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# Developing Dental Students' Awareness of Health Care Disparities and Desire to Serve Vulnerable Populations Through Service-Learning

**Linda S. Behar-Horenstein, PhD; Xiaoying Feng, BS; Kellie W. Roberts, EdD; Micaela Gibbs, DMD; Frank A. Catalanotto, DMD; Charisse M. Hudson-Vassell, PhD**

*Abstract:* Service-learning in dental education helps students integrate knowledge with practice in an underserved community setting. The aim of this study was to explore how a service-learning experience affected a small group of dental students' beliefs about cultural competence, professionalism, career development, desire to practice in a community service setting, and perceptions about access and disparities issues. Prior to beginning their first year of dental school, five first-year dental students at one U.S. dental school participated in a six-week service-learning program in which they interned at one of three at-risk settings in order to experience health care delivery there. After the program, 60 reflective writing assignments completed by the participants were analyzed using grounded theory methods; interviews with the students were used to corroborate the findings from that analysis. Seven themes identified in the journal reflections and interview findings showed enhanced awareness of social health care issues and patient differences, as well as a social justice orientation and desire to address disparities. Building on this study, future research should explore the curricular components of service-learning programs to ensure students receive ample opportunity to reflect upon their experiences in order to integrate previously held assumptions with their newfound knowledge.

Dr. Behar-Horenstein is Distinguished Teaching Scholar and Professor, Department of Educational Administration and Policy, School of Human Development and Organizational Studies in Education and Affiliate Professor, Department of Community Dentistry and Behavioral Science, College of Dentistry, University of Florida; Ms. Xiaoying Feng is a doctoral student, Department of Educational Administration and Policy, School of Human Development and Organizational Studies in Education, University of Florida; Dr. Roberts is Director, DIAL Center for Written and Oral Communication, University of Florida; Dr. Gibbs is Clinical Associate Professor and Program Director of Community-Based Programs, Department of Community Dentistry and Behavioral Science, College of Dentistry, University of Florida; Dr. Catalanotto is Professor and Chair, Department of Community Dentistry and Behavioral Science, College of Dentistry, University of Florida; and Dr. Hudson-Vassell is an independent research consultant. Direct correspondence and requests for reprints to Dr. Linda S. Behar-Horenstein, Department of Community Dentistry and Behavioral Science, University of Florida College of Dentistry, P.O. Box 100415, Gainesville, FL 32610-0415; lsbhoren@ufl.edu.

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Increasingly, dental educators have been utilizing new teaching methods in response to societal needs. Various types of external programs, ranging from service-learning activities to community-based clinical dental education, are common in dental schools. The service-learning experience is designed to provide structured learning in a community setting, grounded in clearly defined objectives, preparation, and reflection[1] that help students recognize the range of community-based patient services.[2] Some service-learning activities also share with community-based dental education (CBDE) the objectives of encouraging students' professional development, promoting their communication skills, fostering their knowledge of diverse patient groups and social determinants of health behaviors, and increasing their familiarity with business practices.[3] Such authentic experiences can help students begin to recognize how interactions among patient culture, lifestyles, and behaviors are impacted by the services that dental practitioners offer in the context of issues related to access and disparities.

Previous research has reported that dental students desire more hands-on patient care experiences in their curricula.[4-6] Both service-learning and CBDE

programs have been found to enrich students' learning experiences, increase their awareness regarding local and global responsibility, help them integrate knowledge with professional activities, and shape their attitudes and behaviors for their future profession.[4-6] These real-world contexts bring the reality of dental practice for communities of under- and unserved patient populations into sharp relief and illustrate some of the most serious oral health care needs facing the new generation of dentists. CBDE seeks to strengthen the available public health resources and ensure that patients who need oral health care services have access.[7] Service-learning activities can supplement or lay the groundwork for CBDE with strategies that promote service to communities that receive little dental care.

In 2006, Gadbury-Amyot et al. reported that while working with underserved patient communities in CBDE, dental students increased their understanding of cultural diversity and ethical patient care.[5] Those students also exhibited greater insight into the access and disparity issues that underserved populations experience and increased their understanding of community oral health, professional roles in the oral health care system, and the delivery of care. CBDE had a positive impact on those students' attitudes about service, themselves, and the community members they served. Similarly, Brondani found that a service-learning program helped dental students better understand the challenges faced by a vulnerable population, while inspiring them to think more complexly about communities, maximizing their educational learning experiences, and causing them to be more critically reflective about professional issues.[8] Through an analysis of students' experiences, both practitioners' and researchers' perspectives on service-learning can expand.[9] The aim of this study was to explore how a service-learning experience affected a small group of dental students' beliefs about cultural competence, professionalism, career development, desire to practice in a community service setting, and perceptions about access and disparities issues.

## Materials and Methods

The Institutional Review Board at the University of Florida approved this study. In 2013, applicants to the University of Florida College of Dentistry were informed of the opportunity to participate in a new program for community-focused students via a flyer included in the information packets applicants received at their admissions interview. Interested students were asked to complete an application, provide demographic information and the name of a personal reference, rank their preferences for one of the three designated work settings, and respond to the following questions: 1) Why are you interested in this program? 2) Describe any health experience that you have previously had in a community-based setting. 3) What did you learn from that experience that was unexpected? 4) What is your perception of accessibility of health care in this state? 5) What particular talents would you bring to this program? 6) How do you anticipate this experience will make you a better health care provider?

Two dental faculty members and the supervisor of the agency that oversaw the work sites independently reviewed the applications and ranked the applicants. Rankings were almost identical for the three reviewers. Of the eight students who applied, five were chosen from the class of 93 newly admitted dental students and were given an opportunity to intern in the Students Training and Rural Service (STARS) program at a Federally Qualified Health Center (FQHC). The FQHCs were overseen by an area health education agency.

The selected students were assigned to one of three at-risk, safety-net health care settings for six weeks during the summer prior to beginning the first year of dental school. The placements were chosen to enhance student experiences related to care delivery for underserved populations and to complement the school's other community-based experiences in the second and fourth years. Site 1, a homeless center focused on providing health care to predominantly homeless individuals, is located in an urban setting. At this site, students worked with the street outreach team to connect homeless individuals with area health care resources. The aim of Site 2, a medical organization, is to establish and sustain programs for patients who are uninsured or underinsured and thus often underserved. Students assigned to this site worked at two local clinics and a hospital to become familiar with safety-net health settings and to understand the impact of socioeconomic community issues on health care access. Site 3, a county health department, concentrates on health issues facing migrant workers. Students at this site worked in an interdisciplinary environment with other students, health professionals, administrators, and community leaders to develop solutions to local health problems

and mentor high school students interested in the health professions.

During their placements, students planned prevention activities, led smoking cessation classes, assisted in community events, and provided education for patients in a general health setting. They did not focus on dentistry and did not assist in dentistry practice so that they could more fully interact with and observe patients and practitioners. Table 1 shows the demographics of the participants along with their assigned pseudonyms used during the coding process to protect their identity and confidentiality.

The students were required to complete 12 reflective writing assignments during the STARS program (Table 2). Each participant received the same writing prompts, which focused on their emergent understanding of how to work with patients from diverse social, cultural, and class populations. The intent of the writing assignments was to give participants an opportunity to capture their experiences, actions, and emotions while documenting their growth and memories throughout the program. The writings provided the researchers with insight into the students' process of making meaning as they integrated service activities with their training. During the six-week program, the five students completed two assignments per week, each of which was comprised of four prompts. The students were asked to write a minimum of 500 words per assignment although they were allowed to write as much as they wished.

In addition to the reflective writing assignments, at the end of the program a program director from the area health education agency that oversaw the FQHCs interviewed the six participants. The students were asked to respond to one question: What did you take away from this experience? The purpose of these interviews was to determine how the experience impacted the students and to discern whether they would consider serving in similar communities after completing their dental degrees.

Grounded theory was employed to examine the data collected. Glaser and Strauss, who developed the theory, explained that grounded theory research has the ability to reveal the connections that emerge from coding that become conceptual categories and theoretical relationships.[10] In 2010, Charmaz suggested a less linear approach in which researchers are "part of the world we study and the data we collect. We construct our grounded theory through our past and present involvements and interactions with people, perspectives, and research practices" (p. 10).[11] She explained that the grounded theorist interweaves rich, full, and detailed data that are then coded line by line for close study before sorting for meaning and connection to aid in theory construction. Grounded theory moves the researcher away from describing to conceptualizing the data into an analytic framework.

During the analysis of data, each of the participants' reflective writings was analyzed individually as a distinct and separate unit prior to moving to the next participant. Throughout the individual coding sessions, participants' writings were first read through in their entirety before proceeding with both initial coding and focused coding. According to Charmaz, initial coding, "which is provisional, comparative, and grounded in the data," is a method that involves staying close to the data including words, lines, segments, and individual incidents (p. 48).[12] Because the data were derived from the participants' written text, a sentence by sentence analysis was employed to generate categories or themes. All of the participants' reflective writings were read individually by four of the researchers, all non-dentists, in order to identify statements or phrases that reflected the students' experiences. The researchers then came together to review the themes and the fit of individual excerpts from the participants. The researchers were experienced in qualitative analysis; three have conducted and published previous studies in dentistry. This categorizing process produced many excerpts.

**Table 1. Characteristics of participants in service-learning program**

| Pseudonym | Gender | Race | Nationality/Ethnicity | Age |
|---|---|---|---|---|
| Rachel | F | African American | American | 25 |
| Michelle | F | Caucasian | American | 24 |
| Simon | M | Asian | Vietnamese immigrant | 30 |
| Jim | M | Asian | American | 23 |
| Max | M | Asian | Sikh Indian | 28 |

**Table 2. Reflective writing assignment prompts for service-learning program**

| Week | Assignment | Assignment |
|---|---|---|
| I | 1. Pre-Assessment<br>a. What do you hope to learn during your 6-week experience?<br>b. What types of patients will you encounter?<br>c. What is your current skill level in understanding patients unlike yourself?<br>d. What health care disparities do you anticipate seeing? How do you think it will make you feel? | 2. Public Health Policy<br>a. What does the health care structure look like in your community?<br>b. How does it differ from the community in which you now live permanently? How does it differ from where you grew up?<br>c. What are the similarities between these communities? |
| II | 3. Access to Care<br>a. Summarize the perceived barriers to care in your community.<br>b. What resources are lacking?<br>c. What local resources are in place to facilitate access?<br>d. What can be done to increase utilization of these resources?<br>e. How are the methods of access different from your own access to health care? | 4. Cultural Competence<br>a. Based on your observations, do you feel that all individuals in the community are being treated the same? If not, what factors might be affecting this?<br>b. Do the health care providers spend equitable amounts of time with each patient?<br>c. Is the quality of time spent with each patient equitable?<br>d. What barriers to patient-centered care exist? How can these be rectified? |
| III | 5. Health Care Disparities<br>a. Describe in detail a specific interaction you have observed that fully illustrates the presence of health care disparities in your community.<br>b. Identify any barriers in communication during this interaction.<br>c. What did the health care provider do well? What would you personally have done differently during this exchange? | 6. Public Health Policy<br>a. Identify the health care leaders in your community.<br>b. How do they leverage resources to accomplish goals?<br>c. What type of role does local, state, or national politics play in accomplishing these goals?<br>d. Identify health policy barriers that impact your community. What could you do to bring about change? |
| IV | 7. Access to Care<br>a. What specifically could be done in your community to improve access to health care?<br>b. What current resources exist that could be used?<br>c. What resources are lacking? What would have to be done to overcome these deficiencies?<br>d. How could you initiate this improvement process? | 8. Health Care Disparities<br>a. What specific behaviors have you witnessed in your interactions regarding inequities in care that need to change on the part of the providers? Give specific examples.<br>b. On the part of the patient? Give examples.<br>c. On the part of the community? Give examples.<br>d. Imagine that your practice were in this community. Knowing what you do, what would you change to decrease disparity from a dental perspective? |
| V | 9. Cultural Competence<br>a. Describe how the health care providers demonstrate an awareness of patient needs.<br>b. Provide evidence that culturally appropriate materials exist for the patients. What would you do to improve these materials?<br>c. Do you feel that the materials present for patients appropriately reflect all cultural groups? What might be missing?<br>d. Describe an interaction you witnessed between a provider and a patient that was culturally sensitive. | 10. Summary Reflection<br>a. Describe the most rewarding day you have had in this program.<br>b. Why was it rewarding?<br>c. What did you learn about yourself that you didn't know previously?<br>d. How will it impact you as a future health care provider? |
| VI | 11. Summary Reflection<br>a. Describe your most challenging day.<br>b. Why was it challenging?<br>c. What did you learn about yourself that you didn't know previously?<br>d. How will this experience impact you as a health care provider? | 12. Post-Assessment<br>a. What did you learn from this experience?<br>b. What types of patients did you encounter?<br>c. What is your new skill level in understanding patients unlike yourself?<br>d. What health care disparities did you see? How does that make you feel? |

**Table 3. Strategies used to check accuracy of study findings**

| Strategy | How the Strategy Was Applied |
|---|---|
| Triangulation | Different data sources were used to build coherent justification of themes. Sources included multiple individual interview data from the participants and multiple analysts (four researchers who reviewed and open-coded each dataset independently and then as a group). |
| Using thick, rich descriptions to convey findings | In data collection and analysis and in writing the final analysis, thick rich descriptions were preserved and used to convey shared experiences. |
| Clarifying the bias the researcher brings to the study | The first author is a professor with expertise in qualitative research, the second author is a second-year doctoral student, the third and sixth authors recently earned their doctoral degrees. The fourth author is a clinical associate professor in the dental school and the course director with many years of experience working with community dental sites. The fifth author is a professor with nearly four decades of research and experience in access issues. |
| Employing peer reviewer | The second, third, and sixth authors served as peer reviewers for one another and corroborated the findings by reviewing and assessing the data to determine if similar conclusions of themes were created from in vivo coding, process coding, and data analysis. They came together with the first author to reach consensus on the emergent themes and to refine their definitions. |
| Confirming prolonged engagement and persistent observation | 60 participant journals were analyzed. Saturation of data was obtained; no new information was apparent. |

A variety of statements by the participants were then sorted and coded into similar categories or themes that emerged directly from the data.

The constant comparative method was employed at each level of the analytic work; during the focused coding process, data were moved to better fitting codes or where it was more suitable in other themes or categories. Some themes were eliminated, while others were subsumed within other categories. Once themes across the categories were finalized, a grounded theory illustrating the relationships within and across the categories was created. The analysis process involved coding, refining codes, identifying examples to support the categories, analyzing within categories, looking for themes across categories, and locating quotations to support the grounded theory.

Because qualitative research lends itself to adaptation throughout the research process, such study requires a different approach to assess its quality and rigor. To enhance the reliability and trustworthiness of a qualitative study, according to Sprenkle and Piercy, the researcher must "explain the context of the research, cycling between the interpretation and data, and grounding interpretation with examples" (p. 27).[13] Essentially, the researcher needs to ensure that the data closely represent participants' voices and experiences. To ensure the rigor of this study, several of Creswell's strategies were applied: triangulation; using thick, rich descriptions to convey findings; clarifying the bias the researcher brings to the study; employing peer reviewers; and confirming prolonged engagement and persistent observation (Table 3).[14]

# Results

Seven overall themes (becoming aware of disparities, judging patient behaviors, recognizing patients' lack of health care knowledge, developing professional identity, brainstorming solutions, relating to community, and broadening understanding of cultural competencies) were identified from the participants' weekly reflective writings (Table 4). We also evaluated comments from follow-up interviews with the students at the close of the six-week program to determine if any additional themes emerged.

## Journal Findings

**Becoming aware of disparities.** This first theme refers to the myriad of barriers to health care access and the complexities in providing care to patients with medical co-morbidity. Students' awareness of disparities burgeoned during their six-week immersive experience. Jim observed that "the waiting room is overflowing with patients, [but] there are two physicians and two nurse practitioners working." Simon reported that patients had to wait in long lines to see a doctor, while Rachel noticed that

"patients become weary while waiting for the provider." Transportation or getting to appointments was especially problematic. Rachel reported, "For most of the patients, appointments are usually canceled or not fulfilled [because of transportation issues] which further worsens the health status of these individuals, chronically and/or acutely."

Not being able to speak English also thwarted the provision of care, creating communication problems. On this point, Max reported that "none

**Table 4. Themes, conceptual definitions, and representative examples**

| Themes | Conceptual Definitions | Representative Examples |
|---|---|---|
| Becoming aware of disparities | a. Barriers to care<br>i. Wait time<br>ii. Transportation<br>iii. Language<br>iv. Cost<br>v. Lack of practitioner (e.g., specialist)<br>vi. Inadequate care<br>vii. Missed appointments | a. "For some of them to find out that there were no options available to help them." |
| | b. Seeing complexities in patient care | b. "Not only were the patients lacking dental care, but primary health care overall." |
| Judging patient behaviors | Expression of negativity towards patient choices and behaviors | "I did not know that I could become very frustrated when I try to help other people who are in need." |
| Recognizing patients' lack of health care knowledge | a. Seeking urgent care | a. "Many patients come to the medical clinic in critical condition." |
| | b. Sacrificing teeth is normative | b. "Right now all programs for adults are geared towards extraction or nothing." |
| Developing professional identity | a. Growing confidence | a. "This made me realize just how big of an impact I could have on these people." |
| | b. Seeing future placement | b. "I hope that one day when I become a dentist I can help work to solve this problem." |
| Brainstorming solutions | a. Expanding access | a. "To bring about change, I could assist with putting together proposals for funding of county-wide public health initiatives." |
| | b. Establishing a network of practitioners | b. "More health care providers must get involved to increase the number of patients that are being seen in the clinics." |
| | c. Disseminating information (bottom-up and top-up) | c. "Information needs to go out to more people who have difficulty with access to care." |
| Relating to community | a. Reflecting upon fit of care/information | a. "I could help initiate this improvement process by attending community meetings and advocating for funding." |
| | b. Modifying care to address health needs | b. "I must adjust my materials and how I deal with patients who come from a different background." |
| Broadening understanding of cultural competence | a. Approaching critical level | a. "Your interaction can either gain or lose their [patients'] respect, and as a future health care provider, respect within the community is an important quality to me." |
| | b. Surfing on the top | b. "I have to learn to reserve my opinions and judgments in order to treat patients that I cannot understand." |
| | c. Becoming connected | c. "To understand patients unlike myself, I learned to take time to sit down with them and listen to them on their level to truly understand their story and experiences in life." |

of the health care providers in the school clinic can speak Spanish fluently." Simon noted that it was "hard to find an interpreter for patients" and that the clinic had to rely on someone interpreting on the phone. This was also a challenge because it was time-consuming. Affording care or finding a specialist was also a barrier. Because of costs, Jim found that patients often only seek care "when they are in agonizing pain." At times, insurance regulations thwarted patients' abilities to receive appropriate care. Inequities centered on the availability of providers and resources, both of which were connected to affordability. For example, Rachel noted that when patients visited the clinic needing a specialist's care, "they may never receive that care because of their income/insurance status alone." Seeing a patient who needed relief from an aching tooth and that the doctor wanted to refer him for proper treatment made Jim's "heart drop." Missing appointments and inadequate care were also barriers. Rachel noticed the frequency of missed appointments, and Jim reported that care was compromised by the "lack of programs in place and the restrictions on the procedures done."

At times, students were taken aback by the complexities of patient care. Jim described an instance in which the doctor found that a patient's blood glucose level was too high: "The doctor looked at her and [explained that she needed] to get this under control, [emphasizing] that if she did not that she would probably die. Talk about a wake-up call." Students realized that many patients lacked not only dental care but also primary health care. Rachel reported her uneasiness regarding a patient who was completely opposed to having her teeth extracted. As she recorded the incident in her journal, the patient "was also emotional [because prior to her] illness she had almost perfect teeth. I felt completely useless because of how complex the situation was. This case caught me completely off guard."

**Judging patient behaviors.** This theme was exemplified by expressions of negativity towards patient choices and behaviors. After learning that some patients were unwilling to take ownership of their health to promote self-care, students struggled with disbelief. Trying to improve patient oral health was not achievable if a patient was unmotivated or noncompliant with recommendations for care. This was seen very clearly when patients' life choices were primary determinants of their medical/oral health ailments. Simon found himself becoming annoyed with patients who did not want to take responsibility for their health. "I did not know that I can become very frustrated when I try to help other people who are in need," he wrote. "They absolutely need immediate medical attention. However, they do not want to take care of their own health." Rachel noticed that "patients have made it normal to be noncompliant regarding use of their medications and keeping their appointments."

Even more confusing to the students were those patients who did not make health care a priority. Patients who claimed they could not afford five dollars for a visit although they smoked baffled Jim. He described an incident with such a patient:

> The doctor then went on to talk to her about her smoking habits and she informed him that she smokes two packs of cigarettes a day. Let's do some math: $6 per pack at 2 per day is $12 a day. Multiplied by 365 days and she is spending $4380 on cigarettes per year. Not smoking for a day and a half would supply her with the money needed to pay for her health care bills, but the patient claims she can't afford it? It goes to prioritizing what is important and also understanding that the care is not going to be completely free.

Michelle reported similar frustrations about patients who complained about treatment cost yet did not address their own behavior: "They do not listen to what the provider tells them to do; the money that they could have saved up goes to buying cigarettes and other nice items that I see them come into the clinic with such as iPads and iPhones." In contrast, Jim felt sympathetic for people who "had to wait four to eight hours to be seen since [the clinic] only took a certain number of patients." Related to patient lifestyles, Simon and Michelle admitted having difficulty comprehending why an individual would choose to remain homeless rather than getting into a shelter.

**Recognizing patients' lack of health care knowledge.** This theme refers to patients' lack of awareness about the need for, or importance of, regularly scheduled oral health evaluations. Seeking urgent care in situations such as oral health emergencies and sacrificing teeth and loss of dentition were normative. Rachel wrote that she saw a large percentage of patients coming to the clinic due to dental pain (e.g., abscess or toothache). Jim described a patient who "waited until the problem has become unbearable" before coming to the clinic for treatment. Michelle observed that a "good portion of the patients visiting the dental clinics come in for teeth

extractions." At this stage, extractions were common because the patients' teeth were beyond the phase of further repair and restoration. Whether sacrificing dentition was normative to the patient's culture or it resulted from lack of affordable care and/or insurance was difficult to determine.

**Developing professional identity.** This theme concerns students' expressions of themselves as a future practitioner, illustrated in statements showing their increasing confidence and ability to see themselves as providing care for patients. For some students, these experiences reaffirmed that they were going into the correct field. For Rachel, Michelle, and Max, talking with patients helped to solidify that belief. Rachel reported an incident in which a patient hugged her when leaving the clinic, telling Rachel their conversation relaxed her. This experience encouraged Rachel to continue "being personable and help[ed] me realize the importance of trust and building rapport with patients," she reported. Michelle found that a patient's remark about her calming demeanor reinforced her ability to "ease the stress, anxiety, and fear that patients have when they receive dental treatments." For Max, finding that he was an effective communicator with children made him realize that he could talk "in a way that makes them feel calm and comfortable. I also learned that I can relate to children very well in terms of their hobbies, interests, and learning style." He went on to say that the experience "also inspired me to work towards treating more patients with Medicaid and those who are in underserved communities." As a former Medicaid recipient, Rachel found that her own childhood experiences "equipped me for the health care disparities I may observe from a patient's perspective."

While also considering himself a future practitioner, Simon reported that he "would save a certain percentage of my income to a 'special account,'" implying that he would want to help finance dental care for those who could not afford it. Jim remarked that he would remember this experience and would work to solve these problems when he became a dentist, while Max found himself feeling encouraged to consider a specialization in pediatric dentistry.

**Brainstorming solutions.** This theme refers to students' ideas about expanding access, establishing a network of practitioners, and disseminating information. The students recognized that medically underserved and homeless people were often unaware that clinics offered free health care. Jim observed that more health care providers were needed "to increase the amount of patients that are being seen in the clinics." Max noted that "one of the rooms in the clinic should be an established dental office to provide full dental services to children who need them." Michelle argued for the need to expand the network of practitioners and suggested that "more health care providers also must get involved in some form to increase the number of patients that are being seen in the clinics."

Recognizing that information needed to reach more people who have difficulty with access to care, Jim suggested, "One way to improve these materials would be to make a flyer for each specific cultural group." Michelle thought that "basic and easy-to-understand information on the importance of health prevention" was needed, including "information and education on diet, tobacco cessation, self-screenings and observing for signs of cancer, and prevention of common diseases." Rachel recommended that educating practitioners in accessing and disseminating health information was also a necessity: "Staff members have sometimes demonstrated difficulty in retrieving materials for patients electronically." She suggested that perhaps staff could receive training to assist them in their operation of and confidence in using computers.

**Relating to community.** This theme was expressed in students' realization that the oral health care provided has to be individualized in response to each patient's overall health as well as community health needs. Jim reported that the clinical experiences gave him a better understanding "of how community-based health care works from all levels." He goes on to say that the experience will give him "insight into the different types of jobs and roles that might be available to me in the future." Max wrote that he hoped to decrease disparity in his own dental practice "by educating dentists, dental assistants, and dental hygienists about how to best work with children and adults in underserved communities." Michelle stated that she would locate her "practice in an area that is easily accessible by public transportation." Rachel expressed that she could initiate improving the fit between providing patient care and information by "attending community meetings and advocating for funding and even sharing my experiences/observations through this program with some of the leaders of the community."

To address ways of modifying care to better serve patients' needs, Max said he planned to "provide a more holistic package of dental services for people in underserved communities, such as in-depth cleanings, long-term treatment plans, and preventive

care." Rachel suggested giving patients "calendars or reminders about upcoming events, free screenings in the area, or other programs that they could benefit from at the checkout station or towards the end of their appointments while they are making their next appointment" and "increasing the number of available materials that encompass cultures, ethnicities, and religions" at clinics. Jim stated that he would have to adjust materials for patients depending on their needs. Simon offered a way to address the lack of patient transportation by identifying underserved areas that lacked public transportation. He suggested "develop[ing] bus routes that can connect underserved areas to health care resources."

**Broadening understanding of cultural competence.** This theme refers to the participants' attempts to understand patients' culture, oral health beliefs, and development. Some of the students became increasingly astute, while others remained relatively unmindful of these issues. Max recognized the importance of listening to patients unlike himself: "I learned to take time to sit down with them and listen to them on their level to truly understand their story and experiences in life." Rachel observed, "How you deal and interact with these types of patients is very important to them. They are very sensitive to their circumstances, so health care providers have to wisely choose specific words and describe things to them, with hopes to avoid offending them." Simon wrote that it was important to recognize the patient's age and communicate with him or her in a developmentally appropriate manner. For example, to keep a young boy's mind off the stress of the clinic visit, Simon would have "kept the child busy with a coloring activity or a type of board game."

However, Michelle's notion that "if we can easily disseminate such information and focus on the preventive aspect of their health, individuals will be healthier overall [and] save more money on their health care costs" seemed to ignore the influence patients' sociodemographics and lived experiences have on their ability to afford dental care. Max noted that he discovered culture played a role in influencing one's health, such as determining what one eats and drinks. Nevertheless, he reported that some health care providers were not able to understand certain children's culture, writing that "they were not very successful in influencing the children to change their eating habits and unhealthy behaviors." Coming full circle from her previous notion, Michelle shared her appreciation of the complexity of some patients' troubled lives: "Life events and other unforeseen problems arise in many of the underserved patients, such as loss of job, disability, mental health problems, which make it difficult for them to recuperate"; yet she noted that "they do make an attempt to reach out and do their best to sustain themselves."

## Interview Findings

No new themes emerged from the interviews due to data saturation; rather, the interviews reinforced the themes found in the reflective writings. After seeing individuals frequently seek care in medical and dental facilities for problems that were not strictly oral health issues, Simon reported, for example, that he had a better understanding of the overarching impact of oral health on systemic health. Watching individuals struggle to access care reinforced his desire to go back to the area after graduation and have an impact. Michelle noted that the type of individuals who were homeless surprised her, yet also enhanced her acceptance of differences and the varying situations of people who sought care. Both Michelle and Rachel reported feeling that communication skills were key to helping individuals during their careers. Jim observed how the community's inadequate health infrastructure, like poor mass transit, further impeded social issues. He expressed his desire for policy changes that would make a positive difference in the state's health care system. Although taken aback by the lack of patients' oral health knowledge, Max recognized how receptive they were to learning. He felt strongly that the dental profession has a responsibility to address disparities with education so that individuals continued to empower others in their communities.

The grounded theory used in this study showed how the students obtained new knowledge and awareness from working in underserved communities despite having had little formal education or guidance to support their experience (Figure 1). Although these students could not have been expected to become culturally competent from such a brief experience early in their dental education, positive outcomes included the recognition they had chosen the correct career, their engagement in critical reflection, reinforcement of their desire to serve, and their growing sense of professionalism.

# Discussion

The findings from this study echo a previous study that found community-based dental educa-

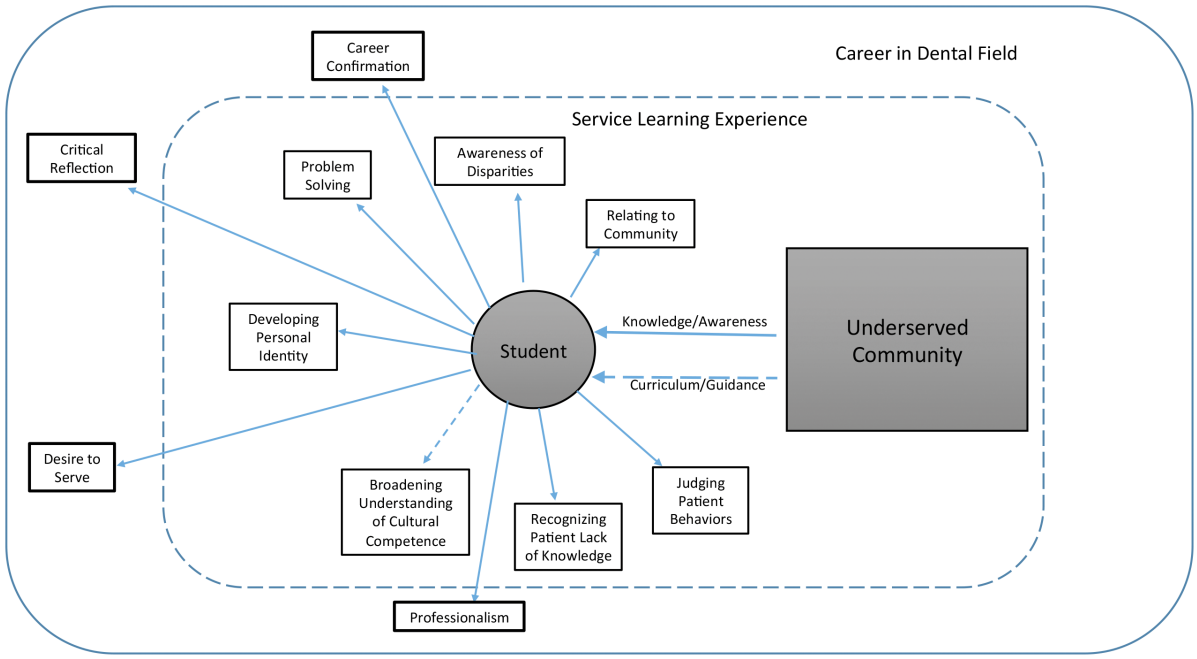


**Figure 1. Grounded theory used in this study**

tion improved students' communication skills with patients from diverse groups, facilitated students' understanding of the social determinants of health behaviors, and helped students develop professionally.[3] As with our students, Yoder found that experience in safety-net provider settings seemed to encourage students' desire to promote progressive public policy.[2] As in Mathieson et al.'s study of community-based dental education and Brondani's study of service-learning, our study suggested that the students involved experienced growth at both personal and professional levels during the program and came to an increased understanding of their professional dental roles as well as their social responsibilities.[15,16] Participants in our study also indirectly pointed out how corporate-like organizational structures such as insurance companies and government programs (e.g., Medicaid) negatively impact dental care policies and practices, similar to Dharamsi et al.'s findings about dentists' perceptions.[17] The students seemed to implicitly endorse DePaola's argument that dentistry should be a public good and not simply a private benefit for the privileged.[18]

The themes we discovered in the students' reflective writings suggested that the service-learning experience helped them grow in their ethical understanding of their profession. They also seemed to be developing an awareness of the ways privilege in class, culture, and education has an impact on health care. We feel this is a reasonable outcome to have achieved in one six-week program prior to the students' beginning dental school. Although we found minimal evidence of cultural competence in the writings, students seemed to be learning to base their understanding of patients on what they observed more than any preconceptions they might have had. While this is a hopeful finding, Abedini et al.'s study of the effect of international service-learning programs on medical students reminds us that it is often insufficient for developing the socially just, critical orientations that ensure practitioners' ethical delivery of care to persons unlike themselves.[19] Our study supports Abedini et al.'s point that students' awareness of the politics involved with the delivery of care is an indication that critical reflection has begun to take place, not that the process has been completed.

Another interesting feature of our findings was that the students' reflective writings focused exclusively on the effects of economic privilege and showed no evidence of being able to articulate an explicitly racialized understanding of the issue of access to health care. As one purpose of service-learning is

to build individuals' understanding of various racial and ethnic groups, this absence could imply that the project was not as successful as it could have been, especially considering how central constructions of race and ethnicity are to this issue.[20,21] However, other studies of service-learning programs have found a similar imbalance in students' perceptions.[20-23] The students' reflective writings also lacked any mention of the curriculum that accompanied the service-learning project or the critical discussions that took place within a controlled learning environment. As a result, the writings gave the impression that the students had gained understanding about this issue independent of teacher guidance and without reference to the literature concerning access, social justice, and health care practice.

There are several limitations in interpreting the results of this study, especially given the very small percentage of students at only one dental school who participated. This limitation means the findings cannot be generalized to all dental students or even to all students at this school. Since the initial pool of applicants for the program was self-selected, it is possible these students came into the program with a high degree of interest in community service, which may have biased the results. Furthermore, the racial mix of this cohort differed from that in the school's student body as a whole and from that of all U.S. dental students. Also, it was difficult to assess the impact of the participants' own race/ethnicity on their responses as well as any prior involvement they may have had with community service or other family, school, or life experiences. In addition, since the students' reflective writings were based on prompts we gave to them, it may be advisable to revise certain questions in the future to direct their critical reflection into areas researchers feel it important for them to address. The absence of any specific questions about race, for example, may be responsible for students' ignoring that issue in their writings, rather than their actual inattentiveness to that aspect of health care disparities.

Finally, this study did not explore any long-term benefits of the program, including how it impacted, if at all, these students' dental school experience. Future research may track students longitudinally to determine the impact of a service-learning program like this over time or may design a study with experimental and control groups to assess if those who participate in an early service-learning program have attitudes that differ from students without that experience, as done in Keselyak et al.'s study of dental hygiene students.[24]

Service-learning programs in the health professions are generally designed to develop students' understanding of social justice and their awareness of the inherent hierarchy of privilege between the underserved and practitioners in training; critical reflection on the experience is key to that educational process.[25,26] To maximize the educational possibilities of service-learning, future research should assess the details of the program's curriculum to determine which methodologies are more useful in achieving the desired outcomes. Also warranted is an exploration of the larger university context, including the relations between the educational institution and its surrounding communities and faculty attitudes and practices.[20]

# Conclusion

This study explored how a six-week service-learning experience prior to entering dental school affected five dental students' beliefs about cultural competence, professionalism, career development, desire to practice in a community service setting, and perceptions about access and disparities issues. Our analysis of the students' reflective writing assignments and a post-program interview showed enhanced awareness of social health care issues and patient differences, as well as a social justice orientation and desire to address disparities. Even though this study was brief and used a small number of participants, the findings support the potential for service-learning to help dental students become more aware of the role that community issues play in health care delivery.

## REFERENCES


1. Seifer SD. Service-learning: community-campus partnerships for health professions education. Acad Med 1998;73(3):273-7.
2. Yoder KM. A framework for service-learning in dental education. J Dent Educ 2006;70(2):115-23.
3. Baptiste M. Community-based dental education. N Y State Dent J 2008;74(3):28-31.
4. Brondani MA, Clark C, Rossoff L, et al. An evolving community-based dental course on professionalism and community service. J Dent Educ 2008;72(10):1160-8.
5. Gadbury-Amyot CC, Simmer-Beck M, McCunniff M, et al. Using a multifaceted approach including community-based service-learning to enrich formal ethics instruction in a dental school setting. J Dent Educ 2006;70(6):652-61.
6. Rohra AK, Piskorowski WA, Inglehart MR. Community-based dental education and dentists' attitudes and behavior concerning patients from underserved populations. J Dent Educ 2014;78(1):119-30.

7. King RS. Public health dentistry and dental education services: meeting the needs of the underserved through community and school-based programs. N C Med J 2005;66(6):465-70.
8. Brondani MA. Students' reflective learning within a community service-learning dental module. J Dent Educ 2010;74(6):628-36.
9. Hood JG. Service-learning in dental education: meeting needs and challenges. J Dent Educ 2009;73(4):454-63.
10. Glaser BG, Strauss AL. The discovery of grounded theory: strategies for qualitative research. Chicago: Aldine, 2009.
11. Charmaz K. Disclosing illness and disability in the workplace. J Int Educ Bus 2010;3(1/2):6-19.
12. Charmaz K. Constructing grounded theory: a practical guide through qualitative analysis. London: Sage, 2006.
13. Sprenkle DH, Piercy FP. Research methods in family therapy. 2nd ed. New York: Guiford Press, 2005.
14. Creswell JW. Educational research: planning, conducting, and evaluating quantitative and qualitative research. Upper Saddle River, NJ: Pearson/Merrill Prentice Hall, 2008.
15. Mathieson KM, Gross-Panico ML, Cottam WW, et al. Critical incidents, successes, and challenges of community-based dental education. J Dent Educ 2013;77(4): 427-37.
16. Brondani MA. Teaching social responsibility through community service-learning in predoctoral dental education. J Dent Educ 2012;76(5):609-19.
17. Dharamsi S, Pratt DD, Macentee MI. How dentists account for social responsibility: economic imperatives and professional obligations. J Dent Educ 2007;71(12): 1583-92.
18. DePaola D. Beyond the university: leadership for the common good. In: Haden NK, Tedesco LT, eds. Leadership for the future: the dental school in the university. Washington, DC: American Association of Dental Schools [now American Dental Education Association], 1999:94-102.
19. Abedini NC, Gruppen LD, Kolars JC, et al. Understanding the effects of short-term international service-learning trips on medical students. Acad Med 2012;87(6):820-8.
20. Mitchell TD, Donahue DM, Young-Law C. Service-learning as a pedagogy of whiteness. Equity Excell Educ 2012;45(4):612-29.
21. Roschelle AR, Turpin J, Elias R. Who learns from service-learning? Am Behav Sci 2000;43(5):839-47.
22. Espino MM, Lee JJ. Understanding resistance: reflections on race and privilege through service-learning. Equity Excell Educ 2011;44(2):136-52.
23. Boyle ME. Learning to neighbor? Service-learning in context. J Acad Ethics 2007;5(1):85-104.
24. Keselyak NT, Simmer-Beck M, Bray KK, et al. Evaluation of an academic service-learning course on special needs patients for dental hygiene students: a qualitative study. J Dent Educ 2007;71(3):378-92.
25. Taboada A. Privilege, power, and public health programs: a student perspective on deconstructing institutional racism in community service-learning. J Public Health Manag Pract 2011;17(4):376-80.
26. Abrums ME, Resnick J, Irving LL. Journey or destination? Evaluating student learning about race, class, and privilege in health care. Nurs Educ Perspect 2010;31(3):160-6.