Post-Graduation Effects of an Advocacy Engagement Project on Alumni of a Dental Hygiene Program

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Abstract: The aim of this study was to investigate advocacy actions of dental hygiene program alumni who had completed a Legislative Advocacy Project (LAP) when they were students in the undergraduate or graduate program. Five variables were assessed: participation, frequency, perceived barriers, engagement, and mentorship. Alumni of the undergraduate and graduate programs were compared regarding frequency of and barriers encountered to legislative advocacy actions. A descriptive-comparative research design was used with quantitative and qualitative analysis. A convenience sample of 157 alumni who had completed a seven-week LAP at Idaho State University between 2008 and 2013 were invited to complete a 52-item author-designed online questionnaire in 2015. The response rate was 41.4%. The results showed a significant difference for participation prior to and after the LAP ($df=12$, $X^2=28.28$, $p=0.005$). Most respondents, however, did not participate in legislative actions. There was a significant difference between the two groups for two frequency items: subscribing to online listservs ($p=0.001$) and contacting political representatives or staff ($p=0.003$). The three greatest barriers were time, financial resources, and testifying. The analysis found a significant difference between the two groups for the barrier of interest in advocating ($p=0.05$). In the qualitative analysis, themes emerged about engagement factors (collective efforts and advocacy commitment) and mentorship (mentoring experiences). Advocacy actions after graduation improved, but implementation of actions was challenging due to competing barriers. The results of this study may be useful in identifying key components of advocacy education that should be part of training programs.

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Advances in oral health care have improved significantly over the last decade; however, oral health disparities still exist because groups that have low income and social disadvantages experience greater disease rates than socially advantaged individuals.[1] Exploring alternative solutions in providing care to underserved and unserved populations is crucial in decreasing the negative impact of oral-systemic diseases throughout a lifetime.[2-5] Oral health professionals have the capacity to influence national, state, local, and individual health and governmental agencies in an effort to decrease these disparities. Examples of these activities include changing policymakers' perceptions about oral health, promoting oral health programs, addressing oral-systemic disease prevention, widening the practice scope of oral health providers, and endorsing reimbursement strategies.[3,4,6] These types of activities have the potential to bring about oral health policy changes,[7] support appropriate management of community and population health resources,[8] and build support for advocacy actions.[9]

Carrying out these activities requires not only interest in a cause but skills and confidence in one's ability to participate in advocacy, yet only a few studies have investigated advocacy training programs in dental and dental hygiene education.[10-12] Creating future leaders who can competently navigate the political arena, address legislation and policy formulation, positively influence policymakers, and inspire the next generation is a call to action for oral health educators. The American Dental Education Association (ADEA) recognizes the importance of public policy advocacy for dental education and encourages advocacy action by dental educators and students.[13] Advocacy education is needed to help oral health professions students develop the knowledge and confidence required to participate in advocacy at local, state, and national levels, as advocacy should be a professional responsibility of all and not just a few.

To that end, the aim of this study was to investigate advocacy actions of dental hygiene program alumni who had completed a Legislative Advocacy Project when they were students in the undergraduate or graduate program. The project was created with four sections to build advocacy awareness: assessment, planning, implementation, and evaluation.[12] A reflective component also was included.

Materials and Methods

The Idaho State University Institutional Review Board reviewed the study and determined it was exempt from oversight (IRB approval #4177). This study used a descriptive-comparative research design using both quantitative statistical tests and qualitative analyses of responses to open-ended questions. A convenience sample of 157 alumni who had completed a seven-week Legislative Advocacy Project (LAP) at Idaho State University between 2008 and 2013 were invited to participate in the study in 2015. The sample was divided into two cohorts: alumni of the entry-level Bachelor of Science in Dental Hygiene program (n=112) and of the Master of Science in Dental Hygiene program (n=45).

The LAP was conducted for the undergraduate students in person in small groups and for the graduate students in an online self-directed project.[12] Students identified a health care bill in the current legislative session, and as they assessed the bill, they identified collaborators and opponents of the bill and developed a strategic plan. Also, students assessed the legislators' voting records and biographies and participated in targeted letter writing to influence the legislators' positions. The strategic plan included a professional mission, vision, and values statement. Additional components were conducting a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis and creating a fact sheet. This project was designed to create advocacy awareness for changing health policy by using strategies that provided students with an opportunity to develop political awareness and reinforce the importance of advocacy endeavors in population health.

The 52-item questionnaire was designed by the authors. A general information section was followed by questions related to each of five variables: participation in advocacy actions, frequency of advocacy actions, barriers encountered, advocacy engagement factors, and mentorship roles in advocacy.

The first variable—participation in advocacy actions—was assessed prior to and after the LAP. Participants answered one question about participation in advocacy at these two time points. The second variable—frequency of advocacy actions—was defined as involvement in legislative advocacy including oral health initiatives along with a broader view of participation in organizations focused on general health, education, animal welfare, environmental health, and similar issues. Legislative advocacy was defined as engaging in activities to support or oppose legislation, contacting legislators, locating and following bills through the legislative session, or developing fact sheets. Alumni were asked to report actions at the local, state, and national levels. They rated the frequency of their advocacy actions with 19 closed-ended statements on a scale with response options ranging from never to more than six times on average each year.

The third variable—barriers encountered—was expressed as obstacles impeding each participant's advocacy actions since completing the LAP. The alumni rated their agreement with nine questions on a Likert scale with response options from 1=strongly disagree to 4=neither agree nor disagree to 7=strongly agree. One open-ended question solicited additional barriers impeding advocacy actions. The fourth variable—advocacy engagement factors—addressed the reasons one becomes involved in causes, efforts, and activities related to advocacy. Engagement factors were investigated with two open-ended questions about who was responsible for initiating legislative improvements in the dental hygiene profession and what influenced engagement of alumni in advocacy. The fifth variable—mentorship roles in advocacy—was described as an active relationship between two or more people in which learning, support, and communication are key to addressing challenges, achieving leadership, and participating in advocacy actions. The mentor leads the mentee through teaching and active participation. Alumni were asked if they were mentored. If the response was positive, they were asked two open-ended questions about mentorship in various organizations and best mentorship experiences.

Three undergraduate and two graduate alumni who completed the LAP established content validity of the questionnaire. Using participants from the research population is a valid testing method for establishing content validity.[14] These five alumni used a four-point item content validity index scale (1=not relevant, 2=somewhat relevant, 3=quite relevant, and

4=highly relevant) to rate the questionnaire items. The index was computed by totaling the scores for each item and dividing by the number of reviewers who rated questions as quite or highly relevant. Questions not scoring 80% or higher were modified.

Test-retest reliability of the instrument was established by administering the questionnaire once and then again one week later to an additional three undergraduate and two graduate alumni. Items scoring less than 80% were revised or deleted. Intra-class correlation using Winer reliability testing was used to evaluate the questions with Likert and frequency scales. The correlation was 97%.

All 157 alumni in both cohorts were invited to complete the questionnaire with Qualtrics, an online survey tool, over a three-week period. A pre-notice email was sent prior to the survey with an invitation to participate in the study. Two email reminders were sent at one and two weeks to encourage completion.

Descriptive statistics with SPSS (IBM Corp., Armonk, NY, USA) were used to analyze frequency of actions and barriers encountered. Data collected from the open-ended questions about barriers, advocacy engagement factors, and mentorship roles were independently analyzed with coding by two researchers using inductive qualitative analysis. Coded data were categorized into emerging themes.[15] By employing an inductive approach, emic themes important to participants' advocacy engagement and mentorship influences were identified. Parametric and nonparametric testing was used to detect statistically significant differences (p=0.05).

Results

Of the 157 invited alumni, 65 completed the survey, for an overall response rate of 41.4% (undergraduate n=51, response rate 46%; graduate n=14, response rate 31%). The majority of the total participants were female (89%, n=58), were employed in clinical practice (71%, n=46), and had volunteered in some way after the LAP (64%, n=42) (Table 1). Regarding respondents' involvement in professional associations, the percentages of those who reported being members or leaders were similar at the national level (39%, n=25), state level (35%, n=23), and local level (39%, n=25). Approximately one-third of the participants were members at each level.

Prior to the LAP, most (89%, n=58) of the participants had never or rarely participated in advocacy actions, but after the project 35% (n=22) reported participating sometimes, frequently, or very frequently, although 32% reported never participating even afterwards (Table 1). Prior to the LAP, only 6% (n=4) sometimes participated in advocacy actions;

Table 1. General and advocacy information about participants, by number and percentage of total in each category

		All Participants n=65		Undergraduate Alumni n=51		Graduate Alumni n=14	
Characteristic	Response Option	%	n	%	n	%	n
State of residence	Idaho	48%	31	55%	28	22%	3
	Utah	8%	5	6%	3	7%	1
	Washington	8%	5	–	0	14%	1
	Other	36%	24	39%	20	56%	9
Age in years	<30 yrs	52%	34	65%	33	7%	1
	30-39 yrs	23%	15	20%	10	36%	5
	40-49 yrs	12%	8	4%	2	43%	6
	50-59 yrs	5%	3	2%	1	14%	2
	No response	8%	5	9%	5	–	0
Employment after LAP	Not employed	2%	1	2%	1	–	0
	Clinical practice	71%	46	78%	40	43%	6
	Education	8%	5	2%	1	29%	4
	Public health	8%	5	4%	2	21%	3
	Animal welfare	–	0	2%	1	–	0
	Alternative care	2%	1	–	0	7%	1
	Environmental	3%	2	2%	1	–	0
	No response	6%	5	10%	5	–	0

(continued)

Table 1. General and advocacy information about participants, by number and percentage of total in each category (*continued*)

Characteristic	Response Option	All Participants n=65		Undergraduate Alumni n=51		Graduate Alumni n=14	
		%	n	%	n	%	n
Volunteered after LAP	Not volunteered	28%	18	26%	13	36%	5
	Clinical practice	12%	8	16%	8	–	0
	Education	15%	10	20%	10	–	0
	Public health	23%	15	18%	9	43%	6
	Animal welfare	2%	1	6%	3	7%	1
	Alternative care	6%	4	–	0	7%	1
	Environmental	6%	4	6%	3	7%	1
	No response	–	5	8%	5	–	0
Experienced advocacy instruction at another institution	Yes	23%	15	20%	10	36%	5
	No	28%	18	28%	14	29%	4
	Not sure	17%	11	16%	8	21%	3
	No response	32%	21	36%	19	14%	2
Member of national association (ADHA) as undergraduate	Not member	2%	1	–	0	7%	1
	Member	77%	50	78%	40	71%	10
	Officer	12%	7	10%	5	14%	2
	Committee chair	9%	6	10%	5	7%	1
	Other	2%	1	2%	1	–	0
Current involvement in national association (ADHA)	Not a member	62%	40	71%	36	29%	4
	Member	32%	21	26%	13	57%	8
	Leader	5%	3	4%	2	7%	1
	Other	2%	1	–	0	7%	1
Current involvement in state component of association	Not a member	65%	42	71%	36	43%	6
	Member	29%	19	24%	12	50%	7
	Leader	6%	4	6%	3	7%	1
Current involvement in local component of association	Not a member	57%	37	63%	32	36%	5
	Member	34%	22	28%	14	57%	8
	Leader	5%	3	6%	3	–	0
	No response	4%	3	3%	2	7%	1
Registered to vote	Yes	80%	52	77%	39	93%	13
	No	15%	10	18%	9	7%	1
	Not sure	5%	3	6%	3	–	0
Voted in previous general election	Yes	65%	42	61%	31	79%	11
	No	34%	22	38%	19	21%	3
	Not sure	2%	1	2%	1	–	0
Advocacy action per year prior to LAP	Never	60%	39	63%	32	50%	7
	Rarely	29%	19	33%	17	14%	2
	Sometimes	6%	4	2%	1	21%	3
	Frequently	5%	3	2%	1	14%	2
Advocacy action per year after LAP	Never	32%	21	35%	18	21%	3
	Rarely	34%	22	35%	18	29%	4
	Sometimes	28%	18	24%	12	43%	6
	Frequently	5%	3	4%	2	7%	1
	Very frequently	2%	1	2%	1	–	0

Note: Percentages may not total 100% because of rounding. Response option rows with no respondents are not shown on table.

afterward, the percentage increased to 28% (n=18). The Pearson chi square analysis found a statistically significant difference between participation in advocacy actions prior to the LAP and after graduation (df=12, X^2=28.28, p=0.005).

Overall, most respondents reported that they never participated in advocacy actions (Table 2). In fact, no matter the type of activity, reported participation was minimal. The three most frequent actions (combining all levels of frequency) were interacting with information about organizations via social media (33%, n=21), receiving information about political representatives or causes by online listserv (23%, n=15), and volunteering for a committee (23%, n=15). The two least frequent actions were working on a political candidate's campaign (5%, n=3) and testifying at a legislative subcommittee hearing (2%, n=1).

Mann-Whitney U analysis with Bonferroni testing found a statistically significant difference

Table 2. Frequency of advocacy actions per year reported by study participants

		All Participants n=65		Undergraduate Alumni n=51		Graduate Alumni n=14	
Advocacy Action	Frequency	%	n	%	n	%	n
Interacted with political candidate or representative on social media.	Never	86%	56	89%	45	78%	11
	1-2 times	9%	6	8%	4	14%	2
	3-4 times	–	0	–	0	–	0
	5-6 times	5%	3	4%	2	7%	1
Interacted with, read, or researched information about organization involved in legislative advocacy on social media.	Never	66%	43	73%	37	43%	6
	1-2 times	14%	9	16%	8	7%	1
	3-4 times	13%	8	6%	3	35%	5
	5-6 times	6%	4	4%	2	14%	2
	No response	–	1	–	1	–	0
Contacted in person, by letter, or by email political representative or staff to support or oppose legislation.	Never	91%	59	95%	48	78%	11
	1-2 times	5%	3	4%	2	7%	1
	3-4 times	3%	2	–	0	14%	2
	5-6 times	2%	1	2%	1	–	0
Received information about political representative or cause by subscribing to online listserv.	Never	76%	49	87%	44	36%	5
	1-2 times	12%	8	10%	5	21%	3
	3-4 times	6%	4	2%	1	21%	3
	5-6 times	2%	1	–	0	7%	1
	>6 times	3%	2	–	0	14%	2
	No response	1%	1	1%	1	–	0
Attended (no verbal participation) town hall meeting or public forum where political candidate or representative was present.	Never	89%	58	88%	45	94%	13
	1-2 times	9%	6	10%	5	7%	1
	3-4 times	2%	1	2%	1	–	0
Testified at legislative subcommittee hearing on behalf of an organization.	Never	99%	64	100%	51	93%	13
	1-2 times	2%	1	–	0	7%	1
Participated in legislative advocacy effort in local dental hygiene component.	Never	90%	59	97%	49	71%	10
	1-2 times	3%	2	2%	1	7%	1
	3-4 times	2%	1	–	0	7%	1
	5-6 times	2%	1	2%	1	–	0
	> 6 times	2%	1	–	0	7%	1
	No response	1%	1	–	0	8%	1
Participated in legislative advocacy effort at national level (e.g., ADHA).	Never	93%	60	99%	50	71%	10
	1-2 times	6%	4	2%	1	21%	3
	3-4 times	2%	1	–	0	7%	1

(continued)

Table 2. Frequency of advocacy actions per year reported by study participants (*continued*)

		All Participants n=65		Undergraduate Alumni n=51		Graduate Alumni n=14	
Advocacy Action	Frequency	%	n	%	n	%	n
Worked on campaign for a political candidate seeking office.	Never	96%	62	96%	49	93%	13
	1-2 times	2%	1	2%	1	–	0
	3-4 times	3%	2	2%	1	7%	1
Supported advocacy efforts of an organization by making financial contribution.	Never	92%	60	99%	50	71%	10
	1-2 times	3%	2	2%	1	7%	1
	3-4 times	3%	2	–	0	14%	2
	>6 times	2%	1	–	0	7%	1
Worked with a lobbyist representing an organization.	Never	89%	58	93%	47	78%	11
	1-2 times	2%	1	6%	3	14%	2
	3-4 times	6%	4	2%	1	–	0
	5-6 times	2%	1	–	0	–	0
	>6 times	2%	1	–	0	7%	1
Volunteered as member of a committee in an organization.	Never	77%	50	81%	42	57%	8
	1-2 times	6%	4	4%	2	14%	2
	3-4 times	11%	7	8%	4	21%	3
	5-6 times	3%	2	4%	2	–	0
	>6 times	3%	2	2%	1	7%	1
Mentored colleagues or members in an organization about political issues.	Never	85%	55	91%	49	64%	9
	1-2 times	6%	4	2%	1	21%	3
	3-4 times	5%	3	2%	1	7%	1
	5-6 times	5%	3	–	0	–	0
	>6 times	–	0	–	0	7%	1
	No response	–	0	5%	0	–	0
Attended an organization's event that discussed legislative issues where political candidate or representative was not present.	Never	81%	53	85%	43	72%	10
	1-2 times	14%	9	14%	7	14%	2
	3-4 times	3%	2	2%	1	7%	1
	>6 times	2%	1	–	0	7%	1
Attended an event sponsored by an organization where political candidate/s were present.	Never	91%	59	93%	47	86%	12
	1-2 times	8%	5	6%	3	14%	2
	3-4 times	2%	1	2%	1	–	0
Provided advocacy materials (videos, fact sheet) to educate colleagues, public, or political representative/s to support or oppose legislation.	Never	89%	58	93%	47	78%	11
	1-2 times	8%	5	6%	3	14%	2
	3-4 times	2%	1	2%	1	–	0
	>6 times	2%	1	–	0	7%	1
Visited advocacy webpages and sought information on practice issues, association efforts, or legislation tracking.	Never	83%	54	89%	45	64%	9
	1-2 times	8%	5	6%	3	14%	2
	3-4 times	6%	4	4%	2	14%	2
	5-6 times	2%	1	–	0	7%	1
	>6 times	2%	1	2%	1	–	0
Supported advocacy efforts by volunteering time.	Never	88%	57	93%	47	71%	10
	1-2 times	5%	3	6%	3	–	0
	3-4 times	6%	4	2%	1	21%	3
	>6 times	2%	1	–	0	7%	1
Participated in legislative advocacy efforts in state dental hygiene association.	Never	86%	56	91%	46	71%	10
	1-2 times	9%	6	8%	4	14%	1
	3-4 times	2%	1	–	0	7%	2
	>6 times	3%	2	2%	1	7%	1

Note: Percentages may not total 100% because of rounding. Frequency rows with no respondents are not shown on table.

between the undergraduate and graduate cohorts for subscribing to an online listserv (p=0.001) and contacting political representatives or staff members to support or oppose legislation (p=0.003). Further testing was completed with Principal Components Analysis (PCA), and three themes emerged: political interaction, active participation, and professional obligation (Table 3). Mann-Whitney U analysis with Bonferroni testing found a statistically significant difference between the two cohorts for political interaction, indicating the graduate alumni were more active than the undergraduate alumni (p=0.004).

Table 4 summarizes the reported barriers to legislative advocacy. The three greatest barriers were lack of time, financial resources, and comfort in testifying. Graduate alumni considered knowledge, mentorship, interest in advocating, and professional priority to be less important barriers than did the undergraduate alumni. In responses to the open-ended questions, family, work, educational pursuits, and geographic location were reported to make involvement difficult.

Mann-Whitney U analysis with Bonferroni testing found a statistically significant difference between the two cohorts for interest in advocating for legislation (p=0.05). The undergraduate alumni did not perceive this interest as important as did the graduate alumni. PCA analysis resulted in two themes: enabling qualities and enabling assets (Table 5). Rather than express the themes as barriers, the themes defined the resources needed to create and sustain advocacy empowerment. An independent t-test analysis with Bonferroni testing showed a statistically significant difference between groups for

Table 3. Themes of advocacy actions, determined by principal components analysis of results

Theme	Factors
Political interaction	• Interacted with political candidate or representative on social media. • Interacted with, read, or researched information about organization involved in legislative advocacy on social media. • Contacted in person, through letter, or email political representative or staff member to support or oppose legislation. • Received information about political representative or political cause by subscribing to an online listserv. • Attended (and did not verbally participate in) a town hall meeting or public forum where political candidate or representative was present.
Active participation	• Testified at a legislative subcommittee hearing on behalf of an organization. • Participated in legislative advocacy effort in the local dental hygiene component. • Participated in legislative advocacy effort of the national dental hygiene association (ADHA). • Worked on a campaign for a political candidate seeking office. • Supported advocacy efforts of an organization by making financial contributions.
Professional obligation	• Worked with a lobbyist representing an organization. • Volunteered as a member of a committee (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.

Note: "Social media" were defined as email, Facebook, LinkedIn, Snapchat, Twitter, and Instagram.

Table 4. Barriers to legislative advocacy reported by study participants

Barrier	Undergraduate Mean	Graduate Mean
Time	5.27	5.29
Financial resources	4.96	4.21
Comfort testifying before legislators	4.96	4.21
Knowledge about current issues	4.73	3.29
Mentorship in professional association or other organizations	4.65	3.14
Interest in advocating for legislation	4.55	3.00
Professional priority	4.39	3.14

Note: Agreement that each item was a barrier was on scale from 1=strongly disagree to 4=neither disagree or agree to 7=strongly agree.

Table 5. Themes supporting advocacy actions, determined by principal components analysis of qualitative results

Theme	Factors
Enabling qualities	• Priority to be involved with legislative advocacy • Interest in advocating for legislation • Mentorship in dental hygiene associations or other organizations
Enabling assets	• Time to engage in legislative advocacy • Financial resources to support advocacy • Comfort testifying before legislators

enabling qualities (p=0.001). The graduate alumni were more likely than the undergraduate alumni to demonstrate priority, interest, and mentorship in advocacy.

We arranged the responses to the open-ended questions into two themes: collective efforts and advocacy commitment. Collective efforts were persons working collaboratively and providing support to advance the ethical principles and interests of the profession. Parties responsible for initiating change were individuals, professional associations, and the collaborative interaction of both to create a united voice. An undergraduate alumna articulated the importance of being united: "Ultimately it begins with the individual . . . individuals joined together in unity on subject matter [through] local, state, and national membership." Advocacy commitment was defined as importance and passion that bind one to the act of engaging in an advocacy course of action. Importance was characterized as having value or significance to a person. Responses to advocacy commitment reflected a strong desire to engage in advocacy through the importance of the issue to dental hygiene, themselves, underserved populations, and impact on one's career.

Passion was distinguished as an intense emotion that compels one to action to implement a change. Passion was ignited by social injustices to change the status quo to transform and challenge current oral health care practices. An example is expanding the scope of practice for dental hygienists, so that efforts and attention can be directed to solve the problems of inequity and unfair distribution of resources.[16] Inequity of resources was illustrated in this response: "Discrimination. This is a multifaceted problem . . . discrimination against specific income and ethnic populations due to unnecessary trade restrictions [for dental hygiene practitioners]." Other respondents acknowledged ethical obligations in providing equal access to quality preventive oral health care.

Responses to open-ended questions showed a theme of mentoring experiences that were associated with the act of modeling in a collaborative relationship in which information is disseminated to improve legislative advocacy endeavors. Mentors used strategies such as testifying in a mock legislative session and coaching respondents during legislative activities. Respondents indicated these strategies were very useful in helping practitioners prepare to navigate the political arena. Although the majority of participants reported receiving no mentoring after graduation (64%, n=39), those who were mentored valued the learning experience.

The participants' best encounters with advocacy experiences were involvement with professional associations or oral health coalitions, legislators, and forward mentoring. Comments defined involvement as attending the American Dental Hygienists' Association (ADHA) House of Delegates and having a mentor explain the legislative language, working with oral health coalitions to formulate an action plan, and participating in a mock legislative experience with legislators who were encouraging. Forward mentoring was further characterized as the act of "paying it forward" to mentor others without the expectation of anything in return, meaning the mentee would then mentor someone else. Forward mentoring was illustrated in this remark by a graduate alumna: "I was able to create [oral health] awareness and mentor another oral health care provider to take my position. . . . The new oral health member kept the momentum going." Another graduate alumna discussed forward mentoring in these terms: "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."

Discussion

After completing the study, we created an Advocacy Empowerment Model, based on the structure of the Parthenon, to illustrate connections among the critical elements we found during the data analysis (Figure 1). The foundational element is the educational experiences associated with the Legislative Advocacy Project during the formal dental hygiene educational program at the undergraduate and graduate levels. The intermediate elements are the five

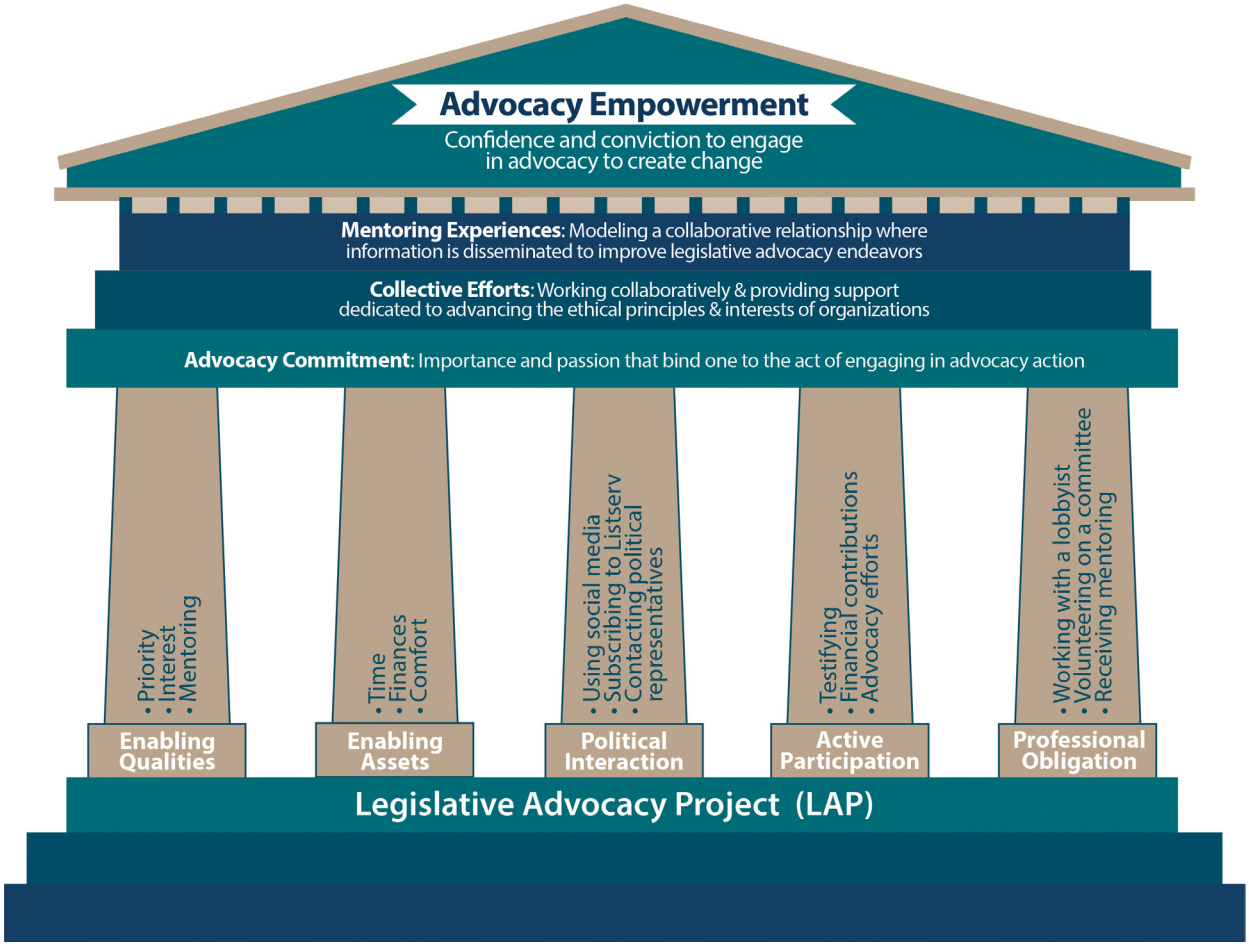

Figure 1. Advocacy empowerment model

columns in the middle of the structure representing the resources and actions needed to engage in advocacy. These columns support the three roof elements necessary for advocacy engagement. All of these elements are necessary to reach the peak: advocacy empowerment.

We developed the model in steps. First, the foundational element was the LAP because the educational experience seemed to enhance alumni participation in advocacy in our study. The importance of such a program was also supported by a study in which undergraduate and graduate students demonstrated an increase in knowledge, values, and actions and identified barriers that influence future advocacy actions.[12]

At the next level, we constructed the intermediate elements from analysis of the research variables. The first two columns are the resources of enabling qualities and enabling assets. The other three columns are the actions of political interaction, active participation, and professional obligation. Regarding resources, the results of our study showed the necessity of having and embracing resources to engage in advocacy actions. Priority, interest, and mentorship were important; however, time, finances, and comfort testifying had more influence on engagement. Specifically, priority refers to being involved in legislative endeavors, interest translates into advocating for legislation, and mentorship means having the parent organization coach members.

Time was the greatest barrier to resources needed to create actions. Our suggestions to reduce or eliminate time barriers include urging organizations to streamline time spent in meetings by sharing the agenda and preparatory materials in advance, using a consent agenda, limiting extraneous discussion, and providing summary information. Other significant time elements identified in the study related to

geographic boundaries, family responsibilities, educational pursuits, and work. Modern technology has provided resources to address these constraints. Online communication using web-conferencing systems such as Cisco, GoToMeeting, WebEx, Adobe Connect, Zoom, and Yugma provide alternative means to participate in advocacy events without having to travel, leave families, or facing interference from educational pursuits and employment. Organizations can use social media to promote the organization's advocacy agenda. It is, however, the responsibility of the organization and the individual to learn to use these modalities appropriately in relation to technology and professionalism.

Financial issues also presented a barrier. Volunteering for an organization involves financial sacrifices for loss of personal time, travel, child care, and other costs. These responsibilities should be a shared burden. At times, it is important for the organization to financially support its volunteers. However, when opportunities to make a difference present themselves, and group sharing transpires, financial constraints might become financial resources. Furthermore, reallocation of financial resources might occur for the individual and organization, thereby enhancing outcomes.

Our suggestion to address the third barrier—lack of comfort in testifying—is to implement an abridged leadership and advocacy workshop to teach hard and soft skills enabling advocacy. This workshop would provide the opportunity for participants to understand and develop advocacy abilities in a safe learning environment.

In reference to actions, our study identified political interaction, active participation, and professional obligation as key actions for participants. For example, using social media and subscribing to an online listserv were used most often for interacting with organizations. In contrast to this finding, the lowest frequency of actions for both cohorts involved face-to-face interaction including testifying at a subcommittee hearing and working on a political campaign. Perhaps the underlying message in a world dominated by social media communication is the importance of focusing on human interaction in the political arena. For instance, face-to-face communication can be used to discuss advocacy philosophy within an organization, establish advocacy strategic planning, engage stakeholders, and work with policymakers. Human interaction is vital to establishing advocacy commitment.

In our study, the graduate alumni were more active than the undergraduate alumni in using online listservs and contacting legislators, probably because these professionals have spent more time in private practice or community settings and have witnessed oral health disparities. The bachelor's degree-level alumni were just beginning a career; therefore, they may not have directly experienced involvement with underserved populations.

At the next level of the advocacy engagement model, we placed the critical elements for advocacy engagement: Advocacy Commitment, Collective Efforts, and Mentoring Experiences. We suggest that Advocacy Commitment is influenced by the two qualities of importance and passion. Importance creates priority, and passion advances priority to action. Passion is an emotion that influences advocacy engagement. Emotion transforms apathy into positive action for change, and strong emotions such as guilt, empathy, and moral outrage to inequality are needed for social change.[17] We assume these same emotions would ignite advocacy engagement. Advocacy Commitment is key to advancing action[18] and is considered a conscious choice influenced by mentorship, passion, and experience.[19] According to Wilder and Guthmiller, the future of the dental hygiene profession depends on those who are passionate, willing to invest time, and seek leadership roles to promote equitable distribution of resources and access to oral health care.[20]

Another critical element for advocacy engagement is Collective Efforts. Collective Efforts become shared group responses that define social learning of the organizational culture when a challenging situation, such as oral health inequities, triggers group action to achieve success.[21] Promoting an organizational culture with advocacy as a declared value is worth investigating. With advocacy as an important value, opportunities to make a difference could become fundamental shared responses that unite, engage, and sustain dental hygiene practitioners in advocacy action. Also, collective efforts should expand to interprofessional partnerships and mentoring with various health professional organizations. Creation of an advocacy app could be used to promote shared resources.

The final critical element of advocacy engagement is Mentoring Experiences, which are opportunities for colleagues within an organization to nurture effective advocacy action with those who are less experienced. Preparing and sustaining future leaders

require forward mentoring. Interaction and integration of advocacy values, by professional organizations and individuals, have the greatest capacity to improve population oral health care.

Finally, at the top level of the model is Advocacy Empowerment. This level is well defined by this comment from a graduate alumna in our study: "Empowerment to me is changing . . . it used to mean just feeling confident and capable. However, now I see it as not just being capable, but also having the courage to jump into new situations, knowing that you have the potential to be great even if you don't have all the skills right now, believing that you are worthy of leading and delegating, and believing that people will listen to you and that you have valid thoughts, ideas, and capabilities. Empowerment is believing in yourself and moving forward into uncharted waters."

Directing focus towards Advocacy Empowerment requires creative ideas and solutions centered on increasing the collective consciousness.[22] Leadership practices such as challenging the status quo, enabling others to act, and encouraging the heart are actions that emerge from shared group values centered on unifying the collective consciousness to create change.[18] Combined, these leadership practices inspire members of organizations to address challenging situations, thereby creating support for empowerment and helping members recognize individual leadership potential. Thus, empowerment enables individuals, groups, and organizations to search for opportunities to innovate and change advocacy outcomes.

It is apparent that mentorship is a crucial and indispensable element because it appears at all levels of the model from the foundation to the peak. Therefore, we surmise that mentorship must occur at all levels to reach Advocacy Empowerment. Mentoring involves the leadership practice of modeling the way and setting the example.[18] These active leadership practices enable forward mentoring of members within organizations to sustain advocacy empowerment and support change.

Our study had several limitations. The most significant was the lack of a control group: without comparable information on the advocacy efforts of those who did not participate in the LAP, we could not determine conclusively that the participants' advocacy activities and attitudes were the result of the program or of other unexplored factors or potential influences. We also could not measure the exact effect of the program since we did not know whether or to what extent the participants would have participated in advocacy efforts regardless of participating in the LAP. Another limitation of this study was the low response rate in the graduate alumni cohort, in part due to data collection through an online survey tool and the lack of current email addresses for many of the alumni. The response rate may have also been reduced by lack of time and survey burden, as found in other studies.[23-25] Another limitation was lack of contact information for all potential participants due to changes in names, email addresses, and phone numbers since graduation. Finally, since the study participants were all from one dental hygiene program, the results may not be generalizable to graduates of other programs.

More research is needed to determine what generates passion for and involvement in advocacy activities. Mentoring is another facet that could be further studied in relation to advocacy. Evaluating this same sample in five to ten years could be useful because the alumni would have more time to create a new value system based on personal experiences. Also, future research should investigate dental hygienists who did not participate in the LAP but are actively engaged in advocacy action to determine what factors influenced their participation. Additional aspects to consider are the influence of age and number of years in a career on advocacy actions. Future studies should also consider the influence of educational curricula, continuing education, and practical experiences with advocacy on oral health professionals' advocacy activities.

Conclusion

This study was innovative in attempting to determine the long-term influence of advocacy training during dental hygiene education on the advocacy involvement of one program's alumni. We found that the advocacy actions after graduation of these alumni did improve, though only slightly. Identification of some of the barriers to advocacy activities can help educators and professional organizations develop ways to help overcome those barriers. The elements of the Advocacy Empowerment Model also provide educators, organizations, and professionals the means to create and sustain advocacy actions. Changing the dental hygiene profession's organizational culture is essential to accepting legislative efforts as the cultural norm. Forward mentoring is key to nourishing colleagues, safeguarding the dental hygiene profession,

and generating advocacy empowerment. Understanding the relationship of the components of the model can aid in the development of a collective approach towards health policy development. The Advocacy Empowerment Model can be used to design educational experiences, promote advocacy endeavors within organizations, and inspire advocacy action.

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