Original Article

An Assessment of Teaching and Learning Practices: A Questionnaire Study for Dental Educators of Karnataka

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ABSTRACT

Aims and Objectives: Faculty members of dental institutions are being asked to assume new academic duties for which they have received no formal training. To succeed in new teaching tasks, faculty development through assessment of teaching skills is essential.

Materials and Methods: A Self-Assessment Questionnaire consisting 18 closed-ended questions was sent to various faculty members of dental colleges of Karnataka. A total of 210 faculty members volunteered to participate in the study. The response rate was 69.8%. Data gathered were statistically analyzed using SPSS software version 16, Chi-square test, and descriptive statistics.

Results: In the present study, 27.3% of participants were unaware of andragogy, 33.3% were unaware of teachers development programs, 44.6% do not obtain student feedback after teaching, 52.6% were unaware of peer review of teaching skills, and 50% were unaware of interprofessional education initiatives.

Conclusion: By incorporating teaching and learning skills, dental faculty could acquire competencies and academic credentials to become valuable contributors to the institution. This study emphasizes the areas of improvement in dental school learning environment, based on activation of prior knowledge, elaboration of new learning, learning in context, transfer of learning, and organization of knowledge toward learning.

KEYWORDS: *Andragogy, dental, education, interprofessional education, teaching and learning*

INTRODUCTION

*T*eaching is an occupation that is most reflected upon, cherished, praised, and canonized.[1] It is a tool for improving the educational vitality of institutions through attention to the competencies needed by individual teachers and to the institutional policies required to promote academic excellence. Preparing health profession's faculty for teaching responsibility is a necessary function of academic institutions. It is important to search for an arena in which students, clinicians, and faculties can learn together.

Dental colleges are societies of learners, where graduates are prepared to join a society of oral health professionals. Dental institutions should provide and promote an environment conducive to change, innovation, and continuous improvement in educational programs.

Provision of faculty development related to teaching and assessment strategies is widely perceived to be the essential ingredient in efforts to introduce new curricular approaches and modify the educational environment in academic dentistry.[2]

Over the past decade, the numbers of faculty equivalent numbers of individuals who are recruited are completely new to the academic environment. Faculty members are being asked to assume new academic duties for which they have received no formal training. To succeed in the

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teaching tasks, faculty development is highly essential through which one could acquire competencies and academic credentials to become valuable contributors to the institution. Faculty must serve as role models demonstrating that they understand and value scientific discovery and lifelong learning in their daily interactions with students, patients, and colleagues.

Hence, the present questionnaire study is intended to assess teaching and learning practices which involves an assessment of teaching faculty regarding teaching skills and their implementation. This report mainly concentrates on encouraging the overall development of teaching faculty on teaching–learning practices.

Aims and objectives

1. To assess the existing teaching and learning practices of faculty of various dental institutions
2. Faculty development initiatives to improve teaching effectiveness in dental institutions.

Materials and Methods

The present descriptive study was done on faculties who were working in dental institutions of various universities of Karnataka. Following institutional ethical committee approval (DCH/PGS/Ethical/2013-14 dated 19-08-2013) and the individual consent, the study was conducted between June and December 2015.

Source of data

A self-administered closed-ended questionnaire consisting of 20 questions either in yes/no format or in multiple response format was designed to obtain information on demographic details, knowledge on teachers' training programs, strategies followed for effective student teaching and understanding, teaching skills incorporated, awareness regarding preparation for learning and teaching (PLT) and development of learning and teaching (DLT) programs, means of obtaining feedback after a teaching event, methods of teaching assessment, and awareness on interprofessional education (IPE) initiatives.

Study population

A total of 42 dental colleges including those affiliated to Rajiv Gandhi University of Health Sciences and Deemed Universities of Karnataka were selected for the study. The questionnaire was mailed electronically through e-mail IDs obtained through various specialty organizations to 275 participants, out of whom 210 responded to participate in the study. Participation in the study was voluntary and was requested to respond within 15 days. Faculties who failed to respond were reminded by sending a reminder mail regarding the study

and requested to respond. Faculty who responded to the questionnaire was considered as the study population. Each faculty was allowed to make only one submission. After checking for accuracy, during the process of data mining and extraction, we excluded 18 questionnaires which were incomplete; thus, a final 192 questionnaires were used for the analysis (response rate 69.8%).

Questionnaire development and screening validation

Pretest of the questionnaire was done before starting the survey. Before the study, the questionnaire was tested for comprehensibility and relevance among 10 dentists. The Cronbach's alpha of the questionnaire was found to be 0.73. Test–retest reliability was calculated using Spearman's correlation and was found to be satisfactory. The purpose of the questionnaire and how they should be answered was explained, and whenever necessary further information was provided.

Data analysis

Data gathered were statistically analyzed using SPSS software version 16 (SPSS Inc.,) using Chi-square test. Frequencies and percentages were used for descriptive statistics. The Chi-square test was done to see the difference among groups. $P < 0.05$ was considered to be statistically significant.

Results

In our study, 76.1% with 0–4 years of experience were involved in UG teaching, 25% with 4–9 years of experience were involved in PG teaching, and 52.2% with 4–9 years of experience were involved in both UG and PG teaching. About 24.5% follow the concept of tutorial teaching and 90.6% follow the protocol of group teaching. About 31.8% agreed that it is mandatory to undergo teachers' training program, 57.6% agreed that it is beneficial to go through research literature on student learning and pedagogy before implementing teaching, 36.4% of the participants with 0–4 years of experience and 27.3% with 9 years of experience were not aware of adragogy, and 48.8% responded that self, student, and peer assessment is essential for student learning which is a critically reflective approach. About 37.9% did not have the practice of giving laboratory protocols in advance to students and 46% practice group teaching as one of the teaching skills. About 33.3% of the participants with 0–4 years and 9 years of experience were not aware of teachers' training programs such as PLT and DLT. About 50% of the respondents with 0–4 years of experience and 37.5% with 4–9 years of experience agreed that PLT and DLT kind of programs should be implemented to enhance teaching. About 57.9% do not obtain suggestions from a critical friend before class, 44.6% of the participants

with 0–4 years of experience and 28.1% with 9 years of experience do not obtain regular student feedback, 52.6% were not aware of peer review/assessment, 40.6% were not aware of IPE, 50% recommend IPE initiatives in educational institutions, 50% respondents agreed that main hindrance for IPE initiation was organizational constraints, and 33.3% agreed that the teaching skills of a teacher influence student's performance. The results are depicted in Table 1.

DISCUSSION

Teaching mainly focuses on teaching–learning activity which fulfills its intended purpose, function, and goal. Goals can vary across institutions and focuses on evaluating a teacher's effectiveness which is corroborated as the academic institution's commitment to continual improvement.[3]

Good teachers are often those who experiment. They try out different teaching methodologies and evaluate them

Serial number	Questions	0-4 years	4-9 years	9 years and above	Chi-square test	*P*
	Table 1: Participant's response about academic teaching-learning experience					
1	Nature of teaching					
	a. UG	70 (76.1)	10 (10.9)	6 (6.5)	49.656	0.001
	b. PG	6 (6.5)	2 (25.0)	0		
	c. Both	10 (10.9)	48 (52.2)	34 (0)		
2	Mandatory to undergo teachers' training program					
	a. Yes	22 (50.0)	14 (31.80)	69 (13.60)	1.070	0.784
	b. No	64 (43.2)	46 (31.1)	34 (23.0)		
3	Research literature on student learning and pedagogy					
	a. Yes	64 (57.6)	38 (30.6)	16 (12.9)	17.537	0.001
	b. No	22 (32.4)	22 (32.4)	24 (35.3)		
4	Aware of andragogy					
	a. Yes	70 (47.3)	46 (31.1)	28 (18.9)	2.416	0.491
	b. No	16 (36.4)	14 (31.8)	12 (27.3)		
5	Critically reflective approach for student learning					
	a. Self-review	4 (28.6)	4 (28.6)	4 (28.6)	15.415	0.017
	b. Student review	2 (14.3)	6 (42.9)	6 (42.9)		
	c. Peer review	0	0	0		
	d. All of the above	80 (48.8)	50 (30.5)	30 (18.3)		
6	Practice of giving laboratory protocols to students in advance					
	a. Yes	52 (68.4)	16 (21.1)	6 (7.9)	30.073	0.001
	b. No	34 (29.3)	44 (37.9)	34 (29.3)		
7	Practice of tutorial teaching					
	a. Yes	66 (45.8)	44 (30.6)	30 (20.8)	0.451	0.930
	b. No	20 (41.7)	16 (33.3)	10 (20.8)		
8	Teaching skills followed					
	a. Individual teaching	6 (33.3)	6 (33.3)	6 (33.3)	2.720	0.437
	b. Group teaching	80 (46.0)	54 (31.0)	34 (19.5)		
9	Awareness of PLT and DLT					
	a. PLT and DLT	70 (48.6)	46 (31.9)	24 (16.7)	6.987	0.072
	b. Not aware	16 (33.3)	14 (29.2)	16 (33.3)		
10	Should PLT and DLT be implemented					
	a. Yes	16 (50.0)	12 (37.5)	2 (6.3)	5.833	0.120
	b. No	70 (43.8)	48 (30.0)	38 (23.8)		
11	Skills required to maximize student learning					
	a. Learning through conversation	4 (66.7)	0	2 (33.3)	33.259	0.001
	b. Investigation, discussion	34 (34)	28 (28.0)	34 (34.0)		
	c. Student feedback form	18 (60.0)	10 (33.3)	2 (6.7)		
	d. Self-evaluation	16 (57.1)	10 (35.7)	2 (7.1)		
	e. All of the above	14 (50.6)	12 (42.9)	0		
12	Obtaining suggestions from critical friend					
	a. Yes	70 (81.4)	38 (63.3)	16 (42.1)	12.396	0.006
	b. No	16 (18.6)	22 (36.7)	22 (57.9)		

Contd...

Serial number	Questions	0-4 years	4-9 years	9 years and above	Chi-square test	*P*
	Table 1: Contd...					
13	Obtaining regular feedback from students					
	a. Yes	28 (45.2)	22 (35.5)	6 (9.7)	18.579	0.001
	b. No	58 (44.6)	38 (29.2)	34 (26.2)		
14	Obtaining peer review					
	a. Yes	72 (48.6)	50 (33.8)	20 (13.5)	21.865	0.001
	b. No	14 (31.8)	10 (22.7)	20 (52.6)		
15	Awareness of IPE					
	a. Yes	60 (46.9)	42 (32.8)	22 (17.2)	3.122	0.373
	b. No	26 (40.6)	18 (28.1)	18 (28.1)		
16	Recommendation of IPE					
	a. Yes	2 (25.0)	4 (50.0)	2 (25.0)	2.000	0.572
	b. No	84 (45.7)	56 (30.4)	38 (20.7)		
17	Hindrance for IPE					
	a. Organizational	2 (50.0)	2 (50.0)	0	1.463	0.691
	b. Logistic	84 (44.7)	58 (30.9)	40 (21.3)		
	c. Both	0	0	0		
18	Does teaching skills influence student					
	a. Yes	2 (33.3)	2 (33.3)	2 (33.3)	0.848	0.838
	b. No	84 (45.2)	58 (31.2)	38 (20.4)		

Numbers in the parenthesis denote percentage of response of participants. PLT=Preparation for learning and teaching, DLT=Development of learning and teaching, IPE=Interprofessional education

carefully. This sort of activity is a form of "classroom research." This sort of classroom approach helps in improving the oral communication skills and gives them an opportunity to receive constant feedback from their tutors. In the present study, 29.3% of the respondents with experience above 9 years do not have the practice of giving laboratory protocols in advance to students. Conventionally, academics learn to teach in universities through practical experience rather than from being formally taught how to teach. At OXFORD Learning Institute,[4] opportunities are provided for continuing professional development to participate in programs such as PLT and DLT according to their level of experience and involvement in teaching.[4] In our study, 33.3% of the participants with 0–4 years and 9 years of experience were not aware of any teachers' training programs. PLT and DLT is a program of support for early teaching experiences. PLT introduces participants, or is likely to do so in the near future, to practical aspects of teaching their own subject area.

A critically reflective approach to teaching is one where you use all the resources at your disposal to inform strategies for achieving the student learning and understanding which is your ultimate goal.[4] In our study, all the participants (100%) agreed that a critically reflective approach could be obtained by a combination of self-appraisal and student and peer feedback to inform strategies for achieving the student learning and understanding. About 44.6% of the participants did not obtain students' feedback after the lecture class when compared to a study conducted in 2008 on teaching

effectiveness in the US dental schools where the majority of schools used student evaluation (81%).[3] It is advantageous to collect students' feedback as it allows adjustments by faculty in response to students' difficulties. Faculty in turn would help the students to overcome their difficulties by providing suggestions and thus achieve competencies in their profession. It is bidirectional. Some of the advantages and disadvantages are listed in Table 2.

Peer review by faculty colleagues is considered another valuable assessment method for measuring teaching effectiveness. Peer evaluation has a high validity for judging course goals and objectives, course content, and appropriateness of tests or assignments, something that students are not able to effectively assess.[12] Most assessment authorities recommend a formative type of peer evaluation where a mentor focuses on providing feedback to a colleague for purposes of enhancing teaching. In our study, 52.6% were not aware of peer reviewing and assessment. Peer evaluations are valuable if conducted in conjunction with other types of evaluations to counter the potential bias of peer evaluator. Some of the advantages and disadvantages of practicing only peer review are given in Table 3. Another peer technique is termed previewing and retracing, where input of a "critical friend" is obtained without the need for them to be present during the teaching. In the present study, 57.9% of the faculties do not obtain feedback from a critical friend.[49]

Once the novice has achieved a desired comfort level with the teaching role, continued self-evaluation guards

Table 2: Advantages and disadvantages of students feed back on teaching

Student assessment	
Advantages	**Disadvantages**
Students respond to teaching[5-14] as participants are respondents who have observed their teachers[15]	Students lack wisdom and experience to make qualified observations and evaluations[12,20-23]
Students show improvement as they are influenced by the teaching skills[15]	Skeptical[1,7,15,12,17,24,13,25-28]
Ratings provide feedback mechanism for continuous improvement of the faculty[16-19]	Student's prior interest in the content or subject[5,29,30]
	Ratings are influenced by the presence of teacher (instructor) while evaluation is being completed[31,32]
	Evaluation is completed if student is given adequate time and instructions[33] Cannot assess course goals and objectives[5]

Table 3: Advantages and disadvantages of obtaining peer feedback on teaching

Peer assessment	
Advantages	**Disadvantages**
Valuable assessment method[34,7,9,28,34,35]	Friendship bias (buddy bias), faculty status, and informal collegial relationship can result in skewing of faculty peer evaluations[7,9,15,28,35,36-41]
High validity for judging course goals and objectives, course contents, and appropriateness of tests[5]	Can create bad feelings, defensiveness, and interpersonal conflict[34,38,39,42]
It is a mentoring process (formative evaluation) that focuses on providing feedback to enhance teaching	Feedback could be used as a data source for formal performance evaluations/ promotion and tenure decisions
	Can create fear and resistance from those being evaluated[35,39,43]
	Limited number of observers involved in the faculty peer review process[7] Qualifications/competence of peers to function as reviewers of teaching effectiveness is questionable[34,7,36,38,41,42]
	Hesitation by the faculty in critiquing one another which can damage working relationships

against complacency, and enables ongoing improvement and freshness, helping to maintain job satisfaction. Self-evaluation or self-assessment is another method used in evaluating teaching effectiveness. In the present study, 57.1% of the participants agreed that self-evaluation could be considered as one of the skills required to maximize student learning. In a nutshell, student evaluations are valuable when related to course organization and instructor delivery.[7-10,13] Peer reviews are more appropriate than student assessment for content evaluation.[5] However, a viable peer review system may be time-consuming and sustainability may be questionable.[34] Combination of peer assessments with self-evaluations have the significance in determining or redirecting faculty efforts.[38,44,45] It could be concluded that in dental colleges, the process of evaluating teaching effectiveness can make significant contribution by combining student, peer, and self-reviewing so that the students, faculty, and the institution will reap the benefits from these evaluations.

IPE for collaborative patient-centered practice has been identified as a key mechanism to address health-care needs and priorities. Faculty development can play a unique role in promoting IPE by addressing some of the barriers to teaching and learning that exist at both the individual and the organizational level and by providing individuals with the knowledge and skills needed to design and facilitate IPE. A survey was done in 2005[46] to assess the knowledge and awareness regarding IPE. There is wide variability in interpretation of the term "interprofessional," and many barriers for IPE exist which could be overcrowded curricula in health profession schools, lack of support from faculty and administration, and financial constraints.[46,49] The results are similar to our study where 40.6% with 0–4 years of experience and 28.1% with 4–9 years and above 9 years of experience were unaware of IPE initiatives. About 50% agreed that organizational and logistic constraints were the barriers for IPE. Some of the areas requiring IPE initiation include ethics, communication skills, evidence-based practice, and informatics which could be effectively taught in an interprofessional manner. Many health-care setting models in the future will include dentists as part of an interdisciplinary health-care team; consequently, it is important for dental schools to become active participant in future IPE initiatives. For successful IPE implementation, there must be commitment from both administration and faculty. Some of the barriers of IPE initiatives are given in Table 4.

In our study, the perception of knowledge regarding IPE was found to be negative. IPE for collaborative patient-centered practice has been identified as a key mechanism to address health-care needs and priorities. Faculty development can play a unique role in promoting IPE by addressing some of the barriers to teaching and learning that exist at both the individual and the organizational level, and by providing individuals with the knowledge and skills needed to design and facilitate IPE. Faculty members play a critical role in the teaching and learning of IPE and they must be prepared to

Table 4: Barriers for initiating interprofessional education[47]

Overloaded curricula

No interaction among group of students of various profession

Faculty and administration attitudes who believe that IPE is a fad/fashion

Faculty attitudes difficult to change

Lack of funding for IPE

Lack of rewards/incentives

IPE=Interprofessional education

meet this challenge. The need of the hour is to model teaching activities on personal experiences, together with recent educational evidence and the academic culture. Faculties need to be involved in research-oriented activities and make it more available by publishing it, more understandable by reducing educational jargon, and more relevant to the day-to-day teaching issues that dental faculty encounter in classrooms, laboratories, and clinics.[48] The present study showed some limitations. Subjectivity of the responses can be a limitation. The foremost limitation in this study was the overall response rate of 69.8%.

CONCLUSION

This study was an attempt to understand and assess the views of the teachers of various dental institutions regarding the teaching and learning practices. The present study also tried to understand the areas of strength and weakness in dental school learning environment. The faculty should be exposed to teachers' training and selected approaches to understand learning and provide a basis for eliciting principles that may inform and guide educational practice. This study emphasized the areas of improvement in dental school learning environment based on activation of prior knowledge, elaboration of new learning, learning in context, transfer of learning, and organization of knowledge toward learning. The environmental perspective includes the dynamic interaction of learners with their environment, communication skills,[50,51] observational learning, goal setting, self-monitoring, self-efficacy, and situated learning.

RECOMMENDATIONS

Comprehensive faculty development, which is more important today than ever before, empowers faculty members to excel as educators and to create vibrant academic communities that value teaching and learning. The need of the hour is (a) professional development – wherein faculty members are oriented to their faculty roles; (b) instructional development – wherein faculty members are permitted to attend teaching improvement workshops, peer coaching, and mentoring; (c) leadership development – wherein

faculty members are encouraged to involve in academic programs and excel as leaders to effectively evaluate and advance medical education; and (d) organizational development – organizational policies and procedures could be implemented that encourage and reward teaching and continual learning thus empowering faculty members to excel in their roles as educators. Dental schools can play a pivotal role in IPE education by communicating more effectively in campus-wide IPE initiatives.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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