Impact of Reflective Writing Assignments on Dental Students' Views of Cultural Competence and Diversity

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Abstract: To respond to widespread disparities in access to oral health care, the Institute of Medicine, the Commission on Dental Accreditation (CODA), and the U.S. surgeon general have stressed that prospective dentists should become culturally competent, socially responsible practitioners. The aim of this study was to examine linguistic differences in dental students' reflective writing assignments before and after interviewing an individual who was culturally different from themselves. The authors analyzed 160 documents from 80 first-year dental students at the University of Florida in 2012. This cohort consisted of 36 male (45%) and 44 female (55%) students; 26 (32%) were from underrepresented minority (URM) groups and 54 (68%) were identified as white non-minority. Text analysis software identified word counts, categories, frequencies, and contexts. Significantly positive differences occurred for interviews between assignments 1 and 2 (p=0.005 to p<0.001) in five areas of cultural diversity. Differences were observed for Factor 1 ("important others' influence") between assignments (p<0.001), assignments by interview categories (p=0.033), and URM/majority participants by assignments by interview category (p=0.018). Factor 4 ("my social world in relation to others") was statistically different between assignments for URM/majority participants (p=0.019). Factor 5 ("wrong because") was statistically different for gender (p=0.041), suggesting that males may have experienced a rebound effect from stereotype suppression. The findings suggest that the use of reflective writing and interviews affected the students' awareness of how important others had influenced their lives and attitudes and facilitated their questioning preconceived assumptions. Reactions to coursework focusing on social and personal domains warrant further investigation.

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To respond to widespread disparities in access to oral health care, the Institute of Medicine, the Commission on Dental Accreditation (CODA), the U.S. surgeon general, and others have urged that prospective dental practitioners become culturally competent and socially responsible.[1-6] Calls to improve oral health care access for vulnerable populations[7,8] and changes in accreditation standards emphasize these needs.[9-11] A new accreditation standard, according to Logan et al., suggests that students will be best prepared in an environment that facilitates "culturally competent health care; recognition of health care disparities, [and] development of solutions; meeting the health care needs of dentally underserved populations," and such "professional attributes [as] altruism, empathy, and social accountability, needed [for] . . . effective care in a multidimensionally diverse society."[12] Furthermore, dental graduates must be competent in critical thinking and problem-solving for the comprehensive care of patients.[12] These skills are essential in the U.S. health care system for improving patient experience related to quality and satisfaction, improving population health, and reducing per capita health care costs.[11] Recent studies showing that dental practitioners hold somewhat negative attitudes towards the poor and underserved exemplify the need to improve social responsibility.[12,13] These attitudes extend to other health care providers as unconscious biases impede life-saving medical treatment.[14]

Increasing diversity and emphasis on cultural competence has instilled in educators that students need awareness of their own unconscious bias.[15] Essentially, cultural competence is a construct that suggests there is a set of behaviors, attitudes, and beliefs that can facilitate or impede one's ability to

demonstrate competence in the context of racial/cultural understandings.[16] Although students often reject biased behavior in others, they resist recognizing bias in themselves.[17] One strategy for reducing persistent and unintentional forms of bias is for students to have increased opportunities for contact with those different from themselves.[18,19] Implicit bias can be mitigated by reflective practice to prevent its activation[18] and by increasing students' skills to interact confidently and contextually with patients who are culturally different.[15,19] One's biases, whether implicit or explicit, have a definite impact on one's behaviors, attitudes, and feelings about those whose culture is different; higher education should promote culturally competent policies and practices.[16] A systematic review of the literature found that cultural competence training is a strategy for improving health care professionals' knowledge, attitudes, and skills and patients' ratings of care.[20] The traditional notions of cultural competence are being challenged and developed with the principles of critical pedagogy into a transformative rather than an informative approach,[21] including questioning the health care provider's position of power and privilege in society.[22]

It is important to clarify what we mean by diversity and cultural competence in the context of this study. Diversity refers to the relation between two non-identical entities and students' ability to state points of difference. Cultural competence, as defined by CODA, explains that students need to have the skills to communicate and treat patients from diverse groups.[9] The development of cultural competence should begin by ensuring that students understand fundamental concepts such as diversity, culture and ethnicity, and disparities. Becoming culturally proficient means that individuals capably respond to an environment shaped by its diversity.[23] Next, students should use self-evaluation to explore their own beliefs and attitudes and develop the skills and abilities to apply new knowledge to teaching and improving health outcomes. For the purpose of this study, we defined cultural competence as an ability to interact effectively with people from cultural, economic, and linguistic groups that are different from one's own.

This article focuses on predoctoral dental student training. The aim of our study was to understand how reflective writing and interviews could be used to understand students' baseline awareness of their own cultural competence and whether conducting interviews with individuals unlike themselves would result in expressions of personal change. Reflec-

tive writing provides opportunities for students to describe events and feelings they experienced while evaluating those events, analyze their reactions or meaningfulness, consider alternative responses, and ponder what actions they might demonstrate in future instances that are similar.[24-27]

Methods

The Institutional Review Board of the University of Florida approved this study. The study was conducted in 2012 with dental students at the University of Florida. During a course in behavioral sciences for first-year students, the instructor provided a rationale for becoming culturally proficient and posed interactive, automated response system (ARS) questions followed by discussion of answer choices. This team-taught course spans one semester. Cultural competence accounted for about 15% of the course at the time of this study. There was little diversity among the instructors, and most used a lecture format. The researcher used lecture and small groups, experiential activities, and role-playing. The objectives of this section of the course were for students to learn how to do the following: define cultural competence; recognize your assumptions, beliefs, and values about your own and others' cultures; identify the role of cultural competence in providing patient-centered care; discuss how inequity perpetuates valuing one culture over another; and describe how your communication style will ensure patient understanding and enhance patient efforts toward self-care.

Students learned about characteristics of cultural competence, barriers to its development, the impact of inequity, and social-historical and sociopolitical impact on cultural competence. Using a continuum that depicted cultural proficiency, they were asked to silently identify where they would place themselves. This exercise was designed to create cognitive disequilibrium, encouraging students to reflect on their own bias, privilege, and assumptions and to seek effective solutions.[27]

Students were given two reflective writing assignments. For assignment 1, they were asked to describe their personal awareness in eight categories: race, gender, ethnicity, social class, sexual orientation, mentally or physically challenged, faith, and cultural groups. For assignment #2, students were given assignment cards designating what type of individual they were to interview. Cards with the

category names of sexual orientation, religious affiliation, mentally or physically challenged, first language, social class, racial/ethnic group, gender, and national origin were intermixed by the instructor and distributed non-randomly to students. Students were required to write a minimum of 500 words on each assignment, although many wrote more. Assignments were graded with a rubric used by all members of the department that sponsors this course.

The questions used for analysis of assignment 1 were "Define your world: what does it encompass? What are some of your assumptions?" The question for assignment 2 was "As a result of conducting the interview with the assigned individual, describe the insight you acquired about your values and prevalent assumptions in your cross-cultural relationships and ways in which they are similar or different from the previous experiences you have had." For the second interview, students were expected to find an individual who represented the category on their card and interview that person. Many conducted interviews with students not in the program or approached strangers at a coffee shop, among other places.

Interviews were conducted as a course assignment outside of class time; interviewees were not interviewed more than once. Each student interviewed a different individual. The students did not share interviewees. The length of the interview was dependent on the interviewer and the individual who was interviewed, and the time was not measured. Students were assigned to complete a schedule of questions with the interviewees. Interviewees were not compensated. All students received the same interview questions for both assignments. The only text that was analyzed was what the students' wrote, not the questions.

Document Preparation Procedures

After student demographics such as gender, underrepresented minority (URM) status, and category of interviewee assignment were recorded, all identifying information was removed, and documents were reformatted according to the Linguistic Inquiry and Word Count (LIWC) software manual.[28] LIWC software was used for assignments 1 and 2. Each assignment was reformatted as an individual Word document with the questions and numbering omitted. The LIWC is a validated software program[29-32] used in such disciplines as medicine, psychology, and language. The LIWC calculates the degree to which people use various categories of words across a vari-

ety of text formats. The LIWC calculates the degree to which a text uses positive or negative emotions, self-references, and causal words.[33]

This text analysis program compares words in a text document to internal and user-defined dictionaries,[30,34] counts the number of dictionary-specific words, and divides the number by the total number of words. We used the LIWC 2007 dictionary comprised of 80 word groups and 4,500 words and word stems, which define one or more word categories or subcategories. The LIWC was developed using emotional rating scales to measure cognitive processes in written language. The LIWC has both internal and external validity for its 80 dictionaries of words that measure such phenomena as emotion and cognition.[35] Using NVivo,[36] we found the 1,000 most frequent four-letter words using content analysis.[37] When we added up the percentage of the totals in the text of these words, 134 represented 50% of the text. Each of these words including word stems were cross-referenced in the LIWC dictionary to find contextual examples that individuals (male/female, URM/majority) used to accurately describe each factor. This process was used to qualitatively describe the underlying dimensions from the quantitative analysis.[38]

Data Analysis

SPSS (Version 21) and LIWC 2007 software programs were used according to the principles of statistical analysis appropriate for data collected in naturalistic settings without a priori predictions.[39-41] Principal components analysis with Varimax rotation and eigenvalues greater than 1 identified seven factors from 17 word categories (Table 1 and Table 2). The factor analysis was exploratory, which, by definition, is not based on prior theory or dimensions identified in previous research. The seven factors explained 67.4% of the total variance. Cronbach alpha values ranged from 0.635 to 0.818, confirming the likelihood that each factor represented an underlying dimension. The seven factor scores were used as dependent variables in the general linear model (GLM) multivariate analysis, testing differences according to assignment (pre- and post-interview), gender (M, F), URM status (yes, no), and category of assigned interview. Because there were insufficient numbers in some cells, the original interview categories were reduced to five (sexual orientation, religion, mentally or physically challenged/socioeconomic status, race/language/national origin, and gender). Similarity

Table 1. Factor structure representing underlying dimensions

Factor Name	1	2	3	4	5	6	7
	"Important others' influence"			"My social world in relation to others"	"Being wrong"		
Variance	12.7	10.5	10.5	10.3	8.3	7.8	7.4
She-he	0.883						
Past	0.837						
Social	0.555			0.531			
Adverb	0.485				0.413		
Exclusive		0.842					
Negate		0.773					
Discrepancy		0.595					
Tentative			0.800				
Insight			0.717				
Ipron			0.639				
Incl				0.779			
We				0.762			
Cause					0.757		
Negative emotion					0.589		
Humans						0.778	
Percept						0.668	
Certain							0.808

Note: Extraction method was principal components analysis. Rotation method was Varimax with Kaiser normalization. Rotation converged in seven iterations.

Table 2. Word categories and examples in the identifying underlying dimensions of the factor analysis

Word Category Name Used by LIWC Program	Most Frequent Words in LIWC Category Found in Text by NVivo
Adverb	Also, even, just, around, well, become
Cause	Make,* based, because
Certain	Never, always, fact, certain, every
Discrepancy	Want, need, must
Exclusive	Just, something, without
Family	Family(ies), parents, mother, father
Human	Person, individual
Inclusive	Open, come, close, around
Insight	Assume,* different, belie,* know, think, feel, learn,* find, become, understand
Impersonal pronoun	Someone, things, others, everyone, thing, mine, something, everything
Negative emotion	Wrong
Past	Thought, made, found, felt, told, helped, got, seemed
Perception	Feel, hard, white
She-he	She/he, her, him
Social	Family, parents, culture,* person, someone, individual, marriage, mother, friend,* social, question*
Tentative	Assume,* sometimes, may, lat, someone, something
We	We, our

*Includes any endings with this root word
Note: The original LIWC category names were misleading; these names are more representative of the actual words from the category that appeared in the text.

scores for individuals in the merged groups supported the appropriateness of this grouping. Similarity of scores on specific factors on both the pre- and post-interview writing was compared. Groupings were defined by the scores, not grouping types (i.e., race) as that would have been artificial. In this case, the scores grouped the dental students, which allowed for detecting similarities in stereotype responses to differences for those groupings. The analysis used two multivariate models (2x2x5 model), one for URM without gender and one for gender without URM.

Factor scores were standardized with a mean of 0 and standard deviation (SD) of 1. Average scores below the mean of 0 indicated that participants used fewer words and phrases from the word categories compared with the mean. Factor scores that did not change significantly between the two writing assignments can be interpreted as representing whatever attitudes, experiences, or beliefs typical of participants that were unchanged by the educational intervention. Because the participants were randomly assigned to interview categories, initial differences may be interpreted as chance. The full multivariate design with seven factor scores was analyzed using MANOVA with four explanatory factors: assignment, gender, URM/majority, and interview category. Small numbers in interview categories limited interpretation for differences between men and women who were URMs. Therefore, the analysis excluded the interaction of gender and race.

Results

All 80 first-year dental students at the University of Florida participated in the study. This cohort consisted of 36 male (45%) and 44 female (55%) students; 26 (32%) were from URM groups and 54 (68%) were identified as white non-minority (Table 3).

Factor 1: assignment (p<0.001). Factors 2, 3, and 6 did not differ by any of the independent variables, including assignment; however, most of the change between assignments was captured in the first factor, labelled as "important others' influence," referring to people who had influenced the students' attitudes about people different from themselves. There was a statistically significant difference between assignments 1 and 2 (+1.5 SD), suggesting a considerable increase in words and phrases concerning mindfulness of others' influence (e.g., family members). Students from URM or majority groups did not differ; however, males and females both increased (1.5 SD).

The Factor 1 dimension included "she-he," "past," "social," and "adverb" categories. The "she-he" category either described an important family member or the person interviewed. The "past" category often was used in context such as "At times in my life, I have thought that poor people were lazy and didn't want to work" or "I have made assumptions in the past based on stereotypes." The "social" category described "School, faith, my family, and friends." An example from the first interview with "adverb" plus "social" categories is as follows: "My world revolves largely around my family."

Factor 1: assignment by interview categories (p=0.033). Initial scores for Factor 1 were very similar among the five interview categories. After the interviews, there was a significant increase in scores (1.5-2 SD) in four of the five interview groups. The change was less (0.91 SD) for those in the sexual orientation group. For example, a female student stated, "The family structure and upbringing that [gay male interviewee] described is not only similar to my own, but to many Americans who are not gay as well."

Factor 1: assignment by URM/majority participants by interview category (p=0.018). Participants from URM groups differed from ma-

Table 3. Student demographics by interview category

| Interview Category | Males | | Females | | |
	Majority	URM	Majority	URM	Total
Sexual orientation	2	1	6	1	10
Religion	4	1	2	3	10
Mentally or physically challenged/SES	7	1	7	3	18
Lang/race/national origin	13	3	8	9	33
Gender	2	2	3	2	9
Total	28	8	26	18	80

URM=underrepresented minority groups; SES=socioeconomic status

jority participants, with URM students significantly above average on Factor 1 for the categories of religion and gender, while majority students were significantly below average for the categories of sexual orientation, mentally or physically challenged/SES, and gender on assignment 1. In all categories, however, there was an increase in this factor (1 to 2 SD) between assignments 1 and 2 (p=0.018), with the least change for sexual orientation. Both majority and URM students focused on the similarities they had with their interviewees rather than differences. Majority students frequently used the term "eye-opening," and another stated, "It was surprising . . . many of our life experiences were similar but many of our values were alike too."

Factor 1 scores for both URM and majority participants were not significantly different for the five interview categories on the first assignment. There were, however, differences among the categories and the second writing assignment that were statistically significant (p=0.018). Scores for both URM and majority participants assigned to the religion category increased (2 SD). Again, students compared their interviewees' beliefs to their own. As one majority student reported, "He shared a lot of similar cultural and religious beliefs to my family." For those assigned to the language, race, and national origin category, the change was approximately 1.5 SD. One white male stated, "Ironically, it kind of made me sad that I still make assumptions about people's ethnicity or race based solely on their appearance"; "you won't really know a thing about [them until] you sit down and have a conversation with them." For those assigned to the gender interview category, male participants' scores increased (2 SD), and URM participants' scores changed only slightly (<0.5 SD). One white male student reported being surprised: "She actually . . . thought that the mother should be the primary caregiver and the father should be the support of the family but . . . respected her mother [for] having a career." For the disability/SES category, both majority (2 SD) and URM (1 SD) participants' scores increased. This change is illustrated by the following statement: "I was surprised to see how a person with mental disabilities that impair social interactions [is] still able to relate and understand many social issues." For those assigned to the category of people with disabilities/SES challenges, URM students were significantly more likely to reflect on "important others' influence" (p=0.01). Factor 1 scores changed in a positive direction for majority (1.0 SD) and URM (0.6 SD) participants assigned to the sexual orientation category. A male white student said, "After interviewing this [gay] woman, I realized that her childhood and family life was as 'normal' as mine; this individual places just as much emphasis and value on her family and their relationships as I do."

Factor 4: assignment by URM/majority participants (p=0.019). Factor 4, conceptualized as "my social world in relation to others," was similar to Factor 1 ("social") but also included "inclusive" and "we" categories. This dimension did not change for the majority of the participants. Initially for URM participants, it was slightly below the mean, although it increased by 0.73 SD (p=0.019). One white male exemplified the Factor 1 "social" theme by saying, "My world encompasses my friends and family, whom I need in order to stay happy." The white females' statements integrated "inclusive," "I have many different friends who come from many different cultures," and "My world is one of open-mindedness." In contrast, URM students related to their interviewees' challenges; one student wrote, "At least half of our lives, we lived without having a father figure; we both had single parent family homes, in which we learned not to ever bring or have a family without being that support for our children." Another URM student related to having divorced parents "at a very young age." These findings suggested that upbringing may influence reactions to coursework focusing on social and personal domains.

Factor 5: gender (p=0.041). The Factor 5 dimension was characterized as "wrong because," illustrating a willingness to admit being wrong based on the categories "negative emotion" and "cause." Males were lower on this factor than females. Although this difference was not significant in the univariate model (p=0.09), after we removed the variance due to URM status and interview category in the multivariate model, this difference was significant (p=0.041). While female scores remained unchanged, male scores decreased below female scores (0.269 SD). One female student reported, "I know many people think that people are gay because of their upbringing or [their] parents did something wrong," while a URM female stated, "I find that many times assumptions are wrong; I've experienced this on both sides because I feel that people at times assume things about me that are wrong." One of the white males stated, "When I was younger, I thought gay marriage was wrong and should be banned, just as it appears [interviewee] thought; however, . . . your values and beliefs can be altered based on experience."

Discussion

Significant differences occurred for all interview categories between assignments 1 and 2 in five areas of cultural diversity: sexual orientation, religion, mentally or physically challenged/SES, race/language/national origin, and gender. Differences observed for Factor 1, characterized as "important others' influence," were between assignments 1 and 2; assignment by interview categories; and URM/majority participants by assignment by interview category. These findings suggest that assignment 2 was influential, demonstrating a curricular impact in increasing students' mindfulness awareness related to people who had influence on their lives and attitudes. Textual changes in reflective writing suggest that students actively reflected on previously held assumptions derived from their social worlds.

For Factor 1, assignment by interview as well as assignment by URM/majority by interview yielded a significant increase in scores; however, less change for sexual orientation was observed, warranting further investigation even though a 0.5 SD difference in large populations is generally considered clinically significant.[41] URM students frequently discussed others' influence when interviewing individuals from a different religion and gender, while majority students showed less discussion in the categories of sexual orientation, mentally or physically challenged/SES, and gender. Repeatedly throughout their reflective writing, students compared their interviewees' beliefs to their own experiences. This constant comparison to their cultural and family lives demonstrates consciousness-raising, a process in Prochaska and DiClemente's second stage of change[42-45] as well as Sue's second group level of similarities and difference.[46]

Factor 4, "my social world in relation to others," assignment by URM/majority was statistically significant, thus highlighting the students' perception of their inclusivity and relatedness.[47] Again, students compared themselves to their interviewees; however, URM students focused on how interviewees' personal challenges were similar to their own. Perhaps URM students were more sensitized to particular life experiences, and their frame of reference influenced cognitive changes. Integrating Factor 1 findings, URM students may have been more cognizant of their families' influence especially in the areas of religion and mentally or physically challenged/SES as a result of the intervention. URM students' significantly lower scores with the mentally or

physically challenged/SES group suggest that the course might provide additional emphasis on how one's own disadvantage affects sensitivity to those who experience similar disadvantages. Perhaps these students perceived that others' disadvantages could be overcome by motivation or effort or were under individual control, while their own disadvantage, inherited from birth, was not easily ameliorated. The nature of the assignments seems to mitigate the potential for social desirability bias. For example, the expressions of "I have been taught that" or "Of course I know that" may be suggestive of an effect of social desirability, compared to "I always thought that . . . but now," which really has little suggestion of social desirability affecting the response. In this study, the only protection against that effect is that it is much harder to "hide" a socially desirable response in narrative responses like these writing assignments.

Factor 5, "wrong because," was significantly decreased for males in the second assignment. The findings suggest that they suppressed the admission of being wrong[48,49] and that the interview might have inadvertently caused a rebound effect.[50] In contrast, women may be more implicitly aware and willing to express their biases, which stems from their historically reduced social status.[51-55] Further investigation is needed to clarify this point.

The findings suggest that reflective assignments may have promoted more affective changes or changes in awareness than previously held assumptions. Also the intimacy of conducting the interview with reflective writing prompted change, an atypical assignment in dental education. When students are engaged in reflection,[18,56-60] it can result in changes beyond the course. Although the results are limited to one point in time, research suggests that even short interventions sustain change, especially in "perspective-taking."[18,26,60] Studies have shown that reflection can provide valuable feedback to students to catalyze knowledge, growth, and attitudinal change over time.[56-59] These assignments provide powerful forms of feedback for students; however, thinking, talking, or reading about new knowledge is not sufficient to bring about change.[61] Learning requires reflective integration of new knowledge with practice.[62] Writing about their own cultural values and others' gave students an opportunity to step back, carefully articulate the meaning of new experiences, and consider how those experiences relate to their current experience.[24] Reflective writing activities provided valuable insight about the participants' sense of self in relation to cultural domains.[63-65] Investigation of

the changes that occurred in a negative direction is warranted. If the intervention served to reinforce bias or prior attitudes, planning how to counter that result needs attention.

Between assignments, students received two lectures on cultural disparities in health and issues of ethics and social justice. Thus, we cannot claim that the interviewing in and of itself was causative in the significant differences observed, although it does suggest that either the interviews alone or the combined processes of reflective writing and interviewing might have been instrumental in observed changes. However, the findings suggest that the assignments prompted students' awareness of the "underlying values and attitudes necessary for cultural competence and awareness" if not cultural competence itself. The non-experimental study was complemented by qualitative evidence, so there is more than one possible explanation for the observed results.[66] The wording of the two writing assignments was related but slightly different. Observed change could have occurred from the "priming" effect of writing or students' perception of the content that the instructor would value. Further investigation is warranted.

Conclusion

Our linguistic analysis of first-year dental students' interviews found positive changes consistent with the goals and professional mandates governing the dental profession. There is qualitative evidence that some students perceived themselves as having more in common with those different from themselves than they expected, which is, of course, the unconscious stereotype. Using reflective writing as an intervention affected students' mindfulness related to their awareness of other peoples' influence on their lives and attitudes, that upbringing influences reactions to coursework focused on social and personal domains, and that reflection and writing result in questioning preconceived assumptions. This study addressed challenges that educators face in providing predoctoral dental students with authentic culturally competent training and offers faculty instructional strategies to facilitate this type of education.

Acknowledgments

REFERENCES

1. Oral health in America: a report of the surgeon general. Rockville, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Dental and Craniofacial Research, 2000.
2. Asch SM, Kerr EA, Keesey J, et al. Who is at greatest risk for receiving poor-quality health care? New Engl J Med 2006;354(11):1147-56.
3. Behar-Horenstein LS, Garvan CW, Moore TE, Catalanotto FA. The knowledge, efficacy, and practices instrument for oral health providers: a validity study with dental students. J Dent Educ 2013;77(8):998-1005.
4. Frist WH. Overcoming disparities in U.S. health care. Health Aff 2005;24(2):445-51.
5. Schoen C, Doty MM. Inequities in access to medical care in five countries: findings from the 2001 Commonwealth Fund international health policy survey. Health Policy 2004;67(3):309-22.
6. Dharamsi S, Ho A, Spadafora SM, Woollard R. The physician as health advocate: translating the quest for social responsibility into medical education and practice. Acad Med 2011;86(9):1108-13.
7. Advancing oral health in America. Washington, DC: National Academies Press, 2011.
8. Improving access to oral health care for vulnerable and underserved populations. Washington, DC: National Academy of Sciences, 2011.
9. Commission on Dental Accreditation. Accreditation standards for dental education programs. Chicago: American Dental Association, 2013.
10. Commission on Dental Accreditation. Accreditation standards for dental hygiene education programs. Chicago: American Dental Association, 2013.
11. Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. Health Aff 2008;27(3):759-69.
12. Logan HL, Guo Y, Dodd VJ, et al. Demographic and practice characteristics of Medicaid-participating dentists. J Public Health Dent 2013:1-8.
13. Catalanotto F, Logan H, Dodd VJ, et al. Beyond reimbursement rates: barriers to Medicaid participation among dentists in Florida. Gainesville, FL: Southeast Center for Research to Reduce Disparities in Oral Health, Department of Community Dentistry and Behavioral Science, University of Florida, 2011.
14. Green A, Carney D, Pallin D, et al. Implicit bias among physicians and its prediction of thrombolysis decisions for black and white patients. J Gen Intern Med 2007;22(9):1231-8.

15. Teal CR, Gill AC, Green AR, Crandall S. Helping medical learners recognize and manage unconscious bias toward certain patient groups. Med Educ 2012;46:80-8.
16. Reed D, Bustamante R, Parker C, et al. A course model for developing culturally proficient school leaders. J Educ Human Devel 2007;1:1-11.
17. Carnes M, Devine P, Isaac C, et al. Promoting institutional change through bias literacy. J Diversity High Educ 2012;5:63-77.
18. Devine PG, Forscher PS, Austin AJ, Cox WTL. Long-term reduction in implicit race bias: a prejudice habit-breaking intervention. J Exp Soc Psychol 2012;48:1267-78.
19. Burgess D, van Ryn M, Dovidio J, Saha S. Reducing racial bias among health care providers: lessons from social-cognitive psychology. J Gen Intern Med 2007;22:882-7.
20. Beach MC, Price EG, Gary TL, et al. Cultural competence: a systematic review of health care provider educational interventions. Med Care 2005;43:356-73.
21. Kumagai AK, Lypson ML. Beyond cultural competence: critical consciousness, social justice, and multicultural education. Acad Med 2009;84:782-7.
22. Dharamsi S. Moving beyond the limits of cultural competency training. Med Educ 2011;45:764-6.
23. What does it mean to be culturally proficient. At: www.naesp.org/resources/2/Principal/2009/nov/N-D_p14.pdf. Accessed 30 June 2014.
24. Behar-Horenstein LS, Schneider-Mitchell G, Graff R. Promoting the teaching of critical thinking skills through faculty development. J Dent Educ 2009;73(6):665-75.
25. Gibbs G. Learning by doing: a guide to teaching and learning methods. London: Further Education Unit, 1988.
26. Isaac C, Kaatz A, Lee B, Carnes M. An educational intervention designed to increase women's leadership self-efficacy. CBE Life Sci Educ 2012;11(3):307-22.
27. Mezirow J. How critical reflection triggers transformative learning. In: Mezirow J, ed. Fostering critical reflection in adulthood: a guide to transformative and emancipatory learning. San Francisco: Jossey-Bass, 1990:1-20.
28. Linguistic inquiry and word count. Mahwah, NJ: Lawrence Erlbaum, 2007.
29. Bantum EO, Owen JE. Evaluating the validity of computerized content analysis programs for identification of emotional expression in cancer narratives. Psychol Assess 2009;21(1):79-88.
30. Kahn JH, Tobin RM, Massey AE, Anderson JA. Measuring emotional expression with the linguistic inquiry and word count. Am J Psychol 2007;120(2):263-86.
31. Madera JM, Hebl MR, Martin RC. Gender and letters of recommendation for academia: agentic and communal differences. J Appl Psychol 2009;94(6):1591-9.
32. Tausczik YR, Pennebaker JW. The psychological meaning of words: LIWC and computerized text analysis methods. J Language Soc Psychol 2010;29(1):24-54.
33. Pennebaker Conglomerates Inc. Linguistic inquiry and word count: what is LIWC? At: www.liwc.net/index.php. Accessed 30 June 2014.
34. Mehl MR, Eid M, Diener E. Quantitative text analysis. handbook of multimethod measurement in psychology. Washington, DC: American Psychological Association, 2006.
35. Richards L. Handling qualitative data: a practical guide. London: Sage Publications, 2006.
36. Isaac C, Lee B, Carnes M. Do students' and authors' genders affect evaluations? A linguistic analysis of medical student performance evaluations. Acad Med 2011;86(1):59-66.
37. Grbich C. Qualitative data analysis: an introduction. 2nd ed. Thousand Oaks, CA: Sage, 2013.
38. Hair JF, Black WC, Babin BJ, Anderson RE. Multivariate data analysis. 7th ed. Upper Saddle River, NJ: Prentice Hall, 2010.
39. Lee B. Theories of evaluation. In: Stockmann R, ed. Evaluationsforschung: Grundlagen und ausgewählte Forschungsfelder. 2nd ed. Opladen, Germany: Leske und Budrich, 2004.
40. Ames BL. Statistical conclusion validity in ex post facto designs: practicality in evaluation. Diss Abstr Int 1985;7(1):35-45.
41. Kraemer HC. Toward sound objective evaluation of clinical measures. Am J Geriatr Psychiatry 2013;21(7):589-95.
42. Prochaska JO. Decision making in the transtheoretical model of behavior change. Med Decis Making 2008;28(6):845-9.
43. Prochaska JO, DiClemente CC. Stages and processes of self-change of smoking: toward an integrative model of change. J Consult Clin Psychol 1983;51(3):390-5.
44. Prochaska JO, Velicer WF. The transtheoretical model of health behavior change. Am J Health Promot 1997;12(1):38-48.
45. Velicer WF, Prochaska JO, Fava JL, et al. Smoking cessation and stress management: applications of the transtheoretical model of behavior change. Homeostasis Health Dis 1998;38(5-6):216-33.
46. Sue DW. Multidimensional facets of cultural competence. Couns Psychol 2001;29(6):790-821.
47. Arminio JL, Torres V, Pope RL. Why aren't we there yet? Taking personal responsibility for creating an inclusive campus. ACPA media publication. Sterling, VA: Stylus Publishing, 2012.
48. Galinsky AD, Moskowitz GB. Perspective-taking: decreasing stereotype expression, stereotype accessibility, and in-group favoritism. J Pers Soc Psychol 2000;78(4):708-24.
49. Monteith MJ, Sherman JW, Devine PG. Suppression as a stereotype control strategy. Pers Soc Psychol Rev 1998;2(1):63-82.
50. Macrae CN, Bodenhausen GV, Milne AB, Jetten J. Out of mind but back in sight: stereotypes on the rebound. J Pers Soc Psychol 1994;67(5):808-17.
51. Biernat M, Kobrynowicz D. Gender- and race-based standards of competence: lower minimum standards but higher ability standards for devalued groups. J Pers Soc Psychol 1997;72(3):544-57.
52. Carli LL, Eagly AH. Gender effects on social influence and emergent leadership. In: Powell GN, ed. Handbook of gender and work. Thousand Oaks, CA: Sage Publications, 1999:203-22.
53. Ridgeway CL. Gender, status, and leadership. J Soc Issues 2001;57(4):637-55.
54. Shollen SL, Bland CJ, Finstad DA, Taylor AL. Organizational climate and family life: how these factors affect the status of women faculty at one medical school. Acad Med 2009;84(1):87-94.

55. Tesch B, Wood H, Helwig A, Nattinger A. Promotion of women physicians in academic medicine: glass ceiling or sticky floor? JAMA 1995;273(13):1022-5.
56. Schön DA. Educating the reflective practitioner: toward a new design for teaching and learning in the professions. San Francisco: Jossey-Bass, 1987.
57. Moon J. Reflection in learning and professional development: theory and practice. London: Kogan Page, 1999.
58. Lave JWE. Situated learning: legitimate peripheral participation. New York: Cambridge University Press, 1991.
59. Boud D, Middleton H. Learning from others at work: communities of practice and informal learning. J Workplace Learn 2003;15(5):194-202.
60. Carnes M, Devine PG, Baier M, et al. Effect of an intervention to break the gender bias habit: a cluster randomized controlled trial. Acad Med 2015;90(2):221-30.
61. Thorpe K. Reflective learning journals: from concept to practice. Refl Pract 2004;5(3):327-43.
62. Varner D, Peck SR. Learning from learning journals: the benefits and challenges of using learning journal assignments. J Management Educ 2004;27(1):52-77.
63. Bain J, Ballantyne R, Mills C, Packer J. Developing reflection on practice through journal writing: impacts of variations in the focus and level of feedback. 2002. At: http://eprints.qut.edu.au/23597/. Accessed 2 May 2014.
64. Bailey JR, Saparito P, Kressel K, et al. A model for reflective pedagogy. J Management Educ 1997;21(2):155-67.
65. Wagner ZM. Using student journals for course evaluation. Assess Eval Higher Educ 1999;24(3):261-72.
66. Mertens DM. Research and evaluation in education and psychology: integrating diversity with quantitative, qualitative, and mixed methods. Thousand Oaks, CA: Sage Publications, 2010.