Students’ Perceived Importance of Diversity Exposure and Training in Dental Education


Abstract: Intercultural competence is an important component of the doctor-patient relationship in the multicultural climate evolving in the United States. We hypothesized that 1) exposure to racial and ethnic diversity in the student body, faculty, staff, and patient population in dental school and 2) a dental school curriculum that includes presentations on issues concerning racial and ethnic diversity will contribute to students’ feeling more competent and confident to enter the multicultural work environment that is rapidly developing in the United States. A Likert-type scale questionnaire was administered to 627 fourth-year dental students enrolled in seven dental schools representing geographically diverse regions of the United States. Of these, 376 questionnaires were returned for a response rate of 60 percent. Results indicated that both the perception of diversity in the school environment and the presentation of diversity-specific content in the curriculum had moderately positive and significant correlations with the students’ perception of their competency or ability to serve and work with diverse populations. The respective Pearson correlation coefficients for diversity in the school environment and diversity curriculum were .497 (p<.001) and .459 (p<.001). These results support the hypotheses that diversity exposure and training in the dental school environment are important for dental students entering a multicultural workplace.

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Currently, population trends demonstrate that African-American, Hispanic, American Indian and Alaskan Native, Asian, and Native Hawaiian and Other Pacific Islander representation in the United States is increasing. Between 1990 and 2000, the percentage increases were as follows: African-American: 12.1 percent to 12.3 percent,1 Hispanic: 9 percent to 12.5 percent,2 American Indian and Alaskan Native: 0.8 percent to 0.9 percent,3 Asian: 2.8 percent to 4.2 percent,4 and Native Hawaiian and Other Pacific Islander: 0.1 percent to 0.3 percent.5 In an increasingly mobile society, exposure to and interaction with people of diverse backgrounds will become more and more common as a part of everyday life. These different backgrounds will include, but not be limited to, individuals of different races and/or ethnicities (a subgroup that shares a common ancestry, history, or culture). As increased exposure to diversity occurs, health care providers may therefore need to develop skills in intercultural communication and sensitivity.

Many strategies for dealing with diversity issues emphasize the role of education. Several studies support the importance of diversity on college campuses and the role that exposure to diverse backgrounds can have both short term (while the student is in college) and long term (postgraduation and initiation of careers) relative to personal development.6,7 Gurin reported that students who learn in a diverse environment are better prepared to become actively involved in the pluralistic society they will experience after graduation.8 She found that diversity experiences during college had an impact on individuals choosing to live in a racially and ethnically integrated environment after college. Similarly, Villalpando reported “interacting with students of color during and after college has a positive effect on white males’ post-college sense of social responsibility and participation in community service activities.”9

Our educational system may be one of the best resources available to provide the tools we need to increase awareness, acceptance, and understanding of the “unlikeness” found in this diverse environment. To this end, we believe that diversity experiences are important during dental school and that
these experiences will have a positive impact on the student dentist when he or she enters the workplace. Specifically, we hypothesize that dental students will feel more competent and confident to enter the multicultural work environment that is rapidly developing in the United States if they 1) are exposed to racial and ethnic diversity in the student body, faculty, staff, and patient population in dental school and 2) experience a dental school curriculum that includes presentations on issues concerning racial and ethnic diversity.

Methods

We developed a Likert-type scale questionnaire to assess the perceived importance of diversity and diversity training on dental education and practice (Figure 1). Items of similar content were grouped together to construct the following subscales: 1) undergraduate and dental school exposure to individuals of different race/ethnicity (Exposure: questions 2, 4, 7, 10, 13); perceptions of diversity in the dental school (Perception and Exposure: questions 3, 4, 6, 7, 9, 10, 12, 13); importance of training concerning diversity/access to that training (Curriculum: questions 15 and 16); and impact of diversity on the respondents’ feelings of competence and confidence to enter a multicultural work environment (Ability: questions 5, 8, 11, 14, 17, 18, 19). Reliability estimates, calculated from the full set of responses to the questionnaire using Cronbach’s coefficient alpha, for the scales derived from multiple items were: Perception and Exposure, .758; Curriculum, .369; and Ability, .892. The comparatively low alpha for curriculum is most likely related to the limited number of questions (two) that dealt with this issue.

Institutional Review Board approval was obtained from the University of Pittsburgh for administration of the questionnaire to fourth-year dental students at seven dental schools. These schools were selected to represent geographically diverse regions of the United States (West Coast, Central, Northeast, and Southeast). Schools that historically represented predominantly minority student body populations were not included in this pilot project. Five of the schools were state-supported, one was private, and one was private/state-related. The fourth-year class size at the seven schools ranged from fifty-four students to 144 students. The student affairs/admissions officer at each institution agreed to distribute the questionnaires to the appropriate students. Participation was voluntary. The student affairs/admissions officer also collected the questionnaires and returned them to the University of Pittsburgh in a prepaid, self-addressed envelope. Prior to data entry, each questionnaire was randomly assigned a number to allow for anonymity of each participating school.

The data were analyzed using correlation analysis of the diversity measures with the expected impact measures and analysis of variance (ANOVA) to test for scale mean difference among ethnic groups.

Results

A total of 627 questionnaires were distributed to the seven participating dental schools. Of those, 376 questionnaires were returned for a response rate of 60 percent. Response rate by school varied from a low of 1 percent to a high of 95 percent. The ethnic background of respondents was as follows: Caucasian (205; 54.5 percent), African-American (13; 3.5 percent), Hispanic (11; 2.9 percent), Asian/Pacific Islander (108; 28.7 percent), Native American (2; 0.5 percent), Other (27; 7.2 percent), and No Response (10; 2.7 percent).

The mean values for responses to each question are presented in Table 1. Mean values for perceptions of diversity in the dental school student body, faculty, staff, and patient populations (questions 3, 6, 9, and 12) were 3.8, 3.5, 3.6, and 4.1, respectively, on a scale ranging from 1 for no diversity to 5 for very diverse. These results indicate that students perceived that there was “limited to moderate” racial and ethnic diversity among these groups at their dental school. Consistent with these findings, students reported “occasional to often” interaction with students, faculty, staff, and patient populations of a different race or ethnicity (questions 4, 7, 10, and 13).

Table 1. Mean values of responses to individual questions

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.4</td>
<td>3.8</td>
<td>3.8</td>
<td>4.2</td>
<td>4.0</td>
<td>3.5</td>
<td>3.7</td>
<td>3.7</td>
<td>3.6</td>
<td>3.9</td>
<td>3.7</td>
<td>4.1</td>
<td>4.3</td>
<td>4.2</td>
<td>2.4</td>
<td>3.0</td>
<td>3.7</td>
<td>3.8</td>
<td>3.8</td>
</tr>
</tbody>
</table>
Questionnaire to Assess the Perceived Importance of Diversity and Diversity Training on Dental Education and Practice

1. Was your undergraduate college/university predominantly:
   - Caucasian
   - African-American
   - Hispanic
   - Asian/Pacific Islander
   - Native American
   - Other
   (Specify)

2. How often did you interact with students of a different race or ethnicity in your undergraduate school?
   - Never
   - Infrequently
   - Occasionally
   - Often
   - Regularly

3. What is your perception of the racial and ethnic diversity in your dental school student body?
   - No diversity
   - Minimal diversity
   - Limited diversity
   - Moderate diversity
   - Very diverse

4. How often do you interact with students of a different race or ethnicity in your dental school?
   - Significant negative impact
   - Moderate negative impact
   - No impact
   - Moderate positive impact
   - Significant positive impact

5. What impact do you think exposure to students of different races or ethnicities will have on your competence and confidence to enter a multicultural work environment upon graduation?
   - Not important
   - Minimally important
   - Somewhat important
   - Moderately important
   - Very important

6. What is your perception of the racial and ethnic diversity in your dental school faculty?

7. How often do you interact with faculty of a different race or ethnicity in your dental school?

8. What impact do you think exposure to faculty of different races or ethnicities will have on your competence and confidence to enter a multicultural work environment upon graduation?

9. What is your perception of the racial and ethnic diversity in your dental school staff?

10. How often do you interact with staff members of a different race or ethnicity in your dental school?

11. What impact do you think exposure to staff members of different races or ethnicities will have on your competence and confidence to enter a multicultural work environment upon graduation?

12. What is your perception of the racial and ethnic diversity in your dental school patient population?

13. How often do you interact with patients of a different race or ethnicity in your dental school?

14. What impact do you think exposure to patients of different races or ethnicities will have on your competence and confidence to enter a multicultural work environment upon graduation?

15. How much exposure to presentations (seminars/small group sessions/lectures) concerning racial and ethnic diversity have you received in your dental school curriculum?

16. How important do you feel presentations (seminars/small group sessions/lectures) in the dental school curriculum are in preparing you to treat patients in a multicultural society?

17. How much has racial and ethnic diversity in your dental school impacted your ability to work more effectively or get along better with members of other races or ethnicities?

18. How much has racial and ethnic diversity in your dental school impacted your ability to provide dental treatment to members of other races or ethnicities?

19. How important do you think exposure to individuals of different racial and ethnic backgrounds will be in your ability to provide dental care in a multicultural society?

20. What is your ethnic background?

Likert Scale Used for Each Question:

<table>
<thead>
<tr>
<th>QUESTIONS 1, 20</th>
<th>1</th>
<th>Caucasian</th>
<th>2</th>
<th>African-American</th>
<th>3</th>
<th>Hispanic</th>
<th>4</th>
<th>Asian/Pacific Islander</th>
<th>5</th>
<th>Native American</th>
<th>Other</th>
<th>(Specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUESTIONS 2, 4, 7, 10, 13, 15</td>
<td>1</td>
<td>Never</td>
<td>2</td>
<td>Infrequently</td>
<td>3</td>
<td>Occasionally</td>
<td>4</td>
<td>Often</td>
<td>5</td>
<td>Regularly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUESTIONS 3, 6, 9, 12</td>
<td>1</td>
<td>No diversity</td>
<td>2</td>
<td>Minimal diversity</td>
<td>3</td>
<td>Limited diversity</td>
<td>4</td>
<td>Moderate diversity</td>
<td>5</td>
<td>Very diverse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUESTIONS 5, 8, 11, 14, 17, 18</td>
<td>1</td>
<td>Significant negative impact</td>
<td>2</td>
<td>Moderate negative impact</td>
<td>3</td>
<td>No impact</td>
<td>4</td>
<td>Moderate positive impact</td>
<td>5</td>
<td>Significant positive impact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUESTIONS 16, 19</td>
<td>1</td>
<td>Not important</td>
<td>2</td>
<td>Minimally important</td>
<td>3</td>
<td>Somewhat important</td>
<td>4</td>
<td>Moderately important</td>
<td>5</td>
<td>Very important</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. Student experiences in diversity in dental school
When grouped together, both the perception of diversity and exposure to diversity in the school environment had moderately positive and significant correlation with the students’ perception of their competency or ability to serve and work with diverse populations (Pearson correlation coefficient 0.497; p<.0001, Table 2). When analyzed independently, exposure to diversity in the school environment had strongly positive and significant correlation with the students’ perception of their competency or ability to serve and work with diverse populations (Pearson correlation coefficient 0.712; p<.0001, Table 2).

Questions 18 and 19 were independently evaluated relative to perception and exposure, exposure alone, and curriculum (Table 2). These two questions dealt with the impact of diversity in 1) the overall dental school environment (rather than in select dental school populations) and 2) the individual’s overall environment (beyond dental school) on the respondent’s perceived ability to provide dental care. This analysis was done to determine if the correlations found with the collective ability questions (5, 8, 11, 14, 17, 18, and 19) described above were maintained. As shown in Table 2, while correlation coefficients were slightly lower for these two independent questions relative to the collective data, statistical significance was reached in each case. These data therefore support the conclusions discussed in the preceding paragraph.

Students reported “infrequent to occasional” exposure to presentations concerning racial and ethnic diversity in their dental school curriculum (question 15). However, the perceived importance of presentation of diversity-specific content in the curriculum (question 16) had moderately positive and significant correlation with the students’ perception of their competency or ability to serve and work with diverse populations. (Pearson correlation coefficient 0.459; p<.0001, Table 2).

The ANOVAs resulted in significant mean differences among the ethnic groups (Q20) on the curriculum (p=0.00003) and perceptions of diversity in dental school (p=.00000) scales. Post hoc LSD tests found that, for the curriculum scale, the Caucasian group mean differed significantly from the African-American, Asian/Pacific Islander, and Other groups (p<0.05; data not shown). On the perceptions of diversity scale, it was found that African-Americans differed significantly with all other groups except Native Americans (p<0.05; data not shown).

Discussion

The results of the questionnaire presented in this article were based on students’ perceptions of racial/ethnic diversity in their dental school environment and the importance of this diversity in preparing them to practice dentistry in a multicultural society. Because the survey was based on perceptions, rather than numerical values (that is, no attempt was made to determine the true diversity in the populations at the participating schools by evaluating actual numbers), we first evaluated the students’ responses relative to national values for underrepresented minorities in dental school.

The mean responses to questions 3 and 6 indicated that students perceived there was limited to moderate diversity in their dental school student body and faculty (Table 1). In 2002-03, enrollment of spe-

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**Table 2. Scale intercorrelation coefficients and significance levels**

<table>
<thead>
<tr>
<th>Ability</th>
<th>Q18</th>
<th>Q19</th>
<th>Q20*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perception and Exposure</td>
<td>0.497</td>
<td>0.460</td>
<td>0.423</td>
</tr>
<tr>
<td>P=0.000</td>
<td>P=0.000</td>
<td>P=0.000</td>
<td>P=0.025</td>
</tr>
<tr>
<td>Exposure Alone</td>
<td>0.712</td>
<td>0.6038</td>
<td>0.646</td>
</tr>
<tr>
<td>P=0.000</td>
<td>P=0.000</td>
<td>P=0.000</td>
<td>P=0.096</td>
</tr>
<tr>
<td>Curriculum</td>
<td>0.459</td>
<td>0.380</td>
<td>0.423</td>
</tr>
<tr>
<td>P=0.000</td>
<td>P=0.000</td>
<td>P=0.000</td>
<td>P=0.000</td>
</tr>
</tbody>
</table>

*Correlations with Q20 were calculated as Eta coefficients

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**Table 3. Underrepresented minority dental students enrollment in all U.S. dental schools**

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Black</th>
<th>Hispanic</th>
<th>Native American</th>
<th>Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994-95</td>
<td>5.94%</td>
<td>6.39%</td>
<td>0.34%</td>
<td>19.00%</td>
</tr>
<tr>
<td>1995-96</td>
<td>5.74%</td>
<td>5.84%</td>
<td>0.44%</td>
<td>20.74%</td>
</tr>
<tr>
<td>1996-97</td>
<td>5.38%</td>
<td>4.97%</td>
<td>0.50%</td>
<td>22.16%</td>
</tr>
<tr>
<td>1997-98</td>
<td>5.22%</td>
<td>4.87%</td>
<td>0.57%</td>
<td>22.90%</td>
</tr>
<tr>
<td>1998-99</td>
<td>4.95%</td>
<td>4.85%</td>
<td>0.57%</td>
<td>23.77%</td>
</tr>
<tr>
<td>1999-00</td>
<td>4.70%</td>
<td>5.29%</td>
<td>0.57%</td>
<td>25.08%</td>
</tr>
<tr>
<td>2000-01</td>
<td>4.80%</td>
<td>5.33%</td>
<td>0.65%</td>
<td>24.76%</td>
</tr>
<tr>
<td>2001-02</td>
<td>4.92%</td>
<td>5.90%</td>
<td>0.42%</td>
<td>23.55%</td>
</tr>
<tr>
<td>2002-03</td>
<td>5.11%</td>
<td>6.03%</td>
<td>0.45%</td>
<td>22.88%</td>
</tr>
</tbody>
</table>

cific minority students in all U.S. dental schools ranged from a low of 0.45 percent (Native American) to a high of 22.88 percent (Asian; see Table 3), which would represent limited to moderate diversity depending on the minority population being considered. Statistics also support that there is limited diversity in dental school faculty. Of 11,321 total faculty members in 2002-03, 0.32 percent were Native American, 4.05 percent Black/African-American, 4.62 percent Hispanic, and 9.59 percent Asian/Pacific Islander. In addition, 76.6 percent of the faculty members were White (1.33 percent reported “Other,” and 3.42 percent did not report their Race/Ethnicity). Each of these statistics appears to correlate with the students’ perception of “limited to moderate” diversity in the student body and faculty in the schools participating in this pilot project. Therefore, although we sampled a limited number of dental schools, the students’ perceptions of diversity in their schools were consistent with national reports of enrollment and faculty numbers. However, it is recognized that these perceptions may vary according to the racial background of the respondent, a variable that may need to be addressed in future, expanded studies. This was supported by the ANOVA results that showed significant mean differences between African-Americans and other groups, except Native Americans, on the perceptions of diversity scale.

Interestingly, ANOVAs also resulted in significant mean differences among racial/ethnic groups on the curriculum scale where Caucasian responses differed from those obtained from African-Americans and Asian/Pacific Islanders and Others (mean values=2.52, 3.19, 2.92, and 3.06 respectively). The results indicated that African-American and Asian Pacific Islander and Other respondents perceived that diversity training and exposure in the curriculum were more important in preparing them for treating multicultural patients than did the Caucasian respondents. These results again suggest that diversity issues and perceptions may vary according to racial/ethnic background of the respondents and also should be considered in any future, larger scale studies.

This study questioned whether dental students perceived that a dental school environment that is 1) diverse in the makeup of its students, faculty, staff, and patient population and 2) provides a curriculum dealing with diversity issues would help them feel more competent and confident to enter the multicultural work environment that is rapidly developing in the United States. Their responses indicated that both of these variables are important.

Issues regarding diversity are clearly dealt with in accreditation standards (Commission on Dental Accreditation, 1998). Specifically, standard 2-17 under “Behavioral Sciences” states: “Graduates must be competent in managing a diverse patient population and have the interpersonal and communications skills to function successfully in a multicultural work environment.” Similarly, the 1995 Institute of Medicine (IOM) report, Dental Education at the Crossroads: Challenges and Change, contained recommendations that stressed the importance of access to care for all populations (Recommendation 2) and the importance of having a workforce that reflects the nation’s diversity (Recommendation 22). However, in a survey administered in 1996 by the American Association of Dental Schools (now the American Dental Education Association, ADEA) to dental school faculty and directors of hospital, dental hygiene, dental assisting and dental laboratory technician programs, IOM Recommendation 22 received the lowest importance rating and was viewed as one of the lowest recommendations having a positive influence on dental education of the twenty-two recommendations listed in the report. Furthermore, this recommendation focused on an area that was not perceived by the respondents as one of the top recommendations requiring action. In summarizing the results of this survey, Inglehart et al. interpreted these responses to Recommendation 22 as an issue of cultural competence, stating “it is apparent that cultural competence is not seen as very important; it is not perceived as having a positive impact on the future of dentistry or as a topic that requires action.”

In support of Inglehart et al.’s interpretation, it appears that differences of opinion about the importance of diversity exposure and training in the dental school exist when the students’ perceptions reported in this article are compared to Accreditation Standards, the IOM report, and the opinions of the group of faculty and program directors who responded to the 1996 ADEA survey. Addressing these differences may become a priority as the dental profession responds to Oral Health in America: A Report of the Surgeon General. This report deals with a variety of issues relative to oral health disparities in the United States, recognizing that these disparities are often related to barriers to oral health care. One of these barriers may be lack of a workforce that is prepared to deal with the needs of the diverse populations experiencing oral health disparities.
The report of the ADEA President’s Commission on Access states that the “academic dental institutions, as the source of oral health professionals, have a distinct responsibility to educate dental and allied dental professionals who are competent to care for the changing needs of our society.”\(^{16}\) Clearly, the issue has been recognized as important. Incorporating concepts of cultural competency into dentistry, initially through an infusion and integration of exposure and training in the dental school environment, might be an important step in resolving these issues.

**REFERENCES**