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Orthodontic Faculty Recruitment and Retention: Goals and Perceptions

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ORTHODONTIC FACULTY RECRUITMENT AND RETENTION: GOALS AND PERCEPTIONS

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

by

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Abstract

ORTHODONTIC FACULTY RECRUITMENT AND RETENTION: GOALS AND PERCEPTIONS

By Sheldon L. Peck, D.D.S.

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

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There is a shortage of faculty in academic dentistry and orthodontics in particular. The purpose of this study was to quantify real and perceived differences in income, workload, and satisfaction between full-time academic and private practice orthodontists. Surveys were returned by 119 (70%) faculty, 79 (36%) private practitioners, and 160 (59%) orthodontic residents. Average annual income for faculty was less than half that of private practitioners. Faculty also reported working significantly more hours per week and taking less vacation time. Though both faculty and practitioners perceived their own jobs to be more satisfying overall, faculty felt academics was more stressful, involved

more bureaucracy, and made it more difficult for them to obtain ABO certification. Residents reported educational debt averaging $132,120 and perceived it would take nearly twice as long to pay off in an academic career. Only residents felt that faculty were more respected than their private practice colleagues.

Introduction

It is well established that there is a shortage of qualified individuals seeking to pursue academic careers in dentistry and the specialty of orthodontics. [1,2] A recent report by the American Association of Dental Schools President's Task Force on the Future of Dental School Faculty concluded that the dental faculty shortage in general is reaching crisis proportions.[3] In orthodontics, the problem is compounded by an existing faculty whose mean age is progressively rising, along with a decrease in the number of new graduates choosing academic careers.[4] Even well-established faculty, with between 5 and 10, and 10 and 20 years' teaching experience, are choosing to enter or return to private practice.[4,5] In 1990 and 1993, 25% and 17%, respectively, of orthodontic programs reported having vacant faculty positions. By 1997, that number had risen to 42%. In 2000, Kula et al reported that 38% of full-time orthodontic faculty surveyed were considering leaving academics.[5]

Superimposed on the faculty shortage facing the specialty is an increasing need for orthodontists to enter into private practice. Orthodontists are retiring in larger numbers than replacements are graduating from orthodontic programs.[5,6] Short- and long-term predictions are for an increase in the number of children and adolescents in the

United States through 2020.[6,7] Consequently, a shortage of orthodontists is occurring earlier than first predicted. In 1998, Waldman reported that the number of orthodontists per capita had decreased in 41 states and the District of Columbia.[6,7] With an already inadequate number of orthodontic academicians, it is doubtful that the educational system, as it now exists, will be able to produce the additional future practitioners required to meet predicted demands.

Previous studies have established that the major deterrent to attracting and retaining qualified orthodontic faculty is the low salary offered by academic institutions.[4,8] Other negative factors cited by faculty included a perceived lack of control over their own destinies and poor financial support of orthodontic departments. Conversely, orthodontic faculty surveyed stated that the favorable attributes of their experiences were positive student interactions, a desire to contribute to the orthodontic specialty and dental education, and the intellectual stimulation and collegiality of the academic environment.[5]

Faced with the perception of an approaching crisis in dental education, several studies have focused on identifying factors which influence individuals to choose or reject academic careers in dentistry and dental specialties.[2,5,7,8,10] Shepherd et al surveyed 280 new dental faculty and found that the most important factors influencing their decision to maintain their faculty positions included a good working environment, flexibility in work schedule, and a good benefits package.[9] Schenkein and Best

concluded that intellectual and scientific stimulation, the lifestyle of academicians, and an interest in teaching were the most positive influences, while income and indebtedness were viewed as the most negative factors for dental faculty.[10]

It is clear that salary is by far the most important negative factor influencing the decision to enter or maintain an orthodontic academic career. Previous studies have not quantified the extent to which income, work effort, and other factors differ between full-time orthodontic faculty and private practitioners. It is important for these differences to be fully understood in order to formulate a plan for resolving the crisis facing orthodontic education.

Purpose

The purpose of the current study was to compile information that could be used to set long-term goals in an effort to improve recruitment and retention of full-time orthodontic faculty. There were 3 specific aims: 1) to quantify and compare the real and perceived differences in compensation between academic and private practice orthodontists, 2) to quantify and compare the perceived and real work-effort differences between academic and private practice orthodontists, and 3) to compare perceptions about other job satisfaction characteristics between academic and private practice orthodontists.

The experimental design to accomplish these objectives included three separate, analogous questionnaires sent to all full-time orthodontic faculty in the United states, a sample of private practicing orthodontists who were demographically and geographically matched to the full-time faculty respondents, and all second year U.S. orthodontic residents. Surveys were sent to 170 full-time orthodontic faculty, 220 private practitioners, and 270 second year orthodontic residents. Full-time faculty were asked to report demographic information, and to answer questions regarding income, work schedules, vacation time, job satisfaction, and their perceptions of these same factors for

private practitioners. Private practitioners were asked to report demographic information, and to answer questions regarding income, work schedules, vacation time, job satisfaction, and their perceptions of these same factors for full-time faculty. Residents were asked to report demographic information, and to answer questions regarding their perceptions of income, work schedules, vacation time, and job satisfaction for full-time faculty and private practitioners.

Hypothesis

The hypothesis of this study is that there are real and perceived differences regarding salary, work schedule, and other job satisfaction characteristics among full-time orthodontic faculty, private practicing orthodontists, and orthodontic residents.

Materials and Methods

Institutional Review Board approval was obtained prior to beginning the study. A current list of all full-time orthodontic faculty members (0.8 FTE or greater) in the United States was developed using the American Association of Orthodontists (AAO) faculty database. Programs were contacted directly to verify the accuracy of the faculty database and to compile a list of all current second-year orthodontic residents. Departments were also questioned about how many vacant budgeted full-time orthodontic faculty positions existed at their respective programs.

A questionnaire specifically designed to be answered by full-time faculty (Appendix A) was sent to all full-time orthodontic faculty. A total of 170 were sent along with a cover letter and a self addressed, stamped envelope. The return envelopes were coded to identify non-respondents. When the envelopes were received they were matched to the code list and the surveys were geographically coded and separated to maintain confidentiality of the answers submitted. A second mailing was sent one month later to non-respondents. It was estimated that the response rate would be approximately 70%.[5]

After receiving responses from full-time faculty, two private practitioners were matched as closely as possible to each faculty respondent by orthodontic graduation year, geographic location, and gender. A total of 220 orthodontic private practitioner surveys (Appendix B) were mailed along with self-addressed, stamped return envelopes. The return envelopes were coded to identify non-respondents, and were separated from the surveys upon receipt to maintain confidentiality of the answers submitted. A second mailing was sent one month later to non-respondents. It was estimated that the response rate would be approximately 60%.[5]

A survey specifically designed to be answered by orthodontic graduate students (Appendix C) was mailed along with a self-addressed, stamped return envelope to all second-year orthodontic residents in the United States. A total of 270 surveys were sent to residents. The return envelopes were coded to identify non-respondents but separated from the surveys upon receipt so that specific responses could not be matched with individuals. A second mailing was sent one month later to non-respondents. It was estimated that the response rate would be approximately 60%.

Statistical Analysis

All data was entered into the SAS statistical software package (SAS Institute Inc., Cary, NC). Descriptive statistics for demographic data and response data were calculated for each group of respondents. Mean real and/or perceived income and workload data were compared among faculty, private practitioners, and residents using multivariate ANOVA. Post-hoc, specific differences between faculty, private practitioner, and resident responses were further explored using two sample t-tests. Data within each group were compared using paired t-tests. Ordinal data were compared among groups using the Wilcoxon Rank Sum test. Because of the large number of tests being performed, alpha was set at 0.01.

Results

Of the 54 orthodontic programs questioned, 19 (35%) reported having one or more unfilled full-time faculty positions. Of a total of 200 positions nationwide, 30 (15%) were unfilled.

Surveys were returned by 119/170 (70%) full-time faculty, 79/220 (36%) private practitioners, and 160/270 (59%) senior orthodontic residents. Mean demographic data for each group of respondents are shown in Table 1. In addition, 32 (27%) faculty members reported their age as 60 or older. Of particular note is the average senior orthodontic resident's debt, which was reported to be $132,120 ± 91,884.

INCOME AND WORKLOAD

Average responses for each group for each question regarding income and workload are shown in Appendices D, E, & F. Comparisons between faculty and private practice responses are shown in Table 2. Figure 1 illustrates that average faculty income ($127,000 ± $53,000) and benefits ($19,000 ± $49,000) were significantly lower than private practitioner income ($301,000 ± $185,000) and benefits ($40,000 ± $42,000)

($p<0.0001$ and $p<0.002$, respectively). Faculty reported working significantly more hours per week ($p<0.0001$) and putting in more additional, non-compensated work time per week ($p<0.001$) (Figure 2). Comparisons of work hours per week are shown in Figure 2 and demonstrate that faculty reported working significantly greater hours overall (55 ± 16) compared with private practitioners (41 ± 13) ($p<0.0001$). Additionally, faculty reported taking significantly fewer vacation days per year than private practitioners (19 ± 17 days vs. 29 ± 36 days; $p<0.0001$). When hourly income was calculated, taking into account total hours worked and vacation time used, faculty income per hour was less than one-third that of private practitioners on average ($49 ± 20 vs. $168 ± $119; $p<0.0001$). This is illustrated in Figure 3.

Income for both faculty and private practice included that received from all orthodontic sources such as teaching salary, practice, and speaking fees. Comparisons between actual faculty income and workload and the perceptions of private practitioners and residents about faculty income and workload are shown in Table 3 and illustrated in Figures 4 and 5. Faculty total net income averaged $127,000 ± 53,000. When asked what they thought faculty income was, private practitioners answered $107,000 ± 47,000 (significantly lower than reality, $p<0.01$) and residents answered $136,000 ± 61,000(not significantly different from reality, $p=0.63$). Regular working hours reported by faculty (46.4 ± 11.2) were significantly greater than those reported by private practitioners (35 ± 8.8) ($p<0.0001$). When asked how many hours they thought faculty worked per week, practitioners and residents answered 38 ± 7 and 41 ± 9 hours, respectively (not

significantly different from reality, $p>0.01$) (Figure 4). Faculty reported taking an average of 19 ± 11 vacation days per year. When asked how many vacation days they thought faculty used, practitioners answered 24 ± 16 (significantly different from reality, $p<0.01$), and residents answered 22 ± 12 (not significantly different from reality).

Comparisons between actual private practice income and workload and the perceptions of faculty and residents about private practitioner income and workload are shown in Table 4. Private Practice total net income averaged $301,000 ± 185,000. When asked what they thought practice income was, faculty and residents answered $358,000 ± 162,000 and $285,000 ± 236,000, respectively (not significantly different from reality $p>0.01$) (Figure 6). Private practitioners reported working an average of 35 ± 9 hours per week. When asked how many hours they thought practitioners worked per week, faculty and residents answered 32 ± 6 and 36 ± 6 hours, respectively (not significantly different from reality $p>0.01$).

When asked what each group thought would be a fair annual net income for full-time faculty, faculty, practitioners, and residents answered $184,000, $179,000, and $186,000, respectively. These answers were not significantly different from each other (Figure 6). When asked how many hours full-time faculty worked practitioners and residents answered 38 ± 7 and 41 ± 9, respectively (both significantly different from reality $p<0.01$)

Table 5 summarizes orthodontic residents' perceptions of faculty and practice income and workload. All of the residents' average perceptions were different between academics and private practice ($p<0.0001$). When asked how many years they thought it would take to pay off their educational debt as either faculty or private practitioners, residents answered 15 ± 9 and 9 ± 7 years, respectively ($p<0.0001$).

JOB SATISFACTION

Faculty, private practitioner, and resident responses to five questions concerning their perceptions of academics relative to private practice are compared in Table 6 and shown in Figures 7-11. When comparing amount of stress encountered at work, faculty answered that they felt they had somewhat more stress than someone in private practice (significantly different from private practitioners and residents answers, $p<0.01$) (Figure 7). When compared to someone in private practice, faculty, private practitioners and residents agreed that faculty deal with much more bureaucracy (not significantly different from each other, $p>0.01$) (Figure 8). Compared to private practice, faculty felt somewhat more satisfied in their academic positions than private practitioners or residents felt they would be in academics (significantly different from private practitioners' and residents' answers, $p<0.01$) (figure 9). Compared to private practitioners, both faculty and private practitioners felt that faculty are slightly less respected than private practitioners; however, residents felt that faculty are slightly more respected (Resident average significantly different, $p<0.01$) (Figure 10). Compared to someone in private practice,

faculty felt that they have substantially more difficulty in obtaining American Board of Orthodontics certification than private practitioners (significantly different from private practitioners' and residents' answers, $p<0.01$) (Figure 11).

Discussion

There is currently a crisis-level shortage of full-time faculty in academic orthodontics. 35% of orthodontic programs in the United States reported having at least one unfilled full-time faculty position in 2002 corresponding to a total of 30 vacant, budgeted positions nationwide. Several factors have been identified in this and previous studies to suggest that the shortage is unlikely to be resolved in the near future.

Parallel to the shortage of orthodontic faculty is a trend toward an increasing attractiveness of private practice, thus making it more difficult to attract young orthodontists into academics. Currently, more orthodontists retire from private practice each year than are replaced by graduating residents.[3,7,8] This has led to the prediction that there will soon be a shortage of orthodontic practitioners in the United States. The total number of orthodontic resident positions available has decreased over the past 30 years due to the closing of several programs. In addition, there has been an increase in the number of foreign residents attending U.S. orthodontic programs as well as an increase in the percentage of female orthodontic graduates. Many foreign graduates have obligations to return to work in their home countries and, in general, female graduates tend to work fewer patient treatment hours per week than their male colleagues.[7] With the increasing

gap in income between private practice and academic orthodontists, along with a decreasing number of orthodontic graduates overall, there are even fewer candidates seeking to fill vacant faculty positions each year.

Lower faculty income potential is the primary reason cited in previous studies for orthodontists to enter into private practice rather than pursue academics, and is also the most commonly stated factor by orthodontic faculty for leaving established academic careers.[5,7,8,10] Total average compensation for academic orthodontists is substantially lower than (less than half) that of their private practice counterparts. Faculty also report working substantially greater numbers of hours per week. When these two factors are combined, the hourly income for full-time academic orthodontists is less than one-third that of experience- and geographically-matched private practitioners on average. Several of the comments submitted by survey respondents were focused on the marked income differential between academics and private practice.

All three groups: faculty, practitioners, and residents agreed that a fair yearly compensation for full-time faculty should average about $180,000, or $55,000 per year more than the current average. This is still substantially less than the average income reported by private practitioners. The difference may be related to the perceived difference in value of services provided by faculty compared with private practitioners. Alternatively, it may be due to the perception that entering academics is not as financially risky as entering private practice. It is likely that the difference is at least in part an

acceptance of the reality that faculty salaries will never equal the level achieved by private practitioners. This question could be addressed further in future studies.

Coupled with the income disparity reported is the workload difference between faculty and private practitioners. Faculty respondents reported working 25% more hours per week than private practice respondents. Additionally, faculty said they spent almost double the extra, non-income producing time in activities related to work than did private practitioners. Both private practitioners and residents underestimated the amount of time that faculty spent during, and in addition to, regular working hours.

Job satisfaction and perceptions regarding satisfaction are important for formulating a plan to alleviate the current faculty shortage. Both faculty and private practitioners expressed that they felt their respective jobs were the more satisfying overall, while residents perceived both as being almost equally satisfying. Private practitioners and residents felt that faculty deal with less stress than private practitioners, but faculty themselves disagreed. All three groups agreed that faculty deal with significantly more bureaucracy than private practitioners. Both faculty and private practitioners felt that faculty are slightly less respected than private practitioners, but this view was not shared by the residents who perceived that faculty were viewed with more respect. Both residents and faculty expressed that ABO certification was more difficult for faculty to obtain than private practitioners; however, private practitioners did not perceive this difference.

Any long-term plan for resolving the full-time faculty shortage in orthodontics will need to be focused on recruiting new graduates to academic careers. Therefore, the perceptions of orthodontic residents regarding faculty and private practice incomes, workloads, and lifestyles are important for formulating such a plan. When evaluating the differences between academic and private practice career paths, the residents were well attuned to the income potential and time commitment of both options. Residents' perceptions regarding both academics and private practice were closer to reality than were the perceptions of either group regarding the other. It is apparent, however, that residents enter dental school and orthodontic programs with the intent to enter private practice; only 8 of the 160 residents responding indicated any interest at all in pursuing an academic career.

Many of the residents' comments on the survey were focused on the income difference between academics and private practice and their own substantial debt burdens. A few respondents said they would be more likely to consider an academic career if it weren't for the lower income potential and consequent inability to pay off their debt. With the average debt of second year orthodontic residents reported in this study to be $132,000 ± $92,000, the potential salary difference may deter new graduates from accepting and maintaining faculty positions. Indeed, residents perceived that it would take almost twice as long to pay off their educational debt in a faculty position (15 years ± 9) than in private practice (9 years ± 6). When salary and benefits comparisons

are combined with a perception of confronting more bureaucracy, and an increased time commitment weekly with less vacation, these differences may influence even the more academically inclined to pursue private practice rather than accepting a full-time faculty position.

The solution to the current and projected future full-time orthodontic faculty shortage is not a simple one. One obvious, yet difficult, step would be to raise average salaries for academicians. It has been suggested that one way to achieve this would be to give faculty more opportunities to see private patients either inside or outside of the academic setting. However, the more time faculty spend seeing private patients, the less time they spend educating future orthodontists, performing research, and accomplishing other scholarly activities. It would seem more logical to pay faculty more to perform the functions for which they are uniquely skilled and experienced.

Other suggestions to improve faculty recruitment and retention have included: forgiving educational debt in exchange for academic service, reducing bureaucratic workload for faculty, changing perceptions to increase respect of faculty, improving nurturing of new faculty recruits, increasing alumni support/endowments, providing more positive faculty role models, and streamlining or eliminating tenure requirements. Solutions discussed at the 1997 Orthodontic Chair Conference included: adopting the medical model where funds generated from resident work helps support faculty salaries, increased use of the half-time faculty model, increased support from the AAOF, enacting

AAO dues waivers for faculty, and further educating AAO members about the problem. Recruiting part-time faculty into full-time service also seems to be worth pursuing since 33% of the full-time faculty started their careers as part-time, according to Kula et al. [5]

Modifying the American Board of Orthodontics (ABO) certification process to make completion more attainable for faculty would be helpful because board certification is an important consideration for faculty promotion, and for salary increases initiated at the school and university levels. ABO certification is also a requirement for assuming the role of orthodontic program director as stipulated in the American Dental Association accreditation guidelines. Many of the faculty respondents cited this as a problem and commented that ABO certification was particularly difficult for them to attain due to the small number of patients that they treat and the limited time available for treating faculty practice patients. Time allocated among teaching, research, and practice responsibilities becomes even more critical as the number of faculty continues to decrease.

As it becomes more difficult to recruit full-time orthodontic faculty in the future, programs will need to rely more heavily on help from half-time or part-time faculty. There is no doubt that adequate training of orthodontists can occur with less, or even no, full-time faculty if necessary. A well-respected specialty, however, needs to maintain high standards in both education and research. Beyond training future practitioners, the reputation of the specialty requires faculty both to educate practitioners and to participate at the highest levels of academic performance within universities. In order to maintain

the status of the orthodontic specialty, programs need to be able to recruit and retain highly qualified full-time orthodontic faculty who will spend their careers in academic orthodontics. Efforts need to be focused on recruiting current and future residents from within orthodontic programs. Instilling in residents the culture of giving back to the specialty will be crucial to its future. Strategies need to be developed to address concerns that current residents and faculty have regarding overwhelming debt burdens, gross disparities in income potential, difficulties in attaining ABO certification, alleviation of bureaucratic loads, and the uncertainty surrounding tenure requirements.

Conclusion

The disparity in income between full-time faculty and private practitioners is significant with private practitioners earning more than double the income of full-time faculty on average. The difference is enhanced when the increased length of the average faculty workweek is considered. Income per hour for full-time faculty is less than one-third that of private practitioners. Faculty, private practitioners and residents realize the large disparity in income, however, and all feel that orthodontic faculty should be paid significantly more. Residents and faculty appear to have a good understanding of the time commitment in private practice. However, private practitioners and residents underestimated the time commitment of full-time faculty.

Qualified orthodontic faculty members are needed in order to continue to graduate high quality orthodontic residents and to promote and advance the specialty through education and research. It is expedient to develop new ways for recruiting residents, part-time faculty, and private practitioners into full-time academics and to retain those already devoted to academic careers. It is apparent from the results of this study that all three groups value the current orthodontic educational system and its importance for maintaining the integrity of the orthodontic specialty.

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APPENDIX A

Full-Time Orthodontic Faculty Questionnaire

Demographic Information

Age in years…….._____
Gender **(circle one)**……...M / F
United States Resident……..…yes / no
Year of orthodontic graduation…….……_____
Year of dental school graduation……...…_____
Years on full-time faculty…….……_____
Years of previous practice/military experience **(circle one)**……....._____
Current faculty rank (eg: asst, assoc, full professor)……._____
Current position (eg: faculty, chair, program director, dean)……...._____

The Following 19 Questions Concern Your Faculty Position

Financial Information

10. Your approximate Total Annual Net Orthodontic-related Income (2001) ..……..$_____,000
11. Amt of #10 from teaching salary…….....$_____,000
12. Amt of #10 from practice income…….…..$_____,000
13. Amt of #10 from other source (speaking, consulting) ……$_____,000
14. Estimate the annual value of additional benefits provided for you (insurance, retirement plan, membership dues, etc.) ….……...$_____,000
15. Taking into account your level of experience and current job duties, what do you think would be a fair total annual net income for what you do (excluding benefits)?……..…$_____,000
16. What do you think your annual net income would be if you were exclusively in the private practice of orthodontics?……...$_____,000
17. What do you think someone exclusively in the private practice of orthodontics with your level of experience earns as an annual total net income?……$_____,000
18. Your average total working hours per week (to earn income #10)……...…_____

Time (in whole hours)

19. Hours of #18 expected for your faculty position (to earn #11)…..……...……..…….._____
20. Hours of #18 you spend in practice (to earn #12) ……..…_____
21. Hours of #18 you spend on other income producing activities (to earn #13)……....._____
22. Additional non-income producing hours per week you spend related to faculty work but not during regular hours (preparation time) ……...._____
23. If you were exclusively in the private practice of orthodontics, how many hours per week do you think you would have to work to earn the income you now make (shown in #10)……_____
24. If you were exclusively in the private practice of orthodontics, how many hours per week do you think you would work?……..._____
25. How many hours do you think an average orthodontist exclusively in private practice, and with your level of experience, works per week? ……..…….._____

(In whole days)

26. Annual vacation and holiday days allotted to you …..…….._____
27. Annual vacation and holiday days used to you ……_____
28. Average annual vacation and holiday days used by you……..._____
29. How many vacation/holiday days do you think an orthodontist exclusively in private practice, and with your level of experience, takes in an average year…….._____

Job Satisfaction
(circle one answer per question)

30. Compared to someone in private practice with your level of experience, do you think academic orthodontics is:

I. much less Stressful | II. Somewhat less stressful | III. about the same | IV. somewhat more stressful | V. much more stressful

29. Compared to someone in private practice with your level of experience, do you think someone in academic orthodontics encounters:

I. much less bureaucracy | II. Somewhat less bureaucracy | III. about the same | IV. somewhat more bureaucracy | V. much more bureaucracy

30. Compared to someone in private practice with your level of experience, do you think academic orthodontics is:

I. much less satisfying | II. somewhat less satisfying | III. about the same | IV. somewhat more satisfying | V. much more satisfying

31. Compared to someone in private practice with your level of experience, do you think orthodontists in general regard someone in academic orthodontics with:

I. much less respect | II. somewhat less respect | III. about the same | IV. somewhat more respect | V. much more respect

32. Compared to someone in private practice with your level of experience, do you think that obtaining ABO certification for someone in academic orthodontics is:

I. much less difficult | II. somewhat less difficult | III. about the same | IV. somewhat more difficult | V. much more difficult

Comments:

_____

_____

_____

_____

_____

APPENDIX B

Private Practitioner Questionnaire

Demographic Information

1. Age in years…….._____
2. Gender **(circle one)**……....M / F
3. United States Resident…….……yes / no
4. Year of orthodontic graduation.…..…….._____
5. Year of dental school graduation..……_____
6. Years in current practice……...._____
7. Years of previous practice/military/teaching experience **(circle one)**..……...._____
8. Current part-time faculty service **(circle one)**.……..……...._____
9. Current practice status (eg: sole proprietor, associate, employee, partner) **(circle one)**……..._____

The Following 19 Questions Concern Your Faculty Position

Financial Information **(pre-tax$)**

10. Your approximate Total Annual Net Orthodontic-related Income(2001)……...$_____,000
11. Amt of #10 from practice income……...$_____,000
12. Amt of #10 from part-time teaching…..…...$_____,000
13. Amt of #10 from other source (speaking, consulting) ……$_____,000
14. Estimate the annual value of additional benefits provided by your practice (insurance, retirement plan, membership dues, etc.) ….……..$_____,000
15. Taking into account your level of experience and current job duties, what do you think would be a fair total annual net income for you if you decided to go into full-time orthodontic teaching?…….$_____,000
16. What do you think your annual net income would be if you were exclusively a full-time academic orthodontist?……..…$____,000
17. What do you think someone exclusively in full-time academic orthodontics with your level of experience should earn as an annual total net income?..$____,000

Time **(In whole hours)**

18. Average total working hours per week (to earn income #10)…...……_____
19. Hours of #18 you spend during normal office hours (to earn #10)…….……_____
20. Hours of #18 you spend as part-time faculty (to earn #12) ...…….……...._____
21. Hours of #18 you spend as part-time faculty (to earn #13)……..…..…._____
22. Additional non-income producing hours per week you spend on work related to practice but not during regular hours (preparation time)._____
23. If you were exclusively in academic orthodontics, how many hours per week do you think you would have to work to earn the income you estimated (shown in #10)?…...……...._____
24. How many hours do you think an orthodontist exclusively in academic orthodontics, and with your level of experience, works per week?……..._____

(In whole days)

25. Annual vacation and holiday days allotted to you …..……...._____
26. Average annual vacation and holiday days used by you…….……..._____
27. How many vacation/holiday days do you think an orthodontist exclusively in academic orthodontics, and with your level of experience, takes in an average year?..…..……...._____

Job Satisfaction
(circle one answer per question)

27. Compared to someone in academic orthodontics with your level of experience, do you think private practice is:

I. much less stressful | II. somewhat less stressful | III. about the same | IV. somewhat more stressful | V. much more stressful

28. Compared to someone in academic orthodontics with your level of experience, do you think someone in private practice encounters:

I. much less bureaucracy | II. somewhat less bureaucracy | III. about the same | IV. somewhat more bureaucracy | V. much more bureaucracy

29. Compared to someone in academic orthodontics with your level of experience, do you think private practice is:

I. much less satisfying | II. somewhat less satisfying | III. about the same | IV. somewhat more satisfying | V. much more satisfying

30. Compared to someone in academic orthodontics with your level of experience, do you think orthodontists in general regard someone in private practice with:

I. much less respect | II. somewhat less respect | III. about the same | IV. somewhat more respect | V. much more respect

31. Compared to someone in academic orthodontics with your level of experience, do you think that obtaining ABO certification for someone in private practice is:

I. much less difficult | II. somewhat less difficult | III. about the same | IV. somewhat more difficult | V. much more difficult

Comments:_____

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APPENDIX C

Orthodontic Resident Questionnaire

Demographic Information

1. Year of birth……..……_____
2. Gender **(circle one)**……...M / F
3. United States Resident **(circle one)**……yes / no
4. Anticipated orthodontic residency graduation date……_____
5. Year of dental school graduation……_____
6. Number of years of previous private practice experience (if any)……_____
7. Number of years of previous military service (if any)…..……_____
8. Estimated educational debt at the end of residency (include debt for college, dental school, and residency)……...$____,000
9. Primary intent after graduation **(circle one)**……(private practice, academics, military)

Provide Your Estimates For Orthodontists In Private Practice

Financial Information **(pre tax $)**

10. What do you think an average private practice orthodontist's annual net orthodontic income was for the year 2001……...$____,000
11. Approximate average annual net income (#10) of an orthodontist with 2 years in private practice ……..$____,000
12. Approximate average annual net income (#10) of an orthodontist with 5 years in private practice …..…..……..$____,000
13. Approximate average annual net income (#10) of an orthodontist with 10 years in private practice ……..$____,000
14. Estimate the total annual value of additional benefits provided by a private practice to an orthodontist (insurance, retirement plan, membership & journal dues, etc.)……$____,000
15. How much do you feel a full-time orthodontist in private practice should make annually (#10)…….$____,000
16. How many years do you think it would take to pay off your educational debt as an orthodontist in private practice……..$____,000

Time **(In whole hours)**

17. Estimate the average total working hours per week of an orthodontist in private practice (to earn income #10)……_____
18. Hours of #17 spent during normal office hours (to earn #10)……...._____
19. Additional hours spent related to practice, but not during regular hours, (preparation time) with no income……_____
20. How many hours per week do you think full-time private practice orthodontists should work_____
21. How many annual vacation and holiday days do you think are allotted to an average orthodontist in private practice?……_____
22. How many annual vacation and holiday days do you think are used by an average orthodontist in private practice?……_____

Comments:

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Provide Your Estimates For Full-Time Orthodontic Faculty

Financial Information **(pre-tax $)**

23. What do you think an average full-time orthodontic faculty's annual net income was (salary + practice income)…….$____,000
24. Approximate total annual net income (#23) with 2 years as orthodontic faculty……..$____,000
25. Approximate total annual net income (#23) with 5 years as orthodontic faculty …….$____,000
26. Approximate total annual net income (#23) with 10 years as orthodontic faculty …….$____,000
27. Estimate the annual value of additional benefits provided by the school for full-time orthodontic faculty (insurance, retirement plan, membership dues, etc.) ……..…$____,000
28. Amount of #23 from teaching salary ..…..$____,000
29. Amount of #23 from faculty practice or private practice income…….$____,000
30. How much do you feel that full-time orthodontic faculty should make (net income) annually (#23) ……..$____,000
31. How many years do you think it would take to pay off your educational debt as a full-time orthodontic faculty……_____

Time **(In whole hours)**

32. Estimate the total hours per week an average orthodontic faculty works (to earn #23) ……_____
33. Approximate hours of #32 expected for academic faculty position (to earn #23) ……..…….._____
34. Approximate hours of #32 spent in practice (faculty practice to earn #23) ……....._____
35. How many additional hours per week do you think an average orthodontic faculty works, in addition to regular working hours, (preparation time) with no income?……..._____

(In whole days)

36. How many annual vacation and holiday days do you think are allotted to an average full-time orthodontic faculty?……..._____
37. How many annual vacation and holiday days do you think are used by an average full-time orthodontic faculty?……..._____

Provide Your Estimates For Job Satisfaction

38. Compared to someone in full-time private practice with the same level of experience, do you think orthodontic faculty work is:

I. much less stressful	II. somewhat less stressful	III. about the same	IV. somewhat more stressful	V. much more stressful

39. Compared to someone in full-time private practice, do you think that full-time orthodontic faculty deal with:

I. much less bureaucracy	II. somewhat less bureaucracy	III. about the same	IV. somewhat more bureaucracy	V. much more bureaucracy

40. Compared to someone in full-time private practice, do you think that full time orthodontic faculty's job is:

I. much less satisfying	II. somewhat less satisfying	III. about the same	IV. somewhat more satisfying	V. much more satisfying

41. Compared to someone in full-time private practice, do you think that full-time orthodontic faculty are regarded by orthodontists with:

I. much less respect	II. somewhat less respect	III. about the same	IV. somewhat more respect	V. much more respect

42. Compared to someone in full-time private practice, do you think that obtaining the American Board of Orthodontics (ABO) certification for full-time orthodontic faculty is:

I. much less difficult	II. somewhat less dificult	III. about the same	IV. somewhat more difficult	V. much more difficult

APPENDIX D

Full-Time Faculty Responses

Variable	N	Mean	Std Dev	Median
Age (Q1)	113	50.9	12.3	51
Orthodontic Grad (Q4)	113	1982	12.4	1983
Dental Grad (Q5)	114	1977	12.8	1978
Years on Faculty (Q6)	113	14.2	11.1	11
Years Previous Exp (Q7)	113	9.8	13.3	3
Total Net (Q10)	112	$127,232	$53,309	$125,000
Teaching Net (Q11)	111	$93,613	$35,875	$90,000
Practice Net (Q12)	110	$30,509	$42,061	$15,500
Other Net (Q13)	110	$3,855	$9809	$0
Benefits (Q14)	107	$18,800	$49,033	$10,000
Fair Total (Q15)	108	$183,981	$73,500	$180,000
Practice Equivalent (Q16)	110	$308,318	$116,074	$300,000
PP net income (Q17)	108	$358,194	$161,595	$300,000
Hours worked (Q18)	114	46.4	11.2	45
Hours expected teaching (Q19)	112	34.5	11.0	36
Hours practice (Q20)	113	8.0	7.3	8.0
Hours other income (Q21)	111	2.4	6.2	0
Hours other non-income (Q22)	112	9.0	7.3	8.0
Equiv Hours in PP (Q23)	111	21.9	9.1	24
Hours Worked if PP (Q24)	112	32.2	7.2	32
Hours Think PP Works (Q25)	112	32.4	5.6	32
Allotted Vacation (Q26)	110	25.1	18.4	22
Used Vacation (Q27)	112	18.6	17.2	16.5
Think PP Vacation (Q28)	106	33.2	22.0	30
Stress (Q29)	115	3.4	1.2	3.0
Bureaucracy (Q30)	115	4.5	1.0	5.0
Satisfaction (Q31)	115	3.6	1.1	4.0
Respect (Q32)	115	2.9	1.0	3.0
ABO (Q33)	115	4.2	0.9	4.0

Variable	1	2	3	4	5
Stress (Q 29)	6 (5%)	26 (23%)	26 (23%)	30 (26%)	27 (24%)
Bureaucracy (Q30)	7 (6%)	0	3 (3%)	18 (16%)	87 (76%)
Satisfaction (Q31)	3 (3%)	22 (19%)	22 (19%)	40 (35%)	28 (24%)
Respect (Q32)	8 (7%)	38 (33%)	32 (28%)	34 (30%)	2 (2%)
ABO Cert (Q33)	2 (2%)	1 (1%)	23 (20%)	35 (31%)	53 (46%)

APPENDIX E

Private Practice Responses

Variable	N	Mean	Std Dev	Median
Age (Q 1)	77	48.2	11.3	49.0
Orthodontic Graduation (Q4)	77	1983	11.1	1986
Dental Graduation (Q5)	77	1980	11.9	1982
Years in Practice (Q6)	77	17.8	11.2	16
Years Previous Exp (Q7)	76	2.4	4.3	0
Total Net (Q10)	74	$300,797	$184878	$250,000
Practice Net (Q11)	74	$300,054	$184528	$250,000
Part-Time Teaching Net (Q12)	75	$560	$2075	$0
Other Net (Q13)	75	$173	$1389	$0
Benefits (Q14)	74	$40,973	$42035	$30,000
Fair Total FT Equiv (Q15)	74	$175,946	$80481	$150,000
Net If Teaching (Q16)	74	$107,459	$47019	$100,000
Should Net Teach (Q17)	74	$179,054	$82743	$150,000
Hours worked (Q18)	77	35.0	8.8	35.0
Hours in Office (Q19)	76	30.7	6.6	32.0
Hours PT teaching (Q20)	77	0.7	1.9	0
Hours other income (Q21)	76	0.7	3.3	0
Hours other non-income (Q22)	76	5.5	6.7	4.0
Hours Academic Equiv (Q23)	68	52.0	31.2	40.0
Hours Think Acad. Work (Q24)	75	38.3	7.1	40.0
Allotted Vacation (Q25)	76	29.4	36.1	24.0
Used Vacation (Q26)	76	29.4	36.1	24.5
Think Acad. Vacation (Q27)	74	24.0	15.6	21.0
Stress (Q28)	79	2.12	1.2	2.0
Bureaucracy (Q29)	79	4.2	1.2	5.0
Satisfaction (Q30)	77	2.4	0.9	2.0
Respect (Q31)	79	2.9	0.7	3.0
ABO (Q32)	78	2.9	1.0	3.0

Variable	1	2	3	4	5
Stress (Q28)	30 (38%)	27 (34%)	9 (11%)	7 (9%)	6 (8%)
Bureaucracy (Q29)	6 (8%)	3 (4%)	6 (8%)	21 (27%)	43 (54%)
Satisfaction (Q30)	13 (17%)	30 (39%)	27 (35%)	6 (8%)	1 (1%)
Respect(Q31)	2 (3%)	15 (19%)	53 (67%)	8 (10%)	1 (1%)
ABO Cert (Q32)	6 (8%)	23 (29%)	29 (37%)	15 (19%)	5 (6%)

APPENDIX F

Orthodontic Resident Responses

Variable	N	Mean	Std Dev	Median
Age (Q1)	157	31.0	3.6	30.0
Year Ortho Graduation (Q4)	158	2002	0.5	2002
Year Dental Graduation (Q5)	158	1999	2.6	2000
Years Practice Exp (Q6)	158	0.6	1.4	0
Years Military Exp (Q7)	158	0.5	1.8	0
Estimated Debt (Q8)	158	$132,120	91884	$130,000
Estimated PP Net (Q10)	160	$285,381	236239	$250,000
PP Net 2 yrs (Q11)	160	$168,438	77592	$150,000
PP Net 5 yrs (Q12)	160	$258,750	200028	$225,000
PP Net 10 yrs (Q13)	160	$348,781	312258	$300,000
PP Benefits (Q14)	154	$30,740	31488	$20,000
PP Should Net (Q15)	158	$333,070	134386	$300,000
Yrs to Pay Debt PP (Q16)	160	8.7	6.5	9.0
Hours Week PP (Q17)	160	35.8	5.7	35.0
Hours in Office PP (Q18)	160	31.3	5.5	32.0
PP Extra Hours (Q19)	160	7.8	6.5	6.0
Hours PP Should Work (Q20)	160	34.8	4.9	35.0
Vacation Allotted PP (Q21)	160	29.5	20.9	28.0
Vacation Used PP (Q22)	160	27.7	17.8	25.0
Estimated FAC Net (Q23)	159	$135,887	60713	$120,000
Faculty Net 2 yrs (Q24)	159	$94,025	36917	$85,000
Faculty Net 5 yrs (Q25)	159	$117,120	48445	$100,000
Faculty Net 10 yrs (Q26)	159	$147,245	63901	$140,000
Faculty Benefits (Q27)	156	$23,468	23312	$20,000
Faculty Teaching Net (Q28)	155	$74,613	30431	$70,000
Faculty Practice Net (Q29)	156	$60,955	53241	$50,000
Faculty Should Net (Q30)	159	$185,786	69020	$180,000
Yrs to Pay Debt FAC (Q31)	158	15.2	9.3	15.0
Faculty Work Hours (Q32)	159	40.7	9.0	40.0
Expected Work Hours (Q33)	159	32.8	10.5	32.0
Faculty Practice Hours (Q34)	159	11.5	6.7	10.0
Faculty Extra Hours (Q35)	158	9.0	8.5	8.0
Faculty Vacation Allotted (Q36)	157	21.7	11.8	20.0
Faculty Vacation Used (Q37)	157	20.9	12.7	20.0
Stress (Q38)	160	2.6	1.2	2.0
Bureaucracy (Q39)	160	4.5	0.8	5.0
Satisfaction (Q40)	160	2.9	0.9	3.0
Respect (Q41)	160	3.3	1.0	3.0
ABO Cert (Q42)	160	3.2	1.0	3.0

Orthodontic Resident Responses

Variable	**1**	**2**	**3**	**4**	**5**
Stress (Q38)	28 (18%)	66 (41%)	30 (19%)	22 (14%)	14 (9%)
Bureaucracy (Q39)	1 (1%)	4 (3%)	8 (5%)	47 (29%)	100 (63%)
Satisfaction (Q40)	6 (4%)	45 (28%)	74 (46%)	30 (19%)	5 (3%)
Respect (Q41)	2 (1%)	39 (24%)	47 (29%)	57 (36%)	15 (9%)
ABO Cert (Q42)	7 (4%)	32 (20%)	57 (36%)	45 (28%)	19 (12%)

LIST OF TABLES

TABLE 1. Demographic information

	Age	Gender	U.S. Resident	Orthodontic graduation	Years in practice/faculty	Educational debt
Faculty N = 119	50.9 (±12.3)	M = 94 F = 20	Y = 106 N = 8	1982 (± 12.3)	14.2 (± 11.1)	**N/A**
Private Practice N = 79	48.2 (± 11.3)	M = 64 F = 13	Y = 77 N = 0	1983 (± 11.1)	17.8 (± 11.2)	**N/A**
Resident N = 160	31.0 (± 3.6)	M = 113 F = 45	Yes = 147 No =11	2002 (± 0.5)	0.6 (± 1.4)	$132,120 (± 91,884)

TABLE 2. Mean Income and Workload Comparisons (mean ± standard deviation)

	Faculty	Practice	P-value
Total Net Income	$127k ± $53k	$301k ± 185k	0.0001
Benefits	$19k ± $49k	$41k ± $42k	0.002
Hours per Week	46 ± 11	35 ± 9	0.0001
Additional, Non-Income Hours per Week	9 ± 7	6 ± 7	0.001
Total Hours per Week	55 ± 16	41 ± 13	0.0001
Vacation Days Used/Year	19 ± 17	29 ± 36	0.0001
Income/Hour	$49 ± $20	$168 ± $119	0.0001

TABLE 3. Mean Faculty Income and Workload Comparisons (mean ± standard deviation)

	Faculty Actual	Private Practice Estimate	Resident Estimate
Total Net Income	$127k ± $53k	$107 ± $47k*	$136 ± $61k
Faculty Fair Income	$184k ± $74k	$176k ± $80k	$186k ± $69k
Hours/Week	46 ± 11	38 ± 7*	41 ± 9*
Vacation Used	19 ± 11	25 ± 7*	21 ± 13

* Significantly different from actual, $p<0.01$

TABLE 4. Mean Private Practice Income and Workload Comparisons (mean ± standard deviation)

	Private Practice Actual	Faculty Estimate	Resident Estimate
Total Net Income	$301k ± $185k	$358k ± $162k	$285k ± $236k
Hours/Week	35 ± 9	32 ± 6	36 ± 6
Vacation Used	29 ± 36	33 ± 22*	28 ± 18

* Significantly different from actual, p<0.01

TABLE 5. Residents Perceptions' of Income and Workload (mean ± standard deviation)

	Academics	Private Practice	P-Value
Average Total Income	$136k ± $61k	$285k ± $236k	0.0001
Net Income 2 Years Experience	$94k ± $37k	$168k ± $78k	0.0001
Net Income 5 Years Experience	$117k ± $48k	$259k ± $200k	0.0001
Net Income 10 Years Experience	$147k ± $64k	$349k ± $312k	0.0001
Benefits	$23k ± $23k	$31k ± $31k	0.0001
Years to Pay off Debt	15 ± 9	9 ± 7	0.0001
Work Hours/Week	41 ± 9	36 ± 6	0.0001
Additional Non-Income Hours/Week	9 ± 9	8 ± 7	0.0001
Total Hours/Week	50 ± 13	44 ± 9	0.0001
Vacation Used	21 ± 13	28 ± 18	0.0001

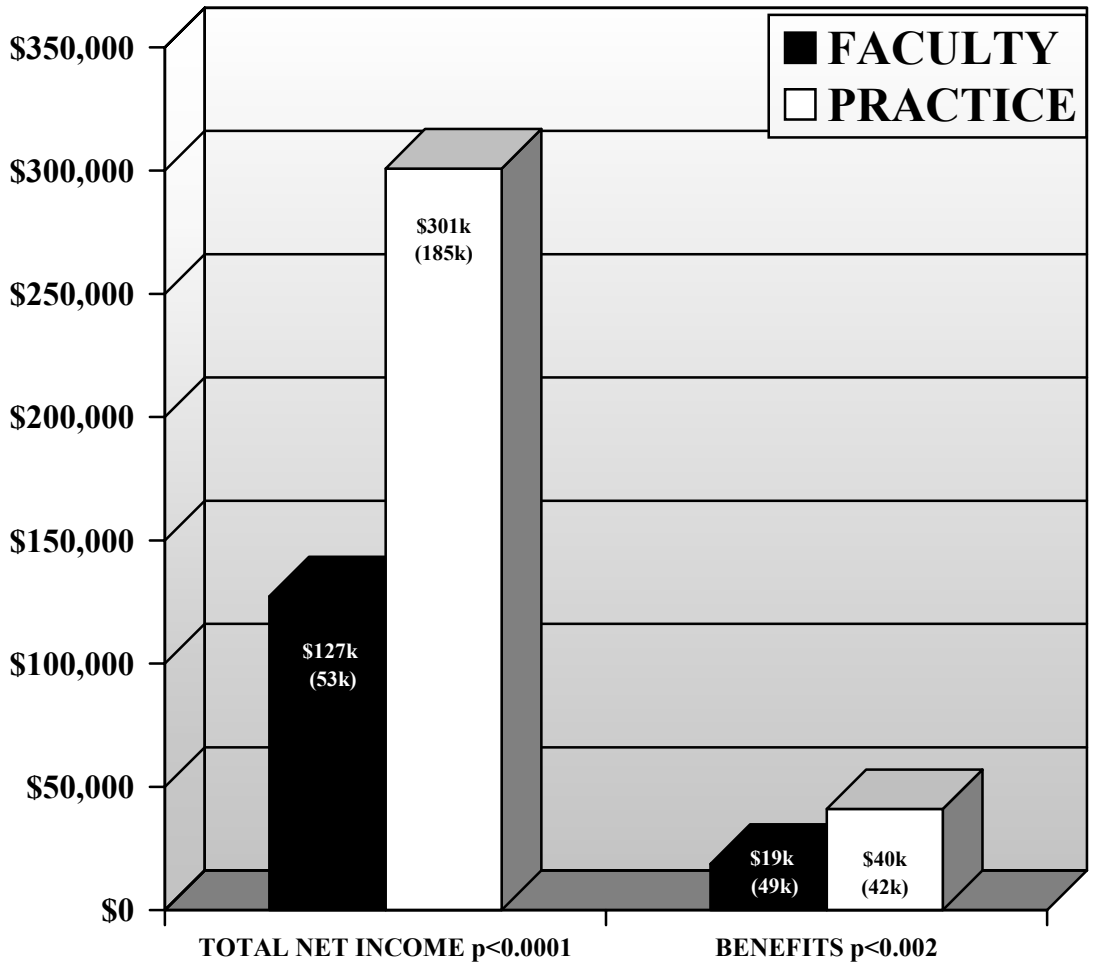
TABLE 6. Job Satisfaction Factors (mean ± standard deviation)

	Faculty	Private Practice	Residents	P-Value
Amount of Stress	3.4 ± 1.2*ψ	2.1 ± 1.2†	2.6 ± 1.2†	0.0001
Amount of Bureaucracy	4.5 ± 1.0	4.2 ± 1.2	4.5 ± 0.8	n.s.
Overall Satisfaction	3.6 ± 1.1*ψ	2.4 ± 0.9†ψ	2.9 ± 0.9*†	0.0001
Amount of Respect	2.9 ± 1.0ψ	2.9 ± 0.7ψ	3.3 ± 1.0*†	0.0003
Difficulty to Obtain ABO Certification	4.2 ± 0.9*ψ	2.9 ± 1.0†	3.2 ± 1.0†	0.0001

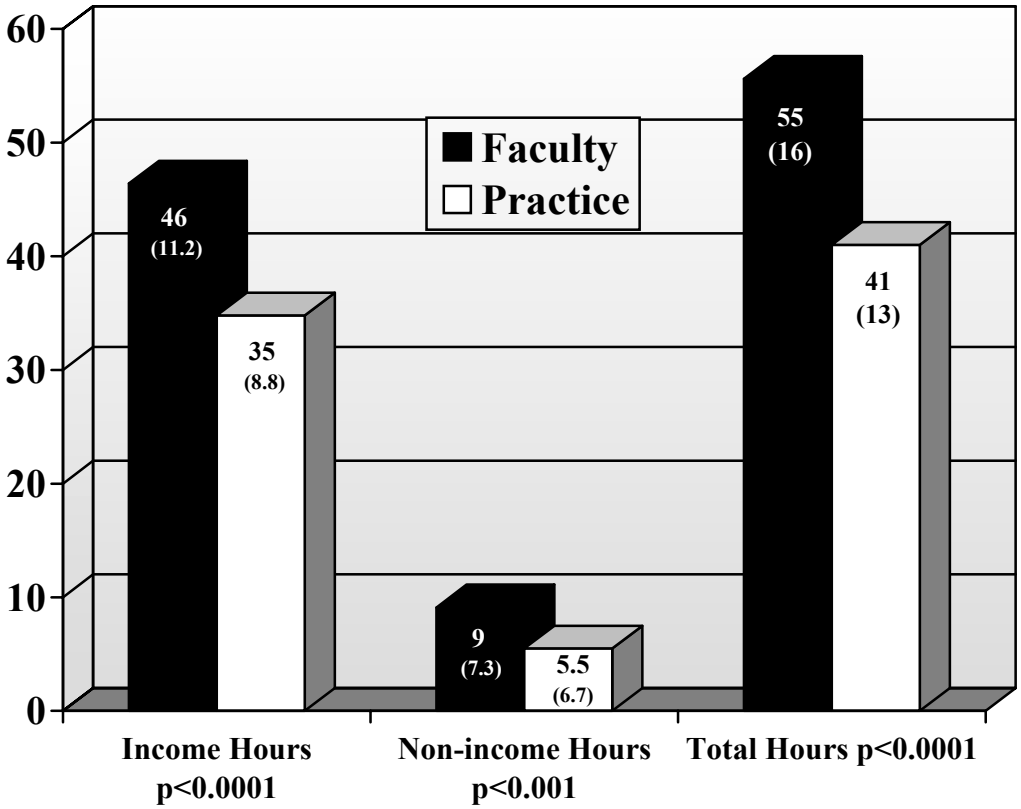
* Significantly different from Private Practice answers, p<0.01
† Significantly different from Faculty answers, p<0.01
ψ Significantly different from Residents answers, p<0.01

LIST OF FIGURES

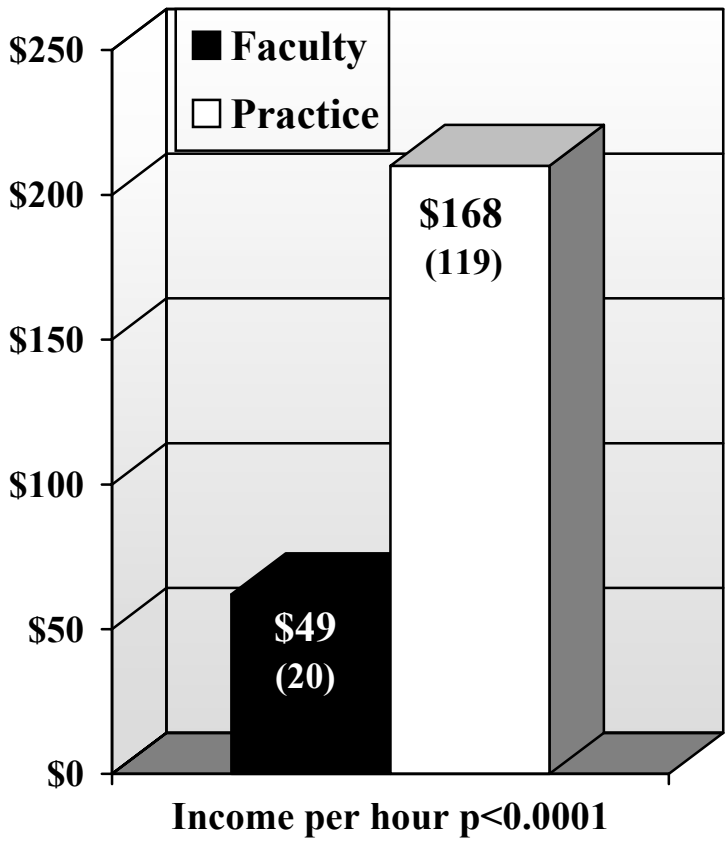
FACULTY VS. PRACTICE INCOME & BENEFITS (Figure 1)



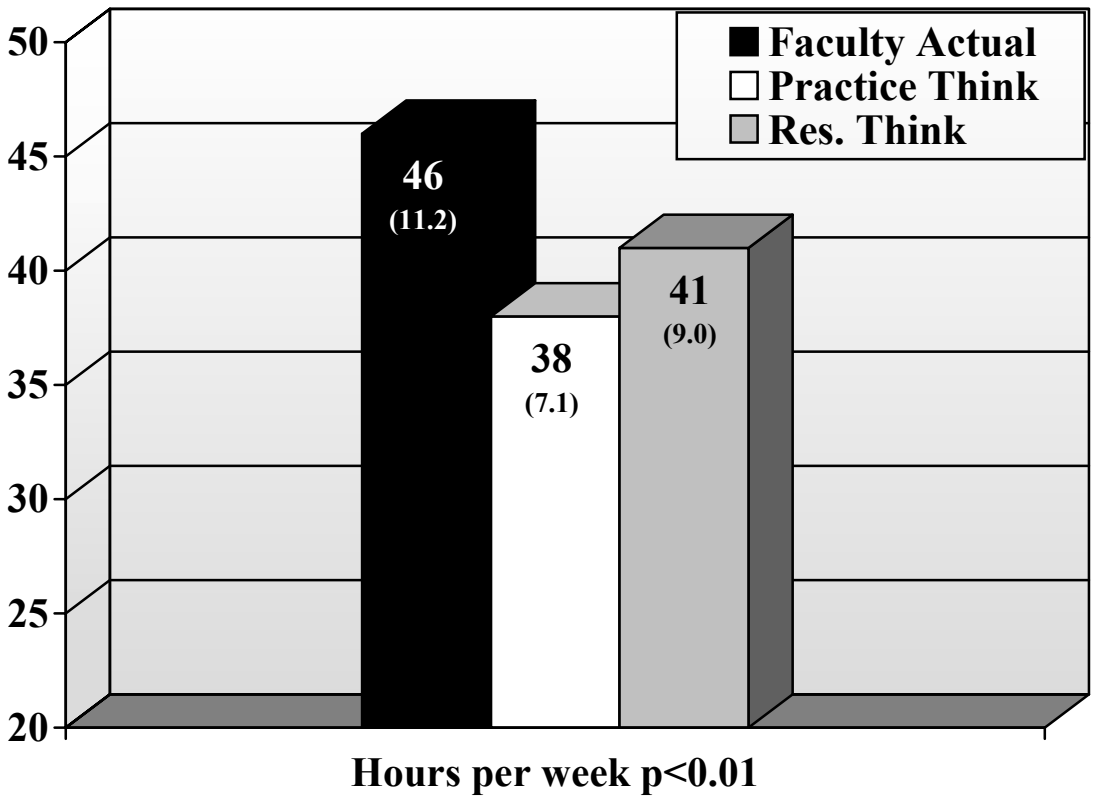
FACULTY VS. PRACTICE-HOURS PER WEEK (Figure 2)



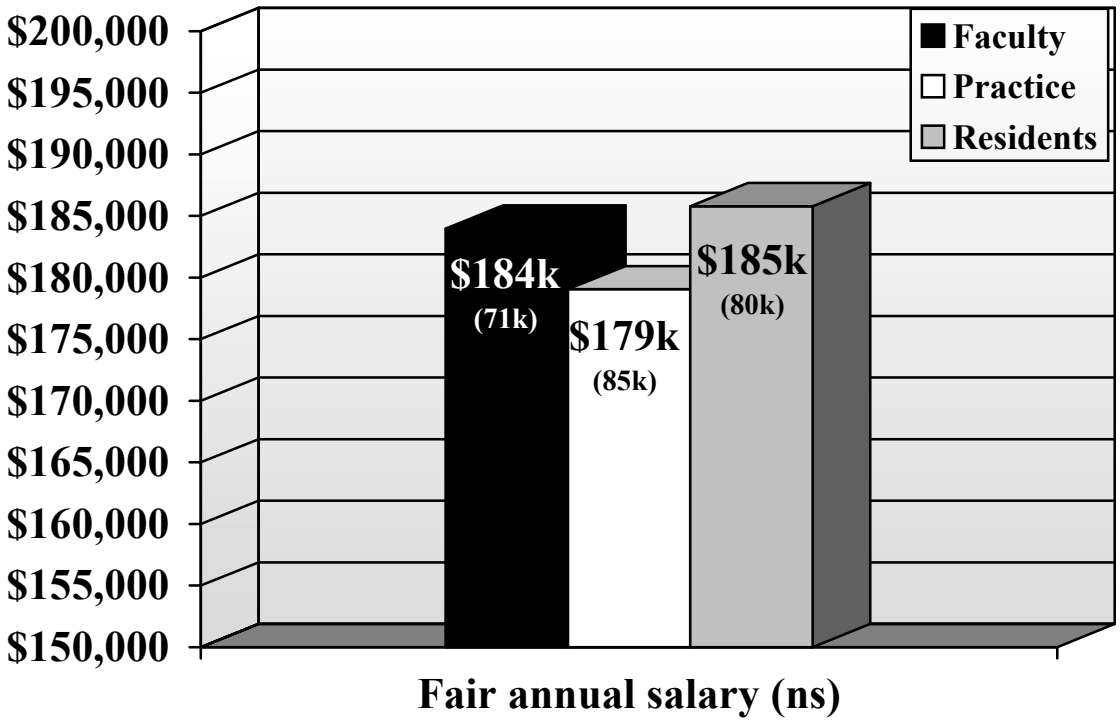
FACULTY VS. PRACTICE INCOME PER HOUR
(Figure 3)



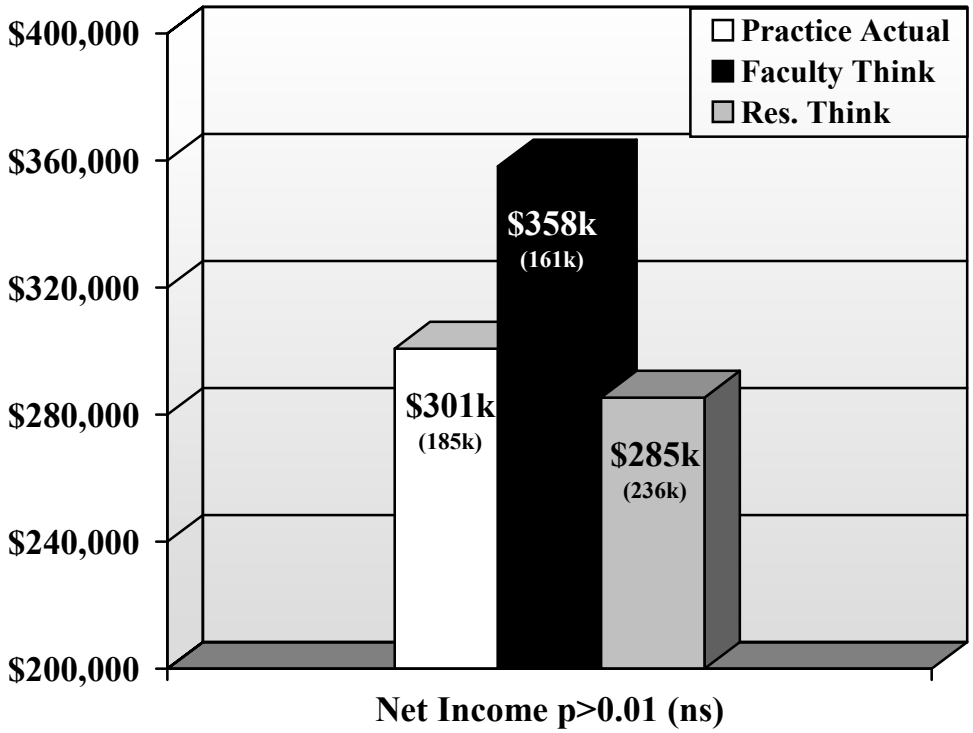
FACULTY HOURS-REAL VS. PERCEIVED (Figure 4)



WHAT DO YOU THINK IS A FAIR ANNUAL NET INCOME FOR FULL-TIME ORTHODONTIC FACULTY? (Figure 5)



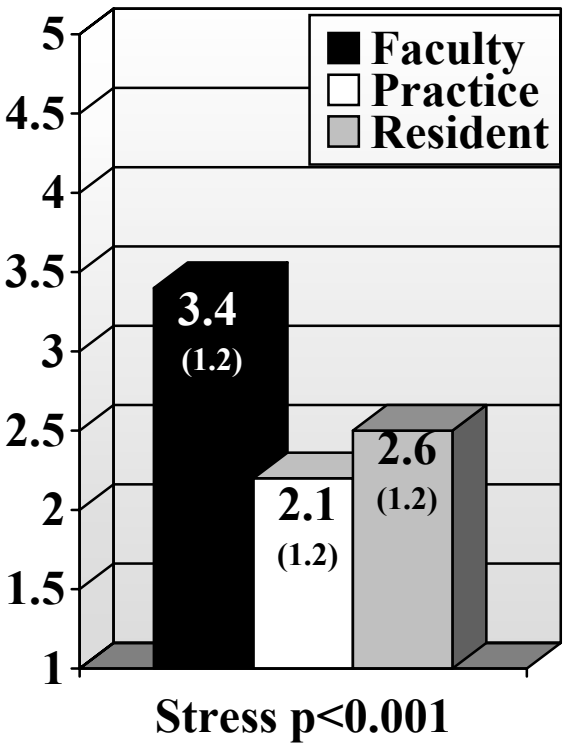
PRIVATE PRACTICE INCOME-REAL VS. PERCEIVED
(Figure 6)



STRESS
(Figure 7)

Compared to someone in private practice with the same level of experience, do you think academic orthodontics is:

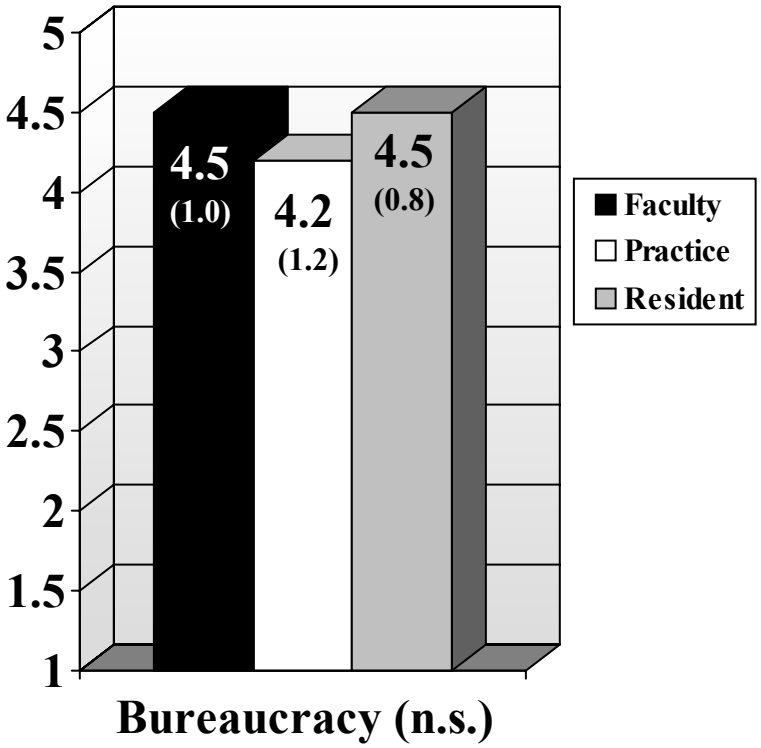
1. **Much less stressful**
2. **Somewhat less stressful**
3. **About the same**
4. **Somewhat more stressful**
5. **Much more stressful**



BUREAUCRACY
(Figure 8)

Compared to someone in private practice with the same level of experience, do you think someone in academic orthodontics encounters:

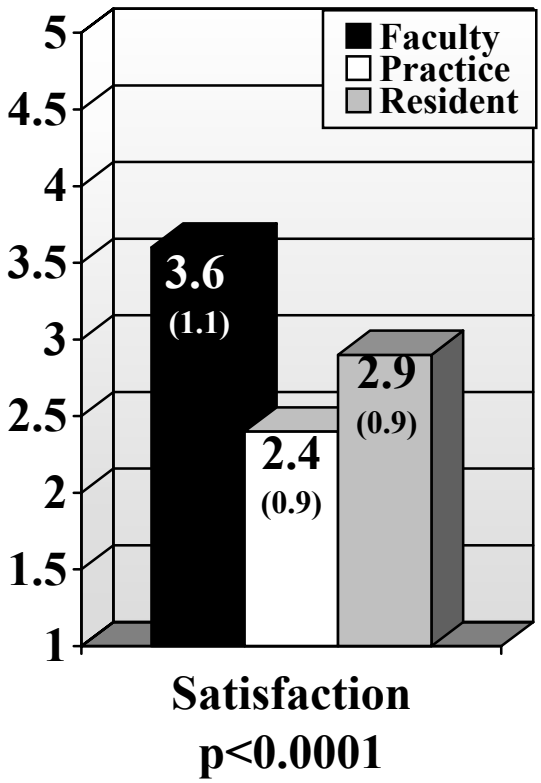
1. **Much less bureaucracy**
2. **Somewhat less bureaucracy**
3. **About the same**
4. **Somewhat more bureaucracy**
5. **Much more bureaucracy**



SATISFACTION
(Figure 9)

Compared to someone in private practice with the same level of experience, do you think academic orthodontics is:

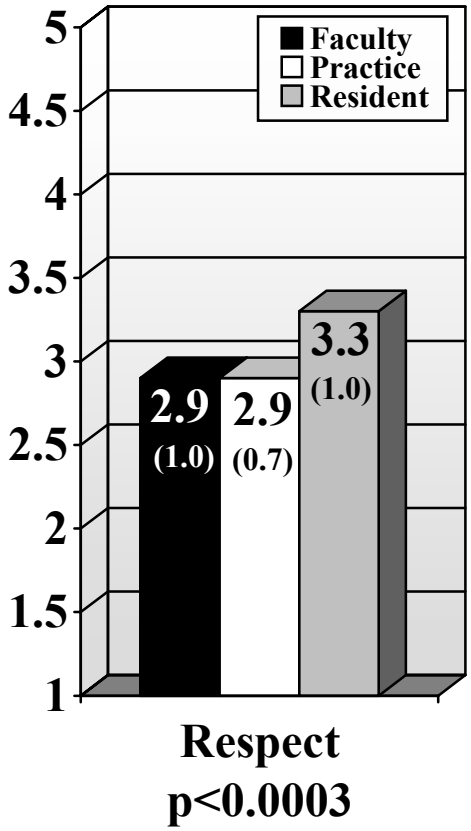
1. **Much less satisfying**
2. **Somewhat less satisfying**
3. **About the same**
4. **Somewhat more satisfying**
5. **Much more satisfying**



RESPECT
(Figure 10)

Compared to someone in private practice with the same level of experience, do you think orthodontists in general regard someone in academic orthodontics with:

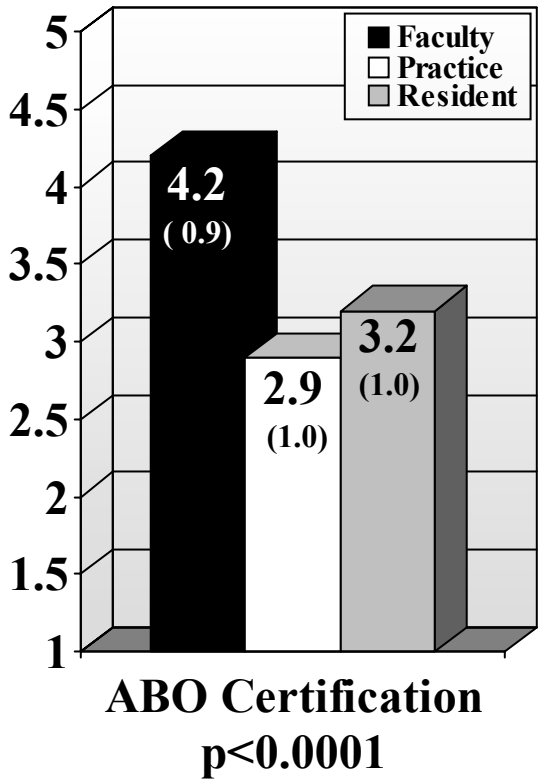
1. **Much less respect**
2. **Somewhat less respect**
3. **About the same**
4. **Somewhat more respect**
5. **Much more respect**



ABO CERTIFICATION (Figure 11)

Compared to someone in private practice with the same level of experience, do you think obtaining ABO certification for someone in academic orthodontics is:

1. **Much less difficult**
2. **Somewhat less difficult**
3. **About the same**
4. **Somewhat more difficult**
5. **Much more difficult**



VITA

Dr. Sheldon L. Peck was born in Mesa, Arizona on October 31st, 1970. He graduated from Sky View high school in Smithfield, Utah in May 1989. He attended college at Utah State University in Logan, Utah where he received a Bachelor of Arts in French with a minor in Chemistry in June 1996 and proceeded to The Ohio State University where he graduated in June 2000 with his Doctor of Dental Surgery. He completed a General Practice Residency at the University of Washington June 2001. He then completed his postgraduate residency in Orthodontics at Virginia Commonwealth University in June 2003. Dr. Peck is currently in the private practice of Orthodontics in Northern Utah.