

Integrated Teaching: the Need of the Hour

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Abstract

Integration means a systemic organization of teaching matter pertaining to different disciplines coordinating delivery of the learner to give a holistic approach to medical study. The objective of this study is to compare the effectiveness of integrated with traditional teaching. Twenty integrated and ten traditional sessions were conducted over five semesters. Duration of each session was 90 minutes. Sample sizes for integrated and traditional groups were respectively 5600 and 1400 students. Pre and post- test scores for integrated, pre and post- test scores for traditional and post-test scores for integrated and traditional teaching groups were compared. Faculty and students' feedback were analyzed. Difference in Pre and Post-Test scores for integrated teaching was statistically highly significant. Difference in Pre and Post-Test scores in traditional teaching group, though statistically significant, was less than that observed with integrated teaching. The difference in Post-Test scores obtained in integrated and traditional teaching groups was statistically highly significant. Ninety four percent Faculties agreed that integrated teaching was an effective mode of training. Ninety percent faculties rated the program on a higher scale. Ninety five percent students liked the concept of integrated teaching. Student-centered, patient-oriented approach is the fruitful outcome of the integrated teaching model, which will definitely help us to have a much needed "Basic Doctor."

Key words: Integrated teaching, Traditional teaching, Student-centred, Patient-oriented

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Introduction

The word integration means to make entire. The term is widely used in all the fields where the coordinated functioning of various departments is considered crucial for achieving the ultimate goal. In relation to education, it means a systemic

organization of teaching matter pertaining to different disciplines coordinating the delivery of the learner and managing it so as to secure optimum outputs and to give a holistic approach to medical study.

The need for integration has been advocated in many reports on medical

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education^{1,2}. The fragmented approach to teaching leads to disinterest amongst students, bringing out a product of inferior quality, ultimately affecting patient care. In developing countries like India, the concerns for higher education are best represented by a hexagon (Fig 1)³. The higher education system of India is being re-engineered to meet these concerns and especially for ensuring equity, relevance and quality.

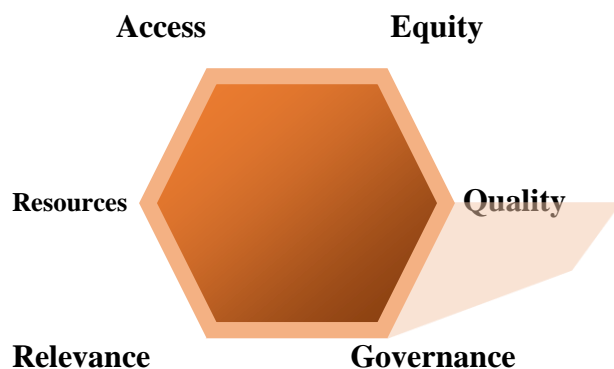


Fig 1. : The Power Hexagon depicting concerns of higher education in India

The Medical Council of India revised its regulations for Medical School curricula in 1997 in an attempt to promote small group learning with greater emphasis on health and community, problem-based approaches and horizontal and vertical integration⁴. The budding doctors have to be trained for inter-

sectoral coordination, creative development of appropriate technologies and identification of social determinants of health. This study was undertaken to inculcate the effectiveness of Integrated Teaching model in to the undergraduate curriculum.

Methods

The study was conducted from February 2011 to June 2013. It was done at Dr D.Y. Patil Medical College, Hospital and Research Centre, Pune. Twenty integrated teaching sessions and ten traditional teaching sessions were conducted over five semesters. The total sample size was 5600 students for integrated teaching and 1400 students for traditional teaching. The study was approved by the Institute Review Board. A time-table for integrated teaching session was prepared for each semester, with four topics being covered in each semester. The duration of each session was 90 minutes. Faculty from different disciplines presented their viewpoints within the stipulated time. The coordinator moderated the interactions and summarized at the end of the session. The pre and post-test scores for integrated teaching sessions, pre and post- test scores for traditional teaching sessions and post-test scores for integrated and traditional teaching groups

were compared using the Mann Whitney test. Faculty and student feedback, obtained by administering validated questionnaires, were analyzed. The overall rating of the program was done by the faculty using Likert scale (0 to 10; 0 being poor and 10 being excellent).

Results

The difference in the Pre and Post-Test scores for integrated teaching was statistically highly significant, indicating that an integrated approach was a very effective mode of training (Table 1).

The difference in the Pre and Post-Test scores in the traditional teaching group, though statistically significant, was less than that observed with integrated teaching (Table 2). The difference in the Post-Test scores obtained in integrated teaching and traditional teaching groups was statistically highly significant, indicating the effectiveness of integrated teaching approach (Table 3). Integrated teaching as an effective mode of training was agreed upon by 94% faculty members (Table 4). The programme on a higher scale by 95% faculty (Fig.2). Majority of students (95%) liked the concept of integrated teaching (Table 5).

Table 1: Comparison of Pre and Post-Test Scores in Integrated Teaching Group (n=5600)

Integrated Teaching	Pre-Test Mean ± SD	Post-Test Mean ± SD	Wilcoxon Z Value	P Value
Score	3.29 ± 1.78	5.50 ± 2.05	67.19	<0.0001

Table 2: Comparison of Pre and Post-Test Scores in Traditional Teaching Group (n=1400)

Traditional Teaching	Pre-Test Mean ± SD	Post-Test Mean ± SD	Wilcoxon Z Value	P Value
Score	2.69 ± 1.14	3.89 ± 1.21	33.63	<0.0001

Table 3: Comparison of Post-Test Scores in Integrated and Traditional Teaching Groups

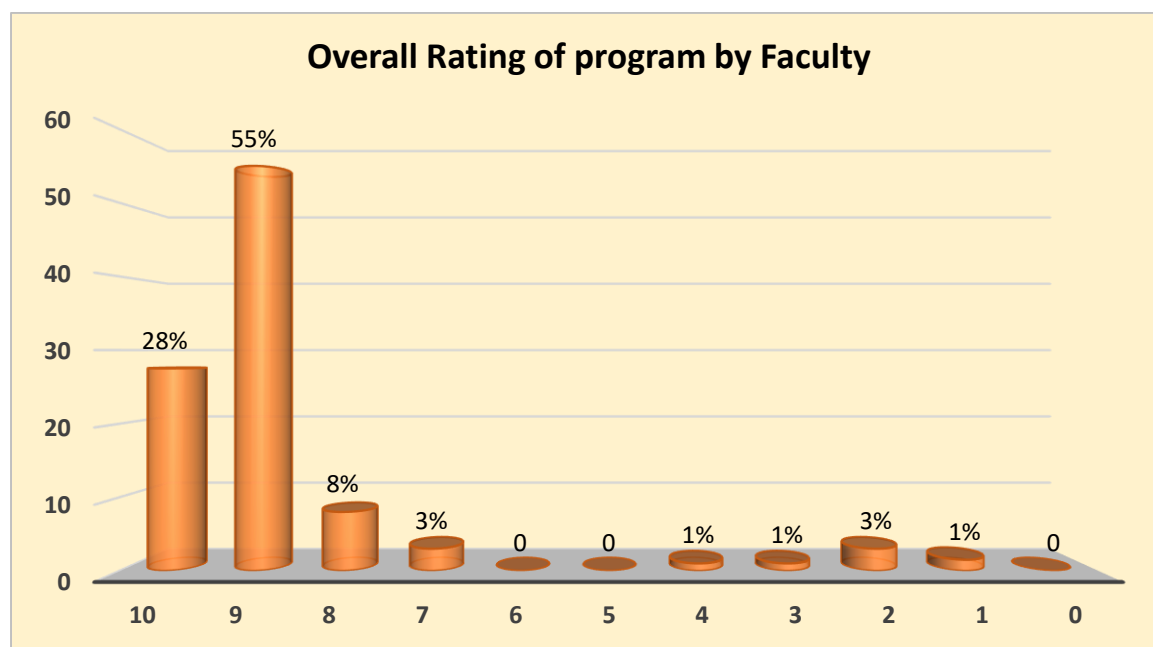
Integrated (n=5600) Mean ± SD	Teaching Traditional Teaching (n=1400) Mean ± SD	MW Test Z Value	P Value
5.50 ± 2.05	3.89 ± 1.21	36.47	<0.0001

Table 4: Faculty feedback n=189)

Sr. No.	Item	Agree/Like	Disagree/Dislike	No Response
1	Integrated teaching is an effective mode of training	178 (94.17%)	9 (4.76%)	2 (1.05%)
2	Selection of topics	162 (85.7%)	19 (10.05%)	8 (4.23%)
3	Quality of presentations	147 (77.7%)	24 (12.69%)	18 (9.5%)
4	Assessment of students	173 (91.5%)	16 (8.5%)	-
5	Overall conduct of program	176 (93.1%)	13 (6.9%)	-

Table 5: Student feedback (n=320)

Sr. No.	Item	Good	Poor	No Response
1	Concept of Integrated teaching	303 (95%)	6 (1.8%)	11 (3.2%)
2	Understanding of topics using Integrated approach	312 (98%)	8 (2%)	-
3	Quality of presentations	293 (92%)	27 (8%)	-
4	Framing of Timetable and time allocation	285 (89%)	21 (6.5%)	14 (4.5%)
5	Quality of Discussion	297 (93%)	23 (7%)	-
6	Assessment format	269 (84%)	44 (13.7%)	7 (2.3%)



(Scale 0 to 10, 0 being poor, 10 being excellent)

Fig. 2: Overall rating of programme by faculty

Discussion

There is enough evidence to suggest that the Indian Medical Education system is in the doldrums. It itself is suffering from several ailments including outdated curricula, ineffective teaching-learning process, lack of relevance, lack of research and absence of integrated teaching approaches^{4,5,6}. Abrahamson⁷ has identified various curriculum diseases such as curriculum disthesis (feeling of malaise), curriculum sclerosis (extreme departmentalization), curriculoarthritis (problems with both vertical and horizontal integration), curricular ossification (no desire for change), curricular carcinoma

(uncontrolled growth of one component hampering the others' growth).

The current study shows that 95% faculty considered integrated teaching as an effective mode of training and 85% liked the selection of topics. The overall conduct of programme was rated with high scores (9 and 10 on the Likert scale) by 83% faculty. The integrated approach promoted intra and inter-departmental interactions.

Dandannavar has pointed out that the Statutory Council has stressed upon need-based curriculum that should stimulate student's interest and inculcate a drive to learn more. The study concluded that

integrated teaching is essential to improve the quality of students and to have an effective diagnosis for better treatment of patients⁸. In a study by Kate *et al*⁹, significant results were obtained using integrated teaching. Around 85% students opine that integrated teaching helped them to retain the knowledge in a better way.

A curriculum is incomplete without the addition of unique educational experiences necessary to address the local, regional or national health needs. Medical schools should advocate interdisciplinary interactions and ensure that their graduates possess identified core competencies. Traditional teaching in medical education has always provided piecemeal information in water tight compartments. Knowledge learnt in isolation is rapidly forgotten. Integrated teaching overcomes the separation in student's mind between form and function of the system concerned, its diseases, their diagnosis, management, social and preventive aspects. Medical educationists have realized that there is a strong need for integrating basic and clinical medical sciences¹⁰. Students who are trained with an integrated curriculum make more accurate diagnosis than those trained in a conventional curriculum¹¹.

Basu *et al*⁽¹²⁾ have found integrated teaching to be feasible and more effective and acceptable than traditional teaching.

A study by Rehman *et al*¹³ has reported an overall satisfaction of 78% students in understanding, appreciation and application of integrated learning programme. Shashikala *et al*¹⁴ revealed that 99% students felt that a multidisciplinary approach for teaching helped in understanding the subject in a better way. Integrated teaching has facilitated the achievement of student outcomes¹⁵. This mode of teaching has the potential to improve knowledge, skills and comprehensive learning. Effective conduct of integrated teaching sessions requires proper planning⁽¹⁶⁾.

Conclusion

Integrated teaching promotes intra-departmental and inter-departmental interactions. The individual outlook is broadened, thereby creating an environment conducive for the development of individual department and the institute as a whole. A student-centered, patient-oriented approach is the fruitful outcome of the integrated teaching model, which will definitely help us to have a much needed "Basic Doctor."

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