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# Who Is Teaching Undergraduate Prosthodontics in US Dental Schools, 2007?

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**Keywords**
Survey; prosthodontics; dental instructors.

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Accepted December 6, 2007

doi: 10.1111/j.1532-849X.2008.00382.x

## Abstract

**Purpose:** The shortage of full-time dental school faculty along with a slow steady increase in student enrollment is not a new phenomenon. The purpose of this study was to determine who is teaching undergraduate prosthodontics in US dental schools—what percent are full-time faculty; what percent are prosthodontists; and what percent are board-certified prosthodontists—to allow schools to make a real-time comparison of the composition of instructors they have teaching prosthodontics to the apparent status quo.

**Materials and Methods:** A short, ten-question survey was sent via e-mail to representatives at the 55 undergraduate US dental schools. A cover letter explained the nature of the study and requested participation and electronic return of the survey. Three weeks after the initial request, an aggressive follow-up was conducted to schools that had not returned the survey. Answers were converted to percentages to compensate for differences between schools with many or few instructors. Schools were also grouped by location to see if regional differences exist.

**Results:** Thirty-eight (69%) of the surveys were completed and returned. In general, the division between full-time and part-time instructors is about 50%. More removable prosthodontic instructors (60%) than fixed instructors (44%) are prosthodontists, and only a small percentage of the total (18% removable and 15% fixed) have completed board certification. The South and Midwest had the highest percentage of prosthodontists involved in teaching; the South had the highest percentage with specialty board certification.

**Conclusion:** This study indicated that only a few schools are fortunate enough to have sufficient full-time, specialty-trained faculty available for complete coverage of all undergraduate prosthodontic courses and clinics. The information presented serves as a baseline for future comparison to see if the percentage of full-time and/or specialty-certified prosthodontic faculty changes.

The discipline of prosthodontics will continue to occupy a large portion of the dental curriculum, as the need for prosthodontic services is expected to increase significantly over the next few decades.[1,2] Rapidly developing technologies, coupled with a growing patient awareness of various newer restorative options, have added to the requirement that the current dental graduate be highly competent and adequately trained. Unfortunately, several factors (including a shortage of specialists) have led to a diminished emphasis on prosthodontics in many US dental schools.[3,4]

The shortage of full-time dental school faculty (in all areas), along with a slow but steady climb in student enrollment, is not a new phenomenon.[5] Over 30 years ago, McGivney described practically the same dilemma in prosthodontic education that appears to exist today-–insufficient quality and quantity of dental educators.[6] A 2002 ADEA survey showed that the prosthodontics was second only to periodontics in vacant dental school specialty positions. To compensate for the shortfall, some schools are relying heavily on general dentists to teach in specialty areas.[7] The purpose of this study was to determine who is teaching undergraduate prosthodontics in US dental schools—what percent are full-time faculty; what percent are prosthodontists; and what percent are board-certified prosthodontists—to allow schools to make a real-time comparison of the composition of instructors they have teaching prosthodontics to the apparent status quo.

## Materials and methods

Using the 2006–2007 Directory of ADEA Institutional Members and Association Officers[8] as a point-of-contact reference, a personalized e-mail was sent to the individual(s) in charge of fixed and/or removable prosthodontics at each of the

**Table 1** Respondents by region

| | Survey requests | % of total | Surveys returned | % of total |
|---|---|---|---|---|
| South | 20 | 36 | 17 | 45 |
| West | 10 | 18 | 7 | 18 |
| Northeast | 12 | 22 | 8 | 21 |
| Midwest | 13 | 24 | 6 | 16 |
| Total | 55 | 100 | 38 | 100 |

55 undergraduate US dental schools. The e-mail contained an explanation of this study and a request for survey participation. A short, ten-question survey (Appendix) plus a disclaimer letter required by the Institutional Review Board were attached. The survey was to be answered and returned to the sender via e-mail. The e-mail also asked that the recipient forward the participation request to a specific section head or administrative assistant if they could not complete the survey for any reason. No distinction between didactic and clinical instructors was made. Three weeks after the initial request, a follow-up e-mail was sent to school representatives who had not returned the survey. Answers (for each school) were converted to percentages to compensate for differences between schools with many or few instructors. Schools were also grouped by location using US Census Bureau divisions (South, West, Northeast, and Midwest)[9] to see if regional differences existed.

## Results

Thirty-eight out of 55 (69%) surveys were returned (see Table 1 for response rate per region). The highest number of instructors involved in teaching fixed prosthodontics at a dental school was 70, the lowest was 5; the highest number of instructors involved in teaching removable prosthodontics at a dental school was also 70 and the lowest was 4. Forty-eight percent of fixed and 53% of removable instructors were designated as full-time. Prosthodontists comprise 44% of fixed and 60% of removable instructors with 15% and 18%, respectively, having board certification. The South and Midwest had the highest percentages of prosthodontists involved in teaching; the South had the highest percentage with specialty board certification. Answers for questions two to four and seven to ten are shown as percentages of the total in Tables 2 and 3 and Figure 1.

## Discussion

A primary objective in the design of the survey was to make it brief but pertinent plus convenient for the individual completing the survey. The method chosen (e-mail) provided both convenience and a form of tracking respondents. The response rate for this survey (69%) was less than desired, even with an aggressive follow-up campaign, yet it appears reasonable, because compliance is often a problem due to the frequent use of this information gathering tool.[10] Even so, the information gained is helpful as the overall response fairly well represented the distribution of dental schools across the United States (Table 1).

Only about half (~50%) of predoctoral prosthodontic instructors are full-time faculty (Table 2, Fig 1). The South and Midwest had the highest percentages of full-time instructors for both fixed and removable prosthodontics (Table 3). The significance of this finding is that the part-time instructors may not have the professional development opportunities or vested interest to maximize the student learning experience that full-time instructors have. Also, part-time instructors may not have adequate contact time with students to fully determine individual strengths and weaknesses. In medicine, part-time faculty lower educational costs and provide real-world experience to students,[11] which is probably also true for dentistry. In contrast, in a recent survey, nursing students ranked part-time clinical faculty as significantly less effective compared to full-time faculty on all five categories measured by the Nursing Clinical Teacher Effectiveness Inventory.[12]

In general, more prosthodontists were removable instructors (60%) than fixed (44%), and only a small number (18% and 15%, respectively) are specialty board-certified. This finding may be due to department heads frequently using general dentists to cover fixed clinics, while shifting prosthodontists to cover removable.[7] Although senior dental students have been successfully used to compensate for a lack of available faculty to teach basic preclinical courses such as morphology and

**Table 2** Mean percent of total prosthodontic instructors

| | Fixed | Removable |
|---|---|---|
| % full-time | 48 (range 7–100) | 53 (range 14–100) |
| % part-time | 52 (range 0–93) | 47(range 0–86) |
| % specialists | 44 (range 0–100) | 60 (range 9–100) |
| % board-certified | 15 (range 0–83) | 18 (range 0–100) |

**Table 3** Mean percent of prosthodontic instructors by region

| **South** | Fixed | Removable | **West** | Fixed | Removable |
|---|---|---|---|---|---|
| % full-time | 57 | 63 | | 37 | 42 |
| % part-time | 43 | 37 | | 63 | 58 |
| % specialists | 52 | 70 | | 26 | 37 |
| % board certified | 21 | 24 | | 7 | 11 |
| **Northeast** | Fixed | Removable | **Midwest** | Fixed | Removable |
| % full-time | 34 | 38 | | 53 | 57 |
| % part-time | 66 | 62 | | 47 | 43 |
| % specialists | 44 | 55 | | 46 | 63 |
| % board certified | 9 | 17 | | 13 | 11 |

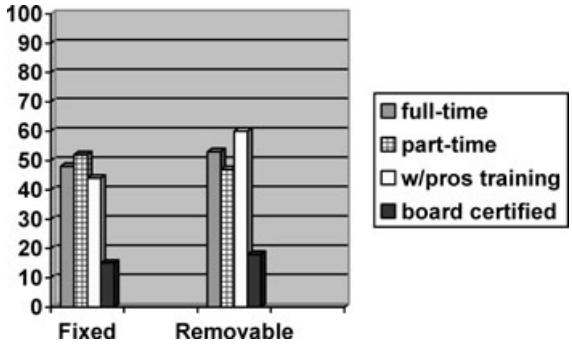


**Figure 1** Mean percent of total prosthodontic instructors.

occlusion,[13] a recent broad spectrum survey demonstrated that students want and expect a high-quality education taught by well-trained, technically proficient instructors.[14]

A lack of available specialists (part-time or full-time) may present a significant challenge for schools trying to provide students with clinical experience involving rapidly expanding areas such as all-ceramics and implants typically taught by prosthodontists.[15] The general decline in enrollment in US prosthodontic residency programs (−2.9% per year), coupled with an expectation of doubling the net income in private practice, may keep the number of specialists who chose an academic career path low for the immediate future.[16,17]

Board certification is a lengthy but personally gratifying professional experience, which may not offer any financial gain for the private practitioner. The majority of prosthodontic board diplomates are in the military, which encourages pursuit of and compensates for specialty board certification.[18] Formal training in a specialty area (or even board certification) does not automatically make one a better teacher, but as McGivney pointed out, "One must 'know' the subject to teach it."[6]

The range is given in Table 2 alongside percentages to illustrate the very broad spectrum of answers received. Even determining who is a "prosthodontic instructor" can be somewhat difficult now, because dental school undergraduate programs and curriculum are not uniform; some schools maintain traditional prosthodontic departments while others have formed large, all-inclusive comprehensive treatment departments. The value of this survey is that it provides a baseline for future comparison to see if the percentage of full-time and/or specialty certified prosthodontic faculty changes. The American College of Prosthodontists is currently highly encouraging those dental schools without an Advanced Education Program in Prosthodontics to start one to help meet the increasing needs of an aging population and improve future faculty recruitment.[19] Perhaps the results of this survey will help validate their concerns.

## Conclusion

This study indicated that only a few schools are fortunate enough to have sufficient full-time, specialty-trained faculty available for complete coverage of all undergraduate prosthodontic courses and clinics. In general, the division between full-time and part-time prosthodontic instructors is about 50%. More removable instructors (60%) than fixed instructors (44%) are prosthodontists, and only a small percentage of the total (18% and 15%, respectively) are specialty board-certified.

## Acknowledgment

The authors wish to thank the many school representatives who completed this survey.

## Appendix: Survey

1. How many total instructors (full-time and part-time dentists) does your school have teaching/clinically supervising predoctoral students in fixed prosthodontics? _____
2. Of the total given in question one, how many are full-time? _____
3. Of the total given in question one, how many are part-time? _____
4. Of the total given in question one, how many have completed graduate training in prosthodontics? _____
5. Of the total given in question one, how many have completed board certification? _____
6. How many total instructors (full-time and part-time dentists) does your school have teaching/clinically supervising pre-doctoral students in removable prosthodontics? _____
7. Of the total given in question six, how many are full-time? _____
8. Of the total given in question six, how many are part-time? _____
9. Of the total given in question six, how many have completed graduate training in prosthodontics? _____
10. Of the total given in question six, how many have completed board certification? _____

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