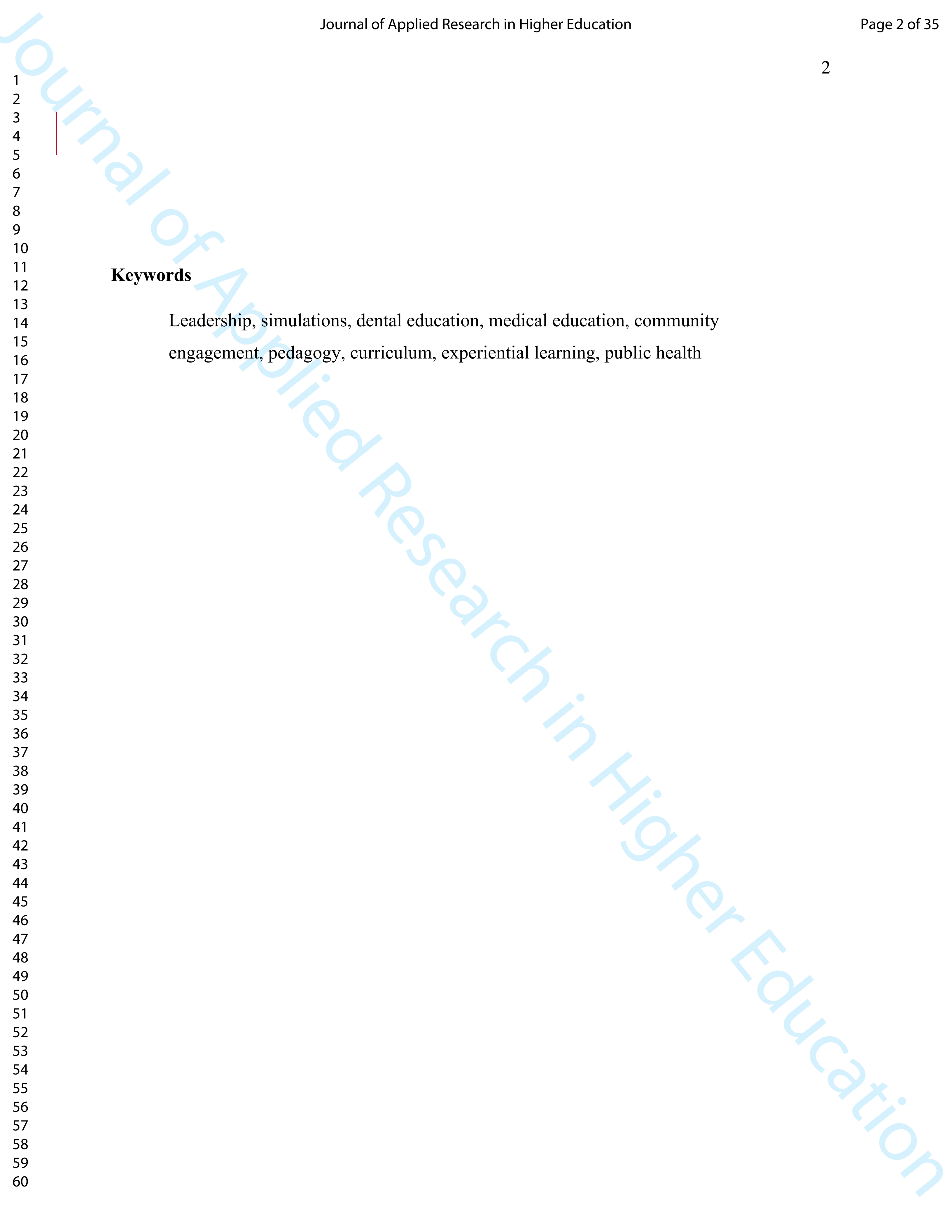
"Preparing students for what lies ahead": teaching dental public health leadership with simulated community partners



Keywords

Leadership, simulations, dental education, medical education, community engagement, pedagogy, curriculum, experiential learning, public health

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Introduction

Dental schools place increasing emphasis on public health, prevention, and leadership in their curricula (DePaola, 2008). Simultaneously, dental professionals are being increasingly recognized for their contributions as healthcare and civic leaders in the community (Burgess & Peralez, 2005). Additionally, dental curricula are expanding education beyond the classroom environment to work in partnership with communities and other professions (Ballweg, Berg, DeRouen, Fiset, Mouradian, & Somerman, 2011). In this study we examine how leadership training influences self-awareness, and self-assessments of collaboration outcomes in simulated interactions with community partners.

Conceptualizing Leadership in Dental Care

Our approach to training and care recognizes two connected veins of work in leadership that are germane to the dental professional's experience. Along one dimension dental care is a collaborative effort among professionals and clients (i.e. the relational process of "leading"). The dental professional is part of a caregiver-patient team and is a member of a treatment and organizational context that involves a variety of professionals including dental hygienists, oral surgeons, orthodontists, and others depending on the patient needs and office composition. An additional consideration here is that our sample comes from a university that adopted a philosophy of leadership that aligns with this relational framing – specifically Komives, Lucas, & McMahon, (1998, 2009).

The second dimension is an individual one (i.e., the potential for "leadership"). Dental professionals have to cultivate personal skills, traits, and approaches that aid them in successfully diagnosing, treating, and (perhaps the most important) motivating clients to continue care on their own. Even though the process is relational the dental professional needs to be recognized as knowledgeable, understanding, caring, and helpful to encourage patient compliance and trust. Thus, part of being a good leader is focused on character and the individual.

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Our theoretical foundations for leadership draw from these complementary framings. Komives, Lucas, and McMahon, (2009) define leadership as "a relational process for inspiring and influencing positive change" (p.74). This focus on relational leadership comes from the view of leadership as an interactive democratic process in which people are motivated and inspired to maximize success through working together effectively towards shared goals (2009). In the words of Allen and Cherrey (2000) "Relationships are the connective tissue of the organization. . ." (p. 31). Those relationships develop over time and are "built on trust and integrity" (p. 31). For Speck & Hoppe (2007) such healthy relational development requires leadership that embraces "inclusion, empowerment, ethics, purposefulness, and process-orientation" (p.261). Komives, et al. define relational leadership as being inclusive, empowering, purposeful, ethical, and process oriented (2009).

Relational leadership has positive influences in health practice. Cardiff, McCormack, and McCance (2018) found that a person-centered (relational) approach to nursing leadership contributed to personal well-being, actualization, and empowerment. Wong (2015) also notes in nursing settings that relational approaches to leadership lead to better patient satisfaction and improved patient safety outcomes. These findings have translation into the organization of primary-care settings. Cleary, du Toit, Scott, and Gilson (2017) concluded that relational

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approaches were more beneficial than positional/hierarchical approaches but are only slowly gaining acceptance. Gordon, Rees, Ker, and Cleland (2015) observed that current physician trainees had outdated and inadequate understandings of leadership and followership that were not conducive to the best client care nor the most effective practice when moving up the organizational hierarchy. In integrated-care Nieuwboer, van der Sande, van der Mark, Olde Rikkert, and Perry (2018) argue that physicians should be trained in relational and organizational skills to improve performance. All of these indicate that relational leadership yields more positive outcomes compared to traditional approaches. However, they also indicate that more research and training needs to be conducted on leadership to better understand what leads to success.

One of the significant elements of relational leadership approaches in general is that the leader needs to be self-aware and reflexive. Learning how to interact with others requires understanding one's own position, knowledge, and disposition. In other words, relational leadership isn't as simple as learning a skill – it is about navigating a process. This informs our choice of self-leadership as a compliment to relational leadership.

Self-leadership focuses on self-influence as a source of actor motivation (Manz, 1986). The starting conceptualization for leadership in this frame is that one "leads" the self. How individuals may lead others is a function of that self-leadership. In a comprehensive treatment of self-leadership, Neck, Manz and Houghton (2017) note that self-leadership emerges from a few foundational concepts: setting standards, self-management, positive psychology (positive self-reinforcement), self-efficacy, and self-determination. In practice, these principles involve setting goals and standards; engaging in behaviors to meet those goals and standards; finding positive motivations in the face of failure or challenge; recognizing the extent of one's control over the

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self and beyond; and choosing purpose or direction. By this framework there is no ideal leadership skill or style. Instead, there are more and less effective ways for individuals to influence and lead others based on who they are. Even so, self-leadership is a better predictor of performance than self-regulation, self-efficacy or need for achievement alone (Furtner, Rauthmann, Sachse, 2015).

The self-awareness inherent in self-leadership aligns well with the relational leadership approach: the self-aware actor can be selective in how he/she communicates to others in order develop good relationships and as a foundation for influence. This is reflected in the didactic portions of the dental school coursework where we framed leadership as involving "group skills" and "individual skills."

Simulations and Dental School Coursework

Existing dental school course work on leadership needs to be expanded in creative ways to develop the next generation of leaders in oral health (Kalenderian, Taichman, Skoulas, Nadershahi, & Victoroff, 2013).

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Leadership is traditionally taught through didactic sessions, readings, and case studies, in which students learn fundamental concepts and gain knowledge about leadership. For instance, in medical and dental schools, students have been taught leadership skills mostly in didactic coursework, without much emphasis on applying that knowledge in clinical or community settings. In some instances, case studies and subsequent analysis may be used to illustrate how these leadership concepts are applied in practice. In business and in health professions schools, students have been trained to develop and apply leadership skills in group project teams. (Speck & Hoppe, 2007). Simulations of business situations have also been used with teams of learners competing to achieve optimal business goals and performance. Both didactic and experiential components of leadership have been combined in previous work in business and with medical students (Carucci, 2009; Carlson, Min, & Bridges, 2009; Lopes, Fialho, Cunha, & Niveiros, 2013). Shared leadership in groups has been modeled and taught (Gockel & Werth, 2010). Further, the development of positive functional behaviors in leadership teams has also been emphasized (Burke, Stagl, Klein, Goodwin, Salas, & Halpin, 2006). Leadership in community service has been taught to medical students with the aim of improving community health and prevention and integrating classroom and community service experiences (Goldstein, Calleson, Bearman, Steiner, Frasier, & Slatt, 2009). Examples of simulations used to train group leaders show that personal characteristics and feedback help students develop much-needed skills for success as professionals (Soklaridis, Hunter, & Ravitz, 2014; Kaczowski & Fenton, 1985). Lastly, inter-professional education and practice has included public health, medicine, and dentistry (Marken et al., 2010; McCloskey, Condon, Shanahan, Wolff, Culler, & Kalish, 2011; Bandali, Niblett, Yeung, & Gamble, 2011).

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To better prepare dental students to be effective leaders for improving community health, innovative ways of teaching and developing leadership skills are needed. In medicine, dentistry, and other health professions, it is common to employ trained, standardized patients to role-play and simulate patients with specific needs and health conditions (Barrows, 1993).

> Standardized patients (SPs) were introduced in medical schools in the early 1960s. By the 1980s, many schools had developed standardized patient programs as part of the curriculum for medical students. The SP Program fosters an environment where medical students can learn to communicate effectively with patients. Students practice interviewing, problem solving, and diagnosing various health problems. SPs also provide a way to assess the clinical skills of medical students as well as practitioners and SPs provide students an opportunity to learn without risk to actual patients. During a simulation, a medical student interviews a SP while one faculty member and a small group of medical students observe. The SP then offers feedback that helps students become caring physicians. In an examination, SPs are asked to assess the clinical and interpersonal skills of medical students and practitioners. SPs are trained to portray the symptoms, personality, and life situation of actual patients (http://www.ecu.edu/cs-dhs/clinicalskills/program.cfm).

These simulations provide effective training without the risks associated with actual patients. As mentioned, the simulations can also be supervised with feedback given by instructors and the SPs themselves. Thus, simulations with standardized patients allow students to learn, ask questions, make mistakes, and receive constructive feedback in a safe environment before starting actual supervised, clinical work. Simulations can be developed and tailored to a wide variety of student learning needs (Rosenbaum & Ferguson, 2006). For instance, initial meetings with patients and health history sessions may be simulated, even as training opportunities to

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deliver difficult news to patients (Kiluk, Dessureault, & Quinn, 2012). During these encounters, detailed health histories, symptoms, and diagnostic procedures may be learned (Ogawa, Taguchi, & Sasahara, 2003). Moreover, patients who present specific challenges, such as being angry or upset or expressing other strong emotions, may be simulated to prepare students and help them practice realistic professional communication (Alexander et al., 2006). Further, simulated patients from ethnically and culturally diverse backgrounds may be simulated to enable students to develop the intercultural skills required to effectively meet these challenges with actual patients, including navigating conflict within their professional roles (Beattie et al., 2014).

In the present study, we aimed to use a combination of didactic instruction and meetings with simulated community partners to improve knowledge and leadership skills in dental students working to improve community health.

Course Design

Didactic and Simulation Sessions: Overview

The course was designed for second-year dental students (n=51) for the fall term. The first half of the course was primarily didactic, during which the students learned about leadership on campus and about some of the principles of good leadership (Table 1). The principles were divided into two categories based on our theoretical frame: leadership group skills and leadership individual skills. The dental student class- was divided so that there were five groups each having roughly ten members. Each of these five groups developed vision statements in preparation for their subsequent work with community partners (Table 3). In the second half of the course, the five groups—each with two co-leaders—rotated- leaders for each of five sessions

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with simulated community partners. Each session met around a table in a conference room with video-recording equipment and sessions were video-recorded for later analysis. A faculty member observed each session in person. Students could request a time-out from the simulation if needed and consult with the faculty member to get help on ways of proceeding. Sessions were roughly 55 minutes long, with the first 40-45 minutes being a simulated meeting with a community partner from the fictitious town of Bell City, North Carolina. The final 5 to 10 minutes of each session was used as debriefing and feedback time, during which the community partner and faculty member provided feedback. During this time, issues that came up in the simulation were discussed. A total of five, weekly sessions were conducted.

Didactic and Simulation Sessions: Learning Objectives

In this module, students learned fundamental concepts of leadership and its applications in efforts to improve community health (Table 2). Five leadership development domains provided a framework for the module, including knowledge, relationships, ethics, well-being, and service. Students explored what it means to be a change agent and about the types of community changes that can result in improved health. Determining factors when a community is ready for change and the steps involved in establishing community partnerships were also discussed during this module. Emphasis was given to collaborative and ethical leadership principles. Various leadership styles, including the concept of servant leadership, were discussed. Self-assessments helped students evaluate their strengths and weaknesses; these tools also guided further learning. Case studies were offered to stimulate discussion, build and strengthen leadership skills, and deepen students' understanding of the opportunities and challenges associated with leadership. At the end of this module, each student group presented its leadership service-learning project in an open, judged poster session attended by students, staff, and faculty.

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Table 1.

Leadership Group and Individual Skills

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Leadership Group Skills

At the leadership group level, principles and values of good leadership include:

1. Collaboration: The cornerstone of an effective group leadership process. Empowers each individual, engenders trust, and capitalizes on the diverse talents of the group members.
2. Shared purpose: What are the desired changes? What needs to be changed and why? Reflects shared aims and values of the group members. Can be most difficult challenge for any leadership group.
3. Disagreement with respect: Differences are both inevitable and desirable, but must be engaged civilly in an atmosphere of mutual respect and trust.
4. Division of labor: Each member makes a significant contribution to the overall effort, and that all members are clear not only about their individual responsibilities but also about the responsibilities and contributions of the other individual members.
5. A learning environment: Members come to see the group as a place where they can not only learn about each other, themselves, and the leadership effort as a whole, but also acquire shared knowledge, interpersonal competencies, and the technical skills the group requires to function effectively

Leadership Individual Skills

Individual members of the leadership group should exemplify certain qualities and values that contribute to the effective functioning of the group that include:

6. Self-knowledge: Being aware of the beliefs, values, attitudes, and emotions that

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motivate one to seek change and transformation. Also implies an awareness of the particular talents and strengths, together with the personal limitations, that one brings to the leadership effort.

7. Authenticity/integrity: Requires that one's actions be consistent with one's most deeply felt values and beliefs. The most critical factor in building trust within the leadership group.
8. Commitment: Implies passion, intensity, and persistence. Motivates individual to serve and sustains effort during difficult times.
9. Empathy/understanding of others: Put yourself in the other person's place. Involves empathic listening.
10. Competence: Knowledge, skill, and technical expertise required for successful completion of the transformation effort.

Table 2.

Didactic Modules

11. Building healthier communities 12. Categories of, factors in, and groups involved in community change 13. Steps involved in collaboration among community partnerships, support organizations, and funders
14. Collaborative leadership and continuum of collaboration 15. Leadership type to fit specific problem solving

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16. Leadership styles, traits, and roles 17. Identifying and defining stakeholders
18. Evaluating community's capacity for change 19. Collaborative leadership and successful collaboration 20. Key behaviors, individual strengths, weaknesses, and areas for improvement in collaborative leadership 21. Six practices of collaborative leadership
22. *Turning Point – Collaborating for a New Century in Public Health* -- Self Assessment Questionnaires 23. 1. Assessing the Environment 24. 2. Creating Clarity: Visioning and Mobilizing 25. 3. Building Trust 26. 4. Sharing Power and Influence 27. 5. Developing People 28. 6. Self-Reflection 29. (http://www.turningpointprogram.org/toolkit/pdf/CL_selfassessments.pdf)
30. Servant Leadership 31. Developing and building leadership
32. Leadership styles and methods

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33. Impact of leadership style in organizations, communities, and situations 34. Teams, team building, and groups
35. Coping with external and internal challenges faced by leaders 36. Ethical and collaborative leadership
37. Dental practitioners as community leaders 38. Ways of leading 39. Qualities of successful leaders 40. Developing and communicating vision statements
41. Creativity and discovery in leadership 42. Identifying priorities and needs in communities 43. Sustaining commitment
44. Reasons why dental practitioners should be community leaders 45. Ways in which one can lead 46. Qualities of successful leaders 47. Developing and communicating a vision
48. Decision making and decision-making styles in leadership 49. Overcoming setbacks and adversity 50. Leadership in health care

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51. Leadership and its role in improving oral health 52. Communication in teams 53. Skills necessary for participating and leading teams in clinical practice and other professional settings

Table 3.

Student Project Proposal Vision Statements

GROUP 1: Leading the community to a healthier state of being through increased prevention, oral health education initiatives, and access to dental care
GROUP 2: Diligently serve the residents with an emphasis on underrepresented communities while providing a seamless process of comprehensive dental care that will result in superior oral health and personal enrichment of the entire county
GROUP 3: To reduce incidence of diabetes type II in the County population from 7.4% to 5% by

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GROUP 4: For the people of the County to be more aware of the importance of improving oral health and the effects that oral health has on overall health
GROUP 5: To collaborate with community leaders in providing appropriate and quality dental care with the focus on oral health education

Simulated Community Partners and Roles

The community partners were trained actors who had previously role-played many simulated patient scenarios. The partners were given outline descriptions of the students' vision statements and proposed community projects (Table 3) and a character role for each community partner was developed collaboratively with the staff of the university's Office of Clinical Skills Development and Education.

Table 4.

Three roles of community partners and scenarios were developed for the initial session

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1) A white male conservative church leader, local farmer, and community leader "Bo Tucker" met with two of the student groups.

2) A black female minister and community activist, "Reverend Battles" met with two of the student groups.

3) A black male community youth leader "Shane Ebron" met with one of the student groups.

In the initial two meetings, the student groups met with one of these simulated community partners, became acquainted with each other, and presented their plan (Table 4). Built into the simulations were various difficulties, problems, and challenges, such as conflicting priorities, racism, prejudice, and homophobia. These complex scenarios allowed the students to apply group leadership skills in the face of a myriad of real-world obstacles:

In the "Bo Tucker" simulation, Mr. Tucker was resistant to the students' plans to offer oral health screening, education, and services in the community, claiming it represented a threat to the community's way of life and religious beliefs. He also related how "outsiders," such as two gay men who recently moved into the community, had been causing problems.

"Reverend Battles" resisted the students' plans for a health improvement intervention in the community by asking for more specifics, challenging the practicality of the plan, and presenting different needs of the older church congregation, such as illiteracy, transportation, and dealing with historical, systematic and structural injustices. He

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talked about the lingering effects of a local church being burned; several white youth from wealthy families were suspected of arson but were never punished.

In the "Shane Ebron" simulation, Shane presented a need for a center for youth to be built in the community. He attempted to dissuade the students' from their plan and enlist their help and support with his own plan, which was very different from the student plan.

During the first two sessions, the student group leaders worked together to attempt to overcome the many proposed obstacles to their plan, find common ground with the community partner, and find practical ways of structuring and implementing a community project. Group leaders and members applied leadership skills and employed strategies of listening, understanding, and processing the needs, concerns, and emotions of the community partner, reiterating points and areas of agreement, and developing working plans and strategies, including budgets, future meetings, tasks, and schedules.

As the assignment moved along, the students were told that the original community partner and a second community partner, who could potentially offer some resources and funding to the project, were expected to attend a third meeting to further discuss the development and implementation of the project that had been discussed in-depth at the first two meetings (Table 5). However, at the third meeting, by design, the original community partner did not show up for the meeting, and only the new community partner attended. The students had to work together to overcome this unanticipated challenge.

To complicate the group dynamics even further, in each of the three scenarios, the second community partner had some negative information about the original community partner and a different set of needs and priorities to discuss with the students—

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Table 5.

Second round of community partners and their associated roles

1) "Terri Barcher" – a white, female, liberal, gay rights activist – met with the groups that had been meeting with Bo Tucker. Terri had plans to build a LBGT center in the community and alluded to the availability of grant funding to support the center and the students' oral health program. She also claimed that Bo Tucker was closed-minded and opposed to change and would limit what the student would be able to do and the community members who could take advantage of the project because she claimed his church would not be welcoming.
2) "Ms. Tyson-Brody" -- A white, upper economic class female met with the students and discounted some of what Reverend Battles had previously told them. She also alluded to additional funding and was interested in planning and funding some community social events only peripherally related to the project that the students had already discussed and planned with Reverend Battles.
3) A black, female nonprofit organization board member met with the groups that had been meeting with Shane Ebron and presented some alternatives to and critiques of his plan.

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In the fourth meetings, both community partners attended and the original community partners gave their excuses for missing the previous meeting, and they also role-played conflicts between the two community partners, which the students worked to resolve. By the end of the sessions, the simulated community partners allowed the conversation to reach some consensus and agreement. In the fifth and final session, the students and community partners worked to finalize their agreement and plans, although the community partners role played some lasting concerns and disagreements that had been somewhat unresolved in the previous sessions.

Assessment and Evaluation

Table 6.

Excerpts from student reflections about simulated sessions

General student reflections
We successfully communicated and collaborated with community partners to provide adequate oral healthcare without invading or intruding upon their community in a negative manner. *We have established a healthy rapport with Bell City community* *Based off our experience, as well as the experiences of community members of Bell City, we have established a positive outlook for other communities to extend their desire as community partners.* -------- *I learned that it is important to plan for the current meeting with community partners, keeping in mind past meetings and what is anticipated to happen in the future. When I*

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was the group leader, I prepared very well for the present issues, but was not prepared for the future issues or curveballs that would be thrown at me by the community partners. It is important to have hard copies of funding, plans, and minute details so that the community partner can walk out with something in hand confirming their confidence in us and our involvement in their community.

We learned that leadership is important and that delegating responsibilities is necessary to be as productive as possible.

This is important because as dentists in rural and underserved communities of North Carolina, we will have the opportunity to lead others in a myriad of capacities.

As leaders, we will now use what we learned during this simulation and apply them to our real-life community service projects. We will utilize conflict resolution techniques we learned with this exercise to resolve future conflicts.

This assignment simulated real world obstacles that can be commonly encountered when trying to work collaboratively with community leaders to obtain a common goal. This can be a challenging process in several ways. The diverging paths displayed by the community leaders and the group was representative of what one can expect in everyday life. It is very easy to start with one common idea and watch it manifest over time into several different and sometimes irrelevant directions. It is the desired quality of a leader to keep the primary idea in focus and to possess the ability to keep all parties involved on that same path towards the initial goal.

I was impressed at the level of engagement of our group as a whole. Everyone in the group was extremely interactive regardless of whether or not they were the designated leader, which added a refreshing element to the simulation. I feel that the

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added participation of the group as a whole and not leaving the entire facilitation to one or two designated people helped provide a more accomplished and professional atmosphere to the project. The group worked well together to accomplish the desired objective without placing undue responsibility on any certain group members.

The role of the community partners was perceived as realistic in the beginning, but started to fall off with the addition of other members and the dramatic twist that quickly followed. The scenarios designed to replicate common community combativeness that one may have to confront as a community leader are a necessary part of the simulation, -but need to be presented in a more flow-able and realistic manner. However, the erratic and lofty ideas put forth by some of the community partners was an aspect of the project that will certainly be seen in our years to come as community members. It is a certainty when a project is proposed that parties are going to go in opposite directions in their thought process and this simulation did a good job at representing that aspect.

In regards to the future of this course, I would appoint designated facilitators, but also encourage group participation. After all, the more ideas that can be elicited in one session, the more that can be accomplished in that same amount of time. I also would lessen the amount of meetings with the community partners in an effort to make the groups utilize their time more wisely and have to deal with the real-world pressure of having to accomplish their goals on someone else's time. I personally have been to many city and county council meetings that only allow one a ten minute time slot on a 4 hour docket to present their concerns. This type of adjustment will force a group to hone their delivery skills and implement a previously thought out plan of action.

Overall, I believe that the course's premise is noteworthy and falls in line with its intended purpose of preparing students for what lies ahead.

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What worked?
Compromising between two members of a community that did not agree with each other, and meeting their individual needs equally. *Another technique that we found to work was delegation of tasks among group members. The community members appreciated the input from multiple team members and it appeared that we were well prepared.* *Staying neutral between conflicting issues helped to gain credibility with the two parties. This help both individuals understand our role as advocates of health care rather than mediators of people's personal issues.* *Realization that a community partnership may not work in some instances was also recognized in this situation. If motives and ideas are different, sometimes it is best to part ways.*
What didn't work?
Not having paperwork to verify funding, plans, etc. *Not being prepared for the session. We worked better when the group leaders met before hand to discuss and organize for the meeting*
What did you learn?
Some group members were quiet for a majority of the time, but when they did speak they were very intuitive and helpful in progressing the rapport between us and the community members. *Each individual has their own strengths. Certain members of the group were particularly*

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good brainstorming, while others where very good at articulating and organizing the ideas of the entire group in a clear and logical fashion.
What was most awkward?
The most awkward part of this challenge was navigating the personal conflicts between our two community partner. They both had very strong and very different opinions on a topic that they viewed as important. Trying to refocus them on the goals of the project was at times frustrating, and tiptoeing around so as to not offend either party became trying after a few meetings. *The first session was a little awkward, mainly because we did not have a concise idea of what was going to happen or what was expected of us during the session. It would have been less awkward if we had known more about the community leaders or had a better outline of the session activities.*

Table 7.

Excerpts from community partner role-player reflections about simulated sessions

General role-player reflections
Enjoyed doing the group and each of the encounters. *Felt the group discussion afterwards should have been mandatory participation.* *Should implement discussion prior to the encounters.* *The students needed better preparation prior to the encounters.* *The behaviors felt realistic.* *The outcomes need to be well-formed.*

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What worked?
The compromise we made at first between getting the building with diabetic research together. *The grant proposal.* *My ideas came through.* *Dealing with practical issues.* *The dynamics between students and community leaders.* *The relevance of the discussions.* *The model.* *The improvisation of roles.* *The reversals of plans*
What didn't work?
Different student leaders had different levels of preparation. *Budgeting did not work and need more information.* *Students did not keep their group focused.* *Was "too" real.* *Not everyone was engaged.*
What did you learn?
Difficulty of businesses and conflicting desires. *How advantageous compromise can be.* *The many factors that go into building and getting proposals.*

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The same issues came up from the past, present, and future.
What was most awkward?
The conflict that came up after the community leader missed a meeting and had comeback after a week's hiatus. The group's focus and their reaction towards the return of community leader. *Conflicts between the student group leader and the community partner.* *The group's feedbacks when not prepared.* *The "gotcha" moments.*

Pre/Post Test Results

At the first classroom session, students were asked to complete a leadership self-assessment. This eighteen-item questionnaire yielded an overall score—potential range of scores from 18 to 90—as well as measures of personal leadership characteristics and transformational leadership. The students also completed the same self-assessment at the end of the course module. Students also responded to guided reflection prompts, based on their experiences navigating the simulations.

Table 8 shows the pre- and post-test scores for the module. The average overall score dropped by 9.5 points from a pre-test mean of 67.8 to a post-test mean of 58.2. The median score dropped by two points, suggesting that the greatest change in scores occurred among those students whose initial self-assessment was high.

Table 8.

Descriptive statistics and comparison of pre- and post-test self-assessment scores

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Descriptive statistics and comparison of pre- and post-test self-assessment scores			
	Pre-test	Post-test	Change
Average	67.8	58.2	-9.6
Median	67	65	-2
Maximum	81	65	-16
Minimum	56	49	-7

Table 9 shows the pre- and post-test results for personal leadership characteristics and transformational leadership. With the exception of the "Providing Support and Stimulation" domain, the scores dropped by one point or more. The greatest decline occurred in the "Being a Good Role Model" domain.

Table 9.

Comparison of pre-test and post-test mean scores

Comparison of pre-test and post-test mean scores				
Domain	Questions	Pre-test Mean	Post-test Mean	Change
Personal Characteristics				
Self-Confidence	2, 8	7.6	6.4	-1.2
Positive Attitude and Outlook	10, 17	7.7	6.3	-1.4

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Emotional Intelligence	5, 15	7.7	6.7	-1.0
Transformational Leadership				
Providing a Compelling Vision of the Future	6, 14	7.6	6.7	-0.9
Motivating People to Deliver the Vision	9, 12	8.0	6.5	-1.5
Being a Good Role Model	4, 11	8.0	5.7	-2.3
Managing Performance Effectively	3, 13	7.1	5.9	-1.2
Providing Support and Stimulation	1, 7, 16, 18	14.1	14.0	-0.1

Conclusion

The current study describes the development, delivery, and preliminary evaluation of a community-engaged leadership training program for dental students. The program incorporated student-developed community public health project proposals, sessions with simulated community partners, and a simulated rural community with specific oral and general health needs.

Overall, students felt the training was realistic and valuable for developing leadership skills and preparing them for challenges that could not have been learned through didactic instruction alone. The students valued the opportunity to practice communication skills, experience real-world situations as presented by the community partner scenarios, and engage in group discussion. The students also seemed to appreciate the example set forth by their peers, when they engaged with the partner simulations and they often viewed each other as role models for how to best interact and

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plan within a difficult context. They admired each other's applied communication and leadership skills.

Scores on the leadership self-assessment dropped from before to after the simulation, contrary to what may have been expected. We concluded that students became more realistic about their own leadership competency were somewhat less confident in their abilities after the simulation, as they had learned to face unexpected challenges during the simulation. Thus, the simulation allowed students to gain a better, more accurate, and realistic understanding of their own leadership styles, their strengths and weaknesses, and their level of developed leadership competencies. In other words, it is likely that many of the students had overestimated or inflated their own competencies initially, and the challenges presented in the simulations led to lower and more realistic self-assessments.

The community partner role players also felt the simulation was realistic and challenging. This feedback from them was also an important component to this study. These role players previously had experience in simulating the role of patients in clinical encounters and felt this expanded the learning opportunity beyond that which typically happens in simulated clinical encounters. They felt energized and enthusiastic about being able to contribute to student learning in an innovative and dynamic way. They also felt the students had practice in facing more realistic challenges. They came away from the experience with a favorable view of these types of scenarios and professional education.

This program is an innovative way to develop leadership applied to public health and community needs and should have implications for ways of teaching leadership to improve oral and general health.

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