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EFFECTS OF A LEGISLATIVE ADVOCACY EDUCATIONAL UNIT ON DENTAL HYGIENE STUDENTS' AND ALUMNI

by

Leciel Bono

A thesis

submitted in partial fulfillment

of the requirements for the degree of

Master of Science in Dental Hygiene

Idaho State University

May 2015

Committee Approval

To the Graduate Faculty:

The members of the committee appointed to examine the thesis of LECIEL BONO find it satisfactory and recommend that it be accepted.

_____
Ellen J. Rogo, RDH, PhD
Major Advisor

_____
Kathleen Hodges, RDH, MS
Committee Member

_____
Alan C. Frantz, PhD
Graduate Faculty Representative

Idaho State
UNIVERSITY

Office for Research Integrity
921 South 8th Avenue, Stop 8046 • Pocatello, Idaho 83209-8046

October 28, 2014

Leciel Bono
MS 8048
Dental Hygiene
Pocatello, ID 83209

RE: Your application dated 10/28/2014 regarding study number 4177: Effects of a Legislative Advocacy Project On Sustained Advocacy Project on Sustained Advocacy Actions with Alumni Dental Hygiene Students

Dear Ms. Bono:

I agree that this study qualifies as exempt from review under the following guideline: 2. Anonymous surveys or interviews. This letter is your approval, please, keep this document in a safe place.

Notify the HSC of any adverse events. Serious, unexpected adverse events must be reported in writing within 10 business days.

You are granted permission to conduct your study effective immediately. The study is not subject to renewal.

Please note that any changes to the study as approved must be promptly reported and approved. Some changes may be approved by expedited review; others require full board review. Contact Tom Bailey (208-282-2179; fax 208-282-4723; email: humsubj@isu.edu) if you have any questions or require further information.

Sincerely,

Ralph Baergen, PhD, MPH, CIP
Human Subjects Chair

Acknowledgement

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To Kathleen, thank you for encouraging me to serve on the Idaho Dental Hygienists' Association Practice & Regulations Committee. You have been instrumental in encouraging my advocacy endeavors and have provided exemplary leadership examples in this arena. Thank you for your support, time, and suggestions in the development of this thesis.

To Dr. Frantz (with a "t"), thank you for your sense of humor and for correcting all my comma insertions. I appreciate your time, support, input, and educational insights into the Legislative Advocacy Educational Unit. Your APA "eyes" were invaluable to this project.

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Abstract

EFFECTS OF A LEGISLATIVE ADVOCACY EDUCATIONAL UNIT ON DENTAL HYGIENE STUDENTS' AND ALUMNI

Thesis Abstract – Idaho State University 2015

This two-fold study investigated whether a Legislative Advocacy Educational Unit (LAEU) integrated into entry-level (n=25) and graduate (n=13) dental hygiene education influenced students' pretest/posttest knowledge, values, and actions. The second part examined undergraduate (n=112) and graduate alumni (n=40) experiences in legislative advocacy, barriers encountered, engagement factors, and mentorship of organizations. Data were analyzed using descriptive statistics, parametric and non-parametric tests, and qualitative analysis.

RM-ANOVA results yielded a statistically significant interaction except for MS pre/post actions. Mann-Whitney U yielded significant interaction between graduate and undergraduate alumni regarding frequency of subscribing to online listserv, contacting political representatives, and advocating for legislation. Inductive analyses yielded themes of: collective efforts, advocacy commitment, mentoring experiences, and competing priorities.

The LAEU positively influenced students' advocacy knowledge, values, and actions. Graduate alumni were more active in searching for advocacy information, contacting legislators, and engaging in advocacy. Emergent themes provided valuable insights into engaging and encouraging advocacy actions.

Chapter 1 Introduction

Introduction

Legislative advocacy provides an avenue through which oral health disparities and alternative methods to providing oral health care to underserved populations can be addressed. Teaching and providing advocacy experiences to Bachelor of Science (BS) and Master of Science (MS) students provides such a pathway for the promotion of oral health in all populations. This investigation includes a replication of a previous study by Rogo, Bono, and Peterson (2014), in which BS and MS dental hygiene students were surveyed to assess the link between leadership theory and practice as they followed a health care bill through the legislative process. BS and MS participants in the previous study completed a seven-week legislative advocacy project that involved assessment, planning, implementation, and evaluation strategies. Based on the positive findings of the advocacy study conducted by Rogo et al. (2014) and suggestions for future research, this investigation builds upon the previous data obtained by utilizing the same advocacy unit with dental hygiene BS and MS 2014 students enrolled in a leadership course at Idaho State University. In addition, a new self-designed alumni questionnaire was added to survey BS and MS graduates on the implementation of advocacy actions after graduation, barriers encountered, factors that would encourage legislative advocacy participation, and the mentorship roles of the state professional association in health policy advocacy.

Oral health is an integral component of physical well-being and mirrors systemic body health. However, oral diseases such as periodontal disease, dental caries, cancer, and oral manifestations of chronic systemic diseases such as diabetes and human immunodeficiency virus (HIV) are prevalent worldwide, cross all social boundaries, and

have no age preferences (Petersen, Bourgeois, Ogawa, Estupinan-Day & Ndiaye, 2005). The impact of these oral diseases on individuals and communities is extensive resulting in pain, suffering, reduced quality of life, inability to eat leading to nutritional deficiencies, diminished social confidence, and decreased self-esteem along with absenteeism from work and school (Petersen et al., 2005; U. S. Department of Health and Human Services [USDHHS], 2000a, 2010; Watt, 2005). Although advances in oral health have improved and oral disease is mostly preventable, oral health inequalities have emerged as lower income and socially disadvantaged groups experience higher levels of disease (Petersen, 2003). According to Wall and Nasseh (2013), dental-related emergency room visits have doubled over the past decade to a staggering two billion dollars per year. In order to confront these disparities, determinants of health need to be addressed along with alternative solutions in providing oral health care to underserved populations (Petersen, 2009; USDHHS, 2000b, 2010; Watt, 2005).

Oral health determinants are complex intertwining threads of behavioral, social, cultural, biological, genetic, economical, and political factors. To further dissect oral health disparities dispersed throughout these intricately woven threads, three plateaus of health determinants exist: micro, mesio, and macro. These plateaus create the ecology of health utilized by individuals, communities, populations, and oral health care providers (Committee on Assuring Health of the Public, 2000). Micro or downstream health determinants focus on an individual's healthy and unhealthy behaviors with an emphasis on genetic and biological factors. Mesio or midstream health determinants are concerned with the living and working environment of the individual. Income, education, social status, family, and community and social support groups are key players at this level

(Minister of Public Works & Governmental Services Canada, 2003). Access to health care also plays an additional role at the mesio level. Macro-level or upstream interventions are directed towards policy formulation and changes on a federal or state level (see Figure 1).

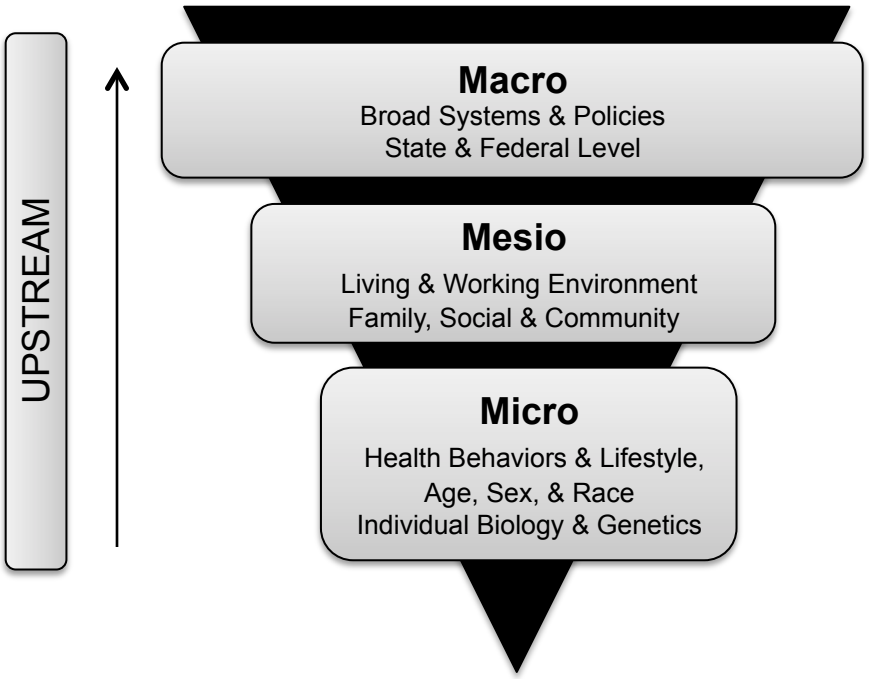


Figure 1. A schematic drawing that shows the expansion of oral health determinants from a micro health focus to a broad system macro emphasis. Adapted from the Institute of Medicine (2003). *Health professional education: A bridge to quality*. Washington, D. C.: The National Academies Press.

Conventional oral health care has traditionally operated at the micro or downstream level in providing patient education and clinical services to influence individual behavioral changes (Sheiham & Watt, 2000; Watt, 2007). Although this approach has been useful in addressing individual oral health determinants, a paradigm shift is needed to address upstream or macro-level oral health disparities and the maintenance of sustainable oral population health in the U. S. (Tomar & Cohen, 2010; Watt, 2007). To acknowledge these concerns, oral health strategies need to be directed

toward political awareness, oral-health policy changes, and sustained advocacy actions in upstream or macro-level interventions (Gehlert, Sohmer, Sacks, Mininger, McClintock, & Olopade 2008; Tomar & Cohen, 2010; Watt, 2007). Support from community organizations and governmental agencies and collaboration among interprofessional teams are key components for successful macro-level interventions (Minister of Public Works & Governmental Services Canada, 2003).

Upstream or macro-level legislation and acknowledgment of health disparities have been addressed by health and governmental agencies such as the Office of the U.S. Surgeon General, the World Health Organization (WHO), and more recently by the Patient Protection and Affordability Care Act (ACA). The U. S. Surgeon General's landmark report in 2000 acknowledged oral-systemic health links and the need to address oral health disparities. Changing policymakers' perceptions and increasing oral health awareness about oral-systemic disease prevention, promotion of oral health programs, and reimbursement strategies were recommended. The report encouraged contact with legislators, organizations, affiliations, and governmental offices at all levels for oral health policy formulation (USDHHS, 2000a). The sixtieth WHO assembly addressed social oral health determinants as well as integrating oral and chronic disease prevention programs (Petersen, 2009). Increasing the practice scope of oral care providers, such as dental hygienists, to create an equitable distribution of oral health services was recommended by the assembly (Petersen, 2009). The primary goal of the ACA is to increase Medicaid health benefits and create an exchange where uninsured individuals can access private insurance coverage (Bill H. R. 3590-111th, 2009). Although this act is primarily geared towards medical care, according to Faiella (2013), an estimated

additional three million children will have access to private dental insurance. Currently there are no provisions to provide dental services to adults in the ACA (Bill H. R. 3590-111th, 2009); however, if adult Medicaid services are expanded, as many states have considered, it has the potential to deliver oral health care to an estimated 4.5 million underinsured adults (Faiella, 2013). The state of Idaho recently proposed legislation to reinstate adult Medicaid dental coverage due to the increased cost of dental-related emergency room services from $30,000 per month in 2011 to $65,000 per month in 2014 (Russell, 2014). It is estimated that an additional 126,000 adults will have access to Medicaid benefits through the ACA in Idaho this year (Yarbrough, Vujicic, & Nasseh, 2014).

Macro-level oral health legislation, such as those mentioned above, have the potential to filter down and positively influence mesio and micro health determinants (Institute of Medicine [IOM], 2003). According to Robertson (2004), health professionals need to be educated in the advocacy and management of community and population health resources. Rogo et al. (2014) acknowledged advocacy and leadership as avenues to teach Bachelor of Science degree and Master of Science degree dental hygiene students political knowledge, values, and "advocacy action" (p. 550). Together these skills provide the framework for preparing dental professionals to become advocates and leaders in macro-level legislation, thereby influencing oral health population resources and providing avenues to educate policymakers so effective oral health policy formulation and program implementation can be initiated (Rogo et al., 2014; USDHHS, 2000a).

Advocacy is not foreign to oral health professionals and has established roots in professional preambles, ethics, and research agendas. One of the primary objectives of the dental hygiene and dental professional associations is the promotion and improvement of public health (American Dental Association [ADA], 2012; American Dental Hygienists' Association [ADHA], 2014; Canadian Dental Hygienists' Association [CDHA], 2012; International Federation of Dental Hygienists' [IFDH], 2004). With the advancement of oral health care on a global level, creating oral health advocacy curricula becomes paramount for creating future leaders in oral health legislation and population health.

While dental hygiene and dental literature regarding advocacy curricula is limited, the nursing profession has recognized the importance of macro-level legislation and incorporating advocacy projects into the professional curriculum. The literature in the field of professional nursing provides an array of examples of leadership, political advocacy, and legislative instruction at the bachelor's and master's levels of education. Advocacy courses in nursing have applied active and experiential learning strategies, which familiarize students with the legislative process. Students in these programs reported increased political awareness, political empowerment, political voice, professional development, and developed critical thinking skills needed for political competence (Byrd, Costello, Shelton, Thomas, & Petrarca, 2004; Faulk & Ternus, 2006; Magnussen, Itano, & McGuckin, 2005; Wold, Brown, Chastain, Griffis, & Wingate, 2008). As the nursing profession has demonstrated, preparing students to enter this political arena requires prudent planning of an educational curriculum that introduces

advocacy and provides a rich assortment of experiential and affective experiences in this realm.

Statement of the Problem

"Preparing dental health professionals to become advocates and leaders in macro-level legislation requires an understanding of political frameworks, the recognition that one can influence policy making, and the implementation of these skills at the undergraduate and graduate level" (Rogo et al., 2014, p. 542). This call to prepare and teach students legislative policy has been acknowledged as a key ingredient in professional political development and future advocacy initiatives (Knowles & Nocera, 2009). Although oral health issues are prevalent and costly, there is limited research regarding oral health advocacy and legislative educational strategies in dental hygiene undergraduate and graduate curricula (Knowles & Nocera, 2009; Rogo et al., 2014; Yoder & Burton, 2012). Therefore, more research is needed to determine if teaching advocacy for oral health professionals has a positive outcome in helping students understand the legislative process, recognize the ability to influence policy, and implement future advocacy actions. Additional research regarding sustained advocacy actions, deterrents in legislative efforts, and mentorship is needed to determine what factors are involved in continued or non-continued political participation after graduation.

Purpose of the Study

The purpose of this study is two-fold and builds upon previous primary research conducted at Idaho State University regarding a LAEU taught in a leadership course for dental hygiene BS students in the last semester and MS students as a core graduate course (Rogo et al., 2014). The first objective of this study is to determine the effects of a LAEU

on the knowledge, values, actions, and perceived barriers of undergraduate and graduate dental hygiene students enrolled in a leadership course during the 2014 spring semester. Undergraduate students will complete the course via real-time classroom instruction; whereas, graduate students will complete the course using an asynchronous online format.

The second objective is to describe the BS and MS alumni: (a) implementation of advocacy action; (b) barriers encountered; (c) factors encouraging advocacy participation; and (d) organization roles in health policy advocacy mentorship. Differences between MS and BS alumni frequency of actions and barriers will also be explored.

Professional Significance

The professional significance of this advocacy study acknowledges four main areas related to dental hygiene competency along with contributing to and supporting health advocacy: (a) to address the American Dental Hygienists Association's National Research Agenda and advocacy as a professional role (ADHA, 2007); (b) to recognize the American Dental Education Association competencies for undergraduate and graduate education (ADEA 2011a, 2011b) (c) to identify areas in education to help dental hygiene students develop advocacy; and (d) to address how this will impact oral health educators.

The ADHA's mission is to improve the total health of the public and answer the call of the U.S. Surgeon General's report to decrease the burden of oral health inequalities (ADHA, 2011; USDHHS, 2000a). The preamble to the ADHA's code of ethics acknowledges the dedication of the dental hygiene community to the "prevention

of disease and the promotion and improvement of the public's health" (ADHA, 2014, p. 28). Dental hygienists improve oral health through the integration of five roles as a clinician, educator, administrator, advocate, and researcher (ADHA, 2014; Darby & Walsh, 2014). Advocacy is the common denominator in promoting population oral health and is vital in addressing macro-level policy change. According to Darby and Walsh (2014), advocacy refers to the dental hygienist's role in informing and influencing legislative bodies and health agencies about oral health issues as well as protecting and supporting clients' rights and well-being. Dental hygienists, as licensed oral health care professionals, are in a unique position to provide solutions and advocate for the elimination of oral health disparities. As our current health care system moves toward a global approach to improve health outcomes, it becomes important to prepare students for future advocacy actions to address upstream population oral health determinants.

This research also supports the National Dental Hygiene Research Agenda established by the ADHA (2007) in addressing public health policy, advocacy, and legislation. Goals of this research agenda include evaluation of strategies to effectively influence health care legislation and increase access to direct dental hygiene services for underserved populations (ADHA, 2007). Education regarding advocacy is one way to introduce students to these goals and bridge the gap for future advocacy actions. The National Governors Association has recommended examining ways that the roles of a dental hygienist can be expanded to better serve disparate populations, contribute to overall population oral health, and address social health disparities (DeSanti, Feinstein, & Farrell, 2014).

Dental hygiene competency guidelines created by the American Dental Education Association (ADEA) directly addressed advocacy at both the undergraduate and graduate levels of education. Entry-level competencies in undergraduate education focus on advocating for oral health care in disparate populations (ADEA, 2011a). At the graduate level, advocacy entails understanding policy formulation, participating in the public policy process, and evaluating the legislative impact of policies on oral population health. Leadership and promotion of oral health through legislative advocacy are key educational competencies (ADEA, 2011b).

Most important, this research focuses on the knowledge, values, actions, and barriers of dental hygiene students before and after completing an LAEU at the undergraduate and graduate educational level. Sustained advocacy actions, mentorship within organizations as well as barriers and perceptions of increased advocacy involvement will be explored with alumni who completed the LAEU in a leadership course. This educational insight will help create the opportunities needed to address advocacy awareness in students, help promote upstream oral health equality in macro-level policy development, and promote continued political involvement.

This study has implications for dental hygiene educators and dental hygiene related research. The LAEU addresses teaching strategies and provides educational content that educators can utilize to teach and prepare students for legislative actions. The purpose of the LAEU is to link leadership theory to practice as students follow a health care bill through the legislative process. Helping students recognize personal values and gain political confidence are important educational objectives. Assessment strategies involve understanding legislators as policymakers and the role of organizations in health

care legislation, identification of health care bill in the current legislative session, and recognition of supportive collaborators as well as opponents to the bill. Planning strategies entail the creation of a professional mission, vision and values statements for the LAEU. A strength, weakness, opportunity, and threat (SWOT) analysis, a strategic plan, and an evidenced-based fact sheet are developed for the bill. Implementation strategies are employed to assist students in extending their knowledge of being a change agent and becoming a health professional advocate. Students initiate contact with legislators involved with the health care legislation by phone or sending letters with a self-designed evidence based fact sheet. Following the bill's progression through the legislative session will provide opportunities to develop political awareness. Reflective strategies are utilized as an evaluation mechanism as students assess the strategic plan and the outcomes as well as the positive and negative experiences of the LAEU. Changes for future advocacy endeavors are reflected upon. Findings from this investigation will contribute to the body of knowledge for effective instructional units designed to enhance student advocacy awareness and preparedness for political participation in the legislative arena. Data collected will provide valuable insights into dental hygiene related research by offering educational advocacy information that can be expanded upon, utilized, and customized by dental hygiene educational institution educators wishing to implement a LAEU.

Research Questions

Does the LAEU have a positive influence on students and alumni's legislative advocacy? Four research questions will be investigated for the descriptive portion of this investigation related to the alumni questionnaire:

1. What advocacy actions have BS and MS alumni implemented after graduation?
2. What barriers to legislative advocacy have alumni of the BS and MS dental hygiene program encountered?
3. What engagement factors would encourage advocacy action?
4. What mentorship roles have organizations provided?

Hypotheses

Three null hypotheses will be investigated related to the BS and MS student pretest/posttest questionnaire:

1. There is no statistically significant difference between the LAEU pretest and posttest of the BS 2014 class related to:
    a. Knowledge
    b. Values
    c. Actions
2. There is no statistically significant difference between the LAEU pretest and posttest of the MS 2014 class related to:
    a. Knowledge
    b. Values
    c. Actions
3. There is no statistically significant difference between the BS 2014 students and the MS 2014 students LAEU pretest and posttest related to:
    a. Knowledge
    b. Values
    c. Actions

d. Barriers

One null hypothesis will be investigated related to alumni BS and MS questionnaire:

4. There is no statistically significant difference between the BS and MS alumni responses to:
   a) Implementation of advocacy actions after graduation
   b) Barriers

Conceptual Definitions

Conceptual definitions, listed below, are provided for the variables that will be compared or used in this study.

LAEU. Legislative Advocacy Educational Unit defines the educational unit implemented in the study. This legislative advocacy unit was implemented into a 16-week leadership course and entailed a seven-week project divided into four components: assessment, planning, implementation, and evaluation (see Table 1). Students developed a final paper including appendices and figures representing the legislative advocacy projects assessment, planning, implementation, and evaluation phases. The LAEU assignment is weighted at 30% for the BS course grade and 40% of the MS course grade.

Table 1

Stages and Components of the LAEU

Stages	Components
Assessment	• The state dental hygienists' association legislative efforts • The role of the state dental hygienists' associations lobbyist • The state legislative system • Legislators as health care policy formulators • Current legislative health bills • Supportive collaborators for the chosen bill • Opponents to the legislation
Planning	• Create a professional mission, vision, and value statement for the project • Complete a SWOT analysis • Complete a Strategic Plan • Develop an evidence-based fact sheet to support or oppose legislation • Write a letter to legislators to support or oppose legislation
Implementation	• Phone or send letter and fact sheet to legislators • Follow the progress of the bill through the current legislative session • Extend knowledge of being a change agent and advocate
Evaluation	• Strategic plan outcomes for the above three stages • Effectiveness of project • Positive and negative features of the LAEU through reflection • Explain changes for future endeavors

Knowledge. In the revised Bloom's cognitive taxonomy, Anderson et al. (2001) modified the existing cognitive pyramid to exclude nouns and incorporate verbs,

indicating action at the cognitive level. The original pyramid had placed the nouns *synthesis* and *evaluation* at the top. The verbs describing these two nouns were *create* and *evaluate*; however, in the revised pyramid *create* was placed at a higher level than *evaluate* (see Figure 2).

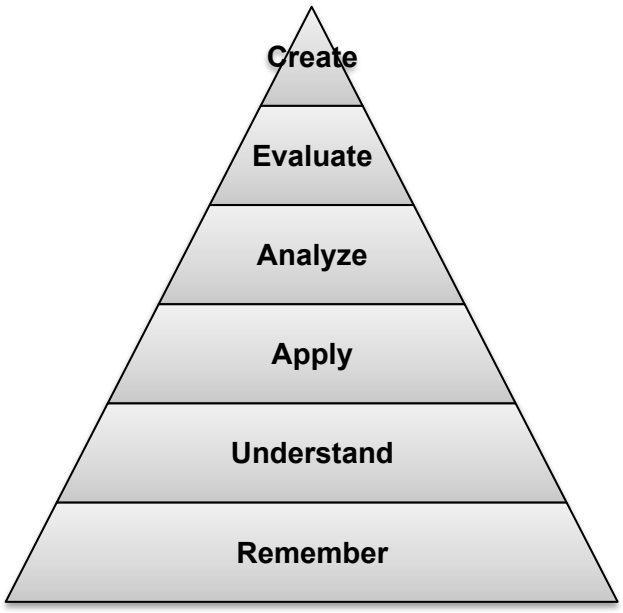


Figure 2. Anderson's and Krathwohl's changes to Bloom's cognitive pyramid. Nouns were replaced with verbs and the top two sections of the pyramid were reversed. Adapted from Anderson, L. W. (Ed.), Krathwohl, D. R. (Ed.), Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., . . . Wittroch, M.C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational Objectives*. New York: Longman.

Anderson et al. (2001) further defined the cognitive domain in four dimensions: factual, conceptual, procedural, and metacognitive. The hierarchical levels of knowledge and the four dimensions provide a two-dimensional paradigm intertwining knowledge and cognitive processes to enhance learning in this domain. In this investigation legislative knowledge is defined as cognitive functions at any of the various levels and dimensions of the Anderson et al. (2001) model. The original dimensions were expanded to include metacognition in understanding how the current legislative system functions

and how this information can be applied to legislative actions. Merriam, Caffarella, and Baumgartner (2007) described metacognition as the recognition of one's learning processes and the self-appraisal of the processes to enhance learning. The purpose of the reflection portion of the legislative advocacy paper is the metacognitive part of the course assignment.

Values. Values are defined as the principles or beliefs of an individual that are deemed important. According to Krawthwohl, Bloom, and Masia (1964), the affective domain, which focuses on the structure and sequence for developing beliefs, includes valuing as one of the key concepts (see Figure 3).

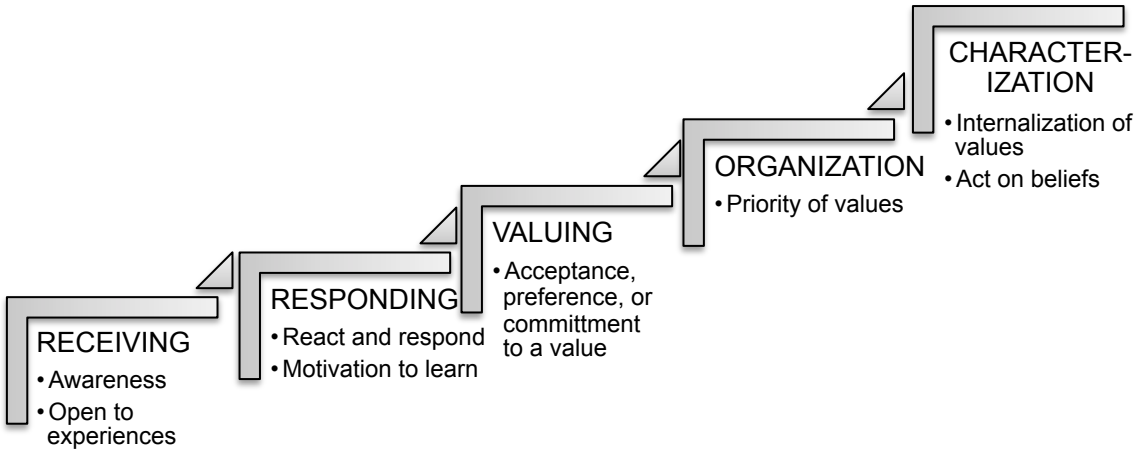


Figure 3. A schematic drawing showing the steps of learning in Bloom's, Krathwohl's, and Masia's affective domain. Learning begins at the receiving level and can continue upwards to the final step of characterization where actions are based on the internalization values. Adapted from Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1964). *Taxonomy of educational objectives, Book II. Affective domain.* New York: David McKay Company, Inc.

As described by these authors, valuing incorporates an acceptance, preference or commitment to a belief (Krathwohl et al., 1964). For purposes of this study, values are further defined in the affective domain as acceptance, preference, or commitment to

advocacy for legislative issues. Values are key components in building a foundation of legislative advocacy. Once the learner incorporates valuing, organization of the priority of the values is the next step toward reaching the uppermost level in the affective domain.

Actions. The end goal of the affective domain is for the learner to reach the highest level – characterization. Once this level is achieved, actions of the learner become based on their values. Characterization represents the uppermost level of professional development and action. Christoffel (2000) defined active advocacy as "the application of information and resources (including finances, effort and votes) to affect systemic changes that shape the way people in a community live" (Christoffel, 2000, p. 722). For the purpose of this study, actions refer to the method and manner of instigating or supporting advocacy efforts. This definition is further broadened to include raising awareness and promoting solutions to achieve a desired outcome (Tomajan, 2012) in regard to macro-level or upstream policy formulation and the skills necessary to initiate advocacy efforts.

Barriers. Barriers are material obstacles such as funding and resources or immaterial obstacles such as fear, lack of time and lack of comfort that could impede advocacy actions.

Bachelor of Science (BS). BS refers to undergraduate students enrolled in Idaho State University's Dental Hygiene program who will graduate with a Bachelor of Science degree. These undergraduate students are enrolled in a leadership course that employs a LAEU during the first seven-weeks of the course. These participants complete the LAEU in a classroom setting with a maximum of three students per group and will be given the choice of group partners.

Master of Science (MS). These participants will be graduate students currently enrolled in the Idaho State University's Masters of Science degree in Dental Hygiene program. For purposes of this study, these students are enrolled in a master's level leadership course that employs a LAEU during the first seven-weeks of the course. MS students will complete the LAEU individually and online.

Alumni. Alumni refer to BS and MS students who have graduated or completed the LAEU in a leadership course from Idaho State University. For purposes of this study all BS alumni have graduated. MS alumni refers to students who have either graduated and have completed the LAEU or MS students who have completed the LAEU but have not graduated at the time of this study.

Classroom setting. Instruction provided face-to-face by one course director in a computer lab.

Online. For purposes of this study, online is defined as asynchronous instruction provided for MS students by the same course director as above via the Internet by a personal electronic device. Posting weekly individual assignments and providing peer feedback via Moodle, a virtual e-learning environment, is also a component of this LAEU.

Advocacy. Advocacy, as described by Tomajan (2012), is "the ability to successfully support a cause or interest on one's own behalf or that of another [and] requires a set of skills that include problem solving, communication, influence, and collaboration" (Tomajan, 2012, p. 3). Advocacy is further demarcated to include the skills of knowledge of legislative procedures, values of the importance of advocacy activities, and actions of advocacy to initiate change.

Advocacy engagement factors. Engagement is an active or operational state of being involved in a cause (Merriam-Webster, 2014a). Factors are considerations, influences, components, aspects or reasons (Merriam-Webster, 2014b). Therefore, for purposes of this study advocacy engagement factors are reasons that one becomes involved in causes', efforts, and activities.

Mentorship. Mentoring is the act of influencing another's choice and perspectives (Furgeson, George, Nesbit, Petersen, Petersen, & Wilder, 2008). Mentorship involves an active relationship between two or more people where learning, support, and dialogue are key to addressing challenges, achieving leadership potential, and participating in advocacy actions. The mentor is the one who leads this relationship through teaching and active participation.

Operational Definitions

The first part of this investigation will assess three dependent variables: knowledge, values, and actions as well as one descriptive variable of perceived barriers in BS and MS dental hygiene students. The second part of this research is descriptive and will examine five variables: advocacy actions, barriers, engagement factors, and organization mentorship with alumni who completed the LAEU at Idaho State University.

Knowledge. Knowledge level regarding advocacy will be assessed using a Likert scale ranging from 1-7. Subjects will rank responses on a Likert scale range of: 1 = strongly disagree; 2 = moderately disagree; 3 = slightly disagree; 4 = neither agree nor disagree; 5 = slightly agree; 6 = moderately agree; and 7 = strongly agree. The

knowledge scores will be computed as a mean score ranging from 1-7 to represent responses.

Values. The value or importance of legislative advocacy will be measured using a Likert scale of 1-7. The responses will be ranked according to level of importance: 1 = extremely not important; 2 = moderately not important; 3 = slightly not important; 4 = neutral; 5 = slightly important; 6 = moderately important; and 7= strongly important. A mean score, ranging from 1-7 will be calculated to represent the values scores for the participants.

Actions. The likelihood of engaging in advocacy actions for each participant will be measured on a Likert scale of 1-7. Participant responses will be ranked on a probability scale with: 1 = not very probable; 2 = probably not; 3 = possibility of not; 4 = neutral; 5 = possibility; 6 = probable; 7 = very probable. Action scores will be calculated as a mean score, ranging from 1-7 for the BS students, the MS students, and the alumni participants.

Barriers. Perceived barriers will be measured in the posttest only, after the participants have completed the legislative advocacy unit. The same barriers will also be measured in the alumni survey. A Likert scale based on level of agreement will be utilized with: 1 = strongly disagree; 2 = moderately disagree; 3 = slightly disagree; 4 = neither agree nor disagree; 5 = slightly agree; 6 = moderately agree; and 7 = strongly agree. A mean score for each barrier will be computed to assess which barriers are considered most prevalent for BS students, MS students, and alumni

Summary of Chapter 1

Barriers to oral health care for disparate populations have not significantly changed over the past century. Traditional models addressing individual oral health care at downstream levels are predominately used today. However, the need to change the focus to broader levels of population oral health care is crucial in addressing oral health disparities at upstream levels. The National Governors Association, the U.S. Surgeon General, and the WHO have identified essential components needed to influence the ecology of health. Advocacy is the avenue for implementing this change. As educators, preparing dental hygiene students to become oral health advocates for patients, communities, and populations is our *call to action.*

Further investigation is warranted to determine whether teaching leadership courses with a LAEU for dental hygiene professionals has positive outcomes in helping students understand the legislative process, recognize the ability to influence policy and develop skill sets to implement future advocacy actions (Rogo et al., 2014). Advocacy efforts after completing a LAEU are indicated by sustained advocacy endeavors, increasing political action, and health policy mentoring within organizations. Barriers to advocacy are also important to recognize. Primomo and Elin (2013) noted limited research regarding advocacy implementation after participating in nursing legislative courses. These authors recommended future research to determine if increased political awareness results in political participation.

Chapter 2 Review of the Literature

Advocacy and oral-systemic healthcare are synonymous counterparts in the juxtaposition of access to oral health care for disparate populations in the world today. Ecology of health, advocacy, educational strategies, barriers, and the political future of dental hygiene in population health and macro-level legislation are crucial elements in this juxtaposition. Advocacy is not a foreign concept and has been recognized throughout the establishment and growth of various health professions such as nursing and medicine; however, limited research is available regarding advocacy in the dental professional domain. Edgington, Pimlott, and Cobban (2009) and Rogo et al. (2014) have echoed the need for advocacy education in dental hygiene curricula to help students recognize their potential to become oral health advocates. A database search from the years 2000 to 2014, using the terminology dental hygienists/education, public policy, consumer advocacy, oral health legislation, and dental professional advocacy yielded three studies (Knowles & Nocera, 2009; Rogo et al., 2014; Yoder & Burton, 2012); therefore, the research focus was expanded to other healthcare professions. This literature review focuses primarily on the profession of nursing, which actively mirrors characteristics of the dental hygiene profession and provides a legislative framework for advocacy actions.

Ecology of Health

In order to address current oral–systemic health relationships, crucial aspects are providing access to care to underserved populations, promoting advocacy, and understanding ecology of health and the role of social health determinants in providing sustained material and human resources to improve quality of life (Marmot, Friel, Bell, Houweling, & Taylor, 2008; Petersen, 2009; Watt, 2007). Micro, mesio, and macro

population health determinants defining the ecology of health interact in complex multiple pathways (IOM, 2003). These health determinants are influential in population health as a whole. At the micro-level, determinants focus on healthy and unhealthy behaviors as well as the biological and genetic composition of the individual. Dental hygiene and nursing professionals have traditionally directed attention at this level by providing clinical care and self-care education with a focus on disease prevention to change individual behaviors and risk factors associated with diseases (Sheiham & Watt, 2000; Watt, 2007; Whitehead, 2003). Health interventions at the micro level are considered a downstream approach to population health. Even though care at this level has been influential in addressing individual behavioral changes, according to Sheiham and Watt (2000), downstream actions fail to address the effects of underlying oral disease determinants such as social gradients, economics, stress, and the common risk factors associated with chronic and oral diseases. WHO has extensively documented that oral diseases share common risk factors with systemic diseases (Petersen, 2009; Petersen et al., 2005). For example, based on this evidence, Sheiham and Watt (2000) suggested adopting the Common Risk/Health Factor Approach (CRHFA) to address the multifactorial risk issues of chronic diseases by creating environments that support health, decrease negative risk factors, and strengthen the ability to cope with risks (Sheiham & Watt, 2000; Watt & Sheiham, 2012). Through the implementation of CRHFA, systemic diseases linked to oral diseases can be treated in a lateral manner across boundaries rather than being addressed as separate issues. These researchers noted that funding is more likely to be sourced with broad health promotion strategies targeting chronic diseases rather than changing individual behavior. Oral diseases such as

periodontal disease, caries, and oral cancer share many of the same risk factors of chronic disease such as cardiovascular disease, diabetes, and cancer (Sheiham & Watt, 2000). Diet, stress, tobacco, alcohol, exercise, hygiene, and injuries are risk factors that create the multifactorial overlap. By utilizing CRHFA and reducing risk, health promotion strategies can target multiple diseases at once (Sheiham & Watt, 2000).

An example of CRHFA would be programs promoting stress reduction such as community exercise groups, implementing a nature trail or bike path, and providing Migrant Head Start services for migrant children and parents of low socio-economic status (SES). Stress is a shared risk of periodontal disease, cardiovascular disease, and diabetes (Akcali, Huck, Tenenbaum, Davideau, & Buduneli, 2013; Everson-Rose & Lewis, 2005; MousaviJazi, Naderan, Ebrahimpoor, & Sadeghipoor, 2013; Packard et al., 2011; Warren, Postolache, Groer, Pinjari, Kelly, & Reynolds, 2014; Vincent, 2009). In addition, there are studies linking insulin resistance, diabetes, cardiovascular disease, and periodontal risk factors (Newman, Takel, Klokkevold, & Caranza, 2012; Paneni, 2013; Paneni, Costantino, Constantino, 2014). These studies are an example of how common risk factors are inclusive in multiple diseases and how social health determinants are intertwined in the risk factors.

Marmot, Allen, Bell, Bloomer, and Goldblatt (2012) emphasized the importance of ensuring that children affected by social health determinants have adequate resources that will encourage empowerment later in life. Social and economic backgrounds of families, education levels, cultures, SES, lifestyles, and genetics influence the health, the social, the emotional, and the cognitive outcomes of children later in life (Kumar, Kroon, & Lalloo, 2014; Packard et al., 2011; Powers et al., 2007; Robert Wood Johnson

Foundation [RWJF], 2014). Powers et al. (2007) studied a cohort of participants enrolled in a Perinatal Mortality Survey (PMS) in England. At ages 44-45 years participants were given a clinical examination. Childhood SES in the PMS survey was based on father's occupation and adult SES was determined by the participants' current occupation. Linear and logistic regression analyses suggested childhood SES was an indicator for later chronic disease risk factors. An example of childhood intervention for children at high SES risk provided by Sheiham and Watt (2000) includes the implementation of CRHFA in a school nutrition program for children targeting caries. The caries program is based on a CRHFA nutritional model that not only addresses caries, but also could reduce common risk factors associated with obesity, diabetes, cancer, and cardiovascular disease. Potential partners and resources for the nutrition program would range from food producers to governmental departments. Resources and the ability to tackle oral health inequalities can then be directed toward population oral health (Watt & Sheiham, 2012). Mesio and macro level health determinants now become important players in CRHFA and cannot be excluded from this interaction.

Mesio health determinants broaden the focus of population health to include family, community, and social health determinants. WHO has identified the underlying influence of social determinants such as low SES, behavioral attitudes, psychosocial stressors such as work, marital quality, lack of support, education, and availability of health services, and biological factors that contribute to oral and chronic disease progression (Petersen, 2009; Petersen et al., 2005; Watt, 2005). Various research studies examining social status and oral health inequalities corroborate the influences of SES in oral health.

Thompson, Poulton, Broughton, and Ayers (2004) studied the effects of social stratification in relation to oral health disparities. A birth cohort from the age of 5 years to the age of 26 years was studied. Researchers focused on tooth loss to determine the course of social inequality. Regression models suggested a significant linear progression between the socio-economic status and tooth loss as patients aged (Thompson, Poulton, Broughton, and Ayers, 2004). Thompson (2012) further defined this study by reporting data from the same birth cohort through the age of 38 years. Dental examination data from each of the following ages 26, 32, and 38 years were analyzed using chi-square statistical analysis to determine if statistically significant differences existed among SES groups. Results indicated a significant gradient in tooth loss and SES status at ages 26, 32, and 38. Participants with a continually low SES demonstrated three times the tooth loss at age 38 than the high SES counterparts both in childhood and adulthood (Thompson, 2012).

Other studies investigating mesio health determinants have yielded similar results. Peres, Peres, Barros, and Victoria (2007) conducted a birth cohort study in which the initial data collection for participants was a perinatal health survey administered to the mothers of infants. Family income data were collected in a longitudinal investigation for study members. At 15 years of age, participants were randomly chosen to receive oral exams by calibrated dental examiners. Results suggested that low-income adolescents had the highest levels of untreated caries and poor oral health behaviors. The authors of this study recommended policy implementation be directed towards low SES groups along with targeting common risk factors involved in oral-systemic health to address population health strategies (Peres, Peres, Barros, & Victoria, 2007). Another

investigation into mesio health determinants was conducted by Lopez, Fernandez, and Baelum (2006) who explored the relationship between social health determinants such as SES and the effect on adolescent periodontal disease. Logistic regression analyses were used to identify social gradients in relation to periodontal disease occurrences. Data from this study indicated that lower SES along with decreased parental education were the two predominant forces related to adolescent periodontal disease status (Lopez et al., 2006). Thompson et al. (2004) also investigated periodontal disease prevalence in the birth cohort study at age 26. Results suggested greater attachment loss for low SES participants than for high SES participants.

Studies exploring similarities between general health social gradients and oral health social gradients have suggested similar correlations between SES and disparities. Sabbah, Tsakos, Chandola, Sheiham, and Watt (2007) studied data from the Third National Health and Nutrition Examination Survey (NHANES III) and examined correlations between periodontal disease and perceptions of oral health in comparison to ischemic heart disease and perceived general health in the same population. Logistic regression and linear regression analyses indicated the social health determinants of low SES and fewer years of education were similar for both oral and general health. In a similar study investigating the same population and the NHANES III survey, Sabbah, Watt, Sheiham and Tsakos (2007) examined the correlation of allostatic load in relation to periodontal disease and ischemic heart disease. Allostatic load represents markers that are formed due to chronic stress an individual might experience over time and the biological deterioration of the body's regulatory systems as a stress response (DeVon & Saban, 2012; McEwen, 2006). Results from the regression analysis suggested allostatic

markers were similar for both diseases and low SES significantly correlated to a higher allostatic load for both diseases.

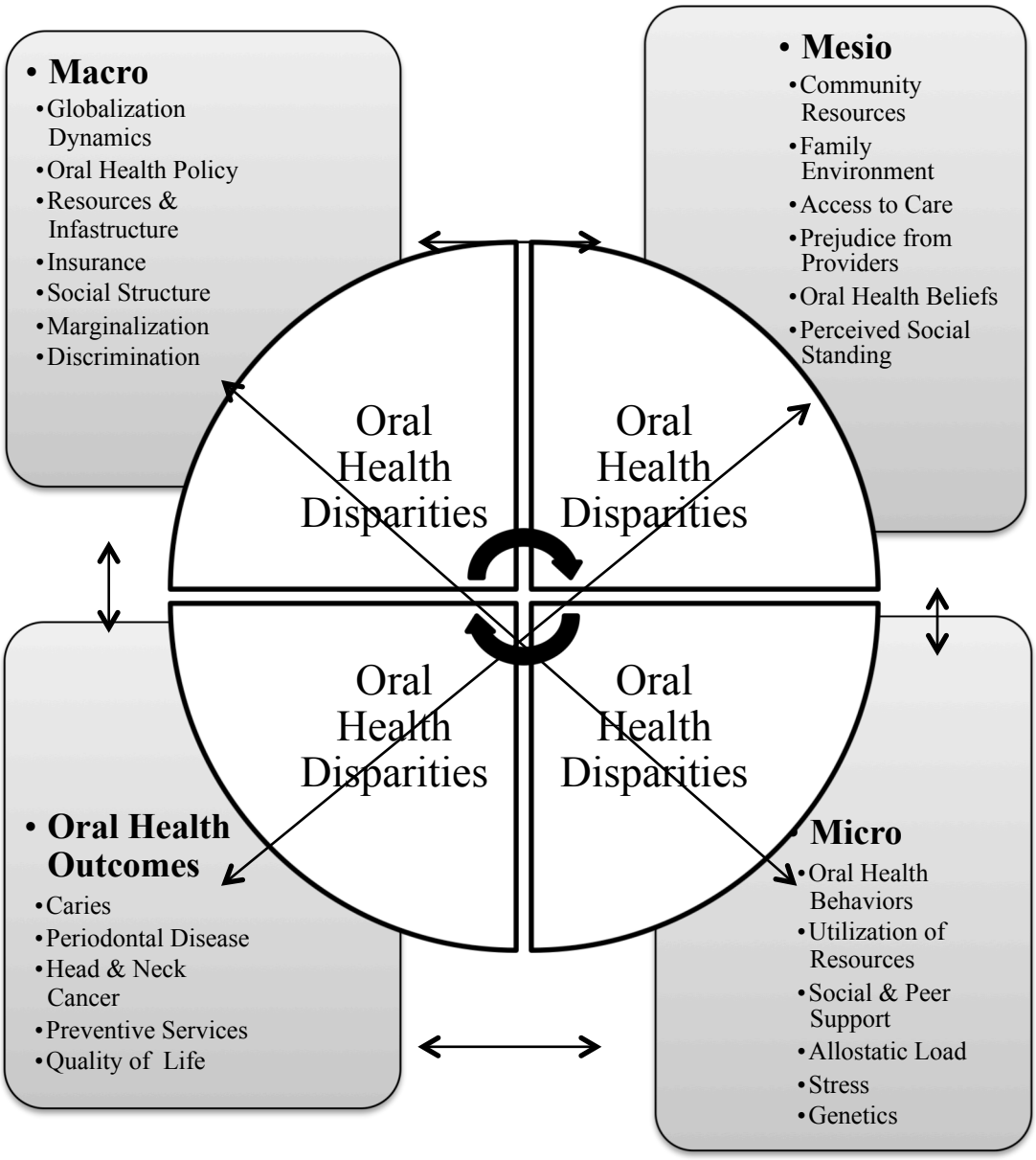
In a concept analysis of the literature, Mattheus (2010) identified mesio determinants related to poor oral health and increased caries rates in children. CINAHL and PUBMED databases were utilized to select research articles with the terms: vulnerability, risk, oral health, and early childhood caries. A review of nursing, dentistry, medicine, and public health journals from 2000-2009 revealed SES, parental education, access to community-based services, and water fluoridation to be key characteristics of mesio level health determinants. These studies are just a few examples of how mesio health determinants are intertwined in oral-systemic health and how upstream interventions are needed to provide general health and wellbeing, including oral health.

According to Reutter and Kushner (2010), nursing has provided many examples of advocating for population health at the mesio and macro level by working in partnerships with other stakeholders and forming interdisciplinary advocacy groups. One such example is the Health Providers Against Poverty. Group members include physicians, nurses, nurse practitioners, dietitians, and other health promoters. This group focuses on raising awareness of social health determinants and health advocacy within a community while advocating for population health policy initiatives. These authors recommended expanding advocacy awareness to incorporate research about reducing health disparities, understanding the interaction of political processes, investigating best policy practices of other organizations as well as content and context of policy analysis (Reutter & Kushner, 2010). Community partnerships and collaborative health care teams are essential in addressing mesio and macro health determinants.

Reducing health inequalities with a social health determinant focus provides a challenge for the dental hygiene profession. With the recent enactment of the ACA (Bill H. R. 3590-111th, 2009) and the possibility of expanding adult dental Medicaid coverage on a state basis, dental hygienists are in a unique position to follow nursing and establish interprofessional advocacy groups within the community to reach upstream to influence state policy at the macro level. According to Lathrop (2013), solving health inequalities and addressing social health determinants will require a collaboration of multiple disciplines along with the participation of local, state, and national health agencies the macro level. An interprofessional approach requires leadership and the need to step outside traditional healthcare roles to address social health disparities (Lathrop, 2013). This acknowledgement of the extension of leadership roles beyond traditional practice is applicable to the dental hygiene profession as well. If ever there were a time to move beyond the dental private practice care model with a broad lens of population oral health, it would be now. Health care is rapidly changing and the acknowledgement of oral-systemic complications and the role chronic disease conditions play in population health along with social health determinants (USDHHS, 2000a, 2000b, 2010) are important influences in expanding one's view to macro level health determinants and changes that can be implemented at this upstream level.

Macro level health determinants expand the focus to state and national policy formulations, systems, and resources that can positively influence social health determinants and population health. Implementing the ACA, improving Medicaid reimbursement strategies, influencing policy-makers perceptions by increasing oral health awareness and providing alternative oral health care delivery systems at the macro

level have the greatest potential to increase access to care in disparate populations. Lathrop (2013) discussed how the ACA represents policy change at the national level by increasing access to health insurance through the restructuring of the U.S. health care system. This restructuring allows for advocacy and leadership opportunities at the mesio and macro determinant levels (Lathrop, 2013) by expanding insurance coverage to an additional 34 million uninsured Americans (Foster, 2010). This change in insurance dynamics provides opportunities for health care professionals to interact in a collaborative manner, implement community programs focusing on holistic health and prevention, and direct policy towards changing social health determinants (IOM, 2003; Interprofessional Education Collaborative Expert Panel, 2011; Lathrop, 2013; USDHHS, 2000a, 2000b, 2010). Policy changes implemented at the macro level have the greatest potential to impact mesio and micro health determinants (IOM, 2003). Lee and Divaris (2014) acknowledged the link between micro, mesio, and macro health determinants and oral health disparities. These authors designed a complex interactive framework in which political, economic, and social health determinants interweave with population, behavioral, and biological determinants to form oral health disparities (see Figure 5). Micro, mesio, and macro level health determinants become intertwining threads extending laterally, vertically, and obliquely in population health, while oral health disparities are represented at all levels. This proposed framework exemplifies the complex interactions of health determinants on population health and oral health inequalities and the need for various political strategies at all levels (Lee & Divaris, 2014).



F*igure 4.* A schematic drawing showing the interaction of muliti-level health determinants at the macro, mesio, and micro levels operating over the course of a lifetime. Adapted from Lee, J. Y., & Divaris, K. (2014). The ethical imperative of addressing oral health disparities: A unifying framework. *Journal of Dental Residency, 93*(3), 224-230.

Marmot et al. (2008) and Watt (2012) addressed the effects of social health determinants on populations and the need for policy implementation and health promotion strategies at the macro-level of legislation. Understanding how micro, mesio,

and macro health determinants within the upstream/downstream health determinant model (see Figure 1) interrelate and how interventions implemented at the macro level can filter down into the lower levels is paramount in addressing national health. This filtration allows for the restructuring of multilevel interventions and policies indirectly addressing downstream or micro level health disparities (Gehlert et al., 2008). Partnerships with "stakeholders, including international organizations, policy makers, the civil society, and academic, research, and professional bodies" are needed for upstream interventions (Lee & Divaris, 2014, p. 6). Educating health care professionals to manage and improve health resources is a key strategy in implementing changes that address social health determinants within communities and populations (Robertson, 2004). Furthermore, dental hygienists need to be advocates for legislation at the policy level and become leaders who understand political frameworks, recognize that one can influence policy making, and implement these skills at the undergraduate, graduate, and professional levels (Rogo et al., 2014). Advocacy is the key to unlocking policies that prevent direct access to dental hygiene care for the improvement of population health.

Advocacy

Advocacy and population health are quintessentially entwined in the quest to address health determinants for all health professions. Christoffel (2000) defined advocacy as the use of resources and information to influence health issues at the upstream level. With a growing attention towards social health determinants on a global front and the enactment of the ACA at a national level in the U.S., advocacy and leadership skills within the dental hygiene profession will be needed as health care moves towards uncharted territories. Dental hygienists work with patients and populations and

therefore are exposed to oral health inequalities and social health determinants at the micro and mesio health levels and are in a unique position to advocate for patients and populations. These real-life experiences can provide opportunities for dental hygienists to share insights and experiences with legislators along with becoming leaders in macro level policy formulation. However, limited research exploring advocacy instruction and implementation with oral health professional students exists (Knowles & Nocera, 2009; Rogo et al., 2014; Yoder & Burton, 2012).

In an attempt to develop components important in an advocacy curriculum with medical residents, Flynn and Verma (2008) conducted a group session with an expert interprofessional panel of health care providers and asked the panel to define advocacy. The interprofessional panel identified six attributes that were vital to the role of an advocate, who should be: (a) knowledgeable about health determinants and their influences on health and disease; (b) altruistic in donating time, energy, or personal resources; (c) honest in advocating for the patient; (d) assertive in argument and presentation of facts for patients' rights; (e) resourceful in utilizing health care resources, meeting a challenge and developing a solution; and (f) aware of available resources that can be utilized for best patient practices. Advocacy requires leadership skills and these attributes are important key points to consider when teaching and mentoring students about advocacy.

Nursing, as a self-regulated profession, has long recognized the value of advocacy and the role it plays in macro level or upstream legislation. Advocacy threads are tightly woven into nursing's rich tapestry beginning with Florence Nightingale and are prominent today throughout its various disciplines. Diverse examples of baccalaureate

and graduate advocacy education, political involvement, and leadership flourish throughout the nursing literature. One such example is the four stages of political activism discussed by Cohen et al. (1996) that are important in advocacy progression as a profession: the buy in, self-interest, political sophistication, and leading the way. The buy-in stage represents political awareness and the recognition of the importance of health initiatives. The self-interest stage encompasses the development of a professional identity and the progression towards political activism. One of the key elements at this level is the development of coalitions and the identification of a professional united front. The third level demonstrates advancement in political activities whereby individuals and the profession are recognized as experts by policy-makers. The final stage defines the profession as being innovators and leaders in policy formulation (Cohen et al., 1996). Although Cohen's stages are geared towards political development of a profession, these steps can be applied to other organizations and as an educational directive at an individual level as well. Familiarizing dental hygiene students with advocacy at the undergraduate and graduate education levels is a crucial first step for initiating political awareness. However, awareness is just the beginning as affective and experiential learning can be incorporated to move the student beyond this level (see Figure 3). Ideally, as educators, the goal of a LAEU would be to educate and develop growth toward the highest level in the affective domain, which is characterization, so that advocacy values would be internalized and actions based on advocacy beliefs would be initiated (Krathwohl et al., 1964). How to encourage students to progress and respond at the characterization level becomes the crux of advocacy education. Rogo et al. (2014) developed a LAEU for a BS and MS dental hygiene leadership course introducing

students to legislative advocacy, thereby exposing these students to Cohen's "buy-in" stage (Cohen et al. 1996). Analyses of pretest and posttest data demonstrated a significant increase in knowledge, values, and actions scores for both samples at the undergraduate and graduate level. Anecdotal responses from the BS and MS student participants reflected positive experiences, the recognition of one's advocacy voice, and the need to continue advocacy actions (Rogo et al., 2014). The educational unit and assignment were instrumental in helping BS and MS dental hygiene students begin the political traverse into advocacy activism; however, future leaders are needed who will be able to address oral and social health determinants and define policy formulation needed for population oral health.

Advocacy education and empowerment are important skills sets in developing student political awareness and creating future leaders equipped with the confidence to enter the political arena. Empowerment acknowledges the importance of developing an external and internal advocacy skill set to form collaborative relationships with legislators in oral health policy formulation. An example of external advocacy skill sets investigated in phenomenological study by Kerschner and Cohen (2002) revealed how legislators make health policy decisions. Three overlapping central themes emerged from this qualitative inquiry: understanding the issue, shaping a personal stand, and weighing the action along with the influence of personal experiences and values. The themes and values identified in this study provide valuable external tactics for approaching legislators about health policy initiatives (Kerschner & Cohen, 2002). In another study relating to external advocacy skill sets, Perry (2005) revealed significant insights about health policy decision making regarding issues important to legislators: the impact on the legislators

district, having patients provide testimony, financial issues, and the need for testimony from health professionals about population health issues (Perry, 2005). Building upon the study conducted by Perry (2005), Jackson-Elmoore (2006) reiterated the significance of understanding legislators' views and perceptions of health issues and strategies in introducing information to policy makers. These studies provide a framework for dental hygiene advocacy when approaching policy makers and are important external advocacy educational components to include in an advocacy course.

Equally significant is the development of internal advocacy skill sets of dental hygienists when navigating the legislature. Warner (2003) utilized phenomenological research to study nursing activists' political competence. Six areas of proficiency were identified: professional expertise, networking, persuasive abilities, commitment to collective strength, strategic analysis of players, and perseverance. Jackson-Elmoore (2006) also acknowledged the need for inherent qualities of patience, perseverance, and reality about change. As educators, various instructional strategies need to be implemented to help dental hygiene students acquire the external and internal skill sets needed to develop political competence.

Educational Strategies

Health policy development is essential in today's professional practice (Rains & Carroll, 2000) and is equally important in advocacy education in the dental hygiene profession as well. Multiple approaches can be utilized in designing a LAEU that helps students broaden the population oral health lens with an emphasis on the influence of social health determinants in oral and systemic diseases. The view this lens creates empowers students to become an integral link in influencing macro-level legislation.

Dental hygienists have the ability to influence policy formulation, but helping students and professionals recognize they have a political voice and the steps involved in the legislative process requires experiential and advocacy education at all levels of education and within professional organizations.

Traditional oral health advocacy has focused on preparing dental hygiene students to advocate at the client/consumer level (Darby & Walsh, 2014). With the acknowledgement of oral social health determinants and a focus on population oral health, curriculum changes to include advocacy need to be addressed (Edgington et al., 2009; Rogo et al., 2014). Designing advocacy course-work with active and experiential adult learning strategies becomes paramount in the evolution of political awareness to organization and finally to the highest level in the affective domain, characterization (see Figure 3). Advocacy requires leadership skills, the ability to challenge the status quo, and the engagement in population oral health initiatives. Educating dental hygiene students about current oral health trends, population health, macro level legislation, and the intersection of health care reform in these topics can be challenging. According to Tomajan (2012), uncertainties that challenge population health can be viewed as opportunities to initiate one's voice in health care policy formulation. This author stressed the importance of modeling advocacy as health care educators and becoming the advocacy "culture carriers" to future leaders (Tomajan, 2012, p. 7). The challenge to become "culture carriers" and mentors is an important ingredient in teaching legislative advocacy. Inspiring students to carry the advocacy torch can be a daunting task. With this thought in mind, how does one prepare dental hygiene students to enter the legislative

arena as competent political advocates? What will become the political catalysts in this interaction?

Advocacy can best be defined as searching for opportunities in which inadequacies exist. Advocacy education of health professionals provides numerous opportunities to address these inadequacies and requires prudent curriculum planning. Cohen et al. (1996) studied the stages of political development within the nursing profession and the succession of this profession into the political arena. These authors recommended the integration of advocacy into curricula as a separate course rather than in random implemented lectures. In another study, Beacham and Shambaugh (2007) suggested using advocacy as both a teaching and learning strategy. Using adult learning theories, these authors utilized problem-based learning (PBL) as the vehicle for advocacy. Students in these courses advocated for someone close to them with a serious health condition. PBL provided an avenue to incorporate Bloom's affective domain by moving from receiving to valuing and internalizing a belief (Krathwohl et al., 1964) (see Figure 3). In a similar study, Rogo et al. (2014) utilized a LAEU to create learning strategies in the cognitive and affective domains. Cognitive learning included analyzing legislators' political voting records, developing a strategic plan for initiating health policy changes and creating an advocacy project by following a health care bill through the legislature. Anecdotal remarks revealed the traverse into the affective domain as students progressed from the receiving stage to the valuing stage (Krathwohl et al., 1964) (see Figure 3) with comments such as: a) "Before taking this class, I just began volunteering for a leadership position at the state level. My leadership class polished the knowledge that I was beginning to receive. Also, it helped me personally to see what voice I had as a

member of society and in the dental political arena." (BS) (Bloom's "Receiving" level of the affective domain); b) "This course provided a great opportunity to learn how one can become an advocate and be aware of the health disparities that exist in our nation. I wish everyone could participate in this course because the information is invaluable especially for the advancement of our profession." (MS) (Bloom's "Responding" level of the affective domain); and c) "Prior to this course, I had little knowledge regarding legislative processes, how to go about effecting change, and what all of our critical issues are at the time. After the course? The only thing that is standing in my way of immediately getting on a state or national professional advocacy for licensing and regulatory control is getting my master's degree coursework finished!" MS (Bloom's "Valuing" level of the affective domain) (Rogo et al., 2014, p. 547).

Adult learning strategies such as experiential experiences that are realistic and practical provide a foundation for continued advocacy action. Experiential learning encourages the reflection on concrete experiences, deriving a meaning from the experience, and experimentation with the new meaning, which in turn creates another concrete experience to reflect upon (Jefferies & Clochesy, 2012; Kolb, 1984). The nursing literature is replete with examples of advocacy and the implementation of experiential learning in health policy course development. Mund (2012) recommended advocacy be taught by experiential learning involving collaboration and mentoring with educators acting as facilitators between students and clinical practitioners, stakeholders, and business owners to broaden student policy perspectives. To further build upon experiential learning, Magnussen, Itano, and McGuckin (2005) designed an advocacy course for BS nursing students that provided the opportunity to develop legislative skills

by serving as political interns. Project outcomes suggested students had a positive influence on legislation by the relationships that were formed with state legislators. Students experienced personal and professional growth by testifying at hearings, researching health issues for legislators, and presenting issues to the media, plus they were successful in getting a health care bill passed. These authors acknowledged experiential learning has a positive influence on future advocacy actions and provides the foundation on which future advocacy actions can be initiated (Magnussen et al., 2005).

Preparing students to enter the legislative arena requires advocacy education at all levels. Reutter and Duncan (2002) argued that comprehensive advocacy education at the graduate level must be enacted so that future leaders are prepared with critical awareness of policy and politics at the population level. These authors implemented a nursing graduate health policy course that included a political practicum on various community and state legislative levels. Such experiential learning fostered advocacy awareness, the importance of coalition building and stakeholder involvement as well as provided a working legislative advocacy skill set for the students in the course. In another study of advocacy development, Wold et al. (2008) demonstrated the effect of experiential learning outcomes in a community advocacy project when BS students went above and beyond their class assignment on their own to advocate for community water fluoridation with state legislators. Even though the water fluoridation project was vetoed, students involved in the project expressed political empowerment, the belief they could make a difference, and the ability to view healthcare at the population level (Wold et al. 2008). Experiential learning similar to the studies noted above become a foundation for

continued political participation, encourage student empowerment in the legislative process, and provide the opportunity to develop various advocacy skill sets.

Experiential advocacy learning is not limited to semester courses or advocacy units, but can be cultivated in weeklong intensive programs that focus on political frameworks and the development of advocacy skills to influence the policy process. According to Ferguson and Drenkard (2003) nursing leaders developed a greater understanding of health care politics and felt compelled to participate in advocacy activities in their own communities and states after participating in a weeklong advocacy module. These authors recommended that political nurse leaders develop relationships with academic institutions to partner in the advocacy education of students (Ferguson & Drenkard, 2003).

One-day legislative advocacy units also have had a positive impact on students. Yoder and Burton (2012) demonstrated the effects of a one-day state advocacy forum with fourth year dental student participants. Data were analyzed from 2005-2009 using probit regression analysis. Results demonstrated an increase in student perceptions of being inclined to participate in the political process from 2005 to 2009. In another study utilizing a daylong legislative advocacy unit, Primomo and Elin (2013) conducted two studies of nursing students participating in an organized state legislative day. A retrospective pretest/posttest was administered to the first study group since participants could not be contacted prior to the legislative day. In the second group, participants were given a pretest before attending the state legislative activity and a posttest after the activity. Descriptive statistics, Pearson correlations, and ANOVA analyses yielded a

significant increase in political perceptiveness following state legislative day participation for both groups.

Macro level legislation and policy formulation are important course components to address in advocacy curricula as well and cannot be discounted in favor of experiential learning. According to Primomo and Elin (2013), although experiential learning helps foster political awareness, actual involvement in academic legislation learning activities and courses might provide a more effective approach for cultivating advocacy skills. Advocacy requires a collective voice and a unified front (Lachenmayr, 2009). Teaching students about health determinants, upstream interventions, and collaboration with other coalitions is justifiably significant. Reutter and Williamson (2000) reaffirmed the need to address macro level health determinants in conjunction with legislative procedures to effectively design an undergraduate advocacy course. These authors suggested using various political assignments such as an analyzing a population health issue, writing a position paper, creating an environmental scan, developing a resolution, and creating a letter to a politician to provide early advocacy exposure in professional programs. In addition to classroom activities, students were encouraged to meet politicians, have contact with media and social activist members, and do a political practicum. Following this lead of active learning strategies, Byrd, Costello, Shelton, Thomas, and Petrarca (2004) designed a series of active learning experiences for an undergraduate health policy course in nursing. Participants attended information sessions at the state house, identified health legislators, and worked in groups to analyze public problems that could be addressed at macro legislation levels. These authors acknowledged advocacy engagement as the first step in preparing professionals. Students engaged in the course recognized

advocacy as the avenue for policy change, they were more likely to contact legislators involved in public health policy, and they acknowledged the importance of a voice in politics. These studies emphasize the learning curve growth that occurs with active and experiential advocacy.

Rains and Carroll (2000) acknowledged successful adult learning strategies can be applied at higher levels of education as well. The researchers recognized the importance of educating graduate students about the legislative process and protecting health through advocacy and policy formulation. Graduate students participated in current affairs discussions, analyzed political issues, completed a federal budget exercise, and wrote a paper based on individual advocacy interests. Data analyzed from the pretest/posttest survey demonstrated significant findings regarding increased perceptions of skills, knowledge, and advocacy motivation. These authors acknowledged political competence as a key component in advocacy efforts. Designing course-work with political competence as an outcome is a critical element in addressing macro level policy formulation to address population oral-systemic health concerns.

Further linking of adult learning strategies with advocacy experiences, Harrington, Crider, Benner, and Malone (2005) acknowledged the need to prepare advanced practice nurses with the advocacy skills to contribute to health policy construction. These investigators described a new master's and doctoral degree nursing education program specializing in health care policy due to the rapidly changing health care environment. Students in these programs completed an advocacy residency to help strengthen policy interests; learn about the political, social, and economic factors influencing legislation; and develop political competence. Advocacy studies in nursing

provide a framework in designing legislative curriculum components with a focus on population health. Rogo et al. (2014) demonstrated the effectiveness of a LAEU designed for BS and MS dental hygiene students using the framework defined in the nursing literature as a basis for course instruction. This study provided a foundation for future dental hygiene advocacy curriculum design and offered cognitive, affective, and experiential advocacy learning experiences. Students participating in the LAEU studied the ecology of health, learned about the effects of social health determinants on population oral-systemic health and received instruction about legislative processes. MS participants in the course linked leadership theory to advocacy practice by following a health care bill through their state legislature or province. Because MS students reside in various states and countries, subjects were instructed to identify the type of legislature employed by their state or province. BS students linked leadership theory to practice by following a health care bill of their choice through the Idaho State Legislature. All participants wrote a legislative paper including appendices and figures representing the legislative advocacy project that was chosen. BS students developed the final advocacy project paper in weekly assignments and group activities that were graded using a participation rubric. MS students posted content of the legislative advocacy paper in weekly postings and the course instructor and peers provided feedback. These weekly postings also were graded using a participation rubric.

The LAEU was comprised of four sections: assessment, planning, implementation, and evaluation (see Figure 2). These educational strategies provided students with an opportunity to develop advocacy awareness, initiate contact with state legislators, and reinforce the importance of advocacy endeavors in population oral health.

For the assessment phase, participants were directed to go to Project Vote Smart and gather biographical information and voting records of the state legislators who represented the students' voting district. Examination of Standing and Joint Committees, budget processes, lobbyists along with locating stakeholders, coalitions, and other organizations that might support or oppose the bill were also studied. Students were asked to summarize the content of the bill chosen, explain the problem it would solve, and how this legislation would impact health policy as well as discuss the financial or budgetary requirements to implement this policy. This discussion and information were used to critically analyze if the legislator would vote in favor or opposition to the selected health care bill. Students gathered information from the Project Vote Smart website to write a personalized letter to the state legislator in the planning phase of the LAEU. The assessment phase created political awareness in the affective domain (Krathwohl et al., 1964).

The planning component of the LAEU utilized strategic approaches and critical thinking as participants constructed professional mission, vision, and values statements for the advocacy project. BS and MS participants designed a strength, weakness, opportunity and threat (SWOT) analysis for the bill. A strategic plan was formed and linked to the SWOT analysis. Students critically assessed health care facts related to the bill chosen and developed an evidence-based fact sheet supporting or opposing the bill. Activities implemented at this phase helped students progress from the awareness level to the beginning of the responding domain (Krathwohl et al., 1964).

The implementation phase included contacting the state legislator by faxing, emailing, or mailing the personalized letter and fact sheet that were completed during the

planning stage. Participants followed the selected health care bill through the legislative process for the length of the LAEU. Implementation of the legislative advocacy project extended the students knowledge of being a change agent and advocate. Research has suggested the importance of developing a framework for health policy sources to increase political competency. Taft and Nanna (2008), in a graduate level advocacy course, reiterated the importance of understanding the sources of health care policy to help students comprehend the political influence and engagement that can be utilized for policy development. Response letters and acknowledgement from state legislators for some of the participants reinforced the empowerment of one's voice. Appreciating and committing to advocacy actions provided the next step in the affective domain, Valuing (Krathwohl et al., 1964).

The final evaluation component required students to critically reflect and evaluate the strategic plan outcomes for the assessment, planning, and implementation phases of the advocacy project. Assessment of the effectiveness of the project and reflection about changes for future endeavors encouraged participants to redirect initial advocacy apprehensions towards the recognition of the political self.

Advocacy courses delivered in both online and classroom settings have demonstrated positive findings. Faulk and Ternus (2006) acknowledged the effects of an online advocacy course in a qualitative study with baccalaureate nursing students and their future political involvement. Three main themes emerged: political awareness, unity and guardianship, and the need to become an advocate. These researchers noted students demonstrated the ability to appreciate their role as an advocate and become politically involved post graduation through online instruction. In a study by Rogo et al. (2014), an

instructor taught the LAEU in both online and classroom settings. MS students participated in the LAEU online and BS students completed the LAEU in a classroom setting. Based on the significant results, both methods of instruction demonstrated effectiveness in delivering the course content.

Providing opportunities to learn about the legislative process, how the ecology of health operates, the influence of social health determinants in oral-systemic health and creating active and experiential advocacy are just some of the many catalysts that can ignite political awareness within students and professionals. The implementation of advocacy catalysts is an essential link in teaching leadership and political competence to students. Shifts in oral health care from downstream interventions to a broad social health determinant focus creates the need for future dental hygiene leaders who are comprehensively educated in the legislative process. Preparing students to accept this challenge and develop a solid political skill set not only increases political poise in the legislative arena, but also creates a foundation for future political participation. However, lighting the advocacy fire within a person does not come without repercussions. With advocacy initiatives there are obstacles to overcome; maintaining the advocacy fire can be challenging.

Barriers

Material obstacles such as funding, resources, lack of time, and fear can be considered substantial barriers to advocacy efforts. Byrd et al. (2004) acknowledged that although students might develop an initial advocacy skill set and recognize the need to become involved in advocacy efforts, sustained advocacy actions after graduation might not occur. In a similar study with nursing students, Zauderer, Ballestas, Cardoza, Hood,

and Neville (2008) acknowledged apathy regarding political advocacy within the nursing profession. These investigators suggested nurses do not recognize their ability to influence policy or the need to create political activism through experiential learning. Spenceley, Reutter, and Allen (2006) also experienced the same results when investigating gaps in nursing political involvement. Lack of knowledge, attention to policy at the downstream or micro level, and a lack of belief in their ability to influence policy-making were identified as the main obstacles to advocacy action at the professional level. These researchers suggested focusing on population health to bring together researchers, educators, and practitioners in policy formulation (Spenceley et al., 2006).

In another study assessing political activism, Rains and Barton-Kriese (2001) in a cross-sectional comparative study, investigated a convenience sample of nursing students and a convenience sample of political science students regarding attitudes for political involvement. The nursing students did not equate their community actions with advocacy, viewed public policy as a barrier rather than an opportunity, and did not recognize their own voice as an advocate; whereas, the political science participants recognized advocacy actions but were less likely to participate in advocacy activities. These authors acknowledged there was a disconnect in the awareness of the interplay of the personal, professional, and the political self and emphasized the need to provide connections in advocacy curricula where nursing students could explore the overlap of these three areas. Instilling political confidence and modeling advocacy are valuable for educators in demonstrating the overlap of the personal, professional and political self (Rains & Barton-Kriese, 2001).

Barriers to advocacy implementation are not unique to nursing and plague the dental hygiene profession as well. According to Rogo et al. (2014) lack of time, comfort testifying before legislators, comfort speaking personally with legislators or staff, and a priority to be involved were identified as the greatest advocacy barriers for both BS and MS dental hygiene students. In a similar study conducted by Byrd et al. (2006), nursing students also identified testifying at legislative hearings as a barrier to advocacy action. Cramer (2002) studied organized political participation using the civic volunteer model as a predictor of political involvement. This cross-sectional survey yielded valuable insight to nursing advocacy barriers. Lack of free time followed and decreased personal efficacy were the main two barriers identified.

However, when looking at factors that encourage political involvement, Gebbie, Wakefield, and Kerfoot (2000) studied key aspects that influence nursing participation in macro level politics. Participants noted an array of responses such as consciously choosing to be involved in advocacy after exposure to a mentor or role model. Others described their advocacy action as a commitment to make a difference for those around them. Respondents reiterated the need for health policy courses and experiential advocacy internships in academia. Byrd et al. (2006) recognized involving students in advocacy as a key educational aspect in preparing students for active political participation within communities and professional associations. This political participation creates the foundation needed for dental hygiene's political future.

Dental Hygiene's Political Future

The Committee on Essential Public Health Services (2000) acknowledged the challenges that will be encountered as health care roles are expanded to population health

concerns and interprofessional care is implemented. Nursing roles are continually evolving and new relationships will need to be developed (Committee on Essential Public Health Services, 2000). Dental hygiene is facing the same challenge as the profession moves into the 21st Century. Traditional roles as a clinician, educator, administrator, advocate, and researcher (ADHA, 2012) need expansion as avenues to address population oral health are explored. Becoming integrated and accepted on interprofessional health care teams (Interprofessional Education Collaborative Expert Panel, 2011) will need examination as social determinants of oral health are acknowledged, as will exploration of other relationships with coalitions outside the dental hygiene profession.

In 2005, the ADHA issued a focus report addressing challenges facing the dental hygiene profession and the need to embrace the future and public oral health needs. Suggestions to address diverse public oral health concerns at the mesio and macro levels included expanding dental hygiene roles to an advanced practitioner with a master's degree for the entry level, collaborative practice, alternative practice settings, and advanced education to address oral health policy formulation (ADHA, 2005). Although barriers such as direct supervision and reimbursement policies have prevented an expansion of dental hygiene services to underserved populations, many states have developed innovative ways to address disparities such as the Registered Dental Hygienist in Alternative Practice in California, independent practice hygienists in Maine and Colorado, public health dental hygienist in Massachusetts, and the Dental Therapist in Minnesota (Dunker, Krofah, & Isasi, 2014). The Federal Trade Commission (FTC) argued that preventing dental hygienists from providing preventive services to disparate populations poses the threat of unfair trade restriction, thereby reducing competition for

services (DeSanti, Feinstein, & Farrell, 2013). The dental hygiene profession is on the brink of change and leaders will need to be cultivated in the advocacy arena for these changes to occur.

Providing and creating advocacy education at all levels of dental hygiene education and within professional associations is key to developing political competence and empowerment. According to McQuide, Millonzi, and Farrell (2007), professional associations are the bridges that connect advocacy action to policy formulation to address health disparities. These authors noted that strengthening advocacy work within professional associations creates a foundation for independence, coalition building, and strength. Bowers (2014) acknowledged the need for advocacy mentoring within the professional association in the development of future dental hygiene leaders. Research regarding dental hygiene mentorship within the professional associations at the state and national level is limited. Furgeson, George, Nesbit, Peterson, Peterson, and Wilder (2008) assessed mentoring within the Student American Dental Hygienists' Association (SADHA) in regard to meeting the goals of the ADHA and public oral health needs. These researchers noted that the majority of SADHA programs did not offer any mentoring and there was an expressed need for advocacy networking with ADHA. Faculty perceptions regarding advocacy education were studied by Tappe, Galer-Unti, and Radius (2007). Data suggested faculty viewed advocacy as an important component in health education and valued further advocacy development opportunities. These authors argued that professional associations need to develop ways to mentor and provide health advocacy education training for members and faculty. Advocacy mentorship within state, national, and international professional associations and organizations is

needed as dental hygiene students explore oral health disparities and social determinants of health. Mentoring and teaching students advocacy awareness are the first steps in this path of discovery.

Summary of Chapter 2

Advocacy research in the nursing profession has yielded a wide array of political activism and leadership examples that are pertinent to dental hygiene education and professional development. Currently the profession is facing some of the same advocacy challenges as nursing, as health care reform and a focus on social health determinants become forefront in oral-systemic care. The dental hygiene profession is at a critical juncture as efforts are being made to address population oral health and access to care issues for underserved populations. Expansion of traditional roles to an advanced practitioner with a master's degree for the entry level, forming collaborative practice teams, working in alternative practice settings, and employing advanced education to address oral health policy formulation are important issues garnering attention (ADHA, 2005). Edgington et al. (2009) argued that dental hygiene self-regulation advocacy labors have impeded social health determinant activism efforts in favor of emerging as an independent discipline. Although this may be viewed as a deterrent in addressing population oral health needs and social health determinants, Rogo et al. (2014) emphasized the importance of leadership and advocacy education, understanding advocacy's role in the ecology of health, and creating competent political leaders in the dental hygiene profession.

Traversing the political arena can be daunting for novice students and experienced educators alike. Nursing research, limited dental hygiene research, and social health

determinant studies involving ecology of health, legislative educational methods, and nursing activists have constructed the catalysts needed to “light the advocacy fire” within dental hygiene students, practitioners, and educators. An equally important catalyst in the juxtaposition of oral care for disparate populations is mentorship within the local, state, and national professional associations, and other organizations. Spenceley et al. (2006) recognized the importance of the state and national professional association infrastructure in advocacy efforts. These professional associations and organizations are the basis to begin advocacy efforts and form strategic coalitions with other professions and public advocacy groups. Utilizing advocacy catalysts to ignite political awareness, responding, valuing, organization, and characterization (Krathwohl et al., 1964) provides the framework for investigations regarding dental hygiene political practice. Advocacy knowledge, values, and actions, along with advocacy engagement factors and sustained advocacy actions after graduation are just a few of the investigations waiting to be explored in the legislative arena of oral health.

Chapter 3 Methodology

Design

Overview of study.

The purpose of this study is twofold: (a) determining the influence a LAEU has on student self-reported advocacy knowledge, values, and action, and assessing perceived barriers to advocacy actions and (b) describing the advocacy actions, engagement factors, barriers, and the legislative advocacy mentorship within organizations. The first part of this investigation compared before and after knowledge, values, and actions of BS and MS students enrolled in a leadership course participating in a LAEU. In addition, the posttest assessed perceived barriers to advocacy actions. The second portion of this study was conducted with BS and MS alumni and described: (a) advocacy actions after graduation; (b) barriers encountered; (c) advocacy participation; and (d) the roles of organizations in legislative advocacy mentoring.

Research design.

This study included two questionnaires: (1) a pretest/posttest questionnaire identical to the pretest except with one additional section assessing barriers (see Appendix E) for the 2014 BS and MS participants and (2) a descriptive alumni legislative advocacy action questionnaire (see Appendix I). The primary research design employed a quasi-experimental one-group pretest/posttest approach with a convenience population of 25 BS and 13 MS dental hygiene students. Using a convenience sample decreases internal validity; therefore, design limitations will be considered in the interpretation of study findings (LoBiondo-Woods & Haber, 2010). The LAEU was the intervention that was applied to both groups of students after pretest data were gathered. A quasi-

experimental approach is an effective technique in measuring the dependent variable and the effect of an advocacy project on the independent variables of legislative knowledge, values, and actions of participants. Although this type of design does not employ a control group or randomization, results can provide generalized information about causal relationships and can be applied to the real world setting (LoBiondo-Wood & Haber, 2010).

The second part of this research study utilized a self-designed alumni legislative action questionnaire, for BS and MS participants who completed the LAEU during 2008-2013. Six sections were assessed: (a) general information; (b) experience in legislative advocacy; (c) barriers; (d) advocacy engagement factors; (e) mentorship of organizations; and (f) demographics. A cross-sectional descriptive questionnaire was employed with a convenience sample of BS (n=112) and MS (n=40) alumni. Cautions of using such a design include drawing conclusions about change (Vogt & Johnson, 2011); however, LoBiondo-Wood & Haber (2010) argued that cross-sectional studies can effectively explore "relationships and correlations" as well as "differences and comparisons" (LoBiondo-Wood & Haber, 2010, p. 202). Close-ended and open-ended questions were utilized throughout the survey.

Questionnaires allow for the collection of self-reported data that cannot directly be observed and provide anonymity for the participants (LoBiondo-Wood & Haber, 2010). Using a combination of close-ended and open-ended questions allows for a comprehensive data accumulation from two realms: the fixed response and the alternative response. According to LoBiondo-Wood and Haber (2010), fixed responses have the advantage of simplifying the participants' replies, while open-ended responses provide

information not previously considered for the study. Close and open-ended responses are most often used in combination for data collection in nursing research (Lo-Biondo-Wood & Haber, 2010).

Research Context

This study utilized Qualtrics®**,** an online computer survey tool for the administration of the data collection instruments. For the pretest/posttest portion, the pretest was administered before initiation of the LAEU in the undergraduate and graduate leadership courses and remained open for three weeks. Undergraduate students were given the opportunity to complete the pretest and posttest questionnaires online during class time in the leadership course. The graduate students completed the online questionnaires at their convenience within a comfortable setting of their choice. The posttest was administered at the completion of the LAEU of the leadership course seven-weeks after the pretest and remained open for three weeks. Students were informed of the estimated 10-15 minute time period to complete the questionnaire. An introductory statement was provided verbally in class by the principal investigator of this study to the BS participants. Four emails were sent to the master's participants: one at the beginning of the survey as an introductory email and one reminder at two weeks (see Appendices A & B). The introduction to the posttest and one reminder email with a final thank you are listed in Appendices C and D.

The alumni participants were given three weeks to complete the survey in a convenient setting of their choice. A computer or handheld device with Internet capabilities was required to access Qualtrics®. A prenotice email was sent a few days prior to the questionnaire email (See Appendix F) with a request to engage in the survey.

The purpose of the prenotice email is to generate interest in the upcoming survey and increase the survey response rate (Dillman, Smyth, & Christian, 2014). In addition to the survey, two reminder emails were sent at one and two weeks encouraging participants to complete the survey by the designated timeline along with a final thank you for participating in the project (see Appendices G & H).

Research Participants

Sample description.

A convenience sample of undergraduate dental hygiene students enrolled in the leadership course during the 2014 spring semester (n=25) and graduate students enrolled in the leadership course during the same semester (n=13) were invited to participate in the study (n=40). In addition, a convenience sample of alumni who completed the leadership course during the academic years of 2008-2013 were invited to complete the alumni questionnaire (n=152). BS alumni comprised the majority of the potential sample (n=112), while the MS potential participant population pool was smaller in number (n=40).

Human subjects protection.

This study utilized the pretest/posttest student advocacy questionnaire implemented by Rogo et al. (2014) which qualified for a certificate of exemption under the Idaho State University's Human Subjects Committee *Standard Operating Procedures Manual* (Idaho State University, 2010; HSC #3594) (see page v). The Department of Health and Human Services (DHHS) has six parameters for exempt status "that do not require Institutional Review Board (IRB) review (45 CFR 46 §101(b))" and "must pose

minimal risk to participants" (Idaho State University, 2010, p. 41). Under these guidelines, exempt status was determined under sections

> 1) Normal Educational Practices and Settings: Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies; and 2) anonymous educational tests, surveys, interviews or observations: Research involving the use of educational tests (cognitive, diagnostic, aptitude, or achievement), surveys, interviews, or observations of public behavior, provided, (i) data are recorded in such a manner that participants cannot be identified (directly or indirectly), and (ii) any disclosure of participants' responses could not reasonably place participants at risk (Idaho State University, 2010, p. 41).

The questionnaires for this study were conducted online in an educational setting thereby posing minimal risk to participants.

The Institutional Review Board (IRB) approved the existing pretest/posttest student advocacy questionnaire from the study of Rogo et al. (2014) for continued use in this study (see page iv). An IRB application was submitted for exempt status to conduct the alumni legislative advocacy action questionnaire and received HSC approval (HSC #4177) prior to data collection.

Participants' confidentiality and anonymity were protected throughout all stages of data collection and analysis for both the pretest/posttest student advocacy questionnaire and the alumni questionnaire. Research participation posed minimal risk to the students as the pretest/posttest advocacy questionnaire was designed to assess

advocacy knowledge, values, actions, and barriers. The alumni questionnaire posed minimal risk and was designed to assess advocacy actions, barriers, engagement factors, and mentorship in organizations. No questions pertaining to the participants' political affiliations were asked. Limited demographic data pertaining to gender, age group, educational status, association involvement, voter registration, and voter history were collected.

Advocacy information is valuable in designing future LAEUs, assessing LAEU's effectiveness, and determining perceived barriers to advocacy actions. In addition, sustained advocacy actions after completing the LAEU, as well as ideas for continued advocacy participation and advocacy mentorship within organizations were described. This information provided valuable insight into disparities that might exist between the advocacy instruction and the actual implementation of advocacy actions. It also presented information about designing, implementing, and teaching future LAEUs for educators. Furthermore, these data presented awareness about mentorship within organizations and suggested content needed to educate dental hygienists about macro-level legislation and social health determinants in regards to population oral health.

Data Collection

Procedure.

Both samples were informed about the study by the principal investigator. A brief study description was provided to the undergraduate student sample during on-campus scheduled class meeting time and to the graduate student sample online via a posting in the learning management system. All potential BS and MS student participants accessed the questionnaire through an online Qualtrics® link provided in Moodle. Informed

consent for the surveys was posted at the beginning of the questionnaire. Students were asked to enter their Bengal ID number as consent to participate in the pretest/posttest student advocacy questionnaire. Potential participants were encouraged to direct questions about the study to Dr. Ellen Rogo, the course instructor and thesis advisor, prior to consenting or not consenting to participate. Subjects were advised that participation was voluntary and the decision not to participate would not affect their affiliation with Idaho State University or their progression in the leadership course. A bonus point added to the final course grade was offered as an incentive to consent to participate for the pretest/posttest questionnaire. Non-participants were given the same option to receive a bonus point by completing an alternative activity. An estimated time of 10-15 minutes to complete the survey was noted.

Participants completing the pretest/posttest student advocacy questionnaire used the assigned University Institution ID number for the principal investigator to link the pretest to the posttest only. This identifying information was removed prior to data analysis so student identity would remain anonymous.

Potential participants for the alumni legislative advocacy action questionnaire were sent an invitation via the participants email address and a link to the questionnaire in Qualtrics®. The first page of the alumni questionnaire posted in Qualtrics® contained the informed consent information. Subjects were apprised of the purpose of the survey, and the10-15 minute time-period to complete the questionnaire. Alumni were advised that participation was voluntary and the decision not to participate would not affect their relationship with Idaho State University or the Department of Dental Hygiene. If alumni consented to participate, they were given the opportunity to register their email address

for a drawing of two $50 VISA gift cards, one $50 gift card for the BS alumni and one $50 gift card for the MS alumni. As an added incentive, participants were informed if they completed the survey in the first week they would be entered in the drawing two times. If the survey was completed in the last week, participants would have the opportunity to be entered once. Alumni participants clicked on the "I Agree" button at the end of the informed consent to participate in the questionnaire. The questionnaire remained open for three weeks with two follow-up reminders (see Appendices G & H). The reminder email message was sent at the beginning of the second and third week to encourage potential participants to participate and enter the drawing to potentially win a $50 VISA gift card.

Data were downloaded to an Excel spreadsheet and stored on a password-protected computer by Dr. Ellen Rogo; storage will be in a locked area for a period of seven years. Data from incomplete questionnaires were removed from the Excel files prior to analysis. Statistics were adjusted to reflect the number of respondents for each question in a section. This adjustment allowed for the use of data in other subsections. If a participant did not complete one or more questions in a section, yet completed other sections of the survey, the data for the uncompleted section were removed from the Excel file prior to data analysis. After seven years the data will be destroyed.

Instruments.

The pretest/posttest student advocacy questionnaire instrument was developed in the previous study by Rogo et al. (2014) and was the questionnaire instrument used for the first part of this study (see Appendix E). These researchers established Item Content

Validity of 80% or higher for the items on the questionnaire. Internal reliability also was determined using Cronbach's alpha at 90% or higher levels.

The pretest/posttest student advocacy questionnaire contained four sections. Demographic questions were asked in section one. Section two was comprised of sixteen Likert statements that assessed participants' knowledge about: macro-level health policy and determinants, proposed bills becoming law, bill location and information, and subcommittee legislator contact information. Knowledge responses from the pretest/posttest were assessed on a Likert scale of 1-7 and were based on level of agreement with 1=Strongly Disagree, 2=Moderately Disagree, 3=Slightly Disagree, 4=Neither Agree or Disagree, 5=Slightly Agree, 6=Moderately Agree and 7=Strongly Agree.

Eleven assertions were included in the values section of the pretest/posttest student advocacy questionnaire. These statements collected data about the importance of participants' perceptions relating to increasing advocacy awareness, developing professional relationships with lobbyists, state associations, legislators, and outside interest groups, understanding opponents, and advocacy mentoring. Value responses were scored on Likert scale based on level of importance with 1=Extremely Not Important, 2=Moderately Not Important, 3=Slightly Important, 4= Neutral, 5=Slightly Important, 6=Moderately Important, and 7=Strongly Important.

Action statements included eleven declarations assessing the participants' probability of participating in advocacy efforts. These advocacy efforts included: attending a legislative event, contacting and speaking with legislators, supporting political action committees (PAC), becoming a member of a legislative committee,

providing testimony, and working on a campaign. Responses were rated on a probability Likert scale ranging from 1=Not Very Probable, 2=Probably Not, 3=Possibility of Not, 4=Neutral, 5=Possibility, 6=Probably, and 7=Very Probable.

During the administration of the posttest section of the pretest/posttest student advocacy questionnaire, a section was added with eight statements about perceived barriers to advocacy action and two open-ended questions focusing on encouraging participation in legislative advocacy efforts, and feedback regarding the LAEU. Barrier statements were assessed on a Likert agreement scale with 1=Strongly Disagree, 2=Moderately Disagree, 3=Slightly Disagree, 4=Neither Agree or Disagree, 5=Slightly Agree, 6=Moderately Agree and 7=Strongly Agree.

The study instrument for the second portion of this investigation was a self-designed alumni legislative advocacy action questionnaire (see Appendix J). An Item Content Validity Index (I-CVI) was conducted prior to use. Three dental hygiene BS alumni and two dental hygiene MS alumni who completed the LAEU were invited to establish content validity for the self-designed alumni questionnaire. According to Schilling, Dixon, Grey, Ives, and Lynn (2007), a valid method for assessing content validity is to use participants from the research population who are referred to as "experiential experts" to establish content relevance of the data collection instrument (Schilling et al., 2007, p. 362). Items on the alumni legislative advocacy action questionnaire were assessed on a 4 point I-CVI scale as follows: 1=Not Relevant, 2=Somewhat Relevant, 3=Quite Relevant, and 4=Highly Relevant (Polit, Beck, & Owen, 2007). According to Polit et al. (2007), the I-CVI is the preferred method for establishing inter-rater agreement. An I-CVI score of 78% or higher for each item on the self-

designed survey is considered relevant (Polit et al., 2007). The scores from each reviewer were totaled and divided by the number of reviewers to determine the I-CVI for each item. Scores of three or four were counted. Based on the I-CVI scores of 80% or higher, the self-designed questionnaire was modified to reflect changes noted by the reviewers on questions not scoring an 80%.

Reliability was established using a test-retest approach. The questionnaire was administered once and then again one week later to the same five alumni. Any item that was evaluated below 80% was revised or deleted. Three BS alumni and two MS alumni participants were invited to establish test-retest reliability for the alumni legislative advocacy action questionnaire. Intraclass correlation (ICC) using Winer reliability was the statistical analysis used to evaluate the Likert and frequency scales (0.97) indicating a strong correlation between the pretest and the posttest. This test measured the homogeneity of responses between the two tests (Vogt & Johnson, 2011).

The self-designed alumni questionnaire was divided into six sections: (a) Section 1: General Information; (b) Section 2: Experience in Legislative Advocacy; (c) Section 3: Barriers; (d) Section 4: Advocacy Engagement Factors; and (e) Section 5: Mentorship of Organizations; and (f) Section 6: Demographics. The general information section evaluated closed-ended questions about degree completed, involvement with local, state, and national associations. This section included a legislative advocacy definition listed in the operational definitions of Chapter 1. Participants were advised to consider oral health, general health and other initiatives such as education, animal welfare, environmental, etc. when responding to the survey. Two additional questions were asked about the frequency of involvement in advocacy actions prior to and after completing the LAEU. These

responses were ranked on a five point Likert scale: 1=Never, 2=Rarely, 3=Sometimes/Occasionally, 4=Frequently, 5=Very Frequently.

Experiences in legislative advocacy were designed to evaluate participants' sustained advocacy efforts after completing a leadership course with a LAEU and the level of advocacy activity within organizations. A frequency scale assessed the number of times participants have worked on political campaigns, attended meetings with political candidates, subscribed to advocacy listserv, received legislative updates, interacted with politicians via social media, have been a member of committee involved in advocacy, provided advocacy material and mentorship to colleagues, contacted legislators or provided support to organizations by donating time or money. Responses were ranked: 1=Never, 2=Less than once per year, 3=One to two times per year, 4=Three to four times per year, and 5=Five to six times per year, and 6=More than six times per year. Nineteen statements assessed the level of participants' advocacy efforts after completion of the LAEU.

Barriers were evaluated with seven statements that were utilized in the original questionnaire given to the student sample (Rogo et al., 2014). Topics included lack of time, financial resources, or mentorship as well as priorities and belief in actions making a difference. The advocacy barriers were drawn from the experience with the LAEU and the nursing literature. One open-ended question about additional barriers impeding advocacy actions that was not included in the original study by Rogo et al. 2014 was added to the alumni questionnaire. A definition of barriers obtained from the operational definition section of Chapter 1 was given at the beginning of this section with an implicit emphasis on barriers being ones that the participants had experienced or encountered

after completing the LAEU. The barriers section assessed close-ended questions using a Likert scale based on level of agreement with 1=Strongly Disagree, 2=Moderately Disagree, 3=Slightly Disagree, 4=Neither Agree or Disagree, 5=Slightly Agree, 6=Moderately Agree and 7=Strongly Agree.

Open-ended questions were developed to collect data on the engagement and mentorship sections. Responses to these questions were analyzed to assess participants' views on topics not addressed previously in the dental hygiene literature such as who is responsible for initiating legislative improvements for the dental hygiene profession, and what influences participants to become involved in causes, efforts, or activities related to legislative advocacy.

Two other open-ended questions assessed the level of involvement of organizations in mentorship such as professional dental hygiene associations, oral or general health coalitions and/or alliances, community groups such as Migrant Head Start programs, or other organizations involvement in advocacy mentoring of its members. A definition of mentorship was provided for participants prior to responding to two open-ended questions. The mentorship definition is included in the operational definitions section of Chapter 1. This mentorship or training definition included direct or grassroots lobbying, building relationships with coalitions, advocacy strategic planning sessions, testifying at a hearing, or other activities and education in public policy. The open-ended questions in the mentorship section explored how members in an organization have actively mentored alumni in legislative actions, and a description of the best mentorship experience since completing the LAEU.

The final section was composed of closed-ended demographic questions. These questions assessed gender, age, state of residence, and where respondents have spent their employment or volunteer time.

Limitations

Limitations of this study involved the use of an online questionnaire to gather data, the use of a convenience sample, and threats to internal and external validity. While online survey tools are an easy and cost effective means to administer the data collection instrument, limitations include the lack of depth due to a limited number of answers that might not accurately reflect respondents' status or opinions (Jacobsen, 2012; LoBiondo-Wood & Haber, 2010). To create a reliable and valid survey design, knowledge of "sampling techniques, questionnaire construction, interviewing and data analysis" by the examiner is required (LoBiondo-Wood & Haber, 2010, p. 199). Convenience sampling presents challenges because the risk of bias is greater via the use of voluntary participants who might favor certain responses when compared to the general population (Sousa, Zauszniewski, & Musil, 2004).

Internal validity threats to this study included the probability of questions not being understood or participants not answering questions truthfully. Using a convenience sample of Idaho State University dental hygiene students and alumni posed a threat to external validity because this sample might not be representative of the dental hygiene population at large who completes legislative advocacy education. Although information was gathered on the demographics of participants, no attempt was made to control for extraneous variables such as age, family attitude regarding politics, prior individual political involvement, or year of graduation. Advocacy experience levels may vary with

year of graduation. Measurement effects might also be a contributing external validity threat as the pretest questions might have sensitized the participants to the posttest questions for knowledge, values, and actions (Lo-Biondo-Woods & Haber, 2010).

Another limitation of this study was contacting the dental hygiene alumni from 2008-2013. Contact information was limited due name changes, changes in physical and/or email addresses, and changes in phone numbers. Alternative means to locate alumni included professional organizations' contact information as well as the dental hygiene alumni contact list at the Idaho State University Department of Dental Hygiene.

Statistical Analysis

Data were downloaded from the Qualtrics® database into an Excel file and Bengal ID numbers as well as email addresses were removed prior to statistical analysis. Six scale scores were computed for the data derived from the BS and the MS student participants. The pretest/posttest questionnaire data were analyzed using the Kolmogorov-Smirnov and Sharpiro-Wilk tests for assumptions of normality. The assumption of homoscedasticity was tested with the Box's M test of covariance matrices and a Levene's test of equality of error variances. If assumptions of normality and homoscedasticity were met, a parametric RM-ANOVA was used to determine where variances exist within the population and between the BS and MS student groups. According to Lo-Biondo Wood & Haber (2010), RM-ANOVA is useful in determining if differences exist within the same subjects measured at two different points in time. If either or both assumptions of normality and homoscedasticity were violated, then the nonparametric Wilcoxon signed-rank test and Mann-Whitney U tests were utilized to confirm the parametric testing of the RM-ANOVA. Nonparametric testing is

advantageous when the data within a sample are not normally distributed within a bell curve or the dispersion of the data are not equal or the same (Pagano & Gauvreau, 2007). Bonferroni corrected *p* values were used in a Post Hoc analysis to avoid the increased risk of a Type I error that can occur with multiple comparisons (LoBiondo-Woods & Haber, 2010).

Cronbach's alpha was computed to determine internal reliability of the six scale scores, three scores (knowledge, values, and actions) for the pretest and three scores (knowledge, values, and actions) for posttest. Scores were 80% or higher for each of the subscales. Each score was computed by averaging the responses on the individual items within each variable. Descriptive statistics, means, and standard errors were computed for each of the six scale scores.

The alumni questionnaire was examined using descriptive statistics including means, percentages, and frequencies to describe the alumni legislative advocacy action data (LoBiondo-Woods & Haber, 2010). Differences between undergraduate and graduate frequencies were evaluated using means and Mann-Whitney U due to non-normal distribution of data. Frequency data revealed severe right skewness when assessing frequencies of each action and the factorial analysis. Bonferroni corrected *p* values were utilized to assess significance. Ordinal Likert scale barrier responses of undergraduate and graduates were analyzed with Mann-Whitney U. Factorial analysis of barriers utilized a *t* test since no violations to normality were detected.

The responses to open-ended questions were analyzed by employing a qualitative thematic approach to investigate patterns across data. Each response was initially coded and recorded in the first analysis by two of the investigators. During the second analysis

replies were then coded piece by piece as data were deconstructed into smaller portions, which represented emergent themes regarding participants' advocacy perceptions and experiences (Merriam, 2009). These experiences and perceptions provided an emic view (LoBiondo- Woods & Haber, 2010, Merriam, 2009) into the participants' understanding of advocacy actions and perceived advocacy barriers.

Summary of Chapter 3

This study was two-fold and assessed the effects of a LAEU on the knowledge, values, and actions of BS and MS dental hygiene students. A pretest/posttest design was employed with one convenience sample group of BS and MS dental hygiene students utilizing a previously established pretest and posttest advocacy questionnaire to gather data. Baseline data were collected prior to engaging in the intervention of a LAEU in a leadership course at Idaho State University. Posttest data were gathered after the LAEU was completed. Pretest and posttest data were compared using descriptive statistics, RM-ANOVA, parametric and non-parametric testing. Perceived barriers to advocacy were assessed on the posttest only. Three null hypotheses were investigated with the comparison of data obtained from the 2014 BS and MS students: (a) there is no statistically significant difference between BS participant pretest/posttest data in regards to legislative knowledge, values, and actions; (b) there is no statistically significant difference between MS participant pretest/posttest data in regards to legislative knowledge, values, and actions; and (c) there is no statistically significant difference between data obtained from the BS class to the MS class in relation to knowledge, values, actions and barriers.

The second portion of this study investigated four research questions: (a) if BS and MS students who have completed the LAEU implemented advocacy action after graduation; (b) barriers encountered; (c) factors that would encourage advocacy participation; and (d) the roles of organizations in advocacy mentoring of members. One null hypothesis was investigated with alumni: There is no statistically significant difference between BS alumni and MS alumni in regards to (a) frequency of experiences in legislative advocacy, and (b) barriers.

Limitations of this study include a convenience sample of dental hygiene students and alumni from Idaho State University, which exposes an external validity threat as this sample may not represent the dental hygiene population as a whole. Using questionnaires to collect data presented limitations such as lack of depth of information due to pre-set statements; however, participants ranked answers, thereby, decreasing the probability of internal validity threats by not answering questions truthfully. The alumni survey employed both pre-set statements and open questions to accurately ascertain the advocacy data collected. Although employing a mixed format of pre-set questions and open ended questions does not eliminate threats to external validity, it does provide useful information about advocacy intent and actions. Contacting all dental hygiene alumni from the years 2008-2103 was a limitation due to name changes, address changes, and phone number changes. Other resources such as contact information lists were utilized to increase the number of alumni located for participation in the alumni advocacy action questionnaire.

Results and discussion were reported in the form of a manuscript to be submitted for publication in the International Journal of Dental Hygiene. The remaining sections of

the thesis reflect the manuscript specifications outlined in the author guidelines contained in Appendix J.

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Appendix A Introductory Email Pretest/Posttest

Introductory Email Pretest/Posttest

Hi everyone,

My name is Leciel Bono and as Ellen has already told you, I am finally to the Thesis portion of the Masters Program. I can tell you there is a light at the end of the tunnel! I'm excited to be working with Ellen and hope you enjoy what you learn in this course. I know I did!

As you already know I am conducting a survey as part of my Thesis project and would greatly appreciate your time and support! There will be two surveys – one at the beginning and one at midterm when you finish the advocacy portion of the course. Each survey will take a maximum of 10 minutes although I suspect you'll have it finished before then. There will also be the opportunity to receive one bonus point added to your final grade if you decide to complete the survey. If you decide not to participate, you will still have the opportunity to receive one additional bonus point through another assignment. Of course your participation is voluntary – so no pressure. (FYI – I am a great at taking surveys if you decide to do one for Thesis).

Anyway, just to tell you a little about what I am doing. This survey will be part of a study that will compare your survey responses from before completing the advocacy portion of this Leadership course to after completing the advocacy portion. Your responses will also be compared to previous classes that have taken this course so it will be interesting to see if there are any differences between classes. The undergraduate students at ISU are also taking a leadership course and we will be comparing your responses to theirs so yet another interesting dynamic to investigate. All of your responses are confidential. I am posting the link to the survey here. Please let Ellen or I know if you have any questions or

have problems accessing the link. Thank-you ahead of time for your responses. Your participation and information will be an asset in helping future classes, educators and our profession!

Sincerely,

Leciel Bono RDH-ER, MS(c)

Survey Link Posted Here

Appendix B First Reminder Email Pretest

First Reminder Email

Hi everyone,

If you have decided you want to complete the survey and have not had a chance to - I'll post the link here. For those of you who have already completed the survey - I cannot THANK-YOU enough! Your responses are valued and will provide valuable information for future advocacy courses. I appreciate your support and time. Please let me know if I can return the favor for your Thesis projects when you get there.

Sincerely,

Leciel Bono RDH-ER, MS (c)

Survey Link Posted Here

Appendix C Introductory Email Posttest

Introductory Email Posttest

Hi everyone,

Wow! I cannot believe the legislative unit is finished. The semester went by way too fast at least it did for me! Just a friendly reminder about taking the posttest survey. Again this should only take about 10 minutes. I am posting the link to the survey below. Please let Ellen or I know if you have any problems accessing the link or have any questions. Thank you ahead of time for your participation! Your responses will be valuable in assessing how an advocacy project has affected your knowledge, values, and actions along with your thoughts about advocacy.

Sincerely,

Leciel Bono RDH-ER, MS (c)

Survey Link Posted Here

Appendix D Reminder Posttest

Reminder Email Posttest

Hi Everyone,

I just want to Thank-you for taking time to fill the posttest! I really appreciate your responses and the knowledge you will share with others. Your feedback will be helpful in designing future courses and helping with advocacy efforts in our profession.

If you did not have the opportunity to fill out the posttest, I am leaving it open through the end of this week - March 30. I forgot to get a reminder in before Spring Break! The link is posted below. Again if you have already completed this - I thank you and please remember to include me if your future thesis endeavors!

Sincerely,

Leciel Bono RDH-ER, MS(c)

Survey Link Posted Here

Appendix E Data Collection Form for Pretest/Posttest Questionnaire

Data Collection Form for Posttest Questionnaire

Section 1 – Legislative Knowledge

Use the scales provided to rate each of the following advocacy items ***BEFORE*** completing a legislative advocacy educational unit (LAEU) in a Leadership course at Idaho State University.

1	2	3	4	5	6	7
Strongly Disagree	**Moderately Disagree**	**Slightly Disagree**	**Neither Agree or Disagree**	**Slightly Agree**	**Moderately Agree**	**Strongly Agree**

1. Broad determinants of health at the macro level involving social, economic, and political systems and politics have the greatest effect on population health.

2. I know the state dental hygienists' association employs the services of a professional lobbyist.

3. I know the state dental hygienists' association has presented bills into the legislature for consideration.

4. I understand the process and steps of how a bill becomes a law in my state.

5. I understand the need for a legislator to sponsor a bill to introduce it into the legislature.

6. I know how to locate bills being considered during a legislative session on the state legislature's web site.

7. I know the name of the subcommittee or standing committee that deliberates on bills related to health.

8. I can find the names of the members of the previous subcommittee or standing committee.

9. I know the names of the subcommittee or standing committee that deliberates on the state budget.

10. I can locate the names of the members of the previous subcommittee or standing committee.

11. I know how to locate the names of my state legislators (senators, representatives, assembly men, etc.)

12. I know how to access the state legislator's biography and voting record on the Project Vote Smart web site.

13. I know how to find my legislator's contact information on the state legislator's web site.

14. I can write a letter to my state representatives indicating my support or opposition position of a bill.

15. I can construct a fact sheet using evidence to support my position on a bill.

16. I can follow the progress of a bill during a legislative session on a state web site.

Section 2 – Legislative Values

Use the scales provided to rate each of the following advocacy items BEFORE completing a legislative advocacy educational unit (LAEU) in a Leadership course at Idaho State University.

1	2	3	4	5	6	7
Extremely Not Important	**Moderately Not Important**	**Slightly Not Important**	**Neutral**	**Slightly Important**	**Moderately Important**	**Strongly Important**

1. It is important for dental hygienists to advocate for legislation improving oral health and general health.

2. It is important to assess which legislators support oral health and general health legislation.

3. It is important to develop professional relationships with legislators to gain support for legislation.

4. It is important to work with the state dental hygienists' association to advocate for bills that improve oral and general health.

5. The lobbyist employed by the state dental hygienists' association plays a vital role in facilitating the process of bills becoming laws.

6. It is important to build support for bills from interest groups OUTSIDE of dental hygiene (e.g. coalitions, task forces, agencies, associations).

7. It is important for dental hygienists to testify at hearings in support or opposition of legislation.

8. It is important for dental hygiene students at the entry level to receive information on legislative advocacy.

9. It is important for dental hygiene colleagues to be mentored in legislative advocacy skills within the professional association.

10. It is important to understand the opponents of legislation including the reasons for their opposition and the strategies they use to gain support for their viewpoint.

11. Making a difference empowers me to engage in future legislative advocacy efforts.

Section 3 – Legislative Actions

Use the scales provided to rate each of the following advocacy items BEFORE completing a legislative advocacy educational unit (LAEU) in a Leadership course at Idaho State University.

1	2	3	4	5	6	7
Not Very Probable	**Probably Not**	**Possibility of Not**	**Neutral**	**Possibility**	**Probably**	**Very Probable**

1. Attending an event with the state legislators sponsored by the state dental hygienists' association (e.g. Lobby Day, Legislator Day, etc.)

2. Talking to legislators on an individual basis and presenting information to them at events sponsored by the state dental hygienists' association.

3. Supporting the Political Action Committee (PAC) of the state dental hygienists' association by being a committee member or through financial means.

4. Being a member of a committee within the state dental hygienists' association (e.g. – Practice and Regulation Committee or Rules and Regulations) that deliberates on improving legislation for access to dental hygiene care.

5. Providing testimony at subcommittee hearings to support or oppose bills being considered in the legislature.

6. Interacting in person, face to face, with my state legislators at events not sponsored by the state dental hygienists' association. Providing testimony at subcommittee hearings to support or oppose bills being considered in the legislature.

7. Visiting my state legislators or staff members at their office.

8. Writing letters or email messages to a state legislator to share my support or opposition to a bill.

9. Telephoning a state legislator's office to share my support or opposition to a bill with them or staff members.

10. Developing a fact sheet with evidence to support or oppose legislation.

11. Working on a campaign for a person running for office at the state or federal level.

Section 4 (Posttest Only)

Perceived Barriers

Use the scales provided to rate each of the following advocacy items BEFORE completing a legislative advocacy educational unit (LAEU) in a Leadership course at Idaho State University.

1	2	3	4	5	6	7
Strongly Disagree	**Moderately Disagree**	**Slightly Disagree**	**Neither Agree or Disagree**	**Slightly Agree**	**Moderately Agree**	**Strongly Agree**

1. Lack of time to be involved with legislative advocacy efforts.

2. Lack of priority to be involved with legislative advocacy endeavors.

3. Lack of belief that my legislative advocacy actions can make a difference.

4. Lack of comfort in speaking personally with legislators or staff members.

5. Lack of comfort testifying before legislators.

6. Lack of interest in advocating for legislation.

7. Lack of knowledge of the process for a bill to become law.

8. Lack of mentorship within the state dental hygienists association.

Open-ended Questions (Posttest Only)

What would encourage you to increase the probability of participating in legislative advocacy efforts to improve oral health and general health?

Is there additional feedback about Legislative Advocacy Project that you wish to share?

Appendix F Alumni Introductory Email

Alumni Introductory Email

An opportunity to think about advocacy in legislative efforts is coming your way soon! A thesis questionnaire conducted by Leciel Bono at Idaho State University will be forwarded via email in the next few days. You will be asked to answer questions about advocacy participation and engagement.

I would like to make it easy and convenient for you to participate. The questionnaire can be completed online in a setting of your choice. Without your generous help, the success of this research will not be possible.

To say thanks, you will be invited to participate in a drawing for a $50 VISA gift card. If the questionnaire is completed within the first week you will have the opportunity to be entered in the drawing 3 times! I hope you will take 10-15 minutes of your time to provide valuable information that will benefit the dental hygiene profession and others. This questionnaire will let you voice your thoughts and opinions about advocacy and the issues facing advocacy engagement in our profession today.

Best Wishes,

Leciel Bono, RDH-ER, MS(c)

Master of Science degree in Dental Hygiene Candidate

Idaho State University Department of Dental Hygiene

Appendix G First Reminder Email

Reminder Email

Hi everyone,

I just wanted to touch base about the Alumni Advocacy Questionnaire that was emailed one week ago. If you have already completed the questionnaire, please disregard this email. I thank you for time and willingness to share your insights and opinions. Without your help this research would not be possible and I sincerely appreciate your responses.

If you have not yet completed the survey please consider participating in this important study. Your responses will help guide future advocacy efforts and education in preparing dental hygiene professionals who are equipped with advocacy skills to address current oral health issues facing our nation today. The survey will take 10-15 minutes of your time and as token of appreciation you will have the opportunity to be entered once time to win a $50 VISA gift card. If you wish to be entered in the drawing, you will be asked to enter your email address as contact information. The contact information is not linked to the survey and will be removed before data analysis.

You may start and return to the questionnaire as many times as needed during the three-week period that the survey is open. Before starting the survey, you will be asked to read the informed consent and click the "I Agree" button at the bottom of the page. You can access the survey at the following link posted below.

Your contribution to this study is important. Responses and opinions will provide valuable information about advocacy engagement, barriers, and advocacy mentorship within organizations. Your participation is voluntary and responses are confidential. Non-

participation does not affect your affiliation with the Department of Dental Hygiene at Idaho State University.

If you have any questions or concerns, please contact me at bonoleci@isu.edu or Dr. Ellen Rogo at rogoelle@isu.edu. Thank you for your time and consideration regarding this important research study.

Sincerely,

Leciel Bono, RDH-ER, MS(c)

Master of Science degree in Dental Hygiene Candidate

Idaho State University Department of Dental Hygiene

Appendix H Second Reminder Email

Second Reminder Email

Hi everyone,

Just a friendly reminder that the Alumni survey is in its final week! If you have already completed the questionnaire, please disregard this email. I thank you for time and willingness to share your insights and opinions. Without your help this research would not be possible and I sincerely appreciate your responses.

If you have not yet completed the survey please consider participating in this important study. Your responses will help guide future advocacy efforts and education in preparing dental hygiene professionals who are equipped with advocacy skills to address current oral health issues facing our nation today. The survey will take 10-15 minutes of your time and as token of appreciation you will have the opportunity to be entered once time to win a $50 VISA gift card. If you wish to be entered in the drawing, you will be asked to enter your email address as contact information. The contact information is not linked to the survey and will be removed before data analysis.

You may start and return to the questionnaire as many times as needed during the three-week period that the survey is open. Before starting the survey, you will be asked to read the informed consent and click the “I Agree” button at the bottom of the page.

Your contribution to this study is important. Responses and opinions will provide valuable information about advocacy engagement, barriers, and advocacy mentorship within organizations. Your participation is voluntary and responses are confidential. Non-participation does not affect your affiliation with the Department of Dental Hygiene at Idaho State University.

If you have any questions or concerns, please contact me at bonoleci@isu.edu or Dr. Ellen Rogo at rogoelle@isu.edu. Thank you for your time and consideration regarding this important research study.

Sincerely,

Leciel Bono, RDH-ER, MS(c)

Master of Science degree in Dental Hygiene Candidate

Idaho State University Department of Dental Hygiene

Appendix I Data Collection Form for Alumni Adovcacy Action Questionnaire

Data Collection Form for Alumni Advocacy Action Questionnaire

General Directions: This questionnaire is about your experiences with legislative advocacy since graduating from Idaho State University (ISU) and completing the leadership advocacy educational unit during your undergraduate or graduate education.

Legislative advocacy *includes, but is not limited to, engaging in activities to support or oppose legislation, contacting legislators, locating and following bills through a legislative session and/or developing fact sheets.*

In answering the survey questions please consider oral health, general health and other initiatives such as education, animal welfare, environmental, etc. Therefore, this survey does not only pertain to legislative advocacy for the dental hygiene profession.

Section 1: General Information.

Directions: *Please choose only* ***ONE*** *answer in this section.*

1. What is the highest degree you have earned?

   Bachelor

   Master

   Doctoral

   Other, please specify:

2. Please rate your participation in legislative advocacy actions PRIOR to the leadership course.

1	2	3	4	5
Never	Rarely	Sometimes/ Occasionally	Frequently	Very Frequently

3. Have you graduated with a master's degree or are currently enrolled in the master's program?

   Yes

   No

4. If you did not attend ISU for your undergraduate education, did you receive information, activities, or assignments about legislative advocacy at your other program(s)?

   Yes

   No

   Not sure

5. What was your level of involvement in the American Dental Hygienists' Association (ADHA) for students during your undergraduate dental hygiene education?

   Was not a member

   Member

   President

   Vice President

   Secretary

Treasure

Chair of a Committee

Other, please specify:_____

6. Which status best describes your current involvement with the ADHA?

Not a member

Member

Member and leadership position (as a delegate, task force member, etc.)

Other, please specify:_____

7. Which status best describes your current involvement with your state association?

Not a member

Not a member and active on a committee

Member

Member and leadership position (president, vice president, secretary, treasurer, committee chairperson, trustee, etc.)

8. Which status best describes your current involvement in your local dental hygiene association?

Not a member

Not a member and active on a committee

Member

Member and leadership position (president, vice president, secretary, treasurer, committee chairperson, trustee, etc.)

9. Are you currently registered to vote?

   Yes

   No

   Do not know

10. Did you vote in the last general election?

    Yes

    No

    Do not remember

11. Please rate your participation in legislative advocacy actions AFTER the leadership course.

1	2	3	4	5
Never	Rarely	Sometimes/ Occasionally	Frequently	Very Frequently

Section 2: Experience in Legislative Advocacy.

Directions: *Indicate the number of times you have participated in the following actions* ***SINCE*** *completing the advocacy unit. Please average your number of times of participation on a yearly basis. Please consider interactions on the local, state, and national level.*

Please use the following definition as you answer the questions below.

Organizations: *are not limited to dental hygiene but can include other organizations such as educational, public health, animal welfare, environmental promotion, alternative care settings such as long-term care, public schools, migrant health start, etc.*

1	2	3	4	5	6
Never	Less than once per year	1-2 times per year	3-4 times per year	5-6 times per year	More than 6 times per year

12. Attended (and did not verbally participate in) a town hall meeting or public forum where political candidates or representatives were present.

13. Attended an event formally sponsored by an organization such as Lobby Day, Advocacy Day, or Legislative Breakfast where political candidates or representatives were present.

14. Attended an event sponsored by an organization that discussed legislative issues where political candidates or representatives were not present?

15. Been a member of a committee such as practice and regulations, district delegate, dental hygiene board, etc. in an organization responsible for legislative advocacy

16. Worked with a campaign for a political candidate seeking office.

17. Mentored colleagues or members in an organization about political issues.

18. Received information about political representatives, actions, or causes by subscribing to an online listserve.

19. Interacted on social media (Facebook, LinkedIn, Snapchat, Twitter, Instagram or other) with political candidates or representatives.

20. Interacted on social media (Facebook, LinkedIn, Snapchat, Twitter, Instagram or other) with an organization involved in legislative advocacy.

21. Worked with a lobbyist representing an organization such as an Oral Health Coalition, General Health Coalition, (Ryan White, Head Start, etc.) or Community Group related to oral health, education, environment, animal welfare, etc.

22. Provided advocacy materials such as community action kits, videos, literature, fact sheets, or other advocacy resources to educate and inform colleagues,
the public or political representatives to support or oppose legislation.

23. Visited "Advocacy" webpages and sought information on practice issues, association efforts, and legislation tracking.

24. Contacted in person, through letter, or email message my political representatives or one of his/her staff members to support or oppose legislation.

25. Testified at a subcommittee hearing on behalf of an organization.

26. Supported advocacy efforts of an organization by volunteering time.

27. Supported advocacy efforts of an organization by making financial contributions.

28. Participated in legislative advocacy efforts in the local dental hygiene component.

29. Participated in legislative advocacy efforts in the state dental hygiene component.
30. Participated in legislative advocacy efforts at the national level (i.e. ADHA).

Section 3

Barriers: *Obstacles that impede* ***YOUR*** *advocacy actions.*

Rate from 1 to 7 on a scale of agreement each of the following barriers you have encountered SINCE completing the advocacy unit.

1	**2**	**3**	**4**	**5**	**6**	**7**
Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree

31. Lack of time to engage in legislative issues.
32. Lack of financial resources to support advocacy.
33. Lack of knowledge regarding current issues.
34. Lack of comfort testifying before legislators.
35. Lack of mentorship within dental hygiene associations or other organizations.
36. Lack of professional priority to be involved with legislative advocacy endeavors.
37. Lack of interest in advocating for legislation.
38. Lack of belief that my legislative actions can make a difference.
39. What are additional barriers impeding advocacy actions not questioned above?

Section 4

Advocacy Engagement Factors

Please use the following definition as you answer the questions below.

Advocacy Engagement Factors: *are the reasons one becomes involved in causes', efforts, and activities that are deemed important.*

40. Who is responsible for initiating legislative improvements for the dental hygiene profession such as securing self-regulation, expanding the scope of practice, and receiving direct dental insurance reimbursement?

41. What influences you to become involved in causes, efforts or activities related to legislative advocacy?

Section 5

Mentorship

Please use the following definition as you answer the questions below.

Mentorship: *involves an active relationship between two or more people where learning, support, and communication are key to addressing challenges, achieving leadership, and participating in advocacy actions. The mentor leads the mentee in this relationship through teaching and active participation.*

42. Please indicate if you have been mentored in relation to legislative advocacy.

Yes

No

43. How have members in an organization actively mentored you in legislative advocacy actions? This mentoring might include contacting legislators, building relationships with coalitions or community groups, participating in advocacy sessions, testifying at a hearing, or implementing other activities.

44. Describe your best mentorship experience since completing the legislative advocacy unit in the leadership course.

Demographics – Choose only one answer.

45. Please identify your gender

    Female

    Male

46. In which state or provinces do you currently reside?

47. What is your age?

    Less than 30

    30-39

    40-49

    50-59

    60 or more

48. When were you enrolled in the dental hygiene leadership course at Idaho State University?

    2013

    2012

    2011

    2010

    2009

    2008

49. Since completing the leadership course, in which location have you spent the **MOST** time as a paid employee?

    Have not been employed

    Clinical practice

    Educational program

    Public health setting

    Alternative care setting – e.g. long-term care, school, migrant head start, etc.

    Animal welfare organization

    Environmental promotion organization

    Other, please specify:

    _____

50. Since completing the leadership course, in which location have you spent the **MOST** time volunteering?

    Have not volunteered

    Clinical practice

    Educational program

    Public health setting

    Alternative care setting – e.g. long-term care, school, migrant head start, etc.

    Animal welfare organization

    Environmental promotion organization

    Other, please specify:

    _____

51. What degree did you earn from ISU?

    Bachelors

    Masters

    Both

52. What year did you graduate from ISUs Dental Hygiene program with your highest degree?

        2014

        2013

        2012

        2011

        2010

        2009

        2008

        Have not graduated

Appendix J Author Guidelines

International Journal of Dental Hygiene Author Guidelines

2. ETHICAL GUIDELINES

2.1. Authorship and Acknowledgements

Authors submitting a paper do so on the understanding that the manuscript have been read and approved by all authors and that all authors agree to the submission of the manuscript to the Journal.

As of February 1st, 2012, it is a requirement that the corresponding author submit a short description of each individual's contribution to the research and its publication. Upon submission of a manuscript all co-authors should also be registered with a correct e-mail addresses. If any of the e-mail addresses supplied are incorrect, the corresponding author will be contacted by the Journal Administrator.

3.2. Submitting Your Manuscript

After you have logged into your 'Author Center', submit your manuscript by clicking on the submission link under 'Author Resources'.

*Enter data and answer questions as appropriate. You may copy and paste directly from your manuscript and you may upload your pre-prepared covering letter.

*Click the 'Next' button on each screen to save your work and advance to the next screen.

*You are required to upload your files.

- Click on the 'Browse' button and locate the file on your computer.

- Select the designation of each file in the drop down next to the Browse button.

- When you have selected all files you wish to upload, click the 'Upload Files' button.

*Review your submission (in HTML and PDF format) before completing your manuscript by sending it to the Journal. Click the 'Submit' button when you are finished reviewing.

3.3. Manuscript Files Accepted

Manuscripts should be uploaded as Word (.doc, .docx) or Rich Text Format (.rft) files (not write-protected) plus separate figure files. GIF, JPEG, PICT or Bitmap files are acceptable for submission, but only high-resolution TIF or EPS files are suitable for printing. The files will be automatically converted to HTML and a PDF document on upload and will be used for the review process. The text file must contain the entire manuscript including title page, abstract, text, references, tables, and figure legends, but no embedded figures. In the text, please reference figures as for instance 'Figure 1', 'Figure 2' to match the name you

choose as a tag for the individual figure files uploaded. Manuscripts should be formatted as described in the Author Guidelines below.

4. MANUSCRIPT TYPES ACCEPTED

Original Articles: related to dental hygiene. Original articles must describe significant and original observations and provide sufficient detail so that the observations can be critically evaluated and, if necessary, repeated. Original articles should be structured as specified below.

5. MANUSCRIPT FORMAT AND STRUCTURE

5.1. Format

Language: The language of publication is English. Authors for whom English is a second language must have their manuscript professionally edited by an English speaking person before submission to make sure the English is of high quality. A list of independent suppliers of editing services can be found at http://authorservices.wiley.com/bauthor/english_language.asp. All services are paid for and arranged by the author, and use of one of these services does not guarantee acceptance or preference for publication

Abbreviations, Symbols and Nomenclature: Only abbreviations and symbols that are generally accepted should be used. Unfamiliar ones must be defined when first used.

Font: Begin each manuscript component (title page, abstract, etc.) on separate pages. The pages of the manuscript, beginning with the title page, should be numbered consecutively. All sections of the manuscript must be double-spaced.

5.2. Structure

All manuscripts submitted to *International Journal of Dental Hygiene* should include title page, abstract, main text, references and tables, figures, figure legends and acknowledgements as appropriate:

Title Page: should contain an informative title, author(s) names and their affiliations. Name, address, telephone and fax numbers and e-mail address of the corresponding author. If the title exceeds 40 characters (letters and spaces) a running title of no more than 40 characters must be supplied. Financial support should be acknowledged as a footnote to the title. Also provide 3-10 key words that will assist indexers in cross-indexing the article. Use terms from the Medical Subject Headings list from Index Medicus whenever possible.

Abstract: should not exceed 250 words and should be arranged in a structured fashion (to include objectives, methods, results and conclusions.) It should state the purpose of the study, basic procedures (study subject/patients and methods), main findings (specific data and statistical significance), and principal conclusions.

Main Text of Original Articles should include introduction, study population and methodology, results and discussions.

Clinical Relevance: This section is aimed at giving clinicians a reading light to put the present research in perspective. It should be no more than 100 words and should not be a repetition of the abstract. It should provide a clear and concise explanation of the rationale for the study, of what was known before and of how the present results advance knowledge of this field. If appropriate, it may also contain suggestions for clinical practice. It should be structured with the following headings: scientific rationale for study, principal findings, and practical implications. Authors should pay particular attention to this text as it will be published in a highlighted box within their manuscript; ideally, reading this section should leave clinicians wishing to learn more about the topic and encourage them to read the full article.

Introduction: Present the background briefly, but do not review the subject extensively. Give only pertinent references. State the specific questions you want to answer.

Study population and methodology: Describe selection of study population including controls. Identify methods, apparatus (manufacturer(s) name and address), and procedures in sufficient detail to allow other workers to reproduce the results. Detailed descriptions of standard procedures are not required; literature references will usually suffice. Identify drugs and chemicals, including generic name, dosage and route(s) of administration. The authors accept full responsibility for the accuracy of the whole content, including findings, citations, quotations and references contained in the manuscript. In all reports of original studies with humans, authors should specifically state the nature of the ethical review and clearance of the study protocol. Informed consent must be obtained from human subjects participating in research studies.

Results: Present results in logical sequence in tables and illustrations. In the text, explain, emphasize or summarize the most important observations.

Discussion: Do not repeat in detail data given in the Results section. Emphasize the new and important aspects of the study. Relate the observations to other relevant studies. On the basis of your findings (and others) discuss possible implications/conclusions.

Acknowledgements: Acknowledge only persons who have made substantive contributions to the study. Authors are responsible for obtaining permission from everyone acknowledged by name because readers may infer their endorsement of the data and conclusions. Authors are expected to disclose any commercial or other relationships that could constitute a conflict of interest.

5.3. References

The Journal follows the Vancouver referencing system. Number references consecutively in the order in which they are first mentioned in the text. Identify references in text, tables and legends by Arabic numerals (in parentheses). All references cited, and only these, must be listed at the end of the paper. References should be according to the style used in Index Medicus and the International List of Periodical Title Word Abbreviations (ISO 833). All authors must be listed. Please read more about the Vancouver reference style at: www.blackwellpublishing.com/authors/reference_text.asp?site=1

We recommend the use of a tool such as Reference Manager for reference management and formatting. Reference Manager reference styles can be searched for here: www.refman.com/support/rmstyles.asp

Examples:

Standard journal articles

1. International Steering Committee. Uniform requirements for manuscripts submitted to biomedical journals. N Engl J Med 1997; 336: 309.

2. Carl DL, Roux G, Matacale R. Exploring dental hygiene and perinatal outcomes. Oral health implications for pregnancy and early childhood. AWHONN Lifelines 2000 Feb-Mar;4(1):22-7.

Books

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Title Page of Manuscript

Igniting advocacy: The influence of a Legislative Advocacy Educational Unit on dental hygiene students and alumni

Leciel K. Bono*, RDH-ER, MS

Clinical Instructor

Idaho State University

Department of Dental Hygiene

921 S. 8th Ave. Stop 8048

Pocatello, Idaho 83209

Cell: (208) 221-4973

Fax: (208) 282-4071

bonoleci@isu.edu

Ellen J. Rogo, RDH, PhD

Associate Professor

Idaho State University

921 S. 8th Ave. Stop 8048

Department of Dental Hygiene

Pocatello, Idaho 83209

Cell: (208) 251-3940

Fax: (208) 282-4071

rogoelle@isu.edu

Kathleen Hodges, RDH, MS

Professor Emerita

Idaho State University

Department of Dental Hygiene

921 S. 8th Ave. Stop 8048

Pocatello, Idaho 83209

Phone: (208) 705-9000

Fax: (208) 282-4071

hodgkat1@isu.edu

Alan C. Frantz, PhD

Professor

Idaho State University

Department of School of Psychology & Educational Leadership

College of Education

921 S. 8th Ave. Stop 8059

Phone: (208) 282-2285

Fax: none

franalan@isu.edu

Teri Peterson, EdD

Assistant Professor

Idaho State University

College of Business

921 S. 8th Ave. Stop 8059

Pocatello, Idaho 83209

Phone: (208) 282-5333

Fax: none

peteteri@isu.edu

Contributions to research: Leciel Bono, Dr. Ellen Rogo, Kathleen Hodges, and Dr. Alan Frantz were instrumental in the development of the research proposal, collecting data, analyzing data, and writing the manuscript. Teri Peterson was consulted during the proposal development of the alumni survey and assisted in analyzing the data.

Manuscript Abstract

Abstract: *Objective:* Connecting leadership theory to practice is important in extending students' knowledge about advocacy. Understanding advocacy participation after graduation will aid in developing effective leadership education. Therefore, students were surveyed to assess the influence of a Legislative Advocacy Education Unit (LAEU) on knowledge, values, actions, and barriers. Alumni were surveyed to determine advocacy actions, barriers, engagement, and mentorship. *Methods:* One hundred percent undergraduate (n=25) and graduate (n=13) 2014 dental hygiene students who participated in the LAEU completed a pretest/posttest questionnaire. Also, undergraduate (n=51, 45.5%) and graduate (n=14, 35%) 2008-2013 alumni completed a self-designed online questionnaire with content validity of 80% and test/retest reliability of 97%. Data were analyzed using descriptive statistics, parametric and non-parametric tests, and qualitative inductive analysis. *Results:* RM-ANOVA results with Bonferroni corrected p values, yielded a statistically significant pretest/posttest interaction for BS and MS knowledge, values, and BS actions (P<0.001). No significance difference was detected for MS pretest to posttest actions. Non-parametric testing yielded significant interactions between MS and BS alumni regarding subscribing to online listservs, contacting political representatives, and advocating for legislation (P=0.004). Inductive analyses yielded emergent themes of *Collective Efforts* (who is responsible for advocacy), *Advocacy Commitment* (what would encourage participation), *Mentoring Experiences*, and *Competing Priorities* (barriers). *Conclusions:* The LAEU had a positive impact on students' advocacy knowledge, values, and actions. Frequency of alumni advocacy actions was low; however, MS alumni were more active in searching for advocacy

information, contacting legislators, and engaging in advocacy. Emergent themes provided valuable insights into engaging and encouraging advocacy actions.

Key Words

Key Words: Dental Hygienists/Education, Health Policy/Legislation & Jurisprudence, Leadership, Social Determinants of Health, Mentors, Program Development

Title of Manuscript

Igniting advocacy: The influence of a legislative advocacy educational unit (LAEU) on dental hygiene students and alumni

Introduction

Advances to oral health care over the past century have improved significantly, however, oral health disparities have emerged as low income and socially disadvantaged groups experience higher disease rates than high income or socially advantaged individuals (1). Studies investigating the effect of health determinants on oral disease progression have demonstrated a linear progression between low socio-economic status (SES) and tooth loss (2), periodontal disease (3), and untreated caries (4). Periodontal risk factors have been linked to systemic diseases such as insulin resistance, diabetes, and cardiovascular disease (5, 6) while other studies have suggested stress as a common shared risk factor of periodontal disease (7, 8) and cardiovascular disease (9). Additional studies exploring general health and oral health status in relation to SES and allostatic load or biological deterioration of the body's regulatory system in response to stress have suggested similar correlations (10, 11). As the gap between access to care and oral health disparities widen, dental-related emergency room visits have doubled to accommodate for these disparities in the United States, over the past decade, to two billion dollars per year (12). Understanding and addressing the role of health determinants in the ecology of health and exploring alternative solutions in providing care to underserved populations is crucial in decreasing the negative impact of oral-systemic diseases throughout the course of a lifetime (13-16).

Health determinants are a biological, social, and political complex of facets that are interfaced on three levels: micro, mesio, and macro. This interfacing generates the ecology of health model (17) where interactions of individuals, communities, populations, and oral health providers occur. Macro (upstream) level changes are broad in scope and address federal and state systems and policies. Mesio (midstream) health determinants impact living and working environments within a community. Micro (downstream) determinants reflect traditional oral health care where altering an individual's behavior or modifying lifestyle choices is utilized (18, 19).

Upstream interventions by health and governmental agencies addressing oral health disparities such as changing policy makers oral health perceptions, promoting oral health programs, addressing oral-systemic disease prevention, increasing the practice scope of oral health providers, and endorsing reimbursement strategies have the capacity to influence mesio and micro health determinants (14, 15, 17). The recent enactment of the Patient Protection and Affordability Care Act (ACA) in the United States is an example of macro-level legislation with the primary objective of providing an equitable distribution of health services to the uninsured by increasing Medicaid health benefits and access to private insurance coverage (20). ACA changes at the upstream level trickle down into the mesio or midstream plateau, and have the potential to influence communities, families, and living conditions as access to private insurance coverage and Medicaid benefits expand. This macro-level intervention seeps further into the micro or downstream level impacting individual health.

In order to address the breach between access to care and oral health disparities, a paradigm shift from downstream traditional oral-health treatment to upstream political

awareness needs to be addressed (19). Oral-health policy changes (21), management of community and population health resources (22), and sustained advocacy actions are vital for this change (23). With the costly and debilitating impact of oral disease on communities and individuals and a global focus on social health determinants (15, 16, 24) there is a driving force to address advocacy education in dental hygiene curricula yet investigations are limited (25-27).

Legislative advocacy is the keystone that can bridge the gap between access to care for disparate populations today and the interplay of health determinants in this process. Advocacy implementation requires leadership, the ability to challenge the status quo, and the foresight to instigate changes through policy formulation and upstream interventions. Helping students develop advocacy skill sets such as recognizing how legislators make policy decisions, understanding financial impacts (26, 28), introducing health information, networking, strategic planning (29, 30), and developing commitment and perserverence (31) are crucial steps in creating political competence.

Nursing has provided a diverse template of political involvement and leadership experiences in undergraduate and graduate advocacy education. Experiential activities working as legislative interns (32), collaborating with stakeholders (33), completing a political practicum on local and state boards (34), and advocating for community water fluoridation (35) are examples of educational strategies that provide a foundation for continued advocacy action. Adult active learning strategies utilized problem-based learning (36), weeklong and daylong advocacy modules (27, 37), political and macro-level legislation assignments (38), policy formulation strategies (39), and the development of an advocacy project (26). Learning outcomes suggested students

developed advocacy awareness (26), the recognition of advocacy as an avenue for change (37), the ability to view health care at the population level (39), and political empowerment (40). As educators and professionals, creating advocacy activities that include experiential education and learning in the affective domain can create the spark that ignites an advocacy fire. Mentoring and examples of leadership are crucial components in establishing this political awakening.

Keeping the advocacy fire burning, however, becomes a challenge as barriers such as lack of time, fear, inadequate resources (26), and a focus directed away from population oral health impede advocacy efforts. Although advocacy awareness and the recognition for the need to become involved are initiated in an educational setting, sustained advocacy actions after graduation may not occur (41, 42). Research investigating factors that encourage advocacy engagement suggest professional organization mentoring of members (26), educator role models (42), a commitment to make a difference (43), and an awareness of oral health disparities at the population leveln (44) were key components considered for continued advocacy efforts.

The dental hygiene profession is at a critical juncture as opportunities to develop and grow loom on the horizon. Examples of this growth include dental hygienists on interprofessional health care teams (45), advanced practitioners who provide care in alternative practice settings, a master's level entry degree and a terminal doctoral degree along with population oral health policy formulation are current issues gathering attention (46). Modeling, teaching, mentoring, and utilizing one's voice when population oral health challenges arise are the defining characteristics of professionals and educators, who will inspire the next generation. Creating future leaders that can competently

navigate the political arena, and address macro level legislation and policy formulation becomes our *call to action* as guardians of the dental hygiene profession.

The initial portion of this study investigated the hypothesis that a LAEU for undergraduate and graduate students would not differ significantly in pre-knowledge, values, and actions when compared to post-knowledge, values, and actions. In addition it was hypothesized that there would not be a significant difference between undergraduate (BS) and graduate (MS) participants knowledge, values, and actions. In the second part of this study, research questions about alumni actions and perceptions provided insightful observations into (a) advocacy actions initiated by alumni; (b) barriers encountered; (c) engagement factors that would encourage advocacy action; and (d) mentorship provided by organizations.

Study population and methodology

The primary investigation was implemented with a convenience sample of entry-level undergraduate (n=25) and graduate (n=13) students at Idaho State University completing a seven-week LAEU in a leadership course in the spring of 2014. The pretest was administered prior to the LAEU and the posttest was administered at the completion of the LAEU. This methodology differed from the original leadership advocacy research published by Rogo et al. (26), who administered a retrospective pretest/posttest at the completion of the LAEU and surveyed BS students from the spring semester of 2011 and MS graduates from 2008–2011.

Data for the current research study were collected using a pretest/posttest student advocacy questionnaire instrument developed in the aforementioned advocacy study. Item Content Validity was previously established. Responses from the pretest/posttest

knowledge, values, and actions were computed using Cronbach's alphas with 0.90 or higher. Using Cronbach's alphas established the internal reliability of the questionnaire. Institutional Review Board approval from Idaho State University was granted for exempt status and continued use for this study (HSC #3594).

The data collection instrument consisted of three subscales: knowledge, values, and actions assessed on a seven-point Likert scale. Average responses on individual items for each variable within the subscale (three for the pretest and three for the posttest) were calculated. Descriptive statistics were computed for the subscales. In addition, the posttest addressed perceived barriers and an open-ended question related to the probability of participating in legislative advocacy efforts.

The questionnaire was designed in Qualtrics®, an online survey tool. BS students were invited to complete the online questionnaire during scheduled lecture class time and MS students completed the questionnaire in a setting of their choice. The link to the questionnaire was sent via email addresses; however, no personal data such as IP addresses, email addresses or student ID numbers were retained. All identifying data were destroyed prior to data analysis on Excel spreadsheets to maintain confidentiality and anonymity. The first screen of the questionnaire contained an overview of the study and informed consent. Participants were asked to enter their university ID number for the sole purpose of linking the pretest to the posttest. The survey remained open for three weeks with one introductory email and two reminder emails. Participants were offered an incentive of one bonus point added to their final grade if all questions on the pretest and posttest were completed. Students were also given the choice not to participate in the study and complete an alternative activity to earn the bonus point.

Parametric testing utilized a RM-ANOVA to compare averages from pretest to posttest responses of both the undergraduate and graduate participants. Assumptions of normality were investigated by using the Kolmogorov-Smirnov and Shapiro-Wilk tests. Homoscedasticity assumptions were assessed with the Box's M test of equality of variance matrices and Levene's test of equality of error variance. If either assumptions of normality or homoscedasticity were violated, non-parametric testing was employed to define the robustness of the RM-ANOVA. Bonferroni corrected p-values were applied to the statistical results to minimize the occurrence of a Type I error. Statistically significant results of $P \leq 0.05$ were reported.

The second portion of this research was comprised of a self-designed questionnaire that was emailed to a convenience sample of undergraduate alumni (n=112) and graduate alumni (n=40) after Institutional Review Board approval from Idaho State University was granted (HSC #4177). For purposes of this study BS alumni were defined as students who had participated in the LAEU and had graduated. MS were defined as alumni who had completed the LAEU. Alumni from the initiation of the course in 2008 through 2013 were surveyed.

Three dental hygiene BS alumni and two MS alumni who completed the LAEU established an Item Content Validity Index (I-CVI) for the alumni questionnaire. All questions on the Alumni Advocacy questionnaire were scored on a four point scale: 1=not relevant, 2=somewhat relevant, 3=quite relevant, and 4=highly relevant. Content validity was established for each question when a score of 3 or 4 by 80% was received from the participants. Using participants who had completed the LAEU was considered a valid testing method as they had a prior working knowledge of the instrument being used

and were considered experts in the subject matter (47). Reliability of the self-designed questionnaire was established by using a test/retest with three BS alumni and two MS alumni and was computed using Intraclass correlation (97%). The questionnaire was administered once and then again one week later.

Qualtrics® was utilized to distribute this questionnaire. Participants were informed of the opportunity to be entered twice in a $50 VISA gift card drawing. Alumni were notified that email addresses would only be collected if they wished to enter the drawing and would be destroyed after the drawing. All identifying information was removed prior to data analysis. The first screen of the questionnaire contained an overview of the study and informed consent with an "I Agree" to continue. This questionnaire remained open for three weeks with two email reminders.

Advocacy actions were rated on a frequency scale (1-6) ranging from 1=never, 3=one to two times per year, and 6=more than six times per year. Barriers were ranked on a seven-point Likert scale of 1=Strongly Disagree, 4=Neither Disagree or Agree, and 7=Strongly Agree. Comparisons of BS alumni responses to MS alumni responses determined significant differences between the two groups and were analyzed using frequencies, nonparametric, and parametric testing. Bonferroni corrected *P*-values were applied to minimize the occurrence of a Type I error. Alpha of $P \leq 0.05$ was considered statistically significant.

Engagement factors were assessed with two open-ended questions about: who is responsible for initiating legislative improvements for the dental hygiene profession and what influences advocacy involvement. Also, mentorship within professional organizations was evaluated by two open-ended questions about: advocacy mentoring by

members in an organization and the best mentorship experience since completing the LAEU.

Responses to open-ended questions were analyzed and coded using inductive qualitative analysis by two of the researchers. Coded data that had been broken down into smaller segments was categorized as emerging themes were developed. By using a general inductive approach to analyze qualitative data, emic themes important to participants were identified (48).

Results

One hundred percent of the potential 2014 participants for the pretest/posttest questionnaire responded (BS students *n*=25 and MS students *n*=13). All participants were female. The majority of the BS respondents were between the ages of 20 and 30 years while the majority of the MS participants were between the ages of 30 and 40 plus years. All of the BS students were members of the Student Dental Hygienists' Association (SADHA), 86.9% (*n*=20) and 18.5% (*n*=5) were serving in leadership positions in this organization. The majority of MS participants held membership in the American Dental Hygienists' Association (ADHA), 46% (*n*=6) and 15.5% (*n*=2) were serving in leadership positions.

Cronbach's alphas of 80% or higher were established for each of the three variables of knowledge, values, and actions for both the pretest and posttest responses (see Table 1). The six scale scores (pre knowledge, values, and actions and post knowledge, values, and actions) were calculated by averaging the responses on individual items within each variable to measure the consistency of the subscales in the questionnaire. Descriptive statistics including means suggested an increase in mean

scores for both the BS and MS participants from pretest to posttest (see Table 2). Ratings of self-perceived knowledge, values, and actions were ranked on a Likert items scale from 1-7. Low reported scores such as little knowledge, low values, and low actions ranged from 1-3, while 4 represented neutral, and high scores of more knowledge, high values, and high actions were reported as rankings 5-7. Both BS and MS students ranked pre-knowledge scores as low and neutral, while high post knowledge scores were reported for both groups. Pre-value and post-value scores were high for both groups while pre to post actions scores were ranked the lowest for BS respondents and neutral to high for MS participants.

RM-ANOVA testing suggested significant differences from the pretest to the posttest in BS and MS students' knowledge, values, and BS actions ($P<0.001$) (see Table 3). Bonferroni corrected P values indicated a non-significant pretest/posttest interaction ($P=0.084$) for the MS group's actions. The nonparametric testing outcomes, used to verify the robustness of the RM-ANOVA when violations to normality and homoscedasticity were present, did not differ from the RM-ANOVA; therefore, parametric results were reported for the three subscales.

Perceived barriers to legislative advocacy are shown in Table 4. The two greatest barriers for both BS and MS participants were: a) lack of time to be involved in legislative activities; and b) lack of comfort testifying before legislators.

Representative examples of comments from undergraduate and graduate reflections after completing the LAEU are listed in Table 5. These reflections highlighted the ethical and moral obligations for participating in advocacy, responsibility to challenge the status quo, and leadership to implement change.

The second portion of this study encompassed an alumni questionnaire that was emailed to a convenience sample of BS and MS alumni who had completed the LAEU. One hundred forty-five undergraduate alumni were identified; however, contact information could only be located for 112 participants. Fifty-one BS alumni responded to the questionnaire (45.5%). Forty-five graduate alumni were recognized as participants; however, two participants from the 2008-2013 alumni pool had participated in the test/retest reliability portion of the questionnaire and contact information could be not be located for three MS members. Therefore, 40 MS participants were contacted by email for the alumni questionnaire. Fourteen graduate alumni responded to the survey for a 35% response rate. Although resources such as contact information lists were utilized to increase the number of 2008-2013 participants for the alumni questionnaire, contact information was limited due to name, address, email, and phone number changes. Using a questionnaire to gather data has constraints as health professionals are reported to have a lower survey response rate (49).

Ninety-nine percent of the alumni respondents were female and one percent was male. The majority of BS alumni were < 30 years old (71.7%) while the highest frequency of MS alumni were between the ages of 39 to 49 years (42.9%). Membership in the American Dental Hygienists' Association was higher for MS alumni (57.1%) with 7.1% in leadership positions when compared to the BS alumni (25.5%) with 3.9% in leadership positions. State association leadership positions for MS alumni were 7.1% and 5.9% for BS alumni.

Overall the highest frequency of yearly actions related to participation in various advocacy events was the category of "never or less than one time per year". One to two

times per year was the category with the second highest frequency. Mann-Whitney U analysis suggested there was a significant difference after Bonferroni corrections between MS and BS responses in regards to frequency of subscribing to an online listserv (P=0.001) and frequency of contacting political representatives or staff members to support or oppose legislation (P=0.003). In both instances MS alumni reported higher mean averages than BS alumni suggesting MS alumni were more active in searching for advocacy information and contacting legislators. When using a factor analysis for advocacy actions for both groups, three themes emerged: *Political Interaction, Active Participation*, and *Professional Obligation* (see Table 6). There was a significant interaction between groups for *Advocacy Interaction* using a Mann-Whitney U statistical analysis with Bonferroni corrected *P* values indicating MS alumni were more active (P=0.004).

Evaluating barriers between the two groups with Mann-Whitney U and Bonferroni corrections suggested there was a significant difference between BS and MS alumni about interest in advocating for legislation (P=0.05). The BS alumni mean score was higher than MS counterpart suggesting BS participants were neutral to the statement regarding lack of interest in advocating for legislation while MS participants slightly disagreed (see Table 7). Factor analysis findings revealed two findings: *Empowering Qualities* (priority, interest, and mentorship) and *Empowering Assets* (time, financial resources, and comfort) (see Table 8). A significant difference in a t-test analysis with Bonferroni corrected *P* values was detected between BS and MS alumni for *Empowering Qualities* indicating MS alumni were more likely to engage in advocacy and had received mentoring (P=0.001).

Early emergent themes developed from the engagement open-ended questions were *Collective Efforts* and *Advocacy Commitment. Collective Efforts* was defined as a series of legislative actions and persons working both individually and collaboratively to further a cause. These actions are dedicated to advancing the principles and interests of the profession (see Table 9). This theme was further divided into defining viewpoints of professional associations (ADHA, state, and committees), individuals (dental hygienists), and the collaborative interaction of both. Collaborative interaction involves dental hygiene practitioners and the professional association at all levels working together and providing a support system to accomplish advocacy actions.

The second theme of engagement, *Advocacy Commitment* was defined as the internal qualities or external forces that bind one to the act of engaging or assuming an advocacy course of action (see Table 10). This theme included the internal elements of importance and passion, as well as external motivating elements of changing the status quo and increasing access to care. To distinguish between importance and passion, importance was defined as an event that influences someone or something and is significant. It is weighted in value because of its significant worthiness to an issue, situation, or individual. Passion was further defined as an intense emotion that compels one to action. It is not self-limiting but comes from the power of focusing on the potential for change and making a commitment to implement that change. Responses to the internal motivating elements of advocacy commitment reflected a strong desire to engage in advocacy through the emotions of passion and the importance of the issue to dental hygiene, individuals, populations, and impact on career. One MS alumna reflected on advocacy engagement as passion and courage:

> Passion for envisioning change can be the catalyst that propels a person to pursue an advocacy project. Fear of taking risks or failure can sometimes hinder people from stepping up to be a leader for change, but "there is no success without the possibility of failure" (50).

The external motivating element of *Advocacy Commitment* reinforced the need to change the status quo and address social injustices when broadening the view of oral health disparities to a population oral health lens. Changing the status quo was described as the process of transforming circumstances or challenging current oral health care practices to improve a condition. Addressing social injustices such as increasing access to care was defined as directing efforts or attention to inequity and unfair distribution of resources. This external motivating element was summarized eloquently by this MS alumna quote: "Access to qualitative preventive oral care is a social injustice issue and an ethical obligation."

Mentoring Experiences was an emergent theme for the mentorship open-ended questions and was defined as two subcategories: practices and best encounters (see Table 11). *Mentoring Experiences* was defined as the act of coaching or modeling in a collaborative relationship where information is disseminated to improve legislative advocacy endeavors. Practices were legislative activities related to simulations, experiences, and mentoring. Respondents indicated that these actions were very useful in helping them prepare to navigate the political arena. Although there was no significant difference between BS and MS mentoring experiences, and while the majority of MS and BS alumni reported not receiving any mentoring after graduation (63.9%, n=39), the

participants who experienced mentoring valued the learning opportunity and role modeling.

The second subcategory of *Mentoring Experiences* was best encounters, which involved coaching partnerships of employers, involvement with professional associations or oral health coalitions, legislators, and *Forward Mentoring*. *Forward Mentoring* was defined as the act of "paying it forward" to mentor others without the expectation of anything in return and the mentee then mentoring someone else. A MS alumna reflection reiterated this concept, "I cannot advocate for every issue that comes along . . . What I can do is try to pass on the information . . . and help others to be better advocates in their own environment."

Competing Priorities emerged as alumni barriers were encountered (see Table 12). Confining circumstances were related to family, work and education, and geographic location. Even though confining circumstances limited advocacy action, participants were not necessarily disinterested in participating in advocacy, but had to prioritize responsibilities.

Discussion

Findings of this study provide a foundation for educators and facilitators in helping students in educational settings and members of organizations develop advocacy awareness. Quantitative and qualitative data described characteristics that are important to consider when designing a LAEU or implementing mentoring programs. Acquiring an understanding of the advocacy structures that are created from a LAEU provides insight into sustaining advocacy actions. Qualitative data also defined how a LAEU in the cognitive domain led to receiving, responding, and valuing of advocacy in the affective

domain. Students participating in the LAEU recognized the importance of advocacy in population health and on dental hygiene itself. Furthermore, alumni responses reflected higher steps of affective domain (valuing, organization, and characterization), as new value systems were developed to direct future advocacy actions through transformative learning experiences. Information suggested in this research study can help educators design an effective LAEU to cultivate student professional growth and advocacy mindfulness. Professional organizations can use these findings to develop mentoring programs with members to strengthen advocacy efforts.

To further evaluate the effect of a LAEU on the development of knowledge, values, and actions of dental hygiene students, a comparison of the LAEU with two different convenience samples of entry-level BS and MS students is briefly discussed below. In the previous advocacy study conducted by Rogo et al. (26) a significant increase in knowledge, values, and actions was suggested for both BS and MS participants. Likewise, in the current study, the significant difference between pretest/posttest was the same, except for MS students' pretest/posttest actions. One explanation for the difference observed between MS and BS students in the current study may be that MS participants were busy managing full-time careers, families, and educational pursuits while entry-level BS students had yet to establish full-time employment.

The interaction between the MS and BS groups varied in the two studies. In the previous study (26), participant responses yielded a significant interaction between MS and BS groups with MS students consistently scoring higher on the knowledge, values, and actions at the pretest/posttest. MS participants in the current study did score

themselves slightly higher than the BS counterparts; however, a significant interaction between the groups was not detected. The difference detected between the two studies was the administration of the pretest/posttest. In the current study the pretest was administered prior to participating in the LAEU, whereas, in the previous research (26) a retrospective pretest/posttest was administered. BS and MS students taking the retrospective pretest/posttest may have ranked the pretest scores significantly lower as these participants recognized the change in knowledge, values, and actions that occurred from participating in a LAEU.

By comparison both groups of entry-level BS and MS students identified the same perceived barriers: time and comfort testifying before legislators. Suggestions to address comfort levels and time involve professional associations being cognizant about member and nonmember time constraints and their perceptions of the political itineraries of the organization (51). With this awareness in mind, the ADHA (52) recently instituted a name change from *active membership* to *professional member* to reflect this awareness as usage of the word "active" infers commitment to and involvement in political activities and might deter potential membership.

In the second part of this study, alumni responses revealed interesting insights into understanding the structural components of the advocacy model (see Figure 1). The LAEU provided the foundation upon which the pillars of Political Interaction, Active Participation, and Professional Obligation reinforced *Advocacy Commitment.* Empowering Qualities and Empowering Assets columns supported *Competing Priorities*. *Collective Efforts* was the structural beam that buttressed the roof of *Mentoring*

Experiences key to advocacy action. Together these structural components build the *Advocacy Parthenon* that represents the relationship among these structures.

Advocacy Commitment requires active engagement reinforced by Political Interaction, Active Participation, and Professional Obligations and is the key to sustaining advocacy (43). Participation is considered a conscious choice influenced by mentoring, passion, or experience (51). Dental hygiene alumni responses reiterated the internal motivators of importance and passion, while external motivators represented making a difference or change. Likewise Cramer (51) noted nursing participants became engaged when opportunities to make a difference were presented. According to Wilder and Guthmiller (53), the future of the dental hygiene profession is contingent upon those who are passionate and willing to invest time and seek leadership roles to promote equitable distribution of resources and access to oral care.

Helping students and professionals recognize they are advocates and leaders in their personal and professional lives warrants closer inspection. Often times dental hygiene professionals and students do not acknowledge every day actions with clients as advocacy for oral health and wellbeing. Leadership is often encountered when the patient's priorities and needs are placed over production or grades. Opportunities to make a difference on a professional and personal basis are encountered daily. Leadership and advocacy can be viewed as holding a presidential position in an organization or influencing significant change. However, it is the recognition that leadership is found within and the actions that one takes can make the difference (50). Building upon this theory of leadership, the Commission on Dental Accreditation (54) recently added a didactic advocacy unit to the pediatric dentist curriculum. The aim of this standard is to

educate pediatric dentists about social health disparities and the need to advise policy makers as primary oral health advocates for children in America (54). This aim can be applied to the dental hygiene profession as traditional oral health care has focused on treating the individual rather than influencing policymakers' decision making and formulating legislative changes at the macro level. Leadership involves everyone (50) and it is the collaboration of everyone that leads to change. Policy makers need exposure to perspectives of oral health, oral-systemic connections, and personal experiences with underserved populations and their experiences with oral diseases.

Competing Priorities provided awareness of the issues faced by alumni. Empowering qualities and assets were the support structures of these priorities. Age and gender of respondents may have been a contributing factor of time, prerogatives, and advocacy interest as the majority of participants were female within the ages of twenty to forty years and were raising families while working and continuing their education. Geographic location was not previously considered as a barrier to legislative advocacy but influenced travel and time. To address location issues, modern technology has provided unlimited resources to research legislators and current political issues (e. g. Project Vote Smart and online listservs). Social media has also provided various electronic contact methods through email, Facebook, etc. Online communication such as *Skype* or *Web X* provides alternative means to participate in advocacy events sponsored by state associations. Suggestions for dental hygiene organizations might include shorter meeting times, abridged leadership and advocacy workshops, and sharing of personal experiences regarding lack of access to care to initiate advocacy awareness.

Addressing *competing priorities* requires creative ideas and solutions to increase the "collective consciousness" (55) of dental hygienists to engage in advocacy action. However, it is the awareness and development of personal values that create a commitment to social action (56). Commitment to social action is further expanded by collective efforts.

Collective Efforts exposed key issues of unity and support between professional organizations and dental hygienists. All persons involved must work jointly to achieve future goals and issues facing the dental hygiene profession, such as securing self-regulation, expanding the scope of practice to address population oral health disparities, and receiving direct dental insurance reimbursement to treat these populations. Dental hygiene alumni voiced the need to have advocates within the profession and active collaboration with professional associations to create a united voice. Unity and clarity of the professional role were two emergent themes also reported by BS nursing students (57). In order to promote *Collective Efforts* to address oral health disparities, partnerships and mentoring are key components of this theme. However, *Collective Efforts* should not be limited in focus to dental hygiene but include mentoring and partnerships outside the profession as well.

Coaching partnerships defined in *Mentoring Experiences* were influential in modeling and helping alumni internalize the value of advocacy and create new value systems. *Collective Efforts* provides the cross beam for *Mentoring Experiences* and are founded upon relationships. Jakubik (58) described the conceptualization of the nursing mentoring model as a triad relationship between the mentee, mentor, and the organization. Dental hygiene alumni identified the benefits of this triad through

relationships with various types of mentors such as employers, educators, peers, and colleagues along with involvement in professional associations and oral health coalitions. This triad dynamic is crucial in cultivating and maintaining sustained advocacy engagement and actions of *Collective Efforts*. The professional association is the key infrastructure in advocacy efforts and forms the basis to collaborate with coalitions, stakeholders, and other public groups (44). In order to become gatekeepers of the dental hygiene profession, this triad and *Forward Mentoring* is needed to prepare future leaders in the profession. Interaction and integration of advocacy values, by professional organizations and individuals through *forward mentoring,* have the capacity to bring about improvement to population oral health care.

Understanding the relationship of the structural components of the *Advocacy Parthenon* is crucial in addressing health policy development and is an essential pre-requisite for leadership and professional growth. More important, understanding the foundation and support the LAEU provides to *Advocacy Commitment, Competing Priorities, Collective Efforts,* and *Mentoring Experiences* is needed to guide future advocacy actions. So how does one create values in a LAEU that will instigate advocacy action?

The LAEU utilized in this study reflected a progressive series of learning objectives in the cognitive domain (59). Higher levels of cognitive function were required as students evaluated voting records and information gathered about state legislators from Project Vote Smart. Creation of a fact sheet, mission and vision statement, and writing a letter in support or opposition to the chosen bill utilized the highest level of the cognitive domain. Development of a personal leadership philosophy provided guidance for the

LAEU and emphasized future endeavors to enhance the profession and improve access to population oral care. As students linked leadership theory to advocacy cognitively, a passage into the affective domain was unlocked and activated. Knowledge is pertinent to advocacy education; however, it is the traverse into the affective domain that initiates action (see Figure 2).

Awareness of the impact of legislative advocacy on population oral health and the dental hygiene profession through the LAEU was the first step in the affective traverse. After creating advocacy awareness, participants entered the responding phase via face-to-face small group sharing and online sharing with peer review as they researched and completed LAEU assignments. Valuing was addressed as student comments reflected on the impact of the LAEU and a belief that advocacy actions were important. A BS student comment about valuing the importance of advocacy for disparate populations, after working in a free dental clinic, is a reflection of the belief that advocacy actions are vital to making a difference.

Alumni expressions of professional and moral obligations to be actively involved in the legislative process, influence policy makers' perceptions, and change the status quo were just a few representative samples of various actions in the upper levels of affective domain. Career and work experiences after completing the LAEU were vital components in the passage to these upper steps. Dental hygiene alumni built upon the knowledge and values gained in the LAEU by associating legislative advocacy to the affective levels of valuing, organization, and characterization. Previous beliefs were organized and prioritized into a new value system as alumni accepted the moral obligations to advocate for underserved populations. New value sets were created to guide advocacy actions.

Reflective comments from both MS and BS students and qualitative data analyzed from alumni revealed an affective advocacy awakening to guide future advocacy actions. These affective awakenings create transformative learning experiences in the characterization stage of the affective domain. According to Mezirow (60), transformative learning is the reinterpretation of old or new events through critical thinking that shapes and changes the learner. These changes come about through awareness, encouragement, willingness to be open to change, and exploration of experiences (60). To illustrate a change in prior thinking a reflective comment from a MS alumna stated:

> What I found most interesting . . . was my unexpected interest in Senate Bill 1226. Following bills on their paths to becoming laws has never captured my interest. Yet, I found myself rooting for this bill the way I would a football game . . . I was genuinely disappointed when an amendment that forfeited the bill's benefit to the dental hygiene profession was included. Finally, I sighed a breath of relief when [this] section was removed entirely . . . I gained a greater understanding of how the legislative process works, and I will therefore be much more engaged in this process in the future. Being involved in the legislative process that shapes and molds the way dental hygienists practice and public health in general adds value to our practice and serves to foster personal and professional growth.

As an educator designing a LAEU that progressively passes through each step of the affective domain is needed to cultivate advocacy action. This study suggested that the LAEU was instrumental in providing a foundation to reach the valuing step of the

affective continuum; however, it was career and work experiences that completed the passage to the upper levels of organization and characterization in the affective domain.

Another important aspect to consider in the LAEU design is creating importance and passion and defining what "triggers" these characteristics. As was mentioned previously, importance and passion were key internal elements driving the external elements of advocacy action in the *Advocacy Parthenon* model. Once importance to an issue was perceived or passion was created then the desire to make a change initiated. Dissemination of personal experiences can be a "trigger" that creates energy to fuel awareness, importance, or passion for someone else. The awareness generated can inspire action for members either as individuals or as a collective as these experiences become shared values (50). One MS alumna remarked that the LAEU provided awareness about legislative processes and the need to become an advocate; however, it was her involvement in community care for her graduate thesis work that ignited the passion to actively provide services to disparate populations. The sharing of experiences about oral health and underserved populations during professional meetings can cultivate awareness. One suggestion for educators and professional organizations in creating advocacy awareness is to focus on members concerns and personal dental hygiene work or service experiences to "trigger" importance or passion for an issue.

Equally important to consider in the affective continuum is where passion occurs and is importance the "trigger" for passion or is passion the "trigger" for importance. Determining the order of occurrence was difficult to ascertain from the qualitative data. Both factors could be considered mutually reinforcing as the order of occurrence may be different for everyone depending on prior or new experiences. Qualitative data suggested

passion was the driving force for advocacy commitment and action and occurred in the valuing and organization steps of the affective domain. Passion became the motivating factor as alumni participants were demonstrating a belief that advocacy was important and organizing and prioritizing current advocacy values into an existing value set. More research is needed to further explore the occurrence of passion in the affective domain and the relationship to advocacy actions.

This is the first study to report on dental hygiene advocacy actions after completing a LAEU. Although this study utilized a convenience sample of students and alumni from one university, this research does add to the dental hygiene body of knowledge. Further scientific investigations can explore whether implementing a LAEU with dental hygiene students from other educational institutions has a positive impact on advocacy engagement and sustained actions. More research is needed regarding dental hygiene alumni actions after completing a LAEU. Quantitative and qualitative analysis of emergent themes of alumni actions provided an emic view into future considerations for advocacy research regarding engagement, mentoring, and cultivation of sustained advocacy actions. The development of new mentoring models based on the triad conceptualization suggested by Jakubik (58) warrants investigation. Suggestions for future research include the development of a triad *Peer Forward Mentoring* model in dental hygiene professional associations. This *Peer Forward Mentoring* model would utilize graduates who have completed a LAEU or have advocacy experience and pair them with members who do not have advocacy knowledge or involvement. The professional association would complete the triad by providing advocacy support, opportunities, and educational experiences. Cultivation of these relationships might

provide valuable insights into the advancement of advocacy engagement, problem solving, and shared resources for sustained advocacy actions.

Utilizing social media to create these triads might further expand advocacy efforts and sharing of resources between organizations locally and nationally by designing an *Advocacy App* for electronic devices. The *Advocacy App* would promote collaboration within professional organizations and encourage forward mentoring whereby individuals could register to be a mentor. Mentors would be able to post their availability and interest areas. Mentees could find mentors in specific topic areas to develop and expand their knowledge and advocacy participation. Professional organizations could contribute by coordinating and providing advocacy workshops and experiences based on topics of interest selected by mentors and searches conducted by mentees. The *Advocacy App* could be used to collaborate on advocacy interests, promote interprofessional mentorship, and share resources among organizations while utilizing a *Collective Impact* (61) approach to address oral health disparities. *Collective Impact* differs from collaboration in that it involves organizations or communities aligning resources under a common agenda to create a significant change to address a social problem or concern (61).

As dental hygiene moves into the 21st century, new challenges to the expansion of the traditional roles of clinician, educator, advocate, administrator, public health, and researcher (62) as well as conventional oral care will be presented as strategies to address population oral health and access to care for underserved populations are explored.. Opportunities to seek leadership, advocate for population oral-systemic health, and practice interprofessional collaboration are just a few of the issues attracting attention. Wilder and Guthmiller (53) discussed the importance of developing new population oral-

systemic health models, increasing the dental hygiene body of knowledge as the profession expands to non-traditional roles, and capitalizing on the formulation of oral health policies as individual states meet the mandates of the Affordable Care Act. As professionals, mentors, and educators, of the dental hygiene profession, maintaining the advocacy fire can be a daunting task. However, advocacy sparks within the affective domain can be cultivated and grown to create an advocacy awakening that triggers passion. Passion becomes the driving force needed to develop future leaders who are politically competent to enter the arena of population oral healthcare and address issues facing our profession today and in the future.

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Clinical Relevance

Based on the lack of research about advocacy education in dental hygiene programs and advocacy actions after completing a LAEU, this two-part study aimed to determine if implementing a LAEU with undergraduate and graduate dental hygiene students had a positive influence on self-perceived knowledge, values, and actions. Alumni responses described frequency of BS and MS advocacy actions, barriers encountered, advocacy engagement factors, and advocacy mentoring of organizations. Data suggests implementing a LAEU does positively impact advocacy awareness and action. Emergent themes provided valuable insights into the importance of mentoring and the relevance of activities engaging and encouraging advocacy action.

Tables, Figures, Charts

Table 1. **Crobach's alphas**

Variable	Before	After
Knowledge	0.872	0.804
Values	0.991	0.941
Actions	0.920	0.953

Table 2. **Before and After Mean Scores**

	BS Students		MS Students	
Variable	Before Mean	After Mean	Before Mean	After Mean
Knowledge	3.5	6.5	4.1	6.5
Values	6.0	6.6	6.4	6.8
Actions	3.9	4.7	4.7	5.3

Notes: Scores ranged from 1 (lowest) to 7 (highest).

Table 3. **RM-ANOVA results with Bonferroni Correction**

Variable	Significant Main Effect Before vs After	No Significant Main Effect BS vs MS	No Significant Main Effect Before vs After and Student Level
Knowledge	F=243.108, P<0.001	F=2.276, P=0.141	F=3.465, P=0.072
Values	F=22.940, P<0.001	F=1.411, P=0.243	F=0.762, P=0.389
Actions	F=25.510, BS P<0.001 MS P=0.084	F=1.836, P=0.184	F=0.010, P=0.922

P=0.05

Table 4. **Means (M) for perceived barriers**

Barrier	BS Students Mean	MS Students Mean
Lack of time to be involved	5.50	6.23
Lack of comfort testifying before legislators	4.91	4.85
Lack of comfort speaking personally with legislators or staff members	5.00	4.23
Lack of priority to be involved	4.38	3.38
Lack of mentorship in the state dental hygienists' association	3.81	3.08
Lack of interest advocating	3.79	2.31
Lack of belief that my legislative actions can make a difference	3.56	2.54
Lack of knowledge of the legislative process	2.33	1.69

Table 5. **Reflective MS and BS comments**

MS	BS
• Legislative advocacy is a subject that I had not considered in depth before; but now I realize how crucial it is to the delivery of effective oral health care and for reduction of disparities among underserved populations. For the first time in my 15-year career as a hygienist I realize it is my professional and moral obligation to be actively involved in the legislative process. • I see now how imperative it is for health care professionals to stand up for their rights as professionals and the rights of their patients and the public. Though the legislative process is unfamiliar and intimidating to many health care professionals,	• I have lived my life thus far, not being educated about my legislators . . . This realization was an epiphany as I recognized the importance of being educated about this information . . . I cannot adequately contribute to furthering dental hygiene and oral health awareness if I am uneducated about the legislators who represent my state. • After organizing and implementing a full day of free dental work for a community [class], I witnessed first hand the need for more access to dental care. When people struggle with access to dental insurance, many go without the needed treatment . . . This

it is our responsibility to step outside our comfort zone to challenge the status quo. • This project gave me the opportunity to be a healthcare advocate allowing me to use an upstream approach by addressing a local politician and asking for his support on a healthcare bill.	[LAEU] has given me the knowledge and confidence to pursue important political issues [where] I could make a difference as a dental hygienist. • I realized through this [LAEU], that having a political background and great public speaking skills are not necessary to be a successful advocate. Passion, knowledge, and a dream or goal for oral health . . . is what you need to be a successful advocate and the one to make permanent changes.

Table 6. **Factor analysis groupings for frequency of alumni advocacy actions with Bonferroni correction**

Political Interaction **Significant Interaction** **Mann-Whitney U, *P*=0.004**
• Interacted with *political candidates* or representatives on *social media* such as email, Facebook, LinkIn, Snapchat, Twitter, Instagram, or other. • Interacted, read, or *researched information* about organizations involved in legislative advocacy on *social media* such as email, Facebook, LinkIn, Snapchat, Twitter, Instagram, or other. • *Contacted in person*, through letter, or email messages my political representatives or one of his/her staff members to support or oppose legislation. • *Received information* about political representatives, actions, or causes by subscribing to an *online listserv*. • *Attended* (and did not verbally participate in) a town hall meeting or public *forum* where political candidates or representatives were present.
Active Participation **No Significant Interaction** **Mann-Whitney U, *P*=0.321**
• *Testified* at subcommittee hearing on behalf of an organization. • Participated in legislative *advocacy efforts* in the *local* dental hygiene component.

• Worked on a *campaign* for a political candidate seeking office. • Supported *advocacy efforts* of an organization by making *financial* contributions. • Participated in legislative *advocacy efforts* in the *state* dental hygiene component.
Professional Obligation **No Significant Interaction** **Mann-Whitney U, *P*=0.144**
• *Worked with* a *lobbyist* representing an organization. • Been a *member of a committee* such as practice and regulations, district delegate, dental hygiene board, etc. in an organization responsible for legislative advocacy. • *Mentored* colleagues or members in an organization about political issues.

Table 7. **Means (M) for alumni barriers**

Barrier	BS Alumni Mean	MS Alumni Mean
Lack of time	5.27	5.29
Lack of financial resources	4.96	4.21
Lack of comfort testifying	4.96	4.21
Lack of knowledge about current issues	4.73	3.29
Lack of mentorship within professional association or other organizations	4.65	3.14
Lack of interest in advocating for legislation	4.55	3.00
Lack of professional priority	4.39	3.14

Table 8. **Factor Analysis Groupings for Frequency of Alumni Barriers.**

Empowering Qualities **Significant Interaction *t* test *P*=0.001**
• *Priority* to be involved with legislative advocacy. • *Interest* in advocating for legislation. • *Mentorship* within dental hygiene associations or other organizations.
Empowering Assets **No Significant Interaction *t* test *P*=0.439**
• *Time* to engage in legislative advocacy. • *Financial resources* to support advocacy. • *Comfort* testifying before legislators.

Table 9. **Alumni collective efforts theme**

Defining Viewpoints	**Responses**
Professional Association	• [Local] Components • Committees at the state and national level. • ADHA
Individuals	• Dental hygienists • Every practicing dental hygienist who cares about the advancement of the profession. • Ultimately it begins with an individual . . . individuals joined together in unity on subject matter.
Collaborative Interaction	• Every dental hygienist is responsible for legislative changes, but having a solid local component to help promote participation and keep more people informed would be helpful. • Those who will stand for the cause of advocacy . . . within the profession. • I think it is the professional association's responsibility to initiate it, but they MUST have the support of the hygienists in the state. • It happens at all levels. State for our regulations, our professional organization to add volume and resources. We must work collectively to achieve it at the national level.

Table 10. **Alumni advocacy commitment theme**

Internal Motivating Conceptualizations	**Responses**
Passion	• Passion to do more. If I am passionate about something I work as hard as I possibly can to achieve my goal. • The desire to have change in something I am passionate about. • I surround myself with others who are also passionate about dental hygiene and we empower each other . . .
Importance	• The absolute importance of our profession. • Being aware of and understanding the issues facing the profession of dental hygiene.
External Motivating Conceptualizations	**Responses**
Changing the Status Quo	• . . . disagreement with the current laws and a strong desire to change them. • Self-regulation and the autonomy of our profession. • If we want something changed, we should become advocates for the issue.
Increasing access to care	• . . . and even more importantly, discrimination against specific income and ethnic populations due to unnecessary trade restrictions. • . . . threat to livelihood; as in access to care for

	individuals/patients or threat to individual existence and effect on quality of life.

Table 11. **Alumni mentoring experiences**

Practices	**Responses**
Simulations	• Testifying at a mock hearing. • They provide resources and historical information about legislative activities so new members are in the know.
Experiences	• Contacting legislators, touring the capitol, and seeing how the legislative process works. • Participating in an advocacy session. • I also was able to interact with . . . lobbyist as part of my final project. • I had the opportunity to go to a Lobby Day in another state.
Mentors	• I have had mentors teach me how to contact legislators, how to testify at hearings, and how to build relationships with other organizations. • Other seasoned members explained issues and procedures with me. • When I was in school I went to the National ADHA meeting as a student representative and was involved in the student vote on legislative actions. I learned a lot as a student representative.
Best Encounters	**Responses**
Employer	• I would have to say my best mentorship experience came from a dentist that I was working with. He was an advocate

	for patient care and wanted to changes in our state insurance . . . as did I. We discussed this and he encouraged us to speak out and explained a time when he and a colleague contacted a state representative to change a ruling.
Involvement with Professional Association or Oral Health Coalition	• Working with [oral health coalition] members who analyze the legislation for the session and work together to formulate a plan for action. • Sitting at an ADHA board meeting as an alternative delegate and my mentor next to me explaining the language . . .
Legislators	• The mock legislative session . . . The legislators were down to earth and very encouraging about the process
Forward Mentoring	• Being a member of the Board of Directors for a local community health center. Dental was a low priority for other board members. I was able to create awareness and mentored another oral health care provider to take my position . . . The new oral member kept the awareness momentum going. Last I heard the community health center started an oral health program utilizing dental hygienists under a collaborative agreement with a local dentist.

Table 12. **Alumni competing priorities**

Confining Circumstances	**Responses**
Family	• I have to give the rest of my spare time to my family [and] children. • I work full time and then go home to three young children. My priorities outside of work are to my family.
Work and Education	• Work and school take all my time. • I prefer to focus my efforts on being the best teacher I can be. This takes a lot of my time, including non-work time . . .
Geographic Location	• Too far to drive. 8+ hours. • Large state/small population (overall and RDH's). • Moving every three years.

Figure 1. Advocacy Parthenon

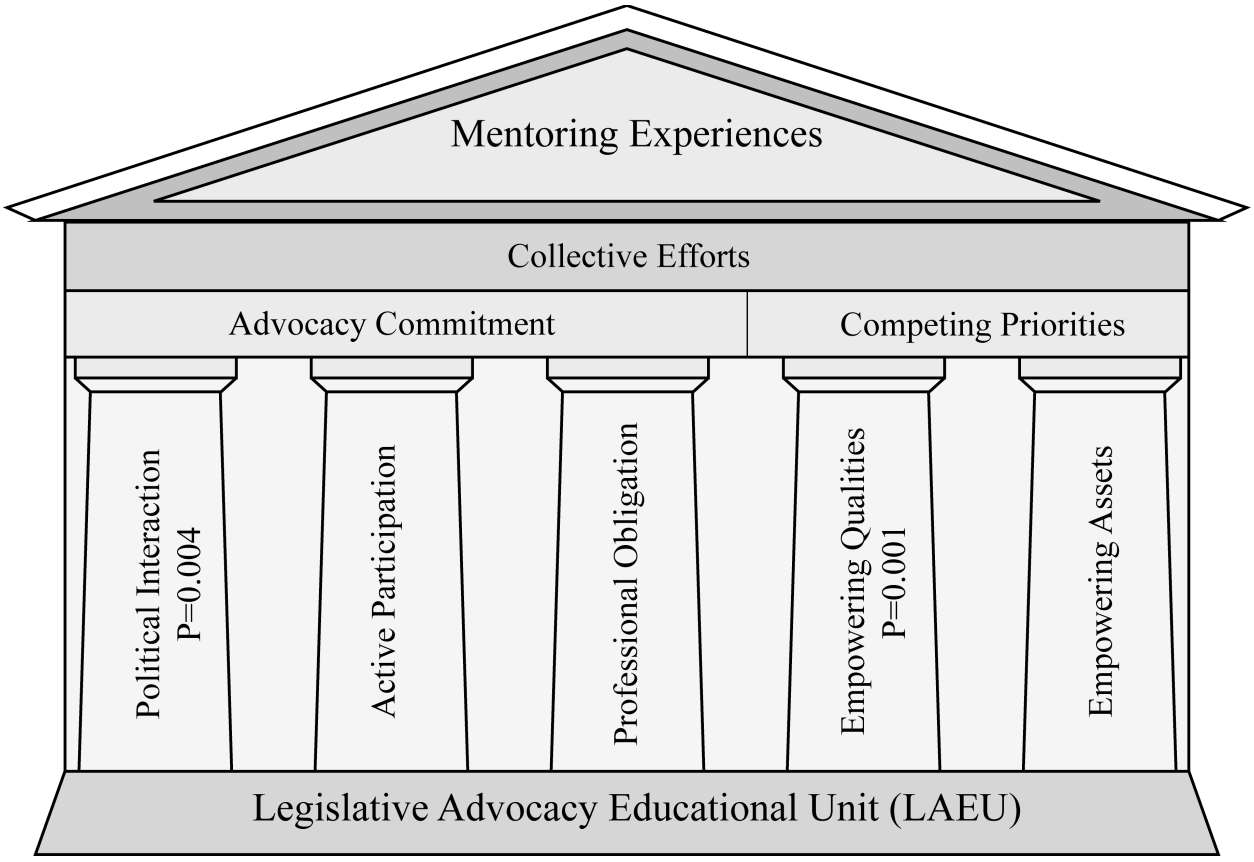
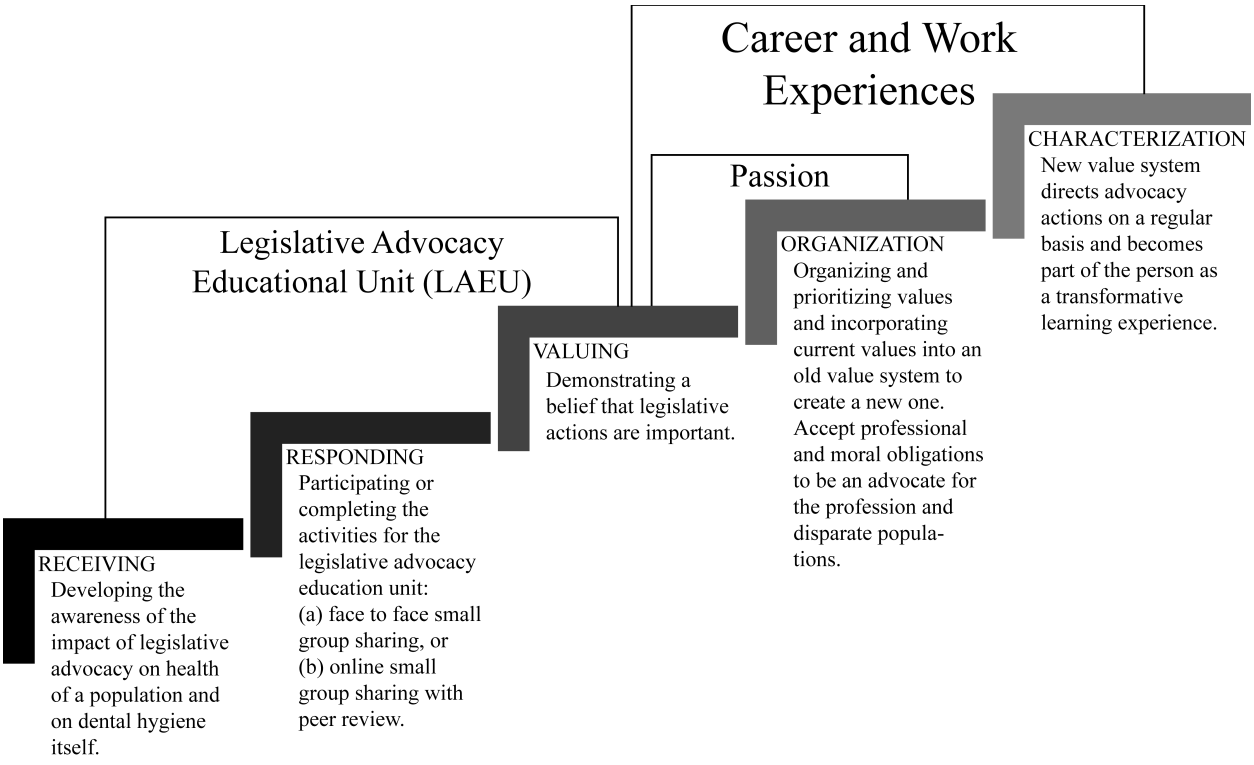


Figure 2. Student and alumni affective domain continuum



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