs are at the University of Washington, University of Missouri-Kansas City, University of North Carolina, Medical College of Georgia, Old Dominion University, University of Michigan, University of Maryland at Baltimore, West Virginia University, University of Medicine and Dentistry of New Jersey, University of Texas Health Science Center of San Antonio , Caruth School of Dental Hygiene, Baylor College of Dentistry a member of the Texas A &M University System Health Science

Center in Dallas, and University of Nebraska. All these programs provide excellent dental hygiene graduate education; however, more may be needed to satisfy the future demands for educators, administrators, researchers, and practitioners with advanced skills (Gaston, 1999).

By the year 2010 the Dallas/Fort Worth area is expected to be the 4<sup>th</sup> largest metropolitan area in the nation. The population growth from 1990 through 1998 was 16.9% (Patton, 1999). The Dallas/Fort Worth area had an unemployment rate, as of November 1998, of 2.9% and led the state with 42% of high-tech jobs (Dallas Chamber of Commerce, 1999). Fortune magazine ranked Dallas one of the best cities in America to do business (Patton, 1999). The magazine chose Dallas and the surrounding counties for many reasons such as (a) low cost of living, (b) low taxes, and (c) highest growth in new business. The surrounding counties included in this survey were (a) Collin, (b) Dallas, (c) Denton, (d) Ellis, (e) Henderson, (f) Hunt, (g) Kaufman, and (h) Rockwall. In Denton County, the growth rate accelerated last year and was led by the cities of Corinth and Flower Mound (Claassen & Okada, 1999). Therefore, to meet the needs of the increasing population the expansion of graduate dental hygiene may be necessary. The purpose of this study was to investigate the need for a Master's degree program in Dental Hygiene at Texas Woman's University, Denton, Texas.

#### Purpose of the Study

The purpose of the study was to survey approximately 590 dental hygienists who graduated from Texas Woman's University (TWU) Dental Hygiene Program from May 1972 to August 1999 to evaluate the need for a Master's degree program at TWU. The

study is descriptive, utilizing a survey technique (Thomas & Nelson, 1996). The questionnaire contained items requesting (a) demographic background, (b) desire to pursue higher degrees, and (c) future educational needs of TWU graduates. The validity and reliability of the questionnaire were estimated in a pilot study. Following the pilot further revisions were completed. In February 2000 the surveys were mailed with a cover letter explaining the purpose of the study and specifying response time. A second mailing was conducted in March 2000 for follow up of nonrespondents.

### Research Questions

The research questions for this study were as follows:

1. What are the demographics of the dental hygienists who have graduated from TWU?
2. Is there a desire to pursue a higher education degree?
3. What type of dental hygiene or interdisciplinary courses do they perceive to be important in a master's degree program at TWU?

### Definition of Terms

The following terms were defined for this study:

1. Accreditation. The process by which a nongovernmental agency evaluates an institution or program of study according to predetermined national standards (Darby & Walsh, 1995).
2. Assessment. The process of evaluation or appraisal of physical, written, psychological data from a patient in a systematic and comprehensive manner to make



decisions about the oral and general health needs of the patient (American Association of Dental Schools, 1999).

3. Competency. The desired combination of knowledge, psychomotor skills, communication skills, attitudes, and the standards used to measure the hygienist's independent performance (American Association of Dental Schools, 1999).

4. Critical thinking. The process of being well informed, trustful of reason, open minded, flexible, fair minded in evaluation, prudent in making judgements, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information and persistent in seeking results which are precise as the subject and circumstances of inquiry permit (American Association of Dental Schools, 1999).

5. Dental hygienist. A licensed health professional specializing in the prevention and treatment of oral disease (American Association of Dental Schools, 1999).

6. Entry level. The two year associate degree programs in dental hygiene focusing on practical courses related to the practice of dental hygiene (Darby & Walsh, 1995).

7. Evidenced-based. A new paradigm for delivery of health care which involves defining the patients' problems, identifying the information required to solve the problem, conducting an efficient search of the literature, selecting the best of the relevant studies, applying the rules of evidence to determine validity, extracting the clinical message and presenting it to colleagues, and applying the information to the patient problem (American Association of Dental Schools, 1999).

8. Interdisciplinary education. Learning that takes place with those in other health care fields.

9. Professionalism. The methods, standards, and character of the dental hygiene profession.

10. Related field education. A master's degree acquired in a related field such as allied health, education, public health, educational administration, counseling, nutrition, health science instruction, and adult education (Glick, 1990).

11. Terminal degree. The highest attainable degree within the discipline (Darby & Walsh, 1995).

### Assumptions

The study was based on the assumptions that (a) a survey of alumnae would help determine whether there is a need for a master's degree program at TWU and (b) that the survey would be a valid measurement of the need for a master's degree program. Furthermore, the use of a questionnaire to gather data depends on the assumption that the information that is provided by the participants is correct.

### Limitations

The study was subject to the following limitations. (a) The participants may have a positive or negative reaction to the survey depending on previous experiences at TWU. These reactions may influence the response rate. (b) The study was limited by the participants' personal state of mind and stress levels that may influence responses to the survey. (c) The pilot study was limited to a small number of participants who were senior dental hygiene students at TWU and may not have been a true representation of the larger population of TWU dental hygiene graduates in Texas.

### Delimitations

Delimitations in this study consisted of sampling design decisions, the types of questions the researcher used to assess the need for a master's degree program, the length of the survey, the selection of experts to review the survey, and the procedures followed in establishing the validity and reliability of the survey. The experts may be limited to how much time and thought was involved in reading the survey.

### Significance of the Study

The dental hygiene profession must be able to meet the high demand for dental hygienists through the educational process (Gaston, 1999). Wilder et al. (1999) reported that 234 dental hygiene programs existed in the United States and Canada and approximately 16 to 24 students earn a master's degree in dental hygiene each year. This number will not meet the need for faculty in the expanding number of dental hygiene programs nationwide.

Because societal needs continue to increase in the areas of complicated medical histories, diverse populations, an aging generation, and disabilities, dental hygienists must expand their knowledge base (Jevack, Wilder, Mann, & Hunt, 1999). This will require educators to enhance their academic preparation and seek opportunity for advanced education. Therefore, the expansion of graduate dental hygiene education is necessary to meet the need for more dental hygienists and faculty.

## CHAPTER II

### REVIEW OF LITERATURE

The purpose of this study was to assess the need for a Master's degree program in dental hygiene at Texas Woman's University. The contents of this chapter were organized under the following headings: (a) Academic Preparation of Dental Hygienists, (b) Future trends in Dental Hygiene Education, and (c) Dental Hygiene Curriculum for Future Roles.

#### Academic Preparation of Dental Hygienists

Currently a high demand for dental hygienists exists nationwide. To accommodate this demand, many new dental hygiene programs have been initiated. Adequate staffing will require an increase in the number of dental hygienists with baccalaureate, master's, and doctoral degrees.

Fong and Odrich (1987) studied dental hygienists who are qualified to be instructors for undergraduate training in dental methods. They assumed that departments of periodontics, preventive dentistry, community dentistry, and public health employ dental hygienists as dental educators. A four-page questionnaire was mailed to 120 departmental chairpersons of periodontics, preventive dentistry, community dentistry, and public health departments listed in the 1984-1985 Directory of Dental Educators. The questionnaire requested information about the number of hygienists employed in the department, job responsibilities, academic appointments, credentials, length of

employment, and days of work. No information was provided on the validity and reliability of the questionnaire used in the study.

Of the 120 questionnaires mailed, 89 were returned, resulting in a 74% response rate. One or more dental hygienists was employed by 81% of the respondents and, of these, 68% were dental educators. The higher the degree held by the educators, the higher their academic appointment. The salaried and tenured appointments were held by dental hygienists who attained master degrees. A variety of teaching responsibilities were reported; these included preclinical, clinical, didactic instruction, and behavioral sciences.

Fong and Odrich (1987) concluded that most dental schools employ dental hygienists as dental educators. Dental hygienists are employed also in other roles such as researchers, administrators, behavioral group facilitators, and departmental liaison personnel. The questionnaire provided information regarding the role of hygienists as dental educators; it also emphasized the additional issues that need to be resolved concerning advanced dental hygiene education.

Newell, Stoltenberg, Osborn, and Peterson (1989) studied the extent of interest of dental hygiene students enrolled in certificate and associate degree programs in advanced education. Interest in baccalaureate degree completion, nondegree granting programs, time preferences, reasons, and barriers were also examined. A 12-item questionnaire was distributed to first and second year dental hygiene students enrolled in 12 certificate and associate degree dental hygiene programs in the upper Midwest. The extent of interest was determined by a Likert-type scale using interested, not interested, undecided.

All 12 dental hygiene programs participated in the study for a response rate of 100%. Of the 531 questionnaires distributed, the student response rate was 78.7%. The data analysis consisted of descriptive statistics including frequencies, cross-tabulations, and chi-square analyses. The tests of significance were based on an alpha level of ( $p < .05$ ). Over 43% of the participants expressed an interest in pursuing a baccalaureate degree completion once they had completed a basic dental hygiene program. Based on the results of this study students who enroll in university dental hygiene programs are more degree oriented and will seek settings where the opportunity to complete a degree is greater. Fewer than half the students attending vocational and community colleges were interested in pursuing a degree completion program. Most of the students preferred to attend a program on a part time basis and during the evening hours. The primary barriers identified by the students were cost, time, and family commitments. Major reasons identified for wanting to pursue a degree completion program were additional career options and personal satisfaction.

Newell et al.(1989) concluded that nearly half of the students in this study were interested in pursuing a baccalaureate degree. Students who enroll in university dental hygiene program are more degree oriented and are exposed to factors that might have an impact on their perceptions of the desirability of an advanced degree. Newell et al., suggest further research needs to be done to determine if those students expressing interest in advanced education actually enroll in programs.

Glick (1990) studied the characteristics of dental hygienists employed as full time faculty in dental hygiene education programs awarding a bachelor's degree. The

Accreditation Standards for Dental Hygiene Education Programs currently states “ the dental hygiene program must be staffed by a core of well qualified full time faculty who possess a baccalaureate or higher” (Commission on Dental Accreditation, 1998). The level of educational preparation for initial employment, rank, promotion, and tenure conditions is important in the recruitment and retention of quality faculty in every dental hygiene program.

Glick (1990) surveyed directors of dental hygiene programs awarding bachelor degrees. The 36 dental hygiene programs studied were identified from the files of the American Dental Hygienists' Association. The survey requested information concerning full time dental hygienists who were members of bachelor's degree program faculties. The survey response rate was 97%, with 35 directors returning the instrument. The survey contained specific questions regarding number of fulltime hygienists per program, average teaching contact hours per week, current rank of faculty, and minimum degree required for an initial faculty appointment.

The master's degree was required by 83% of dental hygiene programs; the bachelor's degree was required by 11%; and the doctorate was required by 6%. Of programs requiring the master's degree, 55% specified that it should be in dental hygiene or a related field. The related field was broadly interpreted to include majors in allied health, education, public health, educational administration, counseling, nutrition, health science instruction, and adult education. The master's degree was recognized as the minimum terminal degree for promotion in 82% of the responding programs. The doctorate was required by 18% for promotion. Teaching, research, and service were

required as documentation for promotion and tenure applications in 97% of the baccalaureate education programs.

Glick (1990) concluded that the master's degree is recognized by most colleges and universities awarding a baccalaureate degree in dental hygiene as the terminal faculty degree necessary for tenure and promotion eligibility, and teaching, research, and service are required for promotion. Glick also recommended that the survey be replicated to provide information that can demonstrate changes and trends in dental hygiene faculty status.

Keevil (1992) surveyed 198 dental hygiene program directors to determine the number of full time faculty positions available in dental hygiene education, the minimum and preferred qualifications, and the recruitment methods used by program administrators to fill vacant faculty positions. The list of program directors was obtained from the American Dental Association's Commission on Dental Accreditation. The questionnaire was designed to obtain information on demographics, employment opportunities, job qualifications, and recruitment methods. Keevil assumed that the program directors were the persons primarily responsible for recruiting faculty. The participants were instructed to answer each question with a Likert-type scale using always, almost always, frequently, occasionally, almost never, never. The data were analyzed using frequency distributions and chi-square analyses.

A total of 172 questionnaires were returned, and two directors noted that their dental hygiene programs were closed; therefore, the number of usable questionnaires was 170 (85.9% response rate). The baccalaureate was required for almost half ( $\underline{n} = 32$ ) of the



positions, and almost an equal number ( $n = 29$ ) required the master's degree. Teaching position minimum degree requirements varied by the type of program ( $p < .01$ ). The minimum teaching requirement for associate degree programs was the baccalaureate degree, and the master's degree was the minimum teaching requirement for programs granting the baccalaureate degree. The most frequent type of teaching experience was clinical, but this varied with the type of program ( $p < .01$ ) with associate degree programs requiring more clinical experience. Teaching and research were the types of experience preferred, and the master's degree was the desired educational preparation level.

Keevil concluded that dental hygienists with a baccalaureate degree in dental hygiene are primarily employed in associate degree programs, whereas dental hygienists with a master's degree have employment opportunities in associate and baccalaureate degree programs. The findings suggest that dental hygiene programs are seeking faculty with education preparation at least one level above the degree granted by the program. Keevil suggested further research is needed to determine if the opportunities and qualifications for dental hygiene faculty increase, decrease, or remain the same in the future. Currently associate and baccalaureate degree programs are seeking faculty applicants with a master's degree preferred in dental hygiene or related discipline (Bulletin of Dental Education, 2000).

Holt (1998) studied the demographic database and professional academic profile of dental hygiene administrators. Holt reported that these individuals are highly dedicated and educationally prepared for their administrative roles, and Caucasian females still dominate the profession. The percentage of earned master's and doctoral degrees has

increased. However, compared to faculty across other disciplines in higher education, this population did not reflect advanced professional preparation or academic rank.

Holt (1998) surveyed a population of all dental hygiene directors in the United States. The 1995 list of Entry Level Dental Hygiene Programs was obtained from the American Dental Hygienist's Association to access this population ( $n = 217$ ). The survey was mailed to all 217 dental hygiene program directors in April 1996. The survey contained specific questions regarding demographic characteristics, including gender, ethnic background, and age, as well as questions regarding the administrator's professional academic profiles, and extent of management theory background, professional rank and title, and years of experience. Anonymity for participants was assured in a cover letter and on the last page of the survey. Cross tabulations and chi-square tests, with significance set at the  $<.05$  level, were conducted for the type of institution, program, highest degree earned, extent of management theory background, and rank with other variables.

Of the 217 surveys mailed, 140 were returned after a postcard reminder. Of these, 138 were valid, resulting in a 63% rate of return. Most of the participants were Caucasian (95.6%), female dental hygienists (87.6%), with a mean age of 47. Directors worked in public institutions (95.7%), primarily community and technical colleges (67.4%), that awarded associate degrees. The highest degree earned by the majority of directors was a master's degree (64.5%), with specialization in education (47.7%). Of the directors who held the rank of instructor, 96.8%, taught in a community or technical institution. Of the

directors who held rank of assistant professor, 87.5% had earned a master's degree and 95% of administrators who held rank of associate professor were female.

Holt (1998) concluded that most of the participants are Caucasian and female dental hygienists. The highest degree earned is typically a master's degree specializing in education. Dental hygienist are primarily employed at public community colleges. The findings contribute to the development of a demographic database and professional academic profile of dental hygiene administrators. The profile is encouraging because it demonstrates a gradual movement toward professionalization but, when compared to other academic disciplines in higher education, the dental hygiene population does not reflect advanced professional preparation or academic rank. Holt further recommended that dental hygiene faculty continue scholarly endeavors to help advance the field to full professionalization and to build academic legitimacy.

In response to the future dental hygiene educational demands, dental hygienists must be encouraged and have the opportunity to pursue master's degrees in their own discipline. Therefore, dental hygienists with advanced degrees in their own discipline would strengthen the profession.

#### Future Trends in Dental Hygiene Education

Several challenges face dental hygiene such as the potential growth of preceptorship dental hygiene programs. The challenges make it necessary for dental hygiene programs to maintain accreditation standards, and implement competency based education into the curriculum (Brutvan, 1998; Douglass, 1991; Ring, 1999). A current

trend affecting dental hygiene education include the infusion of technology in the clinic and classroom. (Douglass, 1991; Ring, 1999).

Douglass (1991) discussed six trends that are affecting dentistry and dental hygiene. They include changes in (a) demographics, (b) disease, (c) societal expectations, (d) financing and delivery system, (e) technology, and (f) regulation and legislation.

The United States general population is getting larger, older, and more culturally diverse. In less than 30 years there will be over 300 million people in the United States, 100 million of whom will be ethnic Americans. At this level of cultural diversity, dentists and dental hygienists will have patients with a greater variety of needs and expectations. A national policy statement states there is a need for attention to oral hygiene in the institutionalized elderly and that this group will demand more dental care services (Douglass, 1991, p. 225). The rise in periodontal disease among older persons implies a need for dental hygienists to provide dental preventive care for older adults in our society.

The baby boom generation has seen the emergence of preventive dentistry, and they have taught their children that reduction in caries is possible. This knowledge creates higher and higher expectations for better oral health in their lives. In general, oral health requires health promotion and disease prevention which are major goals of the dental hygiene profession.

Technology will increase all phases of diagnostic, preventive, and therapeutic procedures. Dentists may become so busy providing expensive dental care to affluent patients that dental hygienists will be in greater demand.

Douglass (1991) concluded that the regulation and legislation could be the wild card affecting trends in dental hygiene. Future legislation and malpractice case law and how these may affect the dental hygiene profession are concerns. These changes could stimulate or inhibit dental hygiene services. Overall, dental hygienists need to be active and involved in shaping these trends and events so that they are more likely to be positive forces and not deterrents to the emergence of a true profession of dental hygiene.

DeVore (1993) discussed allied dental education in the past, present, and future. Dental assisting, dental laboratory technology, and dental hygiene trends are examined. During the 1980s the enrollment declined in all three disciplines. Currently, all three disciplines have rebounded to near record levels by the mid 1990s (Burt & Eklund, 1999).

Issues affecting the educational programs in the allied dental disciplines include the ability to serve an aging, culturally diverse population, and adapting to new technology and changing disease patterns. Issues confronting dental hygiene education directly affect the curriculum. The movement to increase the preceptorship training programs (on-the-job training programs implemented by the dentist) to address the perceived shortage of dental hygienists may lower educational standards for the profession. Most dental hygiene students are enrolled in a community or junior college and attend college for 3 or more years, and few earn credentials beyond the 2-year certificate. Future programs will need to meet the need of the nontraditional student with family responsibilities and unique needs.

De Vore (1993) suggests as the number of dental hygiene programs increase across the nation, the enrollment and faculty numbers will also change. Educators need to

consider part time options, evening or weekend classes, and expanded use of instructional technology. A need for interdisciplinary courses and activities with more community outreach health care delivery systems is definitely needed. Programs suggest lack of resources, lack of information, faculty resistance, and perception of accreditation standards as barriers to changing the curriculum.

DeVore (1993) concluded that current educational programs need to prepare graduates to function in the complex, consumer oral health care delivery system. To help prepare these students, all allied dental educators need to have the opportunity to pursue a master's degree in their own related disciplines. Therefore, preparing students to become lifelong learners is necessary so they can adapt to changes they will encounter.

Ring (1999) discussed how dental hygiene education is facing challenges from many sources. In October 1998 the American Dental Association (ADA) House of Delegates adopted a resolution supporting "the alternate pathway model of dental hygiene education as used in Alabama" (Ring, 1999, p. 21). Alabama is the only state that allows on-the-job training of dental hygienists, a concept known as preceptorship. The Joint Commission on National Dental Examinations (JCNDE) decided to allow individual state boards of dentistry to review dental hygiene education programs and determine whether or not they fill the educational requirement for licensure (Ring, 1999). This decision has since been reversed and only graduates of accredited programs will be taking the board in 2000 (Texas Dental Hygienists' Association, 2000). These boards are primarily made up of dentist appointees with little or no educational knowledge of dental hygiene and, therefore, could endorse nonaccredited programs. This puts the dental hygienist in a

position of fighting to maintain the profession's educational standards. Dental hygienists and educators should encourage the standards to be raised and not lowered.

Many educators encourage life long learning and also realize that other allied health professions require a master's degree at the entry level (Ring, 1999). To require a baccalaureate degree for entry level education in dental hygiene the profession would need to overcome some barriers. There are barriers such as dentistry's stand on less education rather than more and the fact that most dental hygiene programs are housed at community colleges (Ring, 1999).

Interdisciplinary education is supported by many educators (Ring, 1999) and allows dental hygienists to do some learning alongside those going into other health care fields. Some educational institutions are providing an opportunity for dental hygiene and dental students to learn together (Ring, 1999). Other trends in dental hygiene education also include greater emphasis on case-based and evidence-based learning (Ring, 1999).

Ring (1999) concluded that dental hygiene education must be flexible and change is inevitable. Problems with implementing new ideas such as lack of funds, space, and faculty will always exist. Finding the right faculty may become a greater challenge in the coming years, as dental hygiene programs try to expand their curriculum.

Wilder, Mann and Tishk (1999) surveyed dental hygiene directors in the United States and Canada ( $n = 222$ ). The questionnaire was pretested with 14 dental hygiene program directors from various institutional settings. The final questionnaire consisted of six sections of open-ended and closed-ended questions. These sections included information on demographics, program setting, faculty recruitment and selection, roles of

graduates of M.S.D.H. programs, faculty skills, and perceptions of future needs.

Descriptive statistics including frequencies and percentages were used to analyze the data.

Wilder et al. (1999) studied dental hygiene program directors' perceptions of graduate dental hygiene education and future faculty needs. Dental hygiene master's degree programs prepare the graduate to assume leadership roles, conduct research, think critically, problem solve, plan, evaluate, and communicate orally and in writing. Dental hygiene graduate programs are not sufficient in number and accessibility to meet these needs. Approximately 16 to 24 students earn a master's degree in dental hygiene each year. Nationwide this number does not fulfill the need for faculty in the increasing number of new dental hygiene programs. Wilder et al. (1999) suggest an outline for future directions and research needs for graduate education in dental hygiene. The suggestions consist of (a) dental hygiene program director's perceived need for faculty and their preference for the type of degree, (b) if M.S.D.H. programs are meeting faculty needs in numbers and skill and, (c) how M.S.D.H. programs can better prepare graduates for the next millennium.

A total of 161 questionnaires were returned with a 76% response rate. Most of the directors (61%) indicated having a full time faculty position vacant between 1994 and 1996. A master's degree was preferred by 67.5% for the full time tenure and nontenure track positions. The directors gave preference to applicants holding a M.S.D.H. by 59%. Fifty-three percent of the directors suggested an inadequate number of M.S.D.H. programs to meet the needs for faculty. Regarding the proposed purposes of M.S.D.H. programs the educator role was ranked most important by 95%, followed by the



administrator role at 67%. Thirty-five percent of dental hygiene directors felt the M.S.D.H. prepared well qualified dental hygiene educators.

Wilder et al.(1999) concluded, at the turn of the century dental hygienists need to prepare for leadership roles in grant writing, research skills, professionalism, leadership ability, knowledge of managed care, effective communication skills, knowledge of alternative teaching methods, distance teaching, and computer skills. To improve the scientific and theoretical basis for dental hygiene education establishing quality graduate programs is one of the most important tasks and challenges for dental hygiene in the next decade.

Jevack, Wilder, Mann, and Hunt (1999) studied career, degree satisfaction, and job characteristics of individuals graduating from programs awarding the Master of Science in Dental Hygiene or Dental Hygiene Education. There is little information on individuals graduating with a M.S.D.H., and several questions need to be answered before future programs are considered. Are these graduates prepared for diverse roles and what are the roles for future master's prepared dental hygienists. Little information exists on the future needs and concerns of graduate dental hygiene education. Knowing these needs and concerns are necessary for continued growth of dental hygiene education.

In a 1998 survey, Jevack et al.(1999) surveyed students ( $n = 252$ ) graduating between 1980-1995 from M.S.D.H. programs in the U.S. A pilot questionnaire was mailed to graduate program directors and appropriate revisions were made. The questionnaire contained three primary domains: (a) background information, (b) closed ended items that assessed career opportunities, satisfaction levels, and the pursuit of

higher degrees, and (c) open ended items to determine future educational needs of M.S.D.H. students. The data were analyzed by an Epi-Info database and transferred to SAS for Windows for complete analysis. Descriptive statistics and two-way tables utilizing frequencies and percentages were presented in the responses. The salary responses were analyzed by using mid-interval values so numeric calculations could be calculated.

After three complete mailings, there was a response rate of 69%. When ranking factors which influenced a participant's decision to pursue a master's degree in dental hygiene, 80% were concerned with their own professional growth rather than fulfilling an employment requirement. Most of the participants practiced clinical dental hygiene an average of 5 years before returning to graduate school (78%). Fifty-two percent of graduates reported working in academics, and most were employed full time. Twenty-two percent of the graduates reported working in academics located in a four year university with a dental school, 19% in a community or junior college, 7% in a four year university with no dental school, and 4% in a technical institution or "other" setting.

Jevack et al.(1999) concluded that graduates of M.S.D.H. programs are disproportionately located across the U.S. Only 13% of the participants are living and working west of the Mississippi River. Most dental hygienists with master's degrees have these degrees in areas other than dental hygiene. There are many factors influencing the decision to attempt a graduate degree such as program location, opportunities for nontraditional students, and financial and family constraints.

The dental hygienist of the future must be prepared for a diversity of roles.

Preparing the dental hygienist for these roles is becoming a challenge. Therefore, the availability of master's degree programs throughout the United States must be increased to meet this challenge.

### Dental Hygiene Curriculum for Future Roles

Dental hygiene curricula need to be modified to prepare the dental hygienist for future educational roles (Burke, 1991). Changes have occurred in the curriculum regarding disease transmission, local aesthetic, root planing, and sealant application. Successful graduate preparation will require that the curriculum be examined more fully.

Paarman, Herzog, Christie, and Couns (1990) discussed establishing the baccalaureate degree as the minimum entry level for dental hygiene practice. This issue is controversial and the rationale for the upgraded entry level centers around three main concerns: (a) changes in health care delivery, (b) awarding of appropriate academic degree commensurate with students' educational background, and (c) the credibility of dental hygiene as a profession. The preparation of future hygienists will require a more broad-based educational background. A liberal educational background will help to foster lifelong learning, student adaptability, and openness to change, and will encourage communication and decision-making skills.

To help close the educational gap between dental hygiene and other recognized professions, dental hygiene can (a) provide a foundation for understanding the complexities of human existence as they influence health, (b) provide tools for critical thinking, and (c) lay the foundation for development of graduate programs with a strong

research base. Dental hygienists must be able to treat medically compromised patients; therefore, a more complex education is needed to produce hygienists who are capable of providing quality patient care.

Paarman et al. discussed common dental hygiene educational outcomes considered important such as competence in critical thinking, communication, and professional ethics. Other outcomes necessary to become an educated professional included adapting to societal changes, aesthetic sensitivity, leadership capacity, scholarly concern for improvement, and motivation for continued learning.

Paarman et al. provided a curriculum model that will prepare the dental hygienist with a strong clinical component and a broad general education background with theory and practical experience in nontraditional roles. The first year of the model consists of general core courses basic education, and an overview of dental hygiene. The second year consists of dental sciences, and preclinical preparation of the dental hygienist with an emphasis on prevention. The third year focuses on the clinical preparation of the dental hygienist in preventive and periodontal procedures along with dental sciences and liberal arts. The fourth year is a continuation and amplification of clinical skills to gain competence in advanced procedures. Theory and practical experience is emphasized to help prepare the dental hygiene graduate for research, health promotion and nontraditional roles. The model will meet the future demands and offer solutions to obstacles facing dental hygiene education today.

Burke (1991) noted that the present educational structure of dental hygiene looks the way it has since the 1960s. Most of the accredited dental hygiene programs

predominate in the community colleges. Dental hygiene education must be examined by reviewing institutional pressures, structure, and real world influences.

The student profile of the dental hygiene applicant reveals the applicant pool is smaller, more racially diverse, and has more previous education than previous applicants (Burke, 1991). Because of the changing applicant pool, colleges are under pressure to maintain enrollment, recruit minority students, and promote reentry into higher education. This requires that colleges meet the need of the adult learner and the individual with learning disabilities. Because most students have grown up in a visual world, the educator must become proficient in technology. Therefore, the need for advanced education of faculty members is critical as the research base and knowledge of educational techniques expand.

Burke (1991) discussed the major changes in dental hygiene curriculum such as concerns about disease transmission, local anesthetic, soft tissue curettage, root planing, sealants, and emphasis on the geriatric and disabled patients. Therefore, the dental hygiene curriculum must include addressing these skills and needs of the population. Hygienists practicing in nontraditional settings found themselves not adequately prepared for the interaction required with a larger, more varied health care team in order to meet the needs of the patient. To address this problem, the hygienist entering this level of responsibility will require a, more comprehensive educational background to assure appropriate decision making ability.

Burke (1991) concluded that a vast amount of evidence cites that there is value in a hygienist having advanced education; therefore, the future trends in dental hygiene

education must result in restructuring the educational process to meet these demands.

The challenge for educators is great, but this must be met if dental hygiene is to survive.

Fitz (1991) discussed the change in dental hygiene education by linking people, professionals, and practice. The citizens of the United States need to find a new way to access health care that encompasses preventing oral disease. Oral disease is increasing in persons over 65, and many are institutionalized. At this time, hygienists cannot serve this population without a dentist present in the care giving setting.

The diversity of the general population has increased, and the prevalence of some diseases among these groups is higher. Because the population is older and more diverse, the dental hygienist will need educational preparation to match the changing populations and their dental needs. The curriculum of dental hygiene programs will need to change to meet these demands placed on the dental hygienist.

Fitz (1991) discussed the dental hygiene conceptual model in Virginia which demonstrates the use of technology, career ladder, coordinated curriculum planning, and faculty development necessary for implementation in clinical settings. The model also discusses the role of accreditation in educational reform and a system wide change. Fitz points out, for change to take place, that we cannot assume that all services of allied health professionals must be controlled by physicians or dentists.

Fitz (1991) concluded that new patterns of education will need to be different and more flexible than the current practices. Dental hygiene educators need to participate in future change as they match new models of curricula with practice models based on

changing client systems. The models must become part of a larger national plan for change in dental hygiene education and practice.

Lautar and Kirby (1995) surveyed dental hygienists and dentists in Alberta, Canada, on the perceptions of education as it relates to the professional status of dental hygienists and the continuing educational needs. The survey was constructed through a series of focus groups consisting of practicing dental hygienists and dental hygiene students enrolled at the University of Alberta. A pilot study was administered to samples of hygienists and dentists from outside Alberta. Response rates of 33.3% and 69.6% were obtained from the dentists and hygienists, respectively. A final version of the instrument was constructed based on the pilot responses. The survey instrument had two forms: one for dental hygienists and one for dentists. The survey was composed of a Likert-type scale using strongly agree, agree, undecided, disagree, strongly disagree, and open-ended questions. The instrument was administered to dental hygienists from a list supplied by the Alberta Dental Hygienists' Association and to dentists listed in the Alberta Dental Association. The survey was administered by mail to 166 dental hygienists and 250 dentists.

An overall response rate of 52.8% was obtained (43.6% from the dentists and 66.9% from the dental hygienists). Dental hygienists employed in nontraditional settings responded at a higher rate than those employed in traditional practice. Dental hygienists saw dental hygiene as a profession (88.9%) and many believed professional status was due to the education possessed by most professionals. Many hygienists (24.3%) believed an increase in education was important in order for dental hygiene to be considered a

profession. Dentists believed the most important benefit from continuing education would be to increase employment opportunities. When asked if dental hygienists should have a bachelor's degree in dental hygiene, 36% of hygienists agreed that they should have the degree, and an equal number disagreed. Dentists were more negative with 52.9% disagreeing with the concept of dental hygienists having a bachelor's degree.

Lautar and Kirby (1995) concluded that the baccalaureate degree would seem to increase the status of dental hygiene because hygienists should be viewed more as colleagues by other health professionals and would occupy a complementary, not subservient position, to dentistry. The continuing education for dental hygienists will encompass skills such as administration of local anesthesia, research, administration and health promotion. If this were to be expected, dental hygienists, like professionals in many other health related occupations, will turn to the universities to meet their continuing educational needs.

Long and Mobley (1999) described a pilot project that demonstrated an intradisciplinary approach to nutrition education of dental and dental hygiene students. The goal was to enhance the academic preparation of nutrition principles to dental school clinic patient care. To achieve this goal the cooperation of registered dietitians, dentists, and dental hygienists was necessary.

The design of the course contained problem-based collaborative learning techniques that involved nontraditional roles for faculty and students. This learning incorporated five basic elements: positive interdependence, group interaction, individual accountability, interpersonal skills, and group processing skills. Collaborative learning



was accomplished through small group discussions with the instructor serving as the mentor. This helped the student take information from an expert source and use information to enhance patient case management.

The interdisciplinary course consisted of three phases: (a) orientation of dental hygiene students and introduction of seminar topics, (b) integration of the dental hygiene student into the second year dental student “applied human nutrition” course, and (c) completion of seminars and case presentations. The dental hygiene and dental student worked together as a team throughout the course.

Long and Mobley (1999) concluded that the dental hygiene and dental students regarded the course as successful, and as a result of the course, they obtained more advanced knowledge of nutrition and enhanced their skills in team participation. The future of health care delivery will depend on a team approach. It is important to implement interdisciplinary approaches in our academic environments to provide health care providers with the experience of learning from one another.

A dental hygiene curriculum model must be evaluated to keep pace with the changing needs of society. Hygienists will require greater, more comprehensive educational backgrounds to assure appropriate decision making ability (Burke, 1991).

### CHAPTER III

#### METHODOLOGY

The purpose of the study was to evaluate the need for a Master's degree program in dental hygiene at Texas Woman's University (TWU). The study was descriptive, utilizing a survey technique. This chapter describes the (a) participants, (b) instrument, (c) procedure, and (d) data analysis. Written permission to conduct the study was obtained from the Human Subjects Review Committee at TWU (Appendix A).

#### Participants

The TWU Alumnae Association reported that a total of 580 students had graduated from the Texas Woman's University (TWU) Dental Hygiene Program between May 1972 and August 1999. The population consisted of graduates of the program. The list of dental hygiene alumnae and address labels were acquired from the TWU Office of Institutional Research and Statistics housed on the TWU campus. The Office of Institutional Research and Statistics provided addresses for 437 of the 580 dental hygiene graduates reported by the alumnae office. Of the 437 packets mailed, 174 surveys were returned. Therefore, on the first mailing the sample was 263 dental hygienists. One hundred ninety three post cards were mailed to non respondents and 40 of those were returned. The investigator received 127 completed surveys making a response rate of 48%.

### Instrument

A survey developed by the investigator was used to collect data. The preliminary form was developed and reviewed by two university professors participating on the thesis committee. The professors consisted of the Chairs of the Department of Health Studies and Dental Hygiene. The survey, entitled Dental Hygiene Master's Degree Need Assessment Survey (DHMDNAS), was divided into three parts: demographic data, desire to pursue higher degrees, and future educational needs of TWU students. The survey contained 12 questions with the demographic data section containing five open ended questions that required short answers (e.g., what year did participant graduate?, highest degree held?, and how long have you been practicing dental hygiene?). It also contained several items requesting information about desire to pursue a higher degree. For example, one item asked: "Have you considered changing careers?" The third section of the instrument, determining future needs of TWU graduates, also consisted of open ended questions.

Because the instrument was developed by the investigator, it was necessary to establish content validity through a series of procedures. To guide these procedures, the following definition of content validity was accepted: "measure of survey accuracy that involves formal review by individuals who are experts in the subject matter of a survey" (Litwin, 1995, p. 82). The first step in determining content validity is established by referring to concepts the investigator wishes to examine. The investigator wrote a question for each concept and then asked experts whether the questions were

representative samples of the concepts examined on the survey (Fink & Kosecoff, 1998, p. 35).

The domain of content of this study was defined primarily by interviewing experts and reviewing related literature. Criteria were established for identifying two categories of experts: (a) dental hygiene faculty and (b) dental hygiene practitioners. Criteria used to guide the selection of dental hygiene faculty were (a) has taught at least one year in dental hygiene and (b) has taught at the university or community college level. A total of 13 faculty experts were utilized with eight from the TWU Dental Hygiene Department and five from the Collin County Community College Dental Hygiene Center, Mc Kinney, Texas. The preliminary form , was distributed to the faculty experts along with an item validity evaluation form. This form requested the experts to answer yes or no to two questions: (a) will the item enable us to achieve the purpose and (b) does the item need rewording? Experts were also asked whether other items were needed to achieve the purpose of the study (Appendix B).

The questionnaire was also piloted and reviewed by practitioners. Criteria used to guide the selection of practitioners were (a) holds a current dental hygiene license and (b) has had at least one year of dental hygiene clinical experience. A total of 16 practitioner experts from the North Texas Dental hygiene Association piloted the instrument on January 18, 2000. Recommendations made by the practitioners included (a) to change number of years to match each question, (b) more specifications on some questions, (c) add associate degree to demographic question, and (d) good questionnaire, not too long.

Of the 16 practitioners who participated, 75% answered the questionnaire and gave no recommendations while 25% made comments.

The faculty recommendations were tallied and all items with a 70% agreement were retained in their original form. Other items were revised based on expert input, and new questions were added. These changes were made when 50% of the experts made the same suggestion. Table 1 describes data collected with the validation evaluation form from the 13 faculty experts.

Once the panel of experts returned the recommendations, the survey was finalized and a pilot study and focus group were conducted with 17 TWU senior dental hygiene students to determine the applicability and readability of the questionnaire. The TWU senior dental hygiene students were also included because they are potential future students should a new degree be implemented. The questionnaire was distributed following class on February 24, 2000 in the TWU Old Main building room 221. The questionnaire took approximately 10 minutes to complete. Following completion of the questionnaire, a focus group was conducted to gain further recommendations. A focus group was defined as “10 to 20 people brought together and trained leader surveys their view” (Fink & Kosecoff, 1998, p.45). The investigator evaluated their views and input from the focus group. Question four under demographics was changed to clarify wording (see Table 2 in text).

Table 1

Validation Packet Results from Faculty Experts

Purpose achieved	Yes	No
<b>Demographics:</b>		
1. How many years since graduating from TWU?	100%	0%
2. How long have you been practicing dental hygiene?	77%	23%
3. Highest degree obtained?	92%	8%
4. Do you hold this highest degree in dental hygiene?	77%	23%
5. What type of position do you hold?	62%	38%
<b>Desire to pursue a higher education degree:</b>		
1. Why would you pursue a master's degree	85%	15%
2. Are you likely to change your career in the next 5 years?	69%	31%
3. Do you believe people who obtain a graduate dental hygiene degree will increase their career opportunities?	62%	38%

Table 1 continued

**Future Educational Needs of TWU Graduates:**

1. If a master's degree in dental hygiene were offered at TWU would you pursue it?	77%	23%
2. Do you know of other dental hygienists who have not previously studied at TWU who might be interested in a master's degree at TWU?	85%	15%
3. What type of interdisciplinary courses would you like to see offered in a master's degree in dental hygiene?	92%	8%

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Note. All items with a 70% agreement were retained in their original form. Items #2 and #3 under desire to pursue a higher education degree were changed according to expert recommendations. A suggestion was made to add another question pertaining to "If a dental hygiene master's degree were available in the past at TWU would you have pursued it? This was added to the final questionnaire.

Table 2

Focus Group Questions from Student Pilot Study

	Response
1. Do you feel the questionnaire is a good way to obtain information?	Yes
2. Is the questionnaire easy or difficult to complete?	Easy
3. Do you feel the format of the questionnaire is user friendly?	Yes
4. Would you complete the questionnaire if you received it in the mail?	Yes
5. Do you have any questions concerning the interpretation of the items?	No
6. What did you like about the questionnaire?	Took 3-5min
7. What did you dislike about the questionnaire?	Writing

## Procedure

The DHMDNAS survey (Appendix C ), and a cover letter (Appendix D) explaining the purpose of the study, were mailed to the population on February 29, 2000. Stamped, pre-addressed envelopes were enclosed for return of the questionnaire. The instructions in the cover letter requested that the survey be returned within a week. A period of two weeks was actually allowed for completion and return of the questionnaire. The return envelopes were coded by placing numbers on the return address of the investigator. Matching numbers were placed on an alphabetical listing of all participants to facilitate a second mailing. A second mailing was conducted on March 14, 2000 with



the goal of achieving a 50% response rate (Appendix E). As the questionnaires were received, the code numbers were checked for consistency, and the envelope was immediately destroyed. Only the principal investigator had access to the coded list. If the participants wished to receive results of the study they were asked to complete the enclosed request form listing their name and address. Of the completed questionnaires 76 respondents requested the results of the study which will be presented in an abstract form and sent to the respondents. The names were separated from other responses and placed in an envelope. At the end of the study all coded envelopes and addresses were destroyed by the investigator. Confidentiality was further maintained by reporting only group data.

### Analysis

The data from the questionnaires were entered into the Statistical Product and Service Solutions (SPSS) (1997) for Windows for complete analysis of frequency and percent. Responses were analyzed using descriptive statistics. Common themes were tallied when reporting answers to open ended questions. The results were reported in text and tables, and no tests of significance were computed.

## CHAPTER IV

### FINDINGS

A questionnaire was sent to all TWU dental hygiene graduates to assess the need for a graduate dental hygiene program. Qualitative and quantitative analyses were used to treat the data. The qualitative analysis method was utilized to describe common themes and trends when reporting answers to open-ended questions (Thomas & Nelson, 1996). Descriptive statistics(frequencies and percent) were applied to the data.

Of the 437 packets mailed, 174 questionnaires were returned marked "addressee unknown", making the mailing sample 263 dental hygienists. Completed questionnaires were received from 127 individuals making a response rate of 48%. Respondents were asked four questions regarding demographics. The majority of the respondents (49.6%) graduated from TWU within one to five years ago, and 19.7% reported graduating between six and ten years ago. The majority of the respondents (44.9%) have been employed as a dental hygienist from one to five years, and 19.7% reported employment for six to ten years. The highest degree obtained by most respondents (92.9%) was the baccalaureate. That degree for most (89.8%) was in dental hygiene with other respondents (10.2%) with degrees in other areas. Tables 3 and 4 present years since graduation, years employed, highest degree obtained, and highest degree in dental hygiene.

Respondents were asked five questions regarding the future educational needs of TWU graduates. If a master's degree in dental hygiene were offered at TWU, 21%

Table 3

Demographics

	Frequency	Percent
<b>Years since graduation</b>		
1-5 years	63	49.6%
6-10 years	25	19.7%
11-15 years	22	17.3%
16-20 years	9	7.1%
21 plus	8	6.3%
<b>Total</b>	<b>127</b>	<b>100%</b>
<b>Years Employed:</b>		
1-5 years	57	44.9%
6-10 years	25	19.7%
11-15 years	24	18.9%
16-20 years	11	8.7%
21 plus	10	7.9%
<b>Total</b>	<b>127</b>	<b>100%</b>

Table 4

Degrees in Dental Hygiene

	Frequency	Percent
<b>Highest Degree Obtained:</b>		
Baccalaureate	118	92.9%
Master's	6	4.7%
Doctorate	2	1.6%
<b>Total</b>	<b>126</b>	<b>99.2%</b>
<b>Highest Degree in Dental Hygiene:</b>		
Yes	114	89.8%
No	13	10.2%
<b>Total</b>	<b>127</b>	<b>100%</b>

Note. One person did not answer the highest degree obtained. When entering the data the answer was coded as undecided which accounts for the difference in frequency and percent.

of the respondents said that they would pursue the graduate degree. When asked why they would pursue a dental hygiene master's degree the commonly occurring themes in responses were: (a) advance the dental hygiene profession and further personal education, (b) location, and (c) teaching purposes. Forty percent of the respondents reported that they would not pursue a master's degree in dental hygiene. The common occurring themes in responses when asked why included: (a) broader subjects, (b) diversity, (c) limitations need to be considered, (d) family responsibility, (e) time, (f) money, (g) age, (h) location and commute, and (i) currently pursuing or have a master's degree. Thirty-eight percent reported uncertainty because of (a) interests in other fields, (b) money and limited time, and (c) unsure of need.

When the respondents were asked how many dental hygienists they knew that would be interested in pursuing a master's degree the total reported was 55. The majority (74.8%) of the respondents were not aware of other dental hygienist's who were or might be interested in a master's degree in dental hygiene at TWU. Twenty-four percent were aware of dental hygienists who might be interested in a master's degree in dental hygiene at TWU.

If a master's degree had been available in the past at TWU 28.3% of respondents reported that they would have pursued it. Reasons reported by the respondents included: (a) personal goals, (b) further education and opportunity, (c) location, and (d) continued in school after completing bachelors degree. Thirty-five percent of the respondents would not have pursued a master's degree at TWU if it had been available in the past. Common reasons given for not pursuing a master's degree in the past included: (a) not necessary in

clinical practice, (b) difficult restrictions in Texas, (c) just finished school, and (d) time and money. Thirty-five percent of the respondents were uncertain if they would have pursued a master's degree in the past. The reasons cited were time involved and recent graduation (see Table 5 in text).

The respondents were asked what type of dental or interdisciplinary courses they would like to see offered in a master's degree in dental hygiene the most common response was business (49.6%) followed by computer science (41.7%), community health, (41.7%) geriatrics (41.7%), communication (36.2%), nutrition (33.9%), psychology (29.9%), and other (11%). Other suggestions included advanced study of medically compromised patients, education, alternative medicines, and management( see Table 6 in text).

The majority of the respondents (92.9%) report that they are currently working in the clinical field of dental hygiene. Seven percent reported working in other areas which include management, public health, hospitals, school health, business, and sales.

Respondents were asked three questions regarding the desire to pursue a higher education degree. When asked if they would be likely to change their career in the next five years, 22.8% responded that they would change careers. The most common reasons cited were the physical demands, stress and burn out of dental hygiene, and currently looking the change careers. The respondents answering no (58.3%) they would not change their career, stated reasons such as: (a) love dental hygiene, (b) family responsibilities, and (c) salary too good. Eighteen percent of the respondents reported

being uncertain if they would change careers. The most common reasons included unsure of personal future and depends on the preceptorship issue in Texas (see Table 7 in text).

The respondents were asked the reasons they would pursue a master's degree and the most common reasons cited were personal goals (65.4%) followed by enhancement of skill level. Other stated reasons to pursue a master's degree were to reduce physical pain, credentials, liaison with specialists, to teach and career flexibility (see Table 8 in text).

Finally, the respondents were asked if they thought obtaining a graduate dental hygiene degree would be an effective way to increase their career opportunity. Fifty-seven percent of the respondents believed that obtaining a graduate degree in dental hygiene would increase their career opportunities. The reasons cited included (a) more opportunities would be available, (b) teaching opportunities, and (c) personal goals. Twenty-five percent of the respondents believed that obtaining a graduate degree in dental hygiene would not increase their career opportunities. Reasons cited included (a) no increase in clinical salary, (b) little respect from the dental community in Texas, and (c) focus of degree too narrow. Seventeen percent of the respondents reported being uncertain if obtaining a graduate dental hygiene degree would be an effective way to increase their career opportunity. The most common reasons cited were that a M.S.D.H. does not make a difference in the job market and is not currently a requirement to work in the various dental hygiene disciplines. A second reason cited was that increased salary opportunities may not present themselves with a M.S.D.H. Respondents stated that currently there is no difference between salaries earned by an associate degree dental hygienists and hygienists with a baccalaureate degree.

Table 5

Future Educational Needs of TWU Graduates

	Frequency	Percent
<b>Would you pursue a M.S.D.H. at TWU if it was offered?</b>		
Yes	27	21.3%
No	51	40.2%
Uncertain	49	38.6%
<b>Total</b>	<b>127</b>	<b>100%</b>
<b>Other dental hygienists interested in master's degree at TWU?</b>		
Yes	31	24.4%
No	95	74.8%
Uncertain	1	0.8%
<b>Total</b>	<b>127</b>	<b>100%</b>
<b>If a M.S.D.H. been available in the past would you have pursued it?</b>		
Yes	36	28.3%
No	45	35.4%
Uncertain	45	35.4%
<b>Total</b>	<b>126</b>	<b>99.1%</b>

Note. One person did not answer the above question which accounts for a different total.



Table 6

Interest in Interdisciplinary Courses for Dental Hygiene Master's Degree

	Frequency	Percent
Business	63	49.6%
Computer Science	53	41.7%
Community Health Education	53	41.7%
Geriatrics	53	41.7%
Communication	46	36.2%
Nutrition	43	33.9%
Psychology	38	29.9%
Other	14	11.0%

Table 7

Desire to Pursue Higher Education Degree

	Frequency	Percent
<b>Are you likely to change your career in the next 5 years?</b>		
Yes	29	22.8%
No	74	58.3%
Uncertain	24	18.9%
<b>Total</b>	<b>127</b>	<b>100%</b>
<b>Obtaining a graduate degree in dental hygiene would increase your career opportunity?</b>		
Yes	73	57.5%
No	32	25.2%
Uncertain	22	17.3%
<b>Total</b>	<b>127</b>	<b>100%</b>

Table 8

Reasons to Pursue a Master's Degree in Dental Hygiene

	Frequency	Percent
Personal Goal	83	65.4%
Enhancement of skill level	57	44.9%
Higher Salary	38	39.9%
Job Requirement	27	21.3%
Other	20	15.7%

## CHAPTER V

### SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains a summary of the study and a discussion of the results and their interpretation and implications. In addition, conclusions and recommendations are presented.

#### Summary

This study consisted of a descriptive survey of dental hygienists who graduated from Texas Woman's University Department of Dental Hygiene conducted during the spring 2000 semester. All graduates of the program were asked to participate. Completed questionnaires were received from 127 of the 263 packets mailed, making a response rate of 48%. The questionnaire was designed to obtain information about demographics, future educational needs of TWU graduates, and desire to pursue a higher education degree.

The majority of the respondents (49.6%) graduated from TWU within one to five years with 44.9% employed as a dental hygienist from one to five years. The highest degree obtained, baccalaureate, was held by 92.9% of respondents and that degree was obtained in dental hygiene by 89.8%. If a master's degree were offered at TWU only 21.3% of respondents reported that they would pursue the graduate degree and many

(74.8%) were not aware of other dental hygienists's interested in a master's degree. If a master's degree had been available in the past, 28.3% of respondents would have pursued it. The majority of the respondents (92.9%) are currently working in the clinical field of dental hygiene. The respondents listed business (49.6%) as the most common interdisciplinary course they would like to see offered in a master's degree program. Twenty-two percent of respondents reported that they were likely to change their careers in the next five years. The respondents listed personal goal (65.4%) as the main reason to pursue a master's degree. Finally, 57.5% of the respondents believed that obtaining a graduate degree in dental hygiene would increase their career opportunities.

### Discussion

According to demographic data the majority of the respondents had graduated within one to five years. This may document a closer alliance with TWU among newer graduates, however it probably represents a higher likelihood of retrieving current addresses for them. The dental hygienists who responded have been continuously employed for one to five years. This demonstrates that dental hygienists are able to find current and continued employment upon graduating from TWU. The highest degree obtained by most respondents was a baccalaureate because the investigator surveyed only dental hygiene graduates from a baccalaureate program. Only 4.7% of TWU dental hygiene respondents had obtained master's degrees and 1.6% doctorates. This finding is consistent with that of Jevack, Wilder, Mann, and Hunt (1999). Their study documented a maldistribution of graduate dental hygiene programs west of the Mississippi River. The opening of new graduate programs would assist in barriers to education such as location

and length of commute. Increasing the number of dental hygienists with advanced degrees would strengthen the profession (Jevack et al., 1999). Most TWU dental hygiene respondents who held bachelor degrees held them in the discipline of dental hygiene.

Approximately 21% of TWU respondents reported that they would pursue a master's degree in dental hygiene at TWU. Although this percentage is surprisingly low, 21% of the 127 respondents would be 25 students which is an excellent number to start a graduate program if all would attend. The reasons for pursuing a masters's degree are important because many of the respondents believed that a master's degree would advance the dental hygiene profession and increase career opportunities. This supports Jevack's 1999 findings that although an adequate number of dental hygienists contribute to the profession there is need for more growth if dental hygiene is to become a true profession. The fact that approximately 40% of the respondents reported that they would not pursue a master's degree at TWU may show that if a masters degree were offered it would need to be flexible. The respondents suggested that breadth of subjects, diversity of students, level of family responsibilities, time, money, and age are issues in their consideration of pursuing further education. The fact that approximately 38% of the respondents were uncertain if they would pursue a master's degree at TWU may show that if a master's degree were offered it would need to be marketed to this population. If half of the 38% uncertain respondents would attend that would increase the student population by 24 more students and make a total graduate student population of 48.

Another important finding is that almost 30% of respondents reported that if TWU had offered a master's degree in dental hygiene in the past, they would have pursued

it. Many of the respondents suggested that this would have fulfilled personal goals of furthering education and opportunity, and, that they would have continued in school at an earlier time in their lives. Because of the continued growth of undergraduate dental hygiene programs across the country, the expansion of graduate dental programs will be necessary to staff these programs (Jevack et al., 1999). Several of the respondents believed that TWU is also in an excellent position to offer such a graduate program because of the strong undergraduate dental hygiene program already in place. This could become a feeder program into the master's program and open the doors for students and future educators.

A significant finding is that almost 60% of the respondents believed that obtaining a graduate degree in dental hygiene would increase their career opportunities. In general, the respondents believed their overall and teaching opportunities would increase if they obtained a graduate degree in dental hygiene. This data shows that if the opportunity were available, a majority of the TWU graduates who said they desired a graduate degree would pursue it for personal reasons. This supports the research done by Wilder, Mann and Tishk (1999) that graduate dental hygiene programs broaden dental hygienists career opportunities they are not sufficient in number to meet the expanding need.

Some dental hygienists (22 %) reported that they would be likely to change careers in five years because of physical demands of the job, and stress and burnout from clinical practice. The small number reporting this might have done so because they had only been practicing dental hygiene for one to five years. The majority of the respondents reported that they would not change careers in the next five years because of passion for

the profession, family responsibilities, and good salary. This would indicate barriers dental hygienists would need to overcome before returning to school.

### Conclusions

The results of this needs assessment questionnaire suggest that the majority of the TWU dental hygiene graduates believe a graduate degree in dental hygiene would increase career opportunities. Their primary reasons to pursue a master's degree are personal goal, enhancement of skill, and advancement of career. If a graduate degree were offered at TWU, the respondents would like to have a variety of courses to choose from and would need flexible and creative scheduling. This supports the research done by Long and Mobley (1999) which discusses the use of an interdisciplinary teaching approach. The fact that there are several undergraduate and associate degree programs opening nationwide (Ring 1999) puts TWU in an ideal position to open a graduate program.

### Recommendations

The results of this study help to identify areas needing further study. The barriers a dental hygienist will need to overcome to pursue a master's degree will need to be addressed by providing a mentor or faculty liaison to the returning non traditional student. If TWU were to offer a master's degree in dental hygiene the scheduling, location, and commute will need to be addressed. Therefore, if a master's degree were offered more research will need to be done on the types of courses to be offered, when and how to implement the program.



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## Appendix A

### Human Subjects Review Committee Approval

# TEXAS WOMAN'S UNIVERSITY

DENTON / DALLAS / HOUSTON

HUMAN SUBJECTS  
REVIEW COMMITTEE  
P.O. Box 425619  
Denton, TX 76204-5619  
Phone: 940/898-3377  
Fax: 940/898-3416

January 4, 2000

Ms. Deborah Testerman  
2177 W. Blackjack Rd.  
Aubrey, TX 76227

Social Security # 393-66-0237

Dear Ms. Testerman:

*Re: Dental Hygiene Master's Degree Need Evaluation*

The above referenced study has been reviewed by a committee of the Human Subjects Review Committee and appears to meet our requirements in regard to protection of individuals' rights.

Be reminded that both the University and the Department of Health and Human Services (HHS) regulations typically require that agency approval letters and signatures indicating informed consent be obtained from all human subjects in your study. As applicable to your study, these consent forms and agency approval letters are to be filed with the Human Subjects Review Committee at the completion of the study. However, because you do not utilize a signed consent form for your study, the filing of signatures of subjects with the HSRC is not required.

Your study was determined to be exempt from further TWU HSRC review. However, another review by the Committee is required if your project changes. If you have any questions, please feel free to call the Human Subjects Review Committee at the phone number listed above.

Sincerely,



Dr. Linda Rubin, Chair  
Human Subjects Review Committee - Denton

cc. Dr. Susan Ward, Department of Health Studies  
Graduate School

Appendix B

Faculty Validation Packet

2177 W. Blackjack Rd.

Aubrey, TX 76227

January 30, 2000

Dear \_\_\_\_\_,

I would like you to please complete the validation packet for the Dental Hygiene Master's Degree Need Assessment Survey. To establish content validity I have chosen the faculty members at Texas Woman's University/Collin County Community College as my experts in the field of dental hygiene. The validation packet will take only a few minutes of your time. There are 10 questions concerning demographics, pursuit of a master's degree, and educational courses. Please return these forms to me in the enclosed pre addressed, stamped envelope by Friday February 11, 2000. I will be happy to answer any questions you may have. You can contact me at 940-365-2650 (home). Thank you for your time, encouragement, and assistance in this validation process.

Sincerely,

Deborah L. Testerman, R.D.H., B.S.



**VALIDATION PACKET FOR DENTAL HYGIENE  
MASTER'S DEGREE NEED ASSESSMENT SURVEY**

The following instrument was developed by the investigator and it will be necessary to establish content validity through a series of procedures. To guide these procedures, the following definition of content validity was accepted: "measure of survey accuracy that involves formal review by individuals who are experts in the subject matter of a survey" (Litwin, 1995, p.82). The criteria established to guide the selection of dental hygiene faculty will be (a) has taught at least two years in dental hygiene and (b) has taught at the university or community college level. Reviewer, please complete the following validation packet and return the completed form in the enclosed self-addressed stamped envelope by February 11, 2000.

Thank you, Deborah L. Testerman R.D.H., B.S.

---

**Demographics**

Each of the following questions discuss the current demographics of former Texas Woman's University Dental Hygiene graduates. Please evaluate each statement for content validity. Circle "Yes" if the item will enable us to achieve the purpose "No" if the item does not achieve the purpose and please note if the item needs rewording.

**1. How may years has it been since you graduated from TWU?**

**A. 1-5 years**

**C. 11-15 years**

**E. 21 plus years**

**B. 6-10 years**

**D. 16-20 years**

Yes, the item will achieve the purpose.

No, the item does not achieve the purpose.

Does the item need rewording? If so please specify \_\_\_\_\_

**2. How long have you been practicing dental hygiene?**

**A. 1-3 years**

**D. 11-14 years**

**G. 22 plus years**

**B. 4-6 years**

**E. 15-18 years**

**C. 7-10 years**

**F. 19-21 years**

Yes, the item will achieve the purpose

No, the item does not achieve the purpose

Does the item need rewording? If so please specify. \_\_\_\_\_

\_\_\_\_\_

**3. What is the highest degree you hold?**

**A. Baccalaureate**

**B. Master's**

**C. Ph.D**

Yes, the item will achieve the purpose

No, the item does not achieve the purpose

Does the item need rewording? If so please specify. \_\_\_\_\_

\_\_\_\_\_

**4. Do you hold this highest degree in dental hygiene? If not, please specify area.**

**Yes**

**No**

---

Yes, the item will achieve the purpose

No, the item does not achieve the purpose

Does the item need rewording? If so please specify. \_\_\_\_\_

---

**5. What type of position do you hold?**

**A. Clinical**

**B. Management**

**C. Other, please specify** \_\_\_\_\_

Yes, the item does achieve the purpose

No, the item does not achieve the purpose

Does the item need rewording? If so please specify. \_\_\_\_\_

---

**Comments:**

### **Desire to Pursue a Higher Education Degree**

Each of the following items questions the participants desire to pursue a higher education degree.

#### **1. Why would you pursue a master's degree?**

**A. Job requirement**

**D. Higher salary**

**B. Personal goal**

**E. Other, please list** \_\_\_\_\_

**C. Enhancement of skill level**

Yes, the item does achieve the purpose

No, the item does not achieve the purpose

Does the item need rewording? If so please specify. \_\_\_\_\_

\_\_\_\_\_

#### **2. Are you likely to change your career in the next 5 years?**

**Yes, why?** \_\_\_\_\_

**No, why?** \_\_\_\_\_

Yes, the item does achieve the purpose.

No, the item does not achieve the purpose.

Does the item need rewording? If so please specify. \_\_\_\_\_

\_\_\_\_\_

**3. Do you believe that people who obtain a graduate dental hygiene degree will increase their career opportunities?**

**Yes, why?** \_\_\_\_\_

**No, why?** \_\_\_\_\_

Yes, the item does achieve the purpose.

No, the item does not achieve the purpose.

Does the item need rewording? If so please specify. \_\_\_\_\_

**Comments:**

### **Future Educational Needs of TWU Graduates**

Each of the following items questions the participants perceptions of educational needs at TWU.

**1. If a dental hygiene master's degree were offered at TWU would you pursue it?**

**Yes, why?** \_\_\_\_\_

**No, why?** \_\_\_\_\_

Yes, the item does achieve the purpose.

No, the item does not achieve the purpose.

Does the item need rewording? If so please specify. \_\_\_\_\_

**2. Do you know of other dental hygienists who have not previously studied at TWU who might be interested in a master's degree at TWU?**

**Yes**

**NO**

Yes, the item does achieve the purpose.

No, the item does not achieve the purpose.

Does the item need rewording? If so please specify. \_\_\_\_\_

**3. What type of dental or interdisciplinary courses would you like to see offered in a master's degree in dental hygiene? Circle your top three preference areas.**

**A. Business**

**F. Geriatrics**

**B. Communication**

**G. Counseling**

**C. Computer**

**H. Nutrition**

**D. Health Education**

**I. Other, please list** \_\_\_\_\_

**E. Diversity, Special Needs** \_\_\_\_\_

Yes, the item does achieve the purpose.

No, the item does not achieve the purpose.

Does the item need rewording? If so please specify. \_\_\_\_\_

**Comments:**

Appendix C

Dental Hygiene Master's Degree Need

Assessment Survey

(DHMDNAS)

**DENTAL HYGIENE MASTER'S DEGREE NEED ASSESSMENT SURVEY****(DHMDNAS)**

"I understand that the return of my completed questionnaire constitutes my informed consent to act as a subject in this research."

**DEMOGRAPHICS**

**1. How many years has it been since you graduated from TWU?**

**A. 1-5 years**

**C. 11-15 years**

**E. 21 plus years**

**B. 6-10 years**

**D. 16-20 years**

**2. How long have you been employed as a dental hygienist including full and part-time employment?**

**A. 1-5 years**

**C. 11-15 years**

**E. 21 plus years**

**B. 6-10 years**

**D. 16-20 years**

**3. What is the highest degree you have obtained?**

**A. Baccalaureate**

**B. Master's**

**C. Doctorate Specify degree: \_\_\_\_\_**

**4. Have you obtained this highest degree in dental hygiene?**

**Yes**

**No**

**If not, in what disciplines (areas of study) have you obtained your degree(s)?**

\_\_\_\_\_



**Future educational needs of TWU graduates:**

**1. If a master's degree in dental hygiene (M.S.D.H.) were offered at TWU, would you pursue it?**

Yes, why? \_\_\_\_\_

No, why not? \_\_\_\_\_

Uncertain, why? \_\_\_\_\_

**2. Are you aware of dental hygienists who graduated from other dental hygiene programs who might be interested in a master's degree in dental hygiene (M.S.D.H.) at TWU?**

Yes

No

If yes, how many? \_\_\_\_\_

**3. If a dental hygiene master's degree (M.S.D.H.) had been available in the past at TWU, would you have pursued it?**

Yes, why? \_\_\_\_\_

No, why not? \_\_\_\_\_

Uncertain, why? \_\_\_\_\_

**4. What type of dental or interdisciplinary courses would you like to see offered in a master's degree in dental hygiene? Circle your top three preference areas/**

**A. Business**

**D. Community Health Education**

**B. Communication**

**E. Geriatrics**

**G. Nutrition**

**C. Computer Science**

**F. Psychology**

**H. Other, please list**

5. Are you presently working in the field of dental hygiene?

Yes

No

If yes, please answer the following: What type of position do you hold?

A. Clinical

E. Insurance

I. Business/Sales

B. Management

F. Hospitals

J. Research

C. Public Health

G. School health

K. Other \_\_\_\_\_

D. Nursing Homes

H. Education

Desire to pursue a higher education degree:

1. Are you likely to change your career in the next 5 years?

Yes, why? \_\_\_\_\_

No, why? \_\_\_\_\_

Uncertain, why? \_\_\_\_\_

2. What are the reasons you would pursue a master's degree?

A. Job requirement

D. Higher salary

B. Personal goal

E. Other, please list \_\_\_\_\_

C. Enhancement of skill level

F. Comments \_\_\_\_\_

3. Do you believe that people who obtaining a graduate dental hygiene degree (M.S.

D. H.) would be an effective way to increase your career opportunity?

Yes, why? \_\_\_\_\_

Uncertain, why? \_\_\_\_\_

No, why? \_\_\_\_\_

## Appendix D

### Cover Letter

# TEXAS WOMAN'S UNIVERSITY

DENTON / DALLAS / HOUSTON

2177 W. Blackjack Rd  
Aubrey, TX. 76227  
March 1, 2000

DEPARTMENT OF HEALTH STUDIES  
College of Health Sciences  
P. O. Box 425499  
Denton, TX 76204-5499  
Phone: 940/898-2860

Dear TWU Dental Hygiene Alumnae:

The demand for dental hygienists nationwide is increasing. To meet this need, dental hygiene education must be evaluated. The challenges of complicated medical histories and an increasingly diverse populations are common in the practice of dental hygiene. These challenges require dental hygiene educators to enhance their academic qualifications thus creating a need for advanced degrees for the future of dental hygiene. I would like you to participate in an assessment of the need for offering a master's degree in dental hygiene at TWU.

The questionnaire will take only a few minutes of your time and participation is voluntary. There are 12 questions concerning demographics, pursuit of a master's degree, and educational courses. Please return these forms if you choose to participate in the enclosed pre-addressed, stamped envelope within one week of receiving them. If you do not wish to participate, please return the blank survey to me.

All return envelopes have been coded for confidentiality and follow-up purposes. No participant will be identified by name. All resulting data will be reported by group information. Your return of the completed survey will constitute your informed consent to participate in this study. If you wish to receive results of the study please complete the enclosed address form and return it with your questionnaire. I will send results upon completion of the study.

This study is being completed as part of the requirement for my master's degree in Health Studies from the Texas Woman's University. I will be happy to answer any questions you may have. You may contact me at 940-365-2650 (home). Thank-you for your time and assistance in this study.

Sincerely,



Deborah L. Testerman, R.D.H., B.S.

## Appendix E

### Second Mailing Post Card Script

March 13, 2000

Dear TWU Dental Hygiene Alumnae:

I sent a questionnaire regarding an assessment of the need for offering a master's degree in dental hygiene at TWU two weeks ago and have not yet heard from you. As you can appreciate, it is important that I obtain response from everyone possible. The questionnaire was sent the first of March and it would be most helpful if you could take 10 minutes to give your opinions on the information requested. The study is part of my master's thesis. If you have already returned the questionnaire, thank you for your participation and please disregard.

If you have questions, please contact me at (940) 365-2650.

Thank you so much for your cooperation.

Sincerely,

Deborah L. Testerman, R.D.H., B.S.