

# STUDENTS' PERCEPTION ON INTEGRATED TEACHING AT A PRIVATE DENTAL COLLEGE, PAKISTAN

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## ABSTRACT

**Background:** Pakistan Medical and Dental Council (PM&DC) recommends integrated teaching, which enhances students' knowledge, skills and attitude, links the concepts of basic and clinical disciplines and ensures early exposure to patients to be introduced in undergraduate medical/dental education.

**Objective:** The current study is undertaken to identify students' perception regarding integrated teaching at a private dental college in Pakistan.

**Study Design:** Descriptive, Cross-sectional study.

**Place and Duration of Study:** HBS Dental College, 04 months (March-July 2023).

**Material and Methods:** All students (n=150) of the second, third and final year BDS were enrolled in the study. The response rate was 87%. A pre-validated, three-point Likert scale questionnaire was used to gather students' feedback.

**Results:** Total 130 undergraduate dental students participated in the study. The majority of the students gave a positive response towards the course content, teaching & learning and assessment methods in the integrated teaching. Approximately half of the students (50.7%) responded that learning resources were adequate and timetables were properly sequenced and well structured. The majority of students positively perceived that integrated teaching improves their application of knowledge (80.7%), logical thinking (77.7%), active interaction (84%), and motivation (73.8%). Besides this, most of the students also considered this method of teaching time-consuming and resource-demanding.

**Conclusion:** Dental students appreciated and preferred integrated teaching over traditional teaching. It is high time to incorporate integrated teaching throughout the undergraduate dental program. At a local level, this feedback and strategy can be utilized to provide an improved integrated educational experience to the students of HBS Medical & Dental College.

**Key words:** *Dental curriculum, integrated teaching, students perception, undergraduate dental education.*

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## INTRODUCTION

In any educational system, the teaching methodology serves as a framework that specifies the objectives, standards, and strategies, for not just promoting education but also for cultural reproduction. The integrated method of teaching has been implemented across the world<sup>1</sup>. In 1952 it was introduced for the first time in Cleveland, United States<sup>2</sup>. The General Medical Council (GMC) of the United Kingdom has also adopted integrated methods of teaching for their medical institutions. This concept prompted the Pakistan Medical and Dental Council (PM&DC) to adopt an integrated teaching in Pakistan<sup>3</sup>. Few local studies were carried out regarding the perception of students on integrated teaching, as a result of which some

suggestions evolved for further improvement<sup>4</sup>. PM&DC and the Higher Education Commission (HEC) now recommend interactive teaching to be adopted in undergraduate medical/dental education that will integrate the ideas of basic and clinical sciences and ensure early patient experience. This has sent a wave of curricular reforms throughout the country<sup>5</sup>.

Integrated curriculum has a horizontal integration in which there is integration of disciplines that are taught concurrently but independently at a certain level (academic year). In order to simplify the material and facilitate assessment, these disciplines are combined into one interdisciplinary block, giving students plenty of time for self-study<sup>6</sup>. Combination of the clinical and basic sciences components of a curriculum is the vertical integration. Beginning with the first year of medical school, vertically integrated courses introduce basic sciences embedded in a clinical setting<sup>7</sup>. A coordinated blend of the instructional strategies and the best materials from several areas are used in integrated teaching to help students learn more effectively and holistically. The human body is the best illustration of integration because it has numerous interconnected systems that operate in perfect harmony with one another that can be best taught by using different teaching methodologies. In order to achieve the required criteria, PM&DC has set standards for

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integrated teaching methodology, design and management of the curriculum<sup>8</sup>.

As with any program, feedback from the end users goes a long way for improvement. The aim of the study was to find out how students perceived integrated teaching in a private dental college.

## MATERIAL & METHODS

This descriptive, cross-sectional study was conducted in HBS Dental College Islamabad from March to July 2023. Ethical approval for the study was given by the Research Ethics Committee of HBS Medical and Dental College. A non-probability purposive sampling<sup>9</sup> was used because targeted population was small and we wanted to gather specific data and this was an efficient and cost effective method with limited resources.

All students (n=150) of the second, third and final year BDS were enrolled in the study. An informed consent was obtained from each participant. All these students were briefed on integrated teaching before distributing the questionnaire. The questionnaire containing 11 items, consistent with previous studies, was developed<sup>9,10</sup>. A three-point Likert scale (1=Agree, 2= Neutral, 3= Disagree) was used to explore student’s perception. It was developed by two experts from the department of medical education HBS Medical and Dental College. Content Validity Index (CVI) for these 11 items was 0.82 with Content Reliability index (CRI)=0.88 and reliability was verified using Cronbach’s alpha score which was 0.80. Permission to use the questionnaire was granted by the institutional head. The questionnaire was pretested to identify ambiguities if any. The questions were framed, keeping in mind the utility of the integration, understanding, appreciation and application of knowledge. The questionnaire contained course content, time management, teaching and learning methods along with evaluation methods. They were also asked about the perception on integrated teaching which was marked as positive and negative. Items were marked positive if found “Agree” and negative if marked as “Disagree”. The participants of the study were given a timeline to complete the questionnaire. After completion of the timeline, questionnaires were gathered and data was compiled. The descriptive data in the form of frequency distribution and percentages were analyzed using SPSS 22.

## RESULTS

Out of total 150 undergraduate dental students, the response

**Table:1 Demographic data of the participants (n=130)**

AGE	
Mean± SD	20.18 ± 1.24 years
GENDER	n(%)
Male	47 (36.1)
Female	83 (63.9)
ACADEMIC YEAR	n(%)
Second	46 (35.4)
Third	39 (30)
Final	45 (34.6)

### CAPSULE SUMMARY

- The study was undertaken to identify students’ perceptions regarding integrated teaching at a private dental college in Pakistan.
- Majority of the students appreciated and preferred Integrated teaching over traditional teaching.
- Integrated teaching should be incorporated throughout the undergraduate dental program.

rate was 130(87%), with an age range of participants from 19-22 years. The majority of participants were females (63.9%) with almost equal participation from the second, third and final years (Table 1).

The majority of the students gave positive responses towards integrated teaching. Almost 67% of participants found that the course was clear, 57.7% considered it manageable, 65.4% found it well-structured and 63.8% considered it well-balanced between theory and practical. Most of the students (73.1% and 70%) found that teaching and learning methods increased their interest and participation in learning respectively. Approximately half of the students responded that learning resources were adequate and timetables were properly sequenced and well structured. Regarding the assessment methods and their frequency & structure, majority of participants, 63.1%, 69.2% and 67% found them appropriate respectively (Table 2).

The majority of students positively perceived that integrated teaching improved their application of knowledge, logical thinking, active interaction, and motivation. Besides this, most of the students (77.7% and 75% respectively) considered this method of teaching, time-consuming and resource-demanding (Table 3).

## DISCUSSION

The primary goal of implementing new integrated teaching-learning techniques is to address the shortcomings of the current dental curriculum in addition to imparting knowledge in a way that is simple for students to understand.

The results of this study showed that students valued the integrated approach to teaching and learning and thought it was great for knowledge, application, understanding, critical thinking, boosted confidence, and clear concepts. Other studies reported results similar to ours<sup>3</sup>.

**Table:2 Response of Students (Frequency & Percentage) regarding integrated method of Teaching**

Items	Agree n(%)	Neutral n(%)	Disagree n(%)
The course objectives were clear	96 (67)	27 (20.7)	16 (12.3)
The course workload was manageable	75 (57.7)	35 (26.9)	20 (15.38)
The course was well structured to achieve the learning outcomes	85 (65.4)	25 (19.2)	20 (15.4)
The course provided appropriate balance between theory and practical	83 (63.8)	26 (20)	21 (16.2)
The teaching & learning method stimulated my interest in the subject	95 (73.1)	18 (13.8)	17 (13.1)
The teaching & learning resources were adequate	66 (50.7)	45 (34.6)	19 (14.7)
The teaching methods actively encouraged my participation and interest in the Lecture/SGD/PBL/Practical/Clinical Rotation?	91 (70)	17 (13.1)	22 (16.9)
The timetables were properly sequenced?	66 (50.7)	35 (27)	29 (22.3)
An appropriate time was assigned for the subjects offered	65 (50)	40 (30.8)	25 (19.2)
The assessment methods were appropriate to test my knowledge, aptitude & skills	82 (63.1)	29 (22.3)	19 (14.6)
The frequency of tests was appropriate	90 (69.2)	15 (11.5)	25 (19.3)
The test items properly reflected learning objectives and contents	87 (67)	27 (20.8)	16 (12.2)

**Table: 3 Response Pertaining to the Positive & Negative Perception towards Integrated Teaching**

	Items	Agree n(%)	Disagree n(%)
Positive Perception			
1.	It improves application of knowledge	105 (80.7)	25 (19.3)
2.	It improves logical thinking	101 (77.7)	29 (22.3)
3.	There is an active interaction and participation by all	109 (84)	21 (16)
4.	It motivates student to study	96 (73.8)	34 (26.2)
5.	It helps students to examine situations or problems holistically	98 (76)	32 (24)
6.	It reduces content duplication across subjects	92 (70.8)	38 (29.2)
7.	It is interesting	69 (53)	61 (47)
8.	It only helps small groups	34 (26.2)	96 (73.8)
Negative Perception			
9.	It is time consuming	101 (77.7)	29 (22.3)
10.	It requires more resources	97 (75)	33 (25)

**Table: 4 Teaching methods to be Adopted in Integrated Teaching**

	Items	Preferred n(%)	Not preferred n(%)
1.	Use of blackboard (Traditional Method)	55 (42.3)	75 (57.7)
2.	Interactive sessions	101 (78)	29 (22)
3.	Group discussions	104 (80)	26 (20)
4.	Demonstrations	96 (74)	34 (26)
5.	Problem based learning	90 (69.2)	40 (37.8)
6.	Lectures	67 (51.5)	63 (48.5)
7.	Self-directed learning	98 (75.4)	32 (24.6)
8.	Workshops/symposia	92 (70.8)	38 (29.2)
9.	Hands-on/practical/Skill lab teaching	107 (82.3)	23 (17.7)

The majority of students found the course objectives clear in integrated teaching than traditional teaching. This is a positive indication as learning objectives provide students with a roadmap for their academic journey and help students understand the purpose and direction of their studies, fostering a more focused and purposeful learning experience. The positive perception suggests that the integrated teaching approach effectively communicates the educational goals. Whereas, traditional teaching mainly focuses on handouts, books & notes and learning objectives are not well defined<sup>10</sup>.

Students' opinions on the manageability of the course workload varied. While a substantial portion found it manageable, a significant number were neutral. Other studies have shown that students are dissatisfied with the burden of coursework in particular, as well as with the provision of essential amenities and services<sup>11,12</sup>.

The students appreciated that incorporating the medical/dental topics was beneficial and interesting to them, and that improved the learning outcomes. Similar findings were recorded in other studies<sup>8,13</sup>.

The majority agreed that there was an appropriate balance between theory and practical components in the course. This is a crucial aspect in medical and dental education, ensuring that students not only acquire theoretical knowledge but also develop practical skills. Students appreciated that integrated teaching helped them in application of knowledge and skills which they learned during practical/pre-clinical teaching. A study conducted in 2018 suggested valuing prior knowledge and experience, promoting learner responsibility through facilitating rather than directing learning, encouraging learners to test out and apply new knowledge, and using small-group work, in order to foster the elusive skills of critical thinking and reflection<sup>14</sup>. The balance of clinical and basic medical sciences and their integration in a manner that best serves the medical student are sure to be the focus of expected innovations in medical education which is a dynamic process requiring ongoing improvement<sup>15</sup>. In integrated teaching & learning method, small group discussion (SGD) is utilized to support the application of knowledge & reinforce learning. Numerous activities including problem-solving, critical thinking, self-directed learning, and brainstorming can be included in small group conversations. A significant majority of this study's participants agrees that these teaching and learning methods stimulate their interest in the subject. This is a favorable outcome, as the engaged students are more likely to be motivated, participate actively, and retain information effectively. Other studies have shown that SGD is a more successful teaching method for increasing students' memory, comprehension of concepts, and attention span<sup>16,17</sup>.

Most of the students in this study believed that the teaching and learning resources were adequate. This indicates a positive perception but a portion of students remained neutral and some disagreed as well which suggests room for improvement. Adequate resources are fundamental to creating a conducive learning environment and for the effectiveness of the integrated

program's implementation. The administration must arrange and provide well-equipped teaching and learning spaces and educational material<sup>18,19</sup>.

Students perceived that the teaching methods like SGD, Problem base learning (PBL), Self directed learning (SDL) actively encouraged their participation in various instructional formats. This is essential for promoting active engagement and collaborative learning. These methods encourage learning by getting students involved and connecting concepts to actual circumstances. They enhance clinical reasoning, competency, and logical thinking<sup>20</sup>. Another study suggested fostering creativity and innovation in teaching and learning enhances students' critical thinking abilities and fortifies their professional competence by bringing up competency, leadership, and development of skills<sup>21</sup>.

Students also agreed that timetables were properly sequenced. Whereas, time allocation was concerned, participants had mixed opinion on whether an appropriate time was assigned for the subjects. According to one study, the short amount of time allocated to study in integrated teaching was among the issues encountered during its implementation<sup>22</sup>.

The students believed that the assessment methods were appropriate for testing knowledge, aptitude, and skills. It entailed collaborating across disciplines to produce a single paper for both block exams and end-of-module exam. The paper's questions came from the full course that was covered in that particular module. A significant majority also agreed that the frequency of tests was appropriate.

**Positive Perception:** Results showed that students appreciated integrated teaching in terms of application of knowledge with a substantial agreement on the integrated teaching improving logical thinking, a foundational skill in medical and dental professions. Similar finding was recorded in another study<sup>23</sup>. Students perceived that active interaction and participation in integrated teaching fostered a dynamic learning environment and motivated them. It helped students examine situations or problems holistically, aligned with the integrated approach's core philosophy. The participants perceived that integrated teaching reduced content duplication and considered it interesting. More or less similar findings have been reported previously<sup>24,25</sup>. Their response on integrated teaching, being interesting, is noteworthy. The majority agreed that integrated teaching is not only suitable for small groups but they thought that in large groups also the benefits of the integrated approach were more pronounced in class settings.

**Negative Perception:** Students perceived that integrated teaching was time-consuming that warranted attention. It is crucial to understand the specific factors contributing to this perception, whether it is the volume of content, the structure of classes, or other elements. The participants also highlighted that integrated teaching required more resources, similar observations were reported previously in some studies as well<sup>9,26</sup>.

Students in this study mentioned that they preferred interactive sessions, group discussions followed by demonstrations, to be problem-based. They also preferred self-directed learning, workshops, seminars, symposia, hands on training & practicals over the lectures/presentations and the use of blackboard (traditional method).

### CONCLUSION

Dental students appreciated and preferred integrated teaching over the traditional teaching. It is high time to incorporate integrated teaching throughout the undergraduate dental program. There are some obstacles in the way of the integrated teaching to be successful in terms of implementation such as; limitation of resources and trained staff, but in our opinion, this is the best approach to produce the kind of dentists that society will require in the future.

### LIMITATION

This study was conducted at one dental institution. Studies may be carried out at various dental colleges across different cities in Pakistan. It could be helpful to examine students' confidence and skills as they go through their academic careers.

### RECOMMENDATION

Additional multicentered, qualitative research is recommended, involving the nearby medical institutions and assessing the integrated curriculum's long-term effects on knowledge retention.

### AUTHORS' CONTRIBUTION

Sarah Ali	Drafting the Article
Sarah Ali, Fouzia Sultana, Naveed Mazhar Bhatti	Analysis and interpretation of data
Sarah Ali	Conception and design
Sarah Ali, Naveed Mazhar Bhatti	Acquisition of data
Sarah Ali, Naveed Mazhar Bhatti	Critical revision

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