**PERCEPTIONS OF DENTAL ACADEMIA: THE STUDENT’S DENTAL HOME**

by

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Submitted to the Graduate Faculty of

Graduate School of Public Health in partial fulfillment

of the requirements for the degree of

Master of Public Health

University of Pittsburgh

2015

UNIVERSITY OF PITTSBURGH

GRADUATE SCHOOL OF PUBLIC HEALTH

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**ABSTRACT**

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**PERCEPTIONS OF DENTAL ACADEMIA: THE STUDENT’S DENTAL HOME**

Meghan Bastin, MPH

University of Pittsburgh, 2015

There is more than one curriculum present in many schools in higher education. The hidden curriculum is the one that shapes the character and other intangible qualities of students. It is much more difficult to evaluate the hidden curriculum because its lessons result from the students’ unforeseen experiences during the formal educational process. A student’s dental home is their dental school and it should include all aspects of their dental education. The relationship between a student and their dental school should be comprehensive, accessible, and mutually supportive.

Everyone has a role to play in making the emotional climate of our health education institutions more respectful and nurturing. Many different stakeholders are starting to demand that environments change to be more responsive to the needs of the patients they serve as well as healthy places for people to work and learn.

**Public Health Statement:** As a profession, dentistry is entrusted with the responsibility for upholding the highest quality of care for the public. This quality care begins with a quality education. Dental school administrators, looking to improve the quality of their educational institutions, need to ensure that graduates will enter into the dental workforce with comparable quality standards. With the growing awareness of the importance of good oral health, well-educated, high-quality, health care professionals will be necessary to serve the public's needs.

This research aims to discover dental students’ perceptions of dental academia, as well as the quality of their experience in dental education through each of the four years of dental school. It specifically aims to identify areas of personal change as a result of the hidden curriculum over the course of four years.

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Preface

Before being introduced to the professional world of dentistry, I was a patient. I grew up in a rural western Pennsylvanian neighborhood and received semi-frequent dental care. An accident, caused by a baseball hitting my mouth, introduced me to different dental providers, including a dental hygienist who encouraged me to explore the profession as a career path. After completing a certificate in dental hygiene in 2009, I continued my education to receive a bachelor of science in dental hygiene in 2010. I began dental school in 2011 and then a master’s in public health in 2012. I will be attending an advanced education in general dentistry residency at a dental safety net clinic following graduation this year. My exact career goals are always evolving, but I plan to provide dental care to patient populations who may not have access to care otherwise.

I would like to thank Dr. Martha Ann Terry throughout the research, learning, and compilation processes for her support and inspiration. Her passion and talent when interacting with adult learners gave me the confidence to undertake this research. I would also like to thank Drs. Deborah Polk, Robert Weyant, and Alexandre Vieira for recognizing the importance and supporting original student research projects.

# Introduction

Oral health is one of the twelve ‘Leading Health Indicator’ topics for Healthy People 2020. The Healthy People 2020 campaign recognizes the importance of oral health for overall well-being for people of all ages (Department, 2014). A low dental IQ is one of many factors that affect a patient’s ability to improve their dental care. As dental medicine continues to integrate with overall health, "the importance of appropriately preparing the workforce for the changes in health care delivery that will be necessitated … cannot be underestimated" (Committee, 2001 p. 207).

The Institute of Medicine has established six quality indicators for health care in general. Health care is of good quality if it is timely, efficient, effective, patient-centered, safe, and equitable (Burwick, 2008). Dentists, hygienists, assistants, and mid-level providers are the forefront of dental education for the public. As interprofessional collaborations increase, other professionals will increasingly refer to the dental profession for answers to oral-systemic health problems. Quality dental training is essential for translating quality-driven, evidence-based, science to other professionals as well as the general population.

There is more than one curriculum present in many schools in higher education. The hidden curriculum is the one that shapes the character and other intangible qualities of students. It consists of, “the unspoken academic, social, and cultural messages that are communicated to students while they are in school” (Hidden, 2015 p. 1). It is much more difficult to evaluate the hidden curriculum because its lessons result from unforeseen student experiences during the formal educational process. This research aims to discover dental students’ perceptions of dental academia, as well as the quality of their experience in dental education through each of the four years of dental school. It specifically aims to identify areas of personal change as a result of the hidden curriculum over the course of four years.

The background of this essay will introduce the reader to the literature regarding standards and competencies in dental education as well as research about stress and the environment from some surveys in dental education. The background also mentions the costs, both tangible and intangible, of higher education for adults and the significance of practitioner well-being in public health.

The results of the focus group research are presented and grouped according to four main themes: definitions of quality, students’ perception changes, faculty influences, and the culture of the school. The results are discussed as themes within each focus group as well as connecting similar concepts between all of the focus group data. Several sub-themes included ethics, evidence-based dentistry, and the difference between educating and training a student. A considerable amount of struggle was reported by participants in all of the focus groups, and their desire for emotional and organizational support within their school system was the most prominent theme.

# Background

## Standards

In the literature, dental students’ views of dental education in surveys are similar all over the world, regardless of where they go to school, the curriculum’s structure, and available resources. When given the opportunity to give feedback about their education, most dental students desire more positive experiences (Divaris, et al. 2008). An article published in the *Journal of Dental Education* summarized two papers published by the American Dental Education Association (ADEA) which found that the challenges facing dental education were similar to the challenges of higher education in general (Trotman, 2007).

It is unlikely that a standardized environment could be implemented worldwide due to variations in resources and philosophies. The Commission on Dental Accreditation (CODA) is a national peer-reviewed regulatory body in the United States that aims to, “serve the public by establishing, maintaining, and applying standards that ensure the quality and continuous improvement of dental and dental related education and reflect the evolving practice of dentistry” (Commission, 2010 p. 4).

American students may be aware that their dental programs are accredited every seven years by a national commission that establishes standards for schools to follow. Part of CODA’s assessment of quality involves six *Standards* containing various subcategories, known as competencies, with which dental schools have to demonstrate compliance. The *Standards* afford each learning institution ‘academic freedom’ to meet the competencies according to the individual school’s mission, strengths, and resources.

In the United States, a new competency was added under the *Standard* “Institutional Effectiveness” in July of 2013. Competency 1-3 says that, “the dental education program must have a stated commitment to a humanistic culture and learning environment that is regularly evaluated” (Commission, 2010 p. 20). All dental schools in the United States will have to demonstrate compliance with this new competency by the year 2020.

Dental schools in China are beginning to establish accreditation standards for their dental schools; they are using the American CODA standards as a guide. However, accrediting officials in China recognized the need to add a module to their accreditation standards before the latest accreditation change occurred for their American colleagues. The accreditation officials in China felt that the missing component from the American standards involved the learning environment and support. They created a unique module to address the organization’s environment and support systems through six subcategories: “attention from the institution leaders, administrational organization, administration environments, administration staff, education quality supervision, education support” (Yang, 2014 p.4).

## Stress and Well-Being

An article by Divaris, et al. (2008), published in the *Journal of Dental Education*, described the ideal educational environment as one that, “best prepares students for their future professional life and contributes towards their personal development, psychosomatic, and social well-being.” (p. 120). A systematic review by Elani, et al (2013) described the challenges for medical, dental, and other students in the health care fields, as well as their vulnerability to psychological effects of their stressors. Dental students have to balance gaining knowledge and hand skills with applying that knowledge and skill to their patients, often for irreversible procedures. They are also managing laboratory work and investing a considerable amount of time learning the technical skills of the profession while being responsible for their patient’s care, completing requirements, studying, and taking national board and licensing exams. Elani, et al. (2013) summarized the information from the systematic review about students’ stress levels, the consequences of stress, and the sources of their stress. The author reported that 88.6% of dental students experienced moderate to high levels of stress that affected them academically, psychologically, behaviorally, or biologically. The sources of the students’ stress were academics, faculty, clinic, and personal factors. Elani, et al. (2013) concluded that these stressors, “collectively contribute to significant amounts of stress for dental students that put them at additional risk for psychological problems like anxiety, depression, and burnout” (p. 226).

Although dental students’ stress has been reported in literature from all around the world, a systematic review published in the *Journal of Dental Education* in 2013 showed that further research was still needed to explore the consequences of the association between stress and students’ quality of life. A review of the literature could not find any publications that studied the emotional climate in dental schools or evaluated the emotional support systems for adults in dental schools. The evaluation studies in dental education were mainly focused on the structure of the curriculum and not the academic environment or institutional culture. The climate studies that did exist only put a spotlight on a problem and were not evaluation studies of different interventions to improve graduate students’ overall well-being.

 An appraisal by Henzi, et al. (2005) described results from a survey on dental students’ learning environment (DSLES) from 18 schools in North America. Henzi, et al. (2005) administered a cross sectional survey of freshmen and junior dental students in 2003 and compared the results to previous administrations of medical and dental classes. Their research found that freshmen provided the least positive scores for the emotional climate and juniors provided the least positive scores for faculty supportiveness. Faculty supportiveness was described as students’ perceptions of the level of concern for students’ welfare from faculty and administration (Henzi, et al., 2005). The DSLES survey had been repeated in different countries and educational institutions. The results remained similar regardless of medical or dental students surveyed or country of origin; however, no further evaluation studies of these results were completed.

Psychological stress was described in Elani, et al.(2013), as a “particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (p. 226). Any textbook on behavioral medicine will tell of the importance of practitioner well-being. Suchman and Ramamurthy (2008) explains that, “the balance that each of us strikes between our own enrichment and depletion is critical to our own physical, emotional, and spiritual health and to our ability to care for others” (p. 1). The author goes on to explain that, “the foundation of our well-being is the acknowledgement that we are human, that we have needs and limits, and that to keep on giving we must know and have reliable access to those things that sustain and revitalize us” (p. 2). A considerable amount of personal growth happens over the course of the students’ dental education. They have to develop skills necessary to deal with issues of control, perfectionism, bidirectional interactions, time management, communication, and self-reflection (Suchman and Ramamurthy, 2008).

## The Higher Price of Education

Dental students have argued that they pay the most money and should therefore have a better educational experience, but principles of basic capitalism do not apply in higher education. Despite often paying the highest tuition rates at their universities, dental students should not be treated as customers of dental education, because, educational institutions cannot be properly conducted under a customer-based paradigm (Clayson and Haley, 2005). In education, the student is not always right, as the saying goes for the customer. However, they are major stakeholders in the success of the school and should be seen as partners in the process instead of consumers. There is a difference between customer satisfaction and student well-being. “Offering students multiple ways to reach their educational goals places them at the epicenter of the process and encourages them to become responsible for their own learning; a critical ability for a life-long learner (Divaris, et al. (2008) p. 123). The literature has made connections between students stress and experiencing burnout during school and in professional life; calling health care providers in general ‘over functioning caretakers.’

It is also important to recognize the influence of the local environment in which health care professionals work and learn. That culture subtly reinforces its values through both formal educational processes and every day interactions. “A good support system, relaxed environment, and feeling of belonging do not guarantee that students excel; but they act as a safety net that keeps stressors at a safe academic level” (Divaris, et al. 2008 p. 343). The culture can determine whether or not students feel able to disclose uncertainty, feel constrained, discuss mistakes, ask for help, feel forced into isolation, or receive encouragement (Suchman and Ramamurthy, 2008). Similarly to the way humans learn from their parents, students will embody the lessons learned from their parent institutions. “As clinicians, we tend to treat patients in the same way that we ourselves are treated within our institutions. Core values such as respect, partnership, honesty, and accountability must be explicitly articulated and embodied in institutional procedures” (Suchman and Ramamurthy, 2008 p. 6). Whether or not the challenges of dental school become sources of meaningful learning or burnout depends on a variety of elements.

## Public Health

A white paper published by DePaola and Slavkin (2004) in the *Journal of Dental Education* called educational reform essential to improve the health and well-being of all people in the United States:

Professional practice must be informed by community-based educational experiences, ethical sensitivity, and recognition of dentistry’s role and responsibility in our social fabric. This unifying vision squarely situates professional responsibility in an appropriate ethical and interdisciplinary framework; greatly increasing the likelihood that the next generation of dentists will be willing and able to meet the obligations of their social contract. It also will result in practitioners trained to meet the oral health needs of the population by providing them foundational knowledge, critical thinking, problem-solving, and teaching skills, and attitudes for success (p. 1147).

Considerable numbers of regulations and standards exist today to keep the healthcare in the United States among the best in the world. The authors of this white paper go on to say:

The quality, purpose, education, and training, as well as the size and composition of the health professional workforce, have been an intermittent policy issue in the United States for more than one hundred years (p. 1140).

Educational institutions are responsible for establishing a culture within their organizations for successful and purposeful learning.

A curriculum that gives students a chance to regularly question their level of understanding, using quality feedback, shapes them into professionals who are committed to continuous personal improvement (Shuler, 2014) and ensures that graduates will enter into a dental workforce with comparable quality standards. With the growing awareness of the importance of good oral health, well-educated, high-quality, dentists will be necessary to serve the public's needs.

# Methods

This essay reports on focus group research that was conducted with dental students from a Western Pennsylvania dental school. This research was approved as an exempt project by the Institutional Review Board at the university. Focus groups were selected as the source of the qualitative data because the students’ thoughts, feelings, and perceptions were of primary interest to the researcher. The specific aims of this research were to:

1. To obtain feedback about how dental students' perspectives are the same or different between all four years of their dental education:
2. To discover specific reasons why students feel the way they do at different stages in the dental education process:
3. To learn the role dental educators have in shaping students' experiences in dental school: and
4. To discover how their educational environment contributes to their future careers as well as healthcare in general.

## Recruiting

Subjects were recruited via email and flyers that were disseminated to all four years of dental students. The email was sent by the primary investigator and asked for voluntary participation to share perceptions of dental academia. Using a purposeful sample, students were recruited based on their year in dental school.

## Sampling

Four focus groups comprising of eight to twelve students were planned for this research. One focus group from each dental school class was desired. The focus groups were moderated by the primary investigator, a trained focus group facilitator, and conducted in conference rooms within the dental school. Food was provided to participants; the focus group sessions were recorded by two audio recorders at the same time. The audio files were transcribed by a third party not affiliated with the dental school or the school of public health and then all audio files were destroyed.

## Focus Group Questions

1. What is a quality education?
2. Is there a difference between educating and training?
3. Why are your professors here?
4. What is ‘evidenced-based’ dentistry and how does it apply to your education?
5. How has your view of dentistry changed since entering dental school?
6. What kind of support do you need and where do you find it in this learning environment?

## Analysis

The focus group transcripts were analyzed using thematic analysis; codes were created and assigned to themes. A master code sheet defined each of the codes used in the data. One transcript was given to an advisor to calibrate definitions. Each focus group conversation had a different color of text to distinguish the information from each year. Resulting themes are discussed.

# Results

## Logistics

Due to a lack of responses to recruitment from the first year dental class, a focus group could not be conducted with this cohort. Three focus groups comprised of six to nine people were conducted. The fourth year focus group had nine participants, the third year focus group had six participants, and the second year focus group had nine participants. The people selected for participation were all students; there were no members of the faculty or administration. Participants were both male and female.

 The participants’ comments were analyzed and four major themes emerged. The first theme was how the students felt about the quality of their education. The second theme described how the participants’ perceptions about dentistry changed from before dental school to now. The third theme involved the influence the professors had on the participants’ experiences. The fourth theme was how the culture and environment of the dental school affected their personal growth.

## Quality

Students across all three focus groups defined quality as something that stood up to the test of time, had value, and was done well. When asked to apply their self-created definitions to education, they echoed feelings that a quality education was relevant to an overall goal and met an established standard. Elaborating on the value of the experience, a second year student responded,

I think the idea behind a quality education would then be – is the result of what you’ve been taught, what you have brought out of it, both experiential, intellectual, and skill, is that worth the time, money, and effort put in to achieve those end products.

The participants also defined a quality education as one that avoided unnecessary redundancy, was consistent, and expanded learning for a greater purpose than just an exam. The students recognized that the quality of their educational experience was also impacted by national stakeholders in dental education such as the Commission on Dental Competency Assessments (CDCA) and the Commission on Dental Accreditation (CODA).

Change is happening on the national level for the profession’s board exams moving from a point-based score to a pass/fail score. The information on the first part of the national board exam tests the students’ knowledge of basic sciences. The perception that some information in the dental education curriculum is not relevant or useful except for the first part of the national board exam has been shared by generations of student dentists. The second year students viewed the change to a pass/fail scoring system as something that would improve the quality of their education at the individual dental school level if it resulted in earlier exposure to clinical courses in the curriculum.

## Perception Changes

A common theme from responses to how their view of dentistry had changed since entering professional school included learning about the scope of the profession, a fourth year student said:

When I came into dental school, I thought maybe there are one hundred things I have to learn about dentistry to be a good dentist and in dental school, I’ll learn ninety of them. In reality, there’s like ten thousand things you need to learn about dentistry, and I’ve learned maybe twenty percent. And so I think that was a big deal for me, expanding how much dentistry actually was and how much I was actually going to know when I left this place.

The students also thought the profession was simple and were surprised to find out how complex it was. Despite the complexity, fourth year students felt prepared to enter residency programs or go into private practice with a mentor or family member. Looking back at what s/he learned so far, a second year student commented,

I always thought dentistry was a little bit more of a static – I didn’t realize it was constantly changing or there were constantly new products coming out. I never thought about it. I just thought there was a standard and you just did it. I didn’t realize there were so many specific techniques or guidelines, and new products.

The students talked about how important it was for dental professionals to educate society about the importance and overall goals of dentistry for the patient and communities. Another second year dental student described how he always assumed that dental care was the same in all dental offices,

I always assumed that if I had a problem with a tooth, I go to a dentist, and if they’re a licensed dentist, every licensed dentist is the same, and the same kind of care will be afforded. And that’s just not the case.

Now on the provider side of the dental chair, students also learned the importance of having a steady baseline for ethical treatment of patients. In learning to become a health care provider, they learned more about themselves too, as a fourth year student described:

Dentistry is not just hand skills, not just your mechanics. Ethics really do play a big role on your morality and your standards, and those are all personal things that you don’t really think about, ever…there are so many situations that can occur and you have to be strong with your personality and with your morality and your ethical standards, and be a good technician with your hands. I didn’t really think dentistry involved all of that.

Fourth year dental students talked about ethics regarding decision making and providing care. They reflected on how treating friends and family helped them standardize their ethics regarding infection control and dental material procedures to be the same for all of their patients, the student went on to say:

So now I’m consciously thinking about it for every single patient … they always tell you that you should treat everybody like you would treat your mom, and that’s true.

Dental schools include ethics in their curriculum because dentists are self-regulated healthcare professionals that need to set the bar high to provide safe, high-quality care to communities.

Dentistry is practiced differently in different settings. Evidence based dentistry (EBD) is meant to help dentists in the decision making process and move the profession forward. Often, several treatment options that are equally acceptable for comprehensive patient care, as noted by this third year participant:

The whole point of EBD is that things change over time. Standards change, technology changes, and that’s why, over time, you have to look and find the best evidence and change what you do. So it’s good we’re taught how to assess the evidence, because that’s where we’re going to get it.

Alternative treatment options for the same situation are difficult to interpret and can make decision making confusing. Part of learning in dental school is about skills in treating the whole patient in the context of his/her lifestyle and environment. Another third year student participant described how they learned to cope with learning and providing so many options:

Before I came, I thought dental school would be more straightforward. Like you have this problem, then you do this, it’s like a flow chart thing to follow. But now I realize there are so many different options, and there’s sometimes no good, bad, or better – it’s like, now you have to compile information and try to make a decision, or let the patient make the decision.

This is how health care providers become partners in patients’ health care and not paternalistic enforcers of one treatment option or another.

Learning is a process and the fundamental skills to be a dentist are introduced at the beginning of the second year of dental education. The dentistry being taught during the second year is designed to be ideal or textbook in nature to teach foundational principles and hand skills. A second year student expressed frustration with the pre-clinical education process and teaching of ideal scenarios,

Everything is ideal. And I have no idea how to – I feel like I have no experience in being creative or trying to make the best of a bad situation, which I think is – what I’ve experienced shadowing and talking to other dentists, is a big portion of dentistry.

However, one of their classmates said,

There’s the old adage…how do you train people to identify forgeries? You teach them the actual – the FBI, they don’t look at counterfeit money, they look at real money. And then if something looks different than that, then that’s how you figure out it’s counterfeit.

Patients to whom dental students provide care tend to be from populations that have not had regular dental care. When patients seek care, their level of dental disease is often well beyond an ideal textbook restoration. Learning to adapt to the challenges of ‘real-life’ dentistry was expressed by participants in all the groups, regardless of the year in dental school. The second year students referred to the difference between dentistry in an educational institution and dentistry in the ‘real world’ in terms of the technical aspects of fixing a tooth and how they were evaluated. One second year student described how a clinical instructor would say his typodont, or mouth manikin, tooth model looked good, but then his pre-clinical lab instructor would deduct points for the taper of the preparation:

I feel like the teachers who have worked in private practice understand what you should be focusing on while you’re in dental school, rather than a lot of this random stuff that they have us do. They focus more on your clinical skills and what it actually means to be a dentist and what you need to know when you get out in the real world, rather than, “Oh you know the 11 degree taper rather than the 10” – in the real world, they’re not going to dock you points for that. A crown prep is still okay.

However, fourth year students referred to the difference between an educational setting and private practice in terms of how much of what they learned in school would be useless in a few months. A fourth year student described this knowledge attrition in relation to earlier years of dental school:

We learned and forgot one hundred percent of our first year, other than maybe restorative dentistry…we lose seventy five percent when we go to the real world.

The students were unsure how much of what they learned in school would be applicable after graduation. Third year students talked about how much they relied on their professors to teach them dentistry, and what they learned in school would affect how they practiced dentistry for some time after they graduated.

## The Academic Dentist

A view of why professors choose to work in a dental school seemed relatively congruent across the groups. The participants answered the question in terms of tangible and intangible benefits to teaching. All of the students recognized some benefits, such as insurance, less physical demand, dispersed responsibility, and slower pace that would draw people to academia. Second and third year students felt that most professors were in academia for altruistic reasons. A third year dental student said s/he thought:

They have a natural passion for wanting to teach. They have a natural passion for education of students and for seeing us learn every day.

Professors also affect the overall learning environment, as a second year student related:

They really set the tone for different people in education – not only with the material that they’re providing, but with their overall demeanor and how passionate they are as well.

Students reported that they could tell which professors were there for the ‘right’ reason, “because they care about future dentists and want them to have skills and they want to share their experiences” as well as those who, “view it as a day off of work sometimes.”

The students were highly influenced by their professors, a fourth year student acknowledged the environment in which they were working:

They’re a bit disenfranchised to the whole field of dentistry to begin with…it is a hard profession and people are demanding – like the doc said today – people are demanding and it can wear you down. And over time, you can get disgruntled. And I think it comes out in the education and it comes out in your day-to-day interactions with some of these instructors.

A dental educator does not necessarily have to be a dentist and dentists are not necessarily trained educators. Dental education requires educators from a variety of fields, not just dentistry. To teach in a dental school, one does not need advanced training in education. Alternatively, there are some lessons that can only be learned after 35 years of practicing dentistry. Most students acknowledged their struggle to decide which philosophy was better: a professor who has years of experience in the real world or a well-conducted research study. These two sources sometimes conflicted and that created an opportunity for critical thinking and decision making skills to be developed. A second year student described this struggle:

When you have your dentists who have been working – your clinical professors – who’ve been working for thirty or forty years, seeing that that doesn’t work, what they’re telling you doesn’t work. And so you just run into this conflict. And who are you going to listen to? The person who says, ‘I’ve been doing this forever and that method is not going to work for you.’ Or are you going to listen to, ‘Well, this is one study of one hundred people and they’re saying this is evidence-based.’

Feelings of inconsistency between an instructor’s clinical experience and EBD were common. Some students were able to use EBD to justify their decision when it was different from their professor’s. A fourth year student said:

I’ve used it to justify decision making to older professors who still say that you can’t put a crown on a composite, when there are many great studies out there that say, yes you can, there’s no difference between composite and amalgam. There are differences with crowns. And so I was able to change my patient’s treatment plan, which made the patient happier, because of EBD.

Other students found that, despite citing EBD literature in clinic, the professor’s treatment plan was unchanged. In the clinics, another fourth year student expressed disappointment when she felt the evidence was strong enough to warrant a certain treatment or therapy and an instructor appeared not to acknowledge it. Her clinical example of where EBD and experience were in conflict was:

An instructor told me to just give the patient antibiotics and painkillers and to come back. And they weren’t even swollen. I know you’re not supposed to give antibiotics to people unless they have swelling and you can actually see something.

When prompted to talk about EBD, the second year student participants felt disgruntled about how the concept was taught. One second year student noted the feeling in the room, “you heard the collective exasperation from everybody when you brought up evidence-based dentistry.” They felt this way because of the way EBD was evaluated more so than because of how it was taught to them. Second year students described losing points on assignments for putting a comma in the wrong place or using different words in the PubMed search. They felt these deductions were offensive, trivial, and unrelated to the true overall concept and application of EBD. A second year student described his frustration with how EBD was taught:

I think there’s a lot of frustration for a lot of different reasons, with how evidence-based dentistry has been taught to us in school, and it’s almost been bastardized into this thing that, you know, we don’t even understand what the idea of evidence-based dentistry is. But the way – either it’s presented to us, or the way we’re interpreting it – no matter who’s fault it is, whether it’s ours’ or the faculty’s, or whatever – the curriculum itself – it’s thought of as really unimportant, really frustrating…

Participants in each focus group called evidence based dentistry a useful “tool” and saw the relevance and importance of learning how to assess and use evidence in daily practice. A fourth year student said he uses EBD to explain why to do something:

If the patient asks you why, or if a student asks you why, you have to be able to explain. And if you don’t know, then you have to look it up.

Although not necessarily evidence-based, students still appreciated the knowledge that only came from investing time in a career in dentistry. One of the things that made a professor’s experience seem more valid to the students than EBD was the realization that experienced dentists had a 360 degree view of patient care that evolved from years of trying different treatments under realistic conditions. A second year participant explained:

That’s why dentists who have worked 40 years are probably more knowledgeable than a dentist who’s only worked two, because they’ve had the experiences of situations like, ‘Oh, I now know not to do this on a crown,’ or something, because it’s failed in the past.

Although they valued experience, students felt that some professors lacked the skills to teach. Students felt their professors made mental leaps that caused confusion to a beginner because, “they already know the big picture, we don’t.” Dental professors do not necessarily have formal instruction in teaching adult students; each professor comes up with his/her own style of delivering information.

Students recalled experiencing different teaching styles and mentors throughout their academic careers. A fourth year student gave an example about a person that influenced her decision to come to dental school:

I would say, my biggest influence was my college chemistry teacher. Not having any idea where I wanted to go with my career, she kind of would always sit down with me and help me figure out the things that I was good at, things that I wasn’t so good at, kind of piece all the pieces together. While she didn’t directly point me to dental school, she at least helped me figure out what was best for me and I think that’s something – while still criticizing me in a way that was constructive. I think that was what was a good experience with a mentor.

The participants mentioned inspirational teachers from high school and college, who would have been more formally trained to teach, and gave examples of the characteristics that made their lessons so memorable such as one-on-one instruction, repeating mechanisms, and evaluating progress. Students remembered feeling like they worked really hard to learn the material and they were rewarded with understanding and motivation to keep learning. A second year student remembered a professor who inspired him to learn:

I had a teacher in undergrad who didn’t use a textbook or PowerPoint. He handwrote everything out. He had a very huge, organized folder and he would start each day – he had all the lectures memorized, and that was for embryology and anatomy. And his exams were essay-based, and they were more thought provoking essays. So you had to know the material, but he focused on getting you to talk about things and infer things. So I really learned the material, and that made anatomy and dental school so much easier, because I didn’t have to feel like I was memorizing something. I still remembered it from two years earlier. He put the effort in, so then we wanted to put effort in to learn things. That had a really strong impact on me, I think.

In their reflections, students did not say that they looked up to a former professor because they made them learn the hard way or because they had to opportunity to learn by making mistakes. A third year student described her former professor’s attitude and how much it impacted her inside and outside of the classroom:

I had this professor in undergrad. He was probably the nicest professor in the building, and he lost his children in a car accident. But I thought he never brought any negative emotions to work, and he was always very positive and very nice to the students, I think. And he brought a very positive spirit to us, and taught us how to face difficulties in life.

Looking for similar positive experiences with instructors in the dental school, students recognized that there were good professors, but they wished there were more of them. A third year participant said:

Some instructors are just beautiful; they’ll go with you step by step and tell you why you’re doing it and how to avoid making mistakes.

Students put a lot of trust in their dental school professors because, before they were dental students, they were a member of the general public and did not know very much about the dental profession. On the path to becoming a dentist, students felt like there was a difference between being educated and being trained:

Education enables us to be a doctor and to make decisions that affect the health of other people, whereas training is – I think a dental assistant is a great example of that. When they start out, they might not have any skills at all regarding the dental profession, but they’re trained – either by a program or by the dentist – to be able to follow steps and to know what’s happening, but not necessarily know why it’s happening or what’s going to happen if we don’t do it this way, or what’s going to happen if we do it this way and change it one step.

Students expressed that there was a good mix of educational learning with skills training in dental school. They acknowledged the necessity and importance of learning good hand skills early in the curriculum. A fourth year student expanded on the equal importance of becoming a doctor:

Think about everything we do in clinic. You can train anyone to do it. But we’re qualified because we’re educated and we know why we’re doing it. We also know what to do when we get in trouble or things go wrong, or we need to make certain changes. We’re educated to make those changes.

## Environment and Culture

The students often distinguished between characteristics of teaching and learning. Part of that distinction related to being taught to ask questions but being conditioned not to ask them. One third year student described a situation when an instructor gave her positive feedback during a clinical appointment and then a lower grade at the end because the student asked “more questions than usual” during the appointment. This made the student feel punished, confused, and conditioned to withhold asking questions.

Other students gave examples of approaching professors to ask questions about procedures and finding out that the professors did not know the steps a student had to take to do a procedure in the dental school. For example, students learned the basic fundamentals necessary to make a removable dental prosthesis in their second year lectures and laboratory classes. However, when they entered the third year, they had to figure out all of the additional steps to make the denture in the school’s patient care system, which were often discovered the hard way. A second year student described the feeling in that environment:

It gets really frustrating when you’re sitting there, trying to figure out, what do I do, you have to figure out who you’re talking to, and give them the answer that they want.

The process of figuring out the system often delayed patient treatment because once the students figured out where to begin; the person at the first step did not necessarily know who to refer them to for the second step. A third year student explained this learning curve:

There’s a lot of self-learning involved in many areas. They guide you, but the details, you kind of find out yourself, or the fourth-years are very helpful. Some instructors will just tell you to go ask the fourth-years.

These steps involved physically walking around the building to find various key players in the paperwork process to obtain the correct sequence of checkpoints; having documentation on both paper and in the electronic health record for the same procedure; waiting up to 24 hours for a response between certain checkpoints; and having all the appropriate signatures and electronic ‘swipes’ to continue. Finding help to navigate this convoluted system was seen as stressful, time-consuming, confusing, and unnecessary. Students felt this system needed to be improved and did not teach them how to become a better dentist. A fourth year student described her classmate’s experience with dental school:

There are a lot of people in our class – and dentists – who are not the best organizational or paperwork people, and that’s not why we’re dentists. We’re going to be dentists because we’re going to be good doctors of dental medicine and good with our hands, and good with patients. And so by having an organizational aspect be such a huge part of our education and a huge roadblock to graduation, then I think that’s a big area where support can help.

When faced with the dilemma of wanting to ask questions and not wanting to be penalized, students said they learned to ask each other or upperclassmen for answers. A third year student summarized the impact that faculty have on the learning environment,

You get a quality education from an instructor when they know how to interact with students; in the sense that they’re aware of what the students are going through and what the deficiencies are. Because when they’re aware and they’re willing to help, that’s when students actually benefit from the education.

Students discovered that they felt comfortable enough to approach certain professors individually with questions. Students did not want to be belittled or ignored if they ask a question so many opted to figure out problems silently.

A theme that came out of the focus groups was that the learning process often came with considerable struggles. Sometimes the struggles occurred in a controlled setting when students had an instructor who could help them, and sometimes students had to struggle on their own to find the resources they needed. The fourth year focus group participants mentioned how becoming a lifelong learner meant that you had to be self-taught to some degree and that students received the skills to teach themselves how to be a self-sufficient learner while they were in dental school. A third year dental student explained that becoming a lifelong learner required those skills at this level:

The instructors are our guides. We have to do the walk ourselves. Things that they briefly talk about, we have to explore more on our own. We’re not being spoon-fed. This is a process of learning.

Most students reported learning concepts the hard way, by making mistakes and receiving negative reinforcement. A fourth year student acknowledged the complexity of teaching and learning about dentistry:

Now I realize it’s a very complex field and a lot of things can go wrong, and it’s not perfect. And it’s not an exact science. And there are just a lot of factors that play into success. And there are also different opinions and markers of success, too.

Learning to identify different treatment options from a spectrum of viable options was seen as vital to explaining the options to patients and educating them so they could make an informed decision about their care. Third and fourth year students expressed relief and gratitude for the existence of YouTube as a reference form which to learn the steps of clinical procedures. However, YouTube could not help them figure out the organizational competencies of their dental school.

Organizational competencies are the parts of the hidden curriculum that students have to learn in order to succeed in their learning environment. They include the steps necessary to do a procedure that are exclusive to their dental school as well as how to behave around certain areas of the school. Not all of the professors knew the answers to questions related to protocol and procedures because they did not have to personally complete them. In those cases, only a fourth year dental student, who had either learned the information through oral tradition or making mistakes, could help. Fourth year dental students empathized with confused colleagues:

We’re all bogged down on trying to figure out what to do in clinic. Like, oh, for this professor, you better turn this in then, or you’ll get docked points and you have to sign in down here.

Since there was not a manual formally describing the nuances of the dental school’s culture, it took a lot of time to for a student to learn the ropes.

A theme about a distinct research culture emerged from the fourth year focus group. The students felt as if there was a, “lack of transparency” about changes over the course of their four years. The students generally appreciated and respected researchers and the field of research, but they disliked how it overshadowed their dental education. The students felt changes were more often implemented for a new research project and were not patient- or student-centered. The students saw changes to the clinic’s forms, curriculum, and the physical space around the school as motivated by research. A fourth year student said that if you wanted to see where the priorities of the school were, then to look out the window at the new research facility. Not only were there not any clinics or classrooms in the new building, but also, the students were not aware of any plans to expand or improve the existing spaces in the dental school for the students to learn or practice.

The students felt as if they were treated as “research pawns” or a “mule for NIH funding”. The students saw research as important, but they did not see it as their profession. A second year student said:

I think evidence-based dentistry is the results of researchers. And then, from the results of their research, people that are actually out practicing on patients apply that.

They saw this interaction as more interprofessional than intraprofessional. Nobody equated being a good clinical dentist with being a good researcher. The students did equate being a good dentist with being able to correctly evaluate the dental literature: Another second year student described research in terms of EBD:

I think evidence-based dentistry, for the clinical dentist is the single greatest tool that they have—not only in providing care to the patient, but in helping them run a clinical practice that is effective and actually makes money.

The students recognized that they could not practice dentistry using the system with which they learned it because they would not be able to sustain a living or pay their debts each month.

A consistent theme for all of the students was that they respect the field of dental research and appreciate what it does for the profession and their own personal careers. However, the students blamed the research culture at the school for losing their voice about when, how, or why things in the school were implemented during their education. A fourth year student explained the implementation of a new, tedious and embarrassing medical history form in the open-bay patient clinics:

No one ever came to us – the people that are in charge of asking these awful questions – and said, ‘This is why we’re doing it.’ We basically were tricked, I feel like, and no one’s taking responsibility, no one’s saying anything about it.

The students felt used by the school and the research community as one fourth year student felt, “our education is fueled by research, not by student progress.” Interestingly, the students never defined a quality education by how it made students feel, but they did express how important it was to have different sources of support for a quality educational experience.

Another theme between groups was about a lack of organizational, emotional, and physical support. Examples of organizational support included streamlined paperwork, policies, and patient procedures. A lack of physical and emotional support was felt when trying to unassign patients from the students’ names. A fourth year student explained the emotional process:

I’ve taken time out of my day, like entire appointment time out of my day, to try to deal with it. You can’t just get them out. You have to call them fifteen times, you have to write notes and get them swiped by busy instructors who don’t want to stop what they’re doing to swipe a contact note. And then you have to send notes to the patient, and then they get another try, like it’s impossible to do anything around here. And then they get on you, like, ‘Oh, well you have too many patients. Try to get those out of your name.’

Students expressed their need for emotional support both inside and outside of the dental school. Inside the school, the students were made to feel powerless in the organizational hierarchy. A senior student described her experience:

I just don’t like being caught in an awkward position where you’re obviously below someone, but they’re just blatantly telling you, ‘You have to do this, and I think that’s what you should do, and I’m going to fight for it.’ It doesn’t really give you a comfortable atmosphere to say, ‘Well actually, we’ve always learned that you don’t do that and I’m not doing it.’

The students felt conflicted emotionally because of mixed messages from the administration and the faculty encouraging them to have a dialogue with any person when there was a conflict. The fourth year group unanimously concluded that was, “a losing battle” and often did not change the original situation. Some students tried citing literature during these conflicts and experienced reactions ranging from dismissive to berating in front of their patient. Each focus group deduced who the good instructors were over time by interacting with the faculty daily. An instructor was viewed as a good clinical instructor if s/he built confidence, allowed critical thinking, was approachable and knowledgeable, and helped students learn the school’s policies. Students also noticed faculty members who demonstrated passion for their role within the school, whether it was lecture-based or clinical-based.

Emotional support outside of the school was also discussed. The students explained how many policies and procedures caused them stress, but when it came down to asking for help, students asked for another policy. They talked about how much they invested in dental school and that they wished there was a policy to acknowledge that students had personal lives and those lives sometimes needed their attention. A second year participant described:

There’s life outside of dental school. A lot of teachers, they have this scope of, like, you go home and however many hours you’re not in school, you’re devoting every hour to your academia.

Students have had to leave school for various reasons but shared common feelings of isolation while away and being perceived as a nuisance when they returned. A second year student explained their disbelief regarding a lack of time built-in for missing school:

There are no sick days in dental school. You can’t miss a day, ever. It’s unethical. In work, you can call in sick. But here, you can’t call in. And if you are sick, you need a doctor’s notice. And if you have a cold and a fever, you don’t really need to go to the doctor for that. I know what I have, I’m going to take some Tylenol, and I’m going to sleep it off. So the fact that they don’t trust us enough, like I’m paying so much time and so much money to be here. I’ve changed my entire life around to be here and if I’m sick, I want to take some time off. And I don’t want to contaminate everyone else, too.

Students have a basic right to express their viewpoints during the learning process, but they often felt uninvolved in decision-making processes. Students with experience advocating for changes felt disheartened and angry when they experienced awkward tension and dismissal of concerns during meetings. A fourth year student said:

Not only is everything you’re saying fought at the highest level, but the person who should be hearing it walked out early because they had another meeting.

Many students felt the environment could be improved if they were treated as colleagues instead of children, and allowed to be partners in their education. A second year participant described what they hoped would change:

There would be a better rapport and better education process if they treated you as sort of a colleague instead of, like, you were still in middle school…you should be treated more like an adult and a colleague, as opposed to disrespected and kind of stomped on, like you were a child.

# Discussion

As a profession, dentistry is entrusted with the responsibility for upholding the highest quality of care for the public. A healthcare professional’s ability to care for his or her patients is also dependent on their personal health. Public health officials often consider upstream factors for interventions of public health issues. One of the upstream factors of practitioner well-being is their previous well-being as a health-professional student. The hidden curriculum of dental schools needs to be acknowledged and examined. The *Glossary of Education Reform* describes the culture created by the hidden curriculum:

The values and lessons reinforced by the hidden curriculum are often the accepted status quo, it may be assumed that these “hidden” practices and messages don’t need to change.

The following discussion looks at the desirable and undesirable processes of learning as well as the current standards and movement for ensuring adequate support systems for dental students while they are in school. Important consequences of stress and a lack of support are explored and suggestions for new stakeholders to help remedy the problems. Finally, downstream factors are mentioned in terms of the dental health workforce and its impact on public health.

## Learning Standards

The stages of learning (Figure 1) describe how a student moves through unconscious incompetence, conscious incompetence, conscious competence, and unconscious competence on their learning journey. Students did not recognize their transitions in dental school in terms of where they were in the stages of learning within each year of their education.



**Figure 1. Stages of Learning**

Most students could identify connections between the information they learned in the formal curriculum and how learning that information would make them better dentists. A third year dental student described what it is like to be at the conscious competence learning stage,

Now that we’re in clinic, some things that we did learn the first two years are becoming more relevant. I’m starting to actually remember them. Like when I was learning them in the first year or second year, it didn’t really make much sense, didn’t click.

The same participants discussed how they were being clinically evaluated and passing competency exams; but they were not as internally comfortable as they thought they would be at this same point when they entered dental school. A third year student reflected on how s/he thought s/he would feel by the time they reached their third year and how s/he currently felt:

I feel – if you were to have asked me what I would have been like as a third-year, I would be a lot more experienced than I am currently now.

This is a characteristic of the conscious incompetence stage of learning, often an awkward and challenging stage, because the student knows that they do not know how to do something and that bothers them. The important thing to remember about the earlier stages of learning is that they are natural and expected on the path to the final stage, unconscious competence, where the student is comfortable, knowledgeable, and skilled.

Something that none of the students expected when they entered dental school was how much they would personally have to change during the process in order to compensate for emotionally difficult learning experiences. Students transformed some the feelings from pre-clinic lectures and labs about stress, frustration, and uncertainty into lessons on how to be a self-sufficient learner in clinic. Two fourth year students talked about this transition. The first student said:

You have to look within yourself…You have to just kind of buckle down, just say, ‘What can I control, myself, what can I do?’ And then if it doesn’t work out, I don’t know.

The second student said:

You have to think about how to think sometimes, you know what I mean? So like, that has to be your basis for lifelong learning, is really teaching yourself how to learn and then going through it.

These lessons, although not intended to cause anguish, taught students skills in conflict management, lifelong learning, and communication; which were essential for the success of any healthcare professional (Quick, 2014). Students sometimes felt those lessons were necessary struggles to overcome to become a better dentist. However, students did not express the same feelings concerning the emotional trials they experienced and the subsequent value of the emotional lessons learned in hindsight. A second year student said:

I understand why it’s difficult, but it’s a little frustrating for someone who doesn’t have a family practice to go into, or doesn’t have a mentor or might not have plans of specializing in another field – you know, it seems like you learn more in one or two year GPR than you would in four years of dental school.

## The Importance of Intangibles

An article in the *Journal of Dental Education* named conflict, stress, and anxiety as some of the emotions that students felt when changes were improperly introduced (Quick, 2014). The majority of the dissonance from students in the focus groups was related to changes during their dental education. A fourth year student referenced the school-wide changes brought forth by accreditation years:

I think what’s interesting about dental education today is that every seven years, you have to get accredited. And that process creates a lot of change in the dental school.

The most challenging adaptations regarded the hidden curriculum and educational climate instead of the physical space of the facilities, lack of resources, or the formal competency-based curriculum. The focus groups revealed that more than clinical competency skills changed among students completing dental school. The greatest internal changes within the students in this study resulted from differing amounts and sources of psychological and emotional support over time.

Each year presented challenges and required different support systems for students. The greatest source of support was from their peers. A second year student found support that way:

I think we find support in each other, definitely. Study groups just – apart from all the academic and just learning, there’s a lot of stress in dental school. So just being able to have somebody who understands what you’re going through, and even upperclassmen, mentors, being able to go to them and get some reassurance that everything’s okay.

In an effort to discern what specifically changed for students throughout their dental education, students were asked about how their perception of dentistry changed before entering dental school to what it was now. Overall, students were impressed by the scope of the dental profession and felt humbled by their exposure to a small part of it while in school. The students now recognized a difference between dentistry as a patient and experiencing dentistry as a first professional student. A fourth year student anticipated another viewpoint after they graduated:

There’s dental school and there’s the outside world…It’s going to be a totally different world. We still haven’t experienced it yet. But it’ll be interesting to see how that will turn out.

Each focus group revealed distinct themes in the conversations: Second year students expressed frustration with their dental experience, third year students expressed confusion, and fourth year students expressed signs of burnout. These transitions were experienced by all students to various extents depending on the strength of their support systems outside of the school. When asked where they found sources of support during their education, all of the focus groups said they found support from their classmates and upperclassmen.

When asked what kind of support they needed, a soon-to-be graduate responded, “Any support.” Without a peer-mentor to look up to after the class ahead of them graduated, fourth year students felt forced to teach themselves survival skills in their last year. All of the focus groups wanted a formal mentoring program, suggesting an alumnus in private practice if the resources within the school were insufficient, to provide needed emotional support. An article about psychological stress in undergraduate dental students, published in the *European Journal of Dental Education*, reported that the signs of burnout (emotional exhaustion, depersonalization, and reduced personal accomplishment) could be seen throughout all of the years of dental education (Humphris, 2002).

Each focus group recognized that its class’s educational experience was unique, due to the environment. At some point between second and third year, several students reported that they stopped seeking emotional support from family and friends because that support system could no longer relate to the reality of the stresses they were experiencing; however, their classmates could. A third year student said:

I got most of my support from my classmates, both academically and emotionally, because I feel my classmates understand what I’m going through and they understand the process.

However, during the fourth year, resources for emotional support within the school were desperately inadequate for some students, as one senior said:

My friend, my classmate, doesn’t know who to go to get help. They’re wondering, ‘If I ask my team leader, will they help me? If I ask student services, will they help me?’ And they’re considering getting diagnosed with ADHD in order to get support from the school, and that shows you how low the support is, that you have to be diagnosed with a behavioral problem in order to get help.

Another fourth year student described their own personal struggle with a lack of support during their final year:

I personally have to choose to seek it… but at the same time, it’s like, I reach out as far away from the school as possible.

Second year students wanted reassurance that there was life outside of dental school and that their education up to that point would be worth more than a letter grade in the long term. They were highly stressed about getting good grades and they felt like the evaluations did not appropriately measure their success as a dental student. They expressed their frustration about the pressure of grades in terms of their overall career goals:

I understand why there has to be some sort of quantitative standardization, but I think the way it’s applied is not very effective. I could talk for hours about examples from our class of people getting bad grades for preposterous things. And the fact that that – one bad grade in one class that was about – like how to use Axium, or how to – what really comes down to busywork…completely derails my plans of the rest of my career, is absurd.

Third year students wanted validation that the struggles they were facing were normal and they felt their stress could be lessened if they had more hands on practice in their second year. They seemed to seek approval for all the hard work they had been doing, as one third year participant said:

We take things very seriously, we’re meticulous. So some type of positive reinforcement, encouragement, I think would really go a long way

Fourth year students felt like there could be better ways to learn in their environment and were ready for a new beginning; one where they hoped to have more control over their learning. A student illustrated this point by explaining the consultation protocol,

One instructor is recommending one thing, okay, then you schedule the patient the next week and you go in and you work with another instructor, and then that instructor’s supposed to – based on the opinion of another instructor, do that, even though they’re working under their own license. It doesn’t make any sense to me. It’s a real disconnect between the whole system.

After a year and a half in clinic, fourth year students had mastered the organizational competencies necessary to provide care in the educational system and found them emotionally exhausting and in need of reform. An article in the *Journal of Dental Education* warned about the possible consequences of not changing the emotional climate of dental education:

If students are harassed, discriminated against, disrespected, belittled, or humiliated during their education, the profession cannot expect future dentists to foster healthy and respectful relationships with each other, their patients, and their communities. (Quick, p. 1630)

Health professional schools try to teach a holistic decision making process to their students. According to an article published in the *European Journal of Dental Education*:

A dental program should not only respect psychological and physical health, it should also contribute towards students’ psychosomatic and social well-being, cultivation of ethical values, and culture (Divaris, et al. 2008 p. 122).

However, all the time spent learning about overall well-being and comprehensive care for the patient consumes many programs’ focus to provide the same kind of care to their students. Dental students are taught to care for their patients but they have little experience with what it feels like to be cared for comprehensively as a learner: A fourth year student explained:

I don’t think we’re in anyone’s forefront. Anyone that is in charge and can make any sort of change, they don’t view the students – at least, they don’t make it evident – that they view the students as the primary focus

An evaluation of the academic environment by Divaris, et al. (2008) said, “Preparing future health professionals entails much more than senior dental students’ fulfilling their graduation requirements and clinical competencies” (p. 124). The authors were referring to the overall mental and emotional well-being of future healthcare providers. The students in the third year focus group described someday obtaining a diploma as a source positive reinforcement:

Making it through dental school is very tough, and the fact that you get out on the other side clean, you made it, you’re stable psychologically, you did a lot. You made it through all those classes, all those lectures, these long days. We’re here so long, every day that it’s kind of an accomplishment, just to make it through dental school… which, I guess, you get a degree for that.

A fourth year student reflected on their total experience and concluded, “I’m going to be very honest. I would never do it again. I never thought I would say that.” In these focus groups, students’ attitudes towards the educational environment changed as they progressed further into their education based on their perception of their inability to control or change the environment and how much support they could find when they needed it.

## New Stakeholders

The literature reports this topic from the viewpoints of many stakeholders (faculty, academic societies, and practitioners), but it is rarely from the students’ perspective. Dental students have traditionally expected to work hard upon entering school; however, as they progress, they may find their original expectations of their educational environment are not being met. Some fourth year students expressed difficulty with these areas of personal growth and learning. They felt that their personal experiences as a dental student made them question the “caliber of healthcare professionals” in the general workforce and they reported that visits to the doctor’s office were different now that they knew what their training must have been like. One student reflected on the learning curve they experienced regarding control, perfectionism, and growth:

At the end of the day, humans are an imperfect animal. And I think that’s one thing that I’ve realized. When I was in high school, college, I used to think about – you hold these big-time doctors, big hotshots, like neurosurgeons, and you think they’re perfect every, single time. And then you get into dentistry and you think about your skill-sets that you’ve learned and the technical aspects of doing the job, and you go, ‘A lot of things could go wrong, and I’m not even doing brain surgery’… you’re not going to be able to solve every problem.

Dental students are the only stakeholders who are able to identify specific touch-points, or areas for improvement, because they are the only ones that experience the learning process in its entirety. The definition of a positive learning environment should be created by the students in each unique environment. Managing change in dental education is a complex endeavor that cannot be completed by students alone; due to their lack of time; lack of support; and lack of position power in academic hierarchy. Although they may try, the students cannot effect meaningful change without the help of other stakeholders.

A key stakeholder was missing from literature searches on improving the quality of dental education: the lawyer. Many causes of reported stress and anxiety involved institutional policies and procedures that could be streamlined and made more user-friendly by a comprehensive review of the reason they existed in the first place. One touch-point example was the process to remove a patient from the assigned student. Physical barriers such as a lack of approved phones to call patients; poor location of phones in relation to computers; and a need for a third party to schedule the patients when they were contacted made this difficult. Policies and procedures involving patient communication were created to ensure the school was not abandoning patients or treating them unethically. Some policies and procedures exist to legally protect the school and the students from litigation for violating ethical standards of care.

Many policies and procedures existed to provide documentation, or evidence, that everything was being done correctly. The distribution of control over these tasks to faculty and staff members has been reported to overburden them with unnecessary paperwork and overcrowd the time they had to complete their other responsibilities during the day. Another effect of these policies and procedures involves control in the hidden curriculum. When a staff or faculty member is designated control over a small step in a very large process of patient care, it can become a barrier to that care. Improving communication and streamlining procedural steps would eliminate that barrier.

A novel approach to changing that aspect of the educational environment could involve lawyers. This presents an opportunity for interprofessional collaboration between dentists and lawyers in dental education to improve the quality of the education and patient care within dental schools. A medico-legal partnership is a new model in use by hospital systems that utilizes legal services to help their patients receive resources to help their process of care. These resources could include legal representation, social services, and other forms of support for the patient. In dental education, lawyers could improve the language of existing policies and procedures as well as collaborate to create new systems to better serve the students’ educational goals, the administration’s legal challenges, and the patients’ overall quality of care. Despite the similarities in the perception for the need for change at both the faculty and the student level, Haden, et al. 2008, reported “dental schools resist change although being on the cutting edge of the learning process and the professional research” (p. 529).

## Public Health Significance

Dental school students that graduate in the year 2015 will be part of our nation’s healthcare workforce for the next forty or fifty years. Looking back at how the profession of dentistry has changed since the 1960’s and 1970’s puts into perspective how much change the profession has undergone and will continue to undergo through 2055. Some authors in the literature are starting to call for attention to the emotional climate and well-being of students while learning dentistry.

Anecdotal stories from dentists nearing retirement now, about how instructors in the 1960’s treated them, provide empirical evidence that there has been some climate change over the years. Dental school has been well known to be difficult and stressful both empirically and in the literature all over the world. Many of the challenges facing dental education are common to other health professional schools and higher education in general. Education is one area of public health concern and those trained in Behavioral and Community Health Sciences (BCHS) may be the right public health professionals to help move climate change in higher education forward. BCHS professionals aim to understand the intangible factors of cultures and behaviors that impact the health of a population. They work with anthropologists, psychologists, sociologists, and health educators to serve the needs of the public.

Everyone has a role to play in making the emotional climate of our health education institutions more respectful and nurturing. Many different stakeholders are starting to demand that environments change to be more responsive to the needs of the patients they serve as well as healthy places for people to work and learn.

We must become more attentive to the values expressed subliminally but powerfully in our work environments and begin to make necessary changes to that our environments call forth the best and healthiest of what we have to offer, both as professionals and as human beings. These approaches can help us to appreciate fully the privilege of caring for patients and to realize our best potential for personal fulfillment and growth (Suchman and Ramamurthy, 2008 p. 6)

The concept of a dental home was created by the American Academy of Pediatric Dentistry (AAPD). The AAPD describes the concept of a dental home as a relationship between the dentist and the patient that includes all aspects of oral care. That care is to be delivered in a “comprehensive, continuously accessible, coordinated, and family-centered way” (AAPD, 2015 p. 1). The Commission on Dental Accreditation in the United States describes dental schools as, “societies of learners, where graduates are prepared to join a learned and a scholarly society of oral health professionals” (Commission, 2010, p. 12). The students’ dental home is their dental school, and it should include all aspects of their dental education. This relationship should be established by the first year of dental school and should continue into practice as an alumnus. The relationship between a student and their dental school should be comprehensive, accessible, and mutually supportive. (Drisko and Whittaker, 2012). suggest that if a school is serious about solving this problem that they must do three things: change the school’s culture, develop mentoring protocols, and adjust salaries to be more competitive.

## Limitations and Applications

The limitations of this study include the following:

* Lack of generalizability of specific experiences to other dental schools.
* Students who participated may be different from those who chose not to be part of the discussions and so the data may not be representative of all dental students.

Some applications of this study may include:

* Informing the creation of climate surveys in dental education.
* A way for dental schools to meet newly established CODA standard 1-3.

# Conclusion

The public is becoming more aware of the importance and connection of oral health and overall health. The public trusts the dental profession to train oral health care providers that are qualified and educated to meet the needs of the community. Dental schools are nationally accredited and meet standards and competencies to ensure the quality of the knowledge and skills of graduating dental students. However, the competencies lack evaluations of emotional support systems and healthy learning environments for dental students.

The importance of health practitioners’ well-being has been discussed in the literature, but few studies have addressed the well-being of adult students in health care professions. Health care providers and health professional students are able to provide the highest level of quality care to their patients when they are mentally, emotionally, and physically healthy themselves. It is important that dental students are supported psychologically and emotionally during challenging situations in their education. Schools should invest considerable time and resources to improve or change the culture of their institutions to support a healthy environment for their adult learners.

In order to understand students’ experience in dental school, three focus groups were conducted with dental students. The students discussed the quality of their education; how their perception changed; the role of their professors; and the effect of the environment and culture on their experience. This research discovered that the emotional climate of dental education was unnecessarily harsh and in need of improvement. A movement to ensure adult learners’ well-being is beginning to be evaluated in health professional education. New stakeholders in dental education, including lawyers and public health officials could improve the process and quality of education and care for all.

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