

# Teaching, Research, and Job Satisfaction of Prosthodontic Faculty Members in Indian Academic Dental Institutions

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*Abstract:* The aim of this study was to determine prosthodontic faculty members' satisfaction with their roles of teaching, research, and service in academic dental institutions of India. The head of the prosthodontic department of each institution was informed of the study by telephone and asked to invite his or her staff members to complete a questionnaire. The questionnaire used a rating scale of 1=very dissatisfied, 2=dissatisfied, 3=neutral, 4=satisfied, and 5=very satisfied. The satisfaction score for each of the three categories was determined by summing the weights for all items related to the variable. In the study, 386 prosthodontic faculty members from 184 dental institutions were invited to participate, and 341 faculty members from 139 dental institutions completed the questionnaire. The data obtained were analyzed using statistical software. Most of the respondents were satisfied with their teaching and service items. Neutral responses were made for institutional teaching rewards, institutional financial support for research, release time offered by the institution, support for sabbatical leaves, technical assistance in analyzing data, secretarial and technical assistance, institutional research rewards, in-service training opportunities, and institutional service rewards. Dissatisfied responses were made regarding financial and academic support for making scientific presentations and attending conferences and seminars.

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Any profile of academic advancement in the practice of dentistry would be greatly influenced and determined by an evolving environment of research and experimentation. Prosthodontics encompasses a large spectrum of aspects of materials science, including removable, fixed, and maxillofacial prosthetics. To ensure the relevance of the teaching and study of prosthodontics, prosthodontics educators need to keep themselves updated with the global research scenario. Most dental colleges have already implemented certain advanced methods in patient management systems with the use of online records and digital imaging techniques. These aspects of technology have the ability to revolutionize patient care through rapid and efficient management of large amounts of clinical information. To fully avail themselves of this advantage of technology, students and faculty members must engage in continuing dental education programs in an attempt to build up their existing knowledge of the subject.<sup>1</sup> Institutions should ensure adequate support and encouragement to faculty members in their

pursuit of higher standards of learning and teaching. The empowerment of faculty through training and research would engender better practice of medicine, which in turn would guarantee quality treatment to patients and professional fulfillment to the faculty. It is unfortunate that authentic literature available on relevant global updates is insufficient. Therefore, the present study was designed with an aim to determine prosthodontic faculty members' satisfaction with their roles of teaching, research, and service in academic dental institutions in India.

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## Materials and Methods

A survey was conducted of prosthodontics teaching faculty members in India after an ethical clearance was obtained from the Modern Dental College and Research Centre, Indore, India. The faculty satisfaction questionnaire consisted of two parts. Part A included items regarding the personal and professional information of the respondents. The information

requested concerned gender, age, academic qualifications, years of professional teaching experience, whether member of professional organizations, average number of theory and practical classes engaged in within a year, number of scientific presentations and publications, and training courses undergone. Part B consisted of twenty-nine items with five response options (very satisfied, satisfied, neutral, dissatisfied, and very dissatisfied) to determine faculty satisfaction in teaching, research, and service activities.<sup>2</sup>

The teaching satisfaction measure was constructed from eleven items: teaching as a professional career; teaching in the classroom; the academic freedom to select and decide on the design, content, objectives, and instruction material of the course taught; planning and conducting examinations; appropriateness of procedures to evaluate students; teaching methods used; advising students on further academic improvement; specialized facilities for teaching; strength of the class; teaching workload; and institutional teaching rewards. Research satisfaction was measured by responses to the following items: institutional financial support for research; release time offered by the institution for research; opportunities to publish; support for sabbatical leave; technical assistance for analyzing data; computer facilities for processing data; secretarial and technical assistance; department as an academically stimulating place for research; and institutional research rewards. The service satisfaction was measured in nine items: opportunities for participating in new developments in the field outside of the institution; departmental efforts in support of career development of faculty members; whether member of academic or extracurricular committees; outside institution consultation; working with the college system; in-service training opportunities; attending faculty meetings; financial and academic support for making presentations and attending conferences and seminars; and institutional service rewards (the complete survey is available from the corresponding author).<sup>3</sup>

A pilot study was carried out with ten prosthodontists to check the feasibility of the study, and the questions were modified accordingly. The same ten prosthodontists were then requested to complete the modified questionnaire to check its reliability. Those ten were excluded from the final sample.

Only teaching faculty members were included in the study. The head of the prosthodontics department of each dental institution was informed of the study by telephone. He or she was asked to complete the questionnaire and to encourage other prostho-

odontics faculty members to complete it. Follow-up reminder calls were sent one week later to the prosthodontists who had not replied to the initial invitation to participate. The same was done after another two weeks, with three telephone calls overall. Data collection was completed between February and August 2010.

The level of faculty satisfaction was measured on the questionnaire using a rating scale in which 5=very satisfied, 4=satisfied, 3=neutral, 2=dissatisfied, and 1=very dissatisfied.<sup>2</sup> The items were grouped into three classifications: teaching, research, and service. The satisfaction score for each classification was determined by summing up the weights for all items related to the variable.<sup>2</sup>

There are 291 dental colleges in India.<sup>4</sup> Out of those, 184 dental institutions were randomly contacted. Simple random sampling was used for data collection. In the study, 386 prosthodontic faculty members from 184 dental institutions were contacted, and 341 faculty members from 139 dental institutions completed the questionnaire, for a response rate of 88.3 percent. The data obtained were analyzed using statistical software (SPSS for Windows, version 18; SPSS Inc., Chicago, IL). The frequency and percentages were calculated wherever appropriate. The correlation among teaching, research, and service was determined using Pearson coefficient.

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## Results

The questionnaire was answered by 341 prosthodontic faculty members, which included 211 males (61.9 percent) and 130 females (38.1 percent). The age of the faculty members ranged from twenty-seven to seventy years. Of the faculty members who responded to the questionnaire, 157 (46 percent) were professors, sixty-three (18.5 percent) were readers, and 121 (35.5 percent) were lecturers. Two hundred and fifty respondents (73.3 percent) were in postgraduate institutions and ninety-one (26.7 percent) in undergraduate institutions, while 336 (98.5 percent) were associated with one or more professional organizations and five (1.5 percent) were not associated with any professional organization.

Regarding the number of classes in which the faculty members were engaged, a variable response ranging from 0 to 240 theory and 0 to daily practical classes per year was received. Of the 341 respondents, 169 (49.6 percent) had made fewer than five scientific presentations, eighty (23.5 percent) had

made between five and ten, sixty-one (17.9 percent) had made more than ten, and thirty-one (9.1 percent) had made no presentations. According to the survey responses, 174 respondents (51 percent) had fewer than five publications, seventy-eight (22.9 percent) had none, fifty (14.7 percent) had between five and ten, and thirty-nine (11.4 percent) had more than ten publications to their credit so far. Regarding training undertaken, 137 respondents (40.2 percent) had attended one training program, ninety-eight (28.7 percent) had attended two programs, fifty-four (15.8 percent) had attended more than two programs, and fifty-two (15.2 percent) had participated in no faculty training programs at all.

Among these respondents, those who selected “satisfied” out of the five options for each question (very dissatisfied, dissatisfied, neutral, satisfied, and very satisfied) in the *teaching* category were as follows: 55.4 percent regarding teaching as a professional career, 62.8 percent regarding teaching in the classroom, 46.6 percent regarding academic freedom to select design, content, objectives, and instruction material, 54.3 percent regarding planning and conducting examinations, 47.5 percent regarding the appropriateness of procedures used to evaluate students, 65.7 percent regarding teaching methods used, 52.8 percent regarding advising students on further academic improvement, 48.7 percent regarding the specialized facilities for teaching, 54.5 percent regarding the strength of the class, 58.4 percent regarding the teaching workload, and 29.0 percent regarding institutional teaching rewards (Table 1; Figure 1).

Among these respondents, those who selected “satisfied” out of the five options for each question in the *research* category were as follows: 20.8 percent regarding institutional financial support for research, 24.9 percent regarding release time offered by the institution for research, 45.2 percent regarding opportunities to publish, 24.0 percent regarding support for sabbatical leave, 31.4 percent regarding technical assistance in analyzing data, 45.5 percent regarding computer facilities for processing data, 27.9 percent regarding secretarial and technical assistance, 41.6 percent regarding the department as an academically stimulating place for research, and 20.2 percent regarding institutional research rewards (Table 2; Figure 2).

Among these respondents, those who selected “satisfied” out of the five options for each question in the *service* category were as follows: 39.3 percent regarding opportunities for participating in new de-

velopments outside of the institution, 40.2 percent regarding departmental efforts in support of career development of the faculty, 42.2 percent regarding working on committees, 44.3 percent regarding outside institution consultation, 56 percent regarding working with the college system, 29.6 percent regarding in-service training opportunities, 48.1 percent regarding attending faculty meetings, 24.6 percent regarding financial and academic support for making presentations and attending conferences and seminars, and 24.0 percent regarding institutional service rewards (Table 3; Figure 3). The correlation coefficients between teaching satisfaction and research satisfaction, between teaching satisfaction and service satisfaction, and between research satisfaction and service satisfaction showed positive relationships of 0.613, 0.637, and 0.784, respectively (Table 4).

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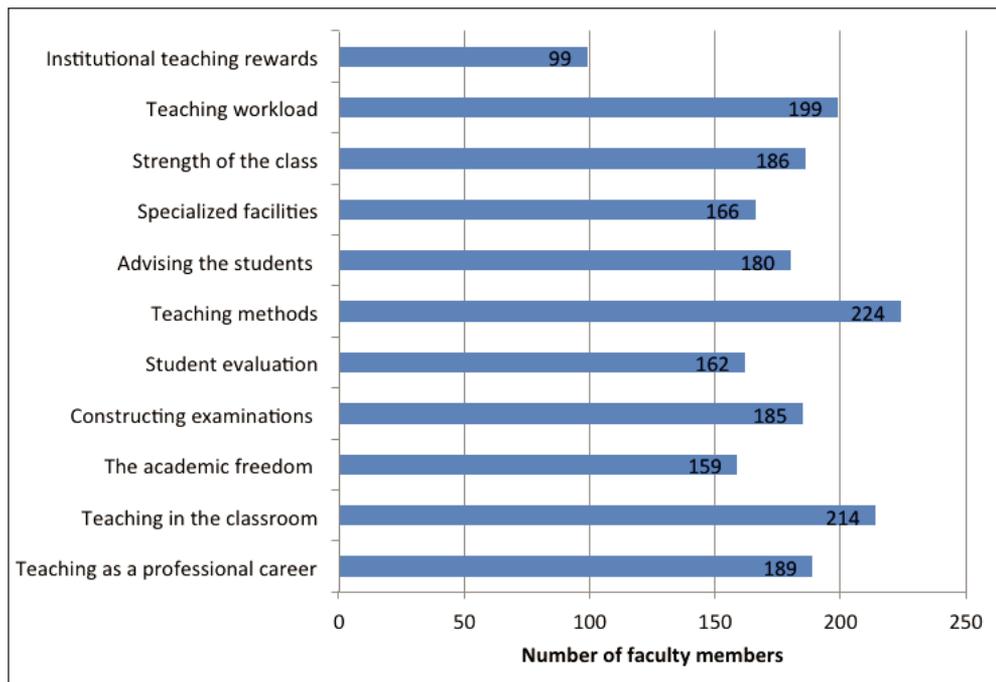
## Discussion

A relevant and updated academic framework for training and facilitating faculty members to be better qualified is imperative for improving the practice of dentistry. Unfortunately, the available literature on prosthodontics is inadequate. This study therefore was an attempt to assess the satisfaction of faculty members in academic dental institutions of India with regard to facilities and opportunities in their roles as teachers, researchers, and service providers. The Dental Council of India (DCI) is a statutory body that works to maintain uniform standards of dental education at both the undergraduate and postgraduate levels.<sup>5</sup> In this study, comparatively fewer responses were received from female prosthodontics educators, which could be because of family commitments.<sup>6</sup> The academic status of most faculty members who participated in the study was that of professor, which could be because the head of the department was given the responsibility of completing the questionnaire and passing it on to other faculty members. Most of the faculty members who completed the questionnaire belonged to postgraduate institutions, which may be because a postgraduate institution provides better avenues for academic development of faculty members. The association of most of the respondents with one or more professional organizations indicates that they want to keep themselves updated with advancements in the field.

The fact that most of the responding prosthodontics faculty members have made fewer than five scientific presentations and have fewer than five

**Table 1. Study participants' responses to items in the teaching category**

Item	No Response Number (Percent)	Very Dissatisfied Number (Percent)	Dissatisfied Number (Percent)	Neutral Number (Percent)	Satisfied Number (Percent)	Very Satisfied Number (Percent)
1. Teaching as a professional career	1 (0.3%)	4 (1.2%)	2 (0.6%)	29 (8.5%)	189 (55.4%)	116 (34%)
2. Teaching in the classroom	1 (0.3%)	0	5 (1.5%)	17 (5.0%)	214 (62.8%)	104 (30.5%)
3. Academic freedom to select the design content, objectives, and instructional materials of the course we teach	1 (0.3%)	4 (1.2%)	18 (5.3%)	62 (18.2%)	159 (46.6%)	97 (28.4%)
4. Constructing examinations (smooth setting of question paper, conducting of practical examination)	1 (0.3%)	3 (0.9%)	21 (6.2%)	66 (19.4%)	185 (54.3%)	65 (19.1%)
5. Appropriateness of procedures (papers, grades, exams) used to evaluate students	0	10 (2.9%)	54 (15.8%)	76 (22.3%)	162 (47.5%)	39 (11.4%)
6. Teaching methods used in the department	1 (0.3%)	0	15 (4.4%)	30 (8.8%)	224 (65.7%)	71 (20.8%)
7. Advising the students for further academic improvement	0	2 (0.6%)	24 (7.0%)	74 (21.7%)	180 (52.8%)	61 (17.9%)
8. Specialized facilities, such as laboratories and equipment needed for teaching	0	6 (1.8%)	59 (17.3%)	60 (17.6%)	166 (48.7%)	50 (14.7%)
9. Strength of the class	2 (0.6%)	8 (2.3%)	42 (12.3%)	52 (15.2%)	186 (54.5%)	51 (15.0%)
10. Teaching workload	1 (0.3%)	6 (1.8%)	27 (7.9%)	72 (21.1%)	199 (58.4%)	36 (10.6%)
11. Institutional teaching rewards	0	43 (12.6%)	69 (20.2%)	114 (33.4%)	99 (29.0%)	16 (4.7%)



**Figure 1. Distribution of faculty responses by satisfaction rate for teaching items**

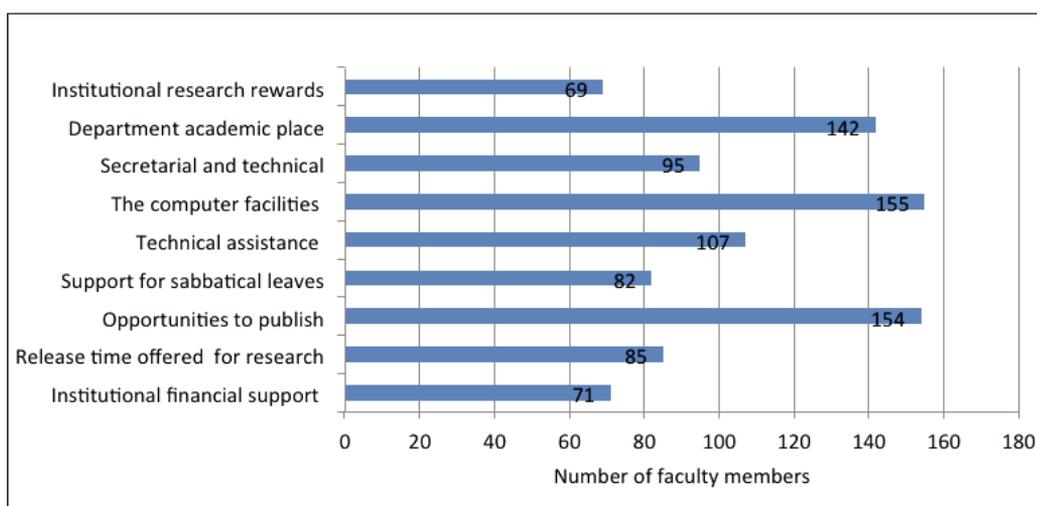
publications highlights the attitude of indifference to the importance of publishing papers, but recent guidelines put forth by the DCI is “Publish or Perish” for faculty members.<sup>7</sup> The DCI has included scientific publications as a compulsory requirement for appointments to senior positions such as head of the department in academic dental institutions. Thus, scientific publications have become synonymous with job survival.<sup>8</sup> Most of the respondents had at-

tended at least one training program as faculty members; this shows their awareness of the importance of learning but they need to be encouraged to attend such programs more regularly.

Most of the faculty members responded that they were satisfied with teaching but had a neutral attitude toward institutional teaching rewards. The satisfactory response obtained could be because the respondents are satisfied with teaching as a career,

**Table 2. Study participants’ responses to items in the research category**

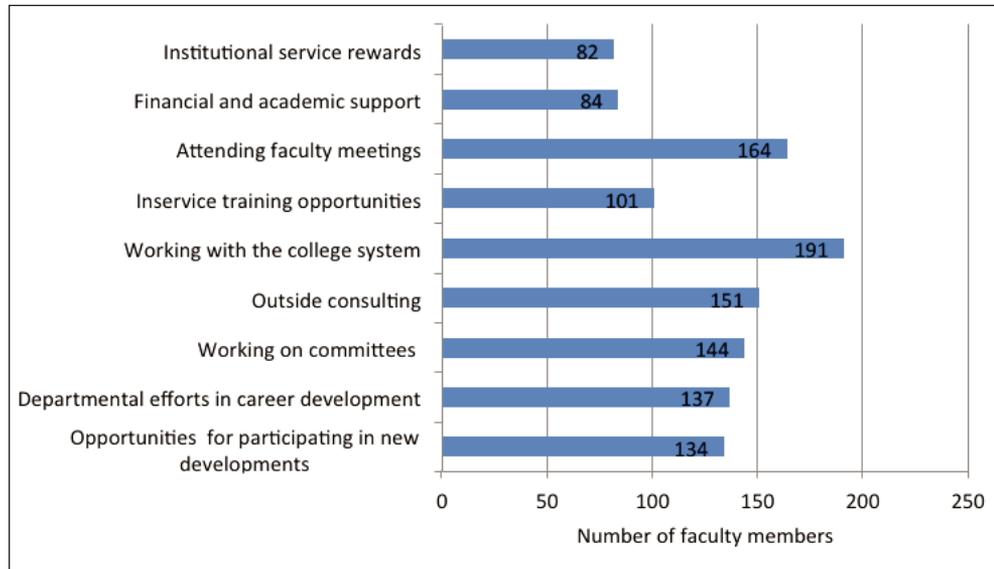
Item	No Response Number (Percent)	Very Dissatisfied Number (Percent)	Dissatisfied Number (Percent)	Neutral Number (Percent)	Satisfied Number (Percent)	Very Satisfied Number (Percent)
1. Institutional financial support for research	1 (0.3%)	68 (19.9%)	88 (25.8%)	100 (29.3%)	71 (20.8%)	13 (3.8%)
2. Release time offered by the institution for research	5 (1.5%)	49 (14.4%)	60 (17.6%)	128 (37.5%)	85 (24.9%)	14 (4.1%)
3. Opportunities to publish	1 (0.3%)	19 (5.6%)	45 (13.2%)	87 (25.5%)	154 (45.2%)	35 (10.3%)
4. Support for sabbatical leaves	3 (0.9%)	45 (13.2%)	80 (23.5%)	103 (30.2%)	82 (24.0%)	28 (8.2%)
5. Technical assistance in analyzing data	2 (0.6%)	27 (7.9%)	75 (22.0%)	113 (33.1%)	107 (31.4%)	17 (5.0%)
6. Computer facilities for processing data	1 (0.3%)	22 (6.5%)	51 (15.0%)	72 (21.1%)	155 (45.5%)	40 (11.7%)
7. Secretarial and technical assistance	6 (1.8%)	36 (10.6%)	92 (27.0%)	99 (29.0%)	95 (27.9%)	13 (3.8%)
8. Department as an academically stimulating place for research	0	29 (8.5%)	44 (12.9%)	91 (26.7%)	142 (41.6%)	35 (10.3%)
9. Institutional research rewards	4 (1.2%)	49 (14.4%)	77 (22.6%)	128 (37.5%)	69 (20.2%)	14 (4.1%)



**Figure 2. Distribution of faculty responses by satisfaction rate for research items**

**Table 3. Study participants' responses to items in the service category**

Item	No Response Number (Percent)	Very Dissatisfied Number (Percent)	Dissatisfied Number (Percent)	Neutral Number (Percent)	Satisfied Number (Percent)	Very Satisfied Number (Percent)
1. Opportunities outside institution for participating in new developments in the field	1 (0.3%)	21 (6.2%)	56 (16.4%)	102 (29.9%)	134 (39.3%)	27 (7.9%)
2. Departmental efforts in support of career development of faculty members	2 (0.6%)	25 (7.3%)	55 (16.1%)	82 (24.0%)	137 (40.2%)	40 (11.7%)
3. Working on committees (academic or extracurricular)	26 (7.6%)	7 (2.1%)	25 (7.3%)	107 (31.4%)	144 (42.2%)	32 (9.4%)
4. Outside consulting	20 (5.9%)	15 (4.4%)	23 (6.7%)	87 (25.5%)	151 (44.3%)	45 (13.2%)
5. Working with the college system	1 (0.3%)	11 (3.2%)	27 (7.9%)	73 (21.4%)	191 (56.0%)	38 (11.1%)
6. Available in-service training opportunities	2 (0.6%)	28 (8.2%)	64 (18.8%)	121 (35.5%)	101 (29.6%)	25 (7.3%)
7. Attending faculty meetings	4 (1.2%)	16 (4.7%)	27 (7.9%)	92 (27.0%)	164 (48.1%)	38 (11.1%)
8. Financial and academic support for making presentations and attending conferences and seminars	1 (0.3%)	47 (13.8%)	92 (27.0%)	87 (25.5%)	84 (24.6%)	30 (8.8%)
9. Institutional service rewards	2 (0.6%)	52 (15.2%)	75 (22.0%)	110 (32.3%)	82 (24.0%)	20 (5.9%)



**Figure 3. Distribution of faculty responses by satisfaction rate for service items**

the teaching methodologies employed, facilities for teaching, and the workload. A stable income is guaranteed for teaching as a career by working a stipulated time period. Faculty members teaching

in the classroom may be satisfied with the methods employed by them as educators because those could be the only methods known and practiced by them. Faculty satisfaction with selecting and deciding on

the design, content, objectives, and instruction material may indicate the academic freedom available in certain institutions.

An effective teacher is one who simplifies complex topics and contributes to a student's acquisition of knowledge and skill by using a number of techniques associated with the promotion of learning.<sup>9</sup> A teacher's attention to detail can make a difference in teaching and leave an imprint on the mind of the student. Techniques include body language,<sup>10</sup> organizing the lecture,<sup>10,11</sup> and promoting development of interpersonal skills.<sup>12</sup> The neutral response received for institutional teaching rewards in our study suggests that maybe prosthodontic faculty members expect some sort of recognition for teaching without asking for it.

As far as research was concerned, neutral responses were received on the questions regarding institutional financial support for research, release time offered by the institution for research, support for sabbatical leave, technical assistance in analyzing data, secretarial and technical assistance, and institutional research rewards. Gies stated that "Research . . . is the register of a profession's achievement and standing."<sup>13</sup> Dental research is a prerequisite for dental education and for the development of clinical dentistry. Therefore, research must be made an integral part of every faculty member's academic activity.<sup>14</sup> A section for technical assistance and research within prosthodontic departments should be provided. Faculty members interested in research should be encouraged by providing funds and infrastructure for research and allocating time exclusively for research without involving them in any other activity.<sup>15</sup> Greater research productivity is achieved in institutions in which research is considered a professional activity, on par with other responsibilities, and faculty members are given ample time to complete research projects.<sup>14</sup> One study found that university educators view sabbaticals (paid leave for personal and professional development) as a release from teaching and administrative duties and an opportunity to initiate new research, catch up on developments, and publish newer discoveries.<sup>16</sup>

In the area of service examined in our study, the respondents were neutral about in-service training opportunities. We believe that courses on "Introduction to Dental Teaching" should be prescribed for all future teachers of dentistry. In-service education is desirable to ensure that dental teachers are knowledgeable concerning current teaching methods.<sup>17</sup> Many fields of research and special techniques

**Table 4. Pearson correlation among teaching, research, and service scores**

	Teaching Score	Research Score
Research Score	.613*	—
Service Score	.637*	.784*

\*p<0.05=statistically significant (2-tailed)

quickly become obsolete, making it important for faculty members to have opportunities to be trained throughout their careers. Faculty members should also practice evidence-based teaching.<sup>14</sup>

Dissatisfied responses to our survey were received regarding financial and academic support for making presentations and attending conferences and seminars, while neutral responses were received regarding institutional service rewards. Incentives should be provided to faculty members for making presentations and attending conferences and seminars.<sup>15</sup> The correlation coefficients between teaching and research and between teaching and service were slightly lower than between research and service, but all three positive functions are correlated to each other. This could be because faculty members engaged with academics would be more oriented towards research, which would be encouraged through interactions with students, exposure to scientific information, the working environment of the institution, and association with colleagues.

A limitation of this study was that the analysis was based on the presumption that the responses given reflect the reality. Studies of such kind, if conducted annually on a statewide basis, would not only help to motivate faculty members to achieve higher goals but also provide baseline data regarding faculty satisfaction.

## Conclusion and Recommendations

In our study, most of the prosthodontics faculty members responded that they were satisfied with teaching but gave neutral responses regarding institutional teaching rewards. When the research statements were considered, neutral responses were received for institutional financial support, release time offered by the institution, support for sabbatical leave, technical assistance in analyzing data, secretarial and technical assistance, and institutional

research rewards. When the service statements were analyzed, neutral responses were received for the in-service training opportunities and institutional service rewards. Dissatisfied responses were received for financial and academic support for making presentations and attending conferences and seminars.

The following recommendations are proposed to help prosthodontics dental faculty members in India to incorporate evidence-based educational best practices into their classroom, laboratory, and clinical teaching responsibilities.<sup>18</sup> First, dental faculty members should be encouraged to pursue a Ph.D.<sup>19</sup> Introduction of Ph.D. programs is desirable in the current context because it would encourage faculty members to pursue full-time research and it would help the institutions to employ those with a Ph.D. and research acumen.<sup>19</sup> By pursuing the Ph.D., faculty members can engage in in-depth research on dental and related aspects of a particular subject in the field.

The second recommendation is to advocate, develop, and implement regular peer and expert teaching evaluations.<sup>18</sup> When institutions include evaluation of teaching quality as important components of faculty members' annual review, instructors are more likely to be motivated to pursue evidence-based teaching and learning excellence.<sup>18</sup> Regular peer teaching evaluation allows teachers to critically evaluate the strengths and weaknesses of each other. Teacher evaluation should form an integral part of quality assessment. Objective quality assessment would compel the teachers to improve in the quality of their teaching and aim for excellence. Third, these institutions should advocate, develop, and implement a significant, continuing reward system for outstanding teaching.<sup>18</sup> Some institutions have started with a "Best Teacher Award" on Teachers' Day. To encourage teachers on a large scale, giving the award on a subject basis would be better. A continuing reward system for outstanding teaching would serve as an incentive to which all teachers would aim.

Fourth, the Dental Council of India should restrict the use of the terms "research institution" and "research center" to only those institutions that fulfill fundamental criteria in terms of infrastructure, staff patterns, and allocating funds for research.<sup>19</sup> Institutions should, therefore, use research-related terms only if they have the basic infrastructure for research. Fifth, faculty leadership abilities should be developed and treated as institutional assets.<sup>18</sup> The more faculty members who professionally and passionately advocate change, the better would be the prospects for change. As educators become more

talented and motivated, so will students. The higher the leadership and scholarship bars are set, the more aspiring the faculty member and, most importantly, the graduating dentist will aim to be.<sup>18</sup> An institution is known by the faculty it possesses, so faculty members should be encouraged to achieve greater heights of excellence. Sixth, educators need to minimize jargon, maximize understanding, and share experiences through quality research that is published.<sup>18</sup> Dental educational specialists can assist in making faculty members aware of educational best practices by conducting experiments and publishing the results of well-designed research studies that investigate daily issues faced by dental teachers.<sup>18</sup>

Seventh, prosthodontics forums should be formed. Every state in India needs to have a prosthodontics forum for professionals to exchange ideas and learn about new developments in the field. Regular dental education programs in the forums would help to keep the faculty updated. Specialty conferences are held once a year. Regional prosthodontics forums can provide even more opportunities for faculty members.

Finally, teacher training programs should be conducted. Apart from learning teaching skills during the postgraduate course, teaching faculty members should be directed to attend a certain number of workshops, seminars, and hands-on courses on teaching and such programs should be conducted periodically by the DCI.<sup>20</sup> Conducting teacher training programs would help to update educators in the newer and more effective teaching methodologies available. Workshops that are two days or longer and are followed up with practice, feedback, and reminders have proved to be effective in improving teachers' knowledge, attitudes, and skills.<sup>21</sup> Faculty members attending the workshops, seminars, and hands-on courses should be encouraged to share their knowledge with the other faculty members of the institution to upgrade the quality level of the institution as a whole.

A learning culture that values not only teaching excellence and evidence-based education but also faculty scholarship and leadership should be inculcated into academic dental institutions in India and everywhere.<sup>18</sup> Nearly 100 years ago, the distinguished Canadian professor Sir William Osler (1849–1919) boldly proclaimed: "The successful teacher is no longer on a height, pumping knowledge at high pressure into passive receptacles. . . . He is a senior student anxious to help his juniors."<sup>18</sup> This thought could indeed be the beginning of a sustained learning and teaching experience.

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