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Reviving medical education through teachers training programs: A literature review

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Abstract:

The art of teaching in undergraduate and post graduate medical curriculum was revised in last century with targeted programs to equip the medical faculty with advanced teaching technologies. Medical education units (MEUs) were established by the medical council to train the existing medical faculty of the country in teaching methodologies. This study aimed to evaluate the MEU's impact on teachers' training and compare the status of trained teachers before and after the MEU era. Published literature and statistics on the MCI website were compiled to compare teachers' training status over time empirically. MEU, R.C., and N.C. have been highly efficient in improving the proportion of teachers trained from 5.38 to 50.32% across the country, especially after the upgradation of MEU in 2009. Proportion of the teachers trained increased from 5.38% to 50.32% due to the programs organized by various MEU, regional and nodal centres, especially after the upgradation of MEU in 2009. Lack of trained resource persons and administrative support were the common challenges faced. Properly organized MEU and planned activities should be emphasized in every institute. for effective development of the faculties.

Keywords:

Faculty development, medical education units, MEU, professional development, teacher training, ToT

Introduction

India shares the largest proportion in providing medical education with 612 medical schools with an intake of 91977 medical undergraduates yearly. A sporadic growth of the institutes has occurred in mere seven decades as only 22 medical institutes were operational in India at the time of its independence. Almost 96649 faculties are employed in teaching-learning activities as per the National Medical Commission website, but the quality of education is getting challenged by the rapidly changing doctor/patient ratio. The medical care facilities are getting compromised and facing difficulties at the conceptual and implementation level.^[1,2]

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The objectives and design of undergraduate and postgraduate medical education are to produce first-contact physicians/specialists, and researchers only. There is no provision in the curriculum to train the students to become medical teachers. Hence, there is a noticeable gap and a need to design and reform undergraduate and postgraduate curricula by incorporating modules in the postgraduate and undergraduate curricula to train them in teaching techniques as they are teachers-in-the-making.^[3]

The past two decades have been very challenging with a drastic increase in new medical institutes resulting in high demand for well-trained teachers. This shortage directly or indirectly reflects in the unwholesome practices during MCI inspections to fulfill the set norms.^[4]

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Academic development and validity in any system of education depend on the expert and trained faculty members; highly professional scholar-teachers are demanded by universities, Funding Agencies, and Society, which necessitates capacity building of medical teachers. It results in the need for developing teachers at all levels, junior and senior, i.e., from assistant professors to professors.

Today's multitasking needs of medical educators, teachers, researchers, and mentors can be effectively developed by various faculty development programs. But in India there is a lack of structured assessment of teachers, incentives, or rewards based on performances, making the faculty reluctant regarding the developments in medical education technology.

Several reasons for medical educators not opting for educational research were listed in a study by Singh T *et al.*^[5]

1. Clinical teachers are not emphasized to conduct research in medical education
2. Medical policymaking is not based on educational research
3. Unlike the disease-oriented research, the educational research findings are not applicable immediately
4. Clinical teachers are not oriented/trained in teaching, learning, and research in medical education

These findings were reflected in the lack of expertise of medical faculty to design educational research with low experience and expertise in qualitative research of medical education technology.^[6,7]

The 1986 National Policy on Education noted the importance of teachers in the quality of education. It directed to improve the quality of teachers by providing them with opportunities for professional development within the education system. This was aimed to prepare them with the right training and inculcating values to uptake creative work and innovation. It was planned to provide systematic orientation in education techniques and methods helping them to fulfill multiple roles and responsibilities.^[8]

Avinash Supe and Payal Bansal, in their paper on the training of medical teachers in India, identified the need for trained faculties who can develop effective programs to improve the quality of passing graduates. They also noted the insufficiency of the faculty training programs both in terms of number and content coverage.^[9]

In the paper published by Tejendar Singh and Payal Bansal, they concluded that a well-structured medical education unit is an effective tool for faculty development but the lack of recognition and rewards for the participation in FDP and generally low internal

motivation of the faculty are the major challenges every medical institute.^[5]

B. V. Adkoli and Rita Sood surveyed the status of the faculty development and medical education unit in India. They found an increase in the number of medical education units after the revised regulation of 1997. These MEUs focused on training medical teachers for teaching learning and assessment methods, and instructional media. The then-established units had well-trained and motivated faculty with good leadership and infrastructure to support their endeavors. The general lack of motivation and funding issues along with the lack of full-time faculty and time constraints were the major challenges. Mandatory participation, incentives, and rewards for participation in national-level networking were recommended by the participants.^[10]

In 2009, regional centers were recognized by "The Medical Council of India" for nationwide faculty development in medical colleges across India. The aim was to improve medical education by training the teachers. The major objectives of the centers were to:^[11]

- Training in newer teaching and assessment methods
- Provide knowledge and skills needed to perform various roles of competent faculty like teacher, researcher, mentor, and administrator.
- Communication and behavioral skills competency for clinicians were emphasized
- Providing knowledge of current research methods and tools necessary

A Delphi study, "Needs and priorities of Faculty Development for medical teachers in India" by Tejinder Singh *et al.*,^[12] focused on the felt need to prepare teachers to adopt the newer technologies that are becoming available. Prioritize the themes for F.D. programs in India based on the felt needs of teachers.^[13]

The study by Subhash Goswami and Manjiri Sahai focused on the various challenges of medical education in India and described the need for policy-making for faculty development. They noted the weakness of Indian medical education in terms of misdistribution, poor curriculum, poor assessment, neglect of research, and lack of faculty development programs. The role of medical services in the economic and overall development of developing countries calls for a policy decision to overcome this weakness in mentioned areas.^[14]

Zodpey S, *et al.*,^[15] in their report on faculty development programs for medical teachers in India, highlighted the importance of well-trained teachers in shaping the future cadres of doctors, especially in a country like India with is global hub for medical education. It was identified that the faculties are not sufficiently

prepared for teaching or training although they have good clinical knowledge and skills. Successful reforms in the education system can only be achieved with proper training of educators with faculty development programs. Inculcating values and passion for lifelong learning among teachers is mandatory for them to impart the same to their students.

Anil Kumar Agarwal explained in his article that the development of teachers is a challenge in India because there is a dire shortage of teachers here. The lack of opportunity for interested faculty in medical education technology and lack of opportunities for training are evident with only self-education or trial and error methods mostly adopted. The authors find two factors probably responsible for the challenges faced in quality medical education reforms: firstly the lack of studies owing to its qualitative nature which leads to rejection in the past, and secondly low ability of the educators to communicate regarding the qualitative methods of educational methods within the fraternity. Studies get grounded due to the qualitative nature of data as the mindset to scrutinize quantitative data is deep-rooted among the researchers.^[16]

In their original article, Dr. Tripti Srivastava et al.^[17] concluded that clinicians and academicians should actively involve in guiding the policies in medical education based on educational research. Faculty development programs should be focused to train them in conducting and communicating educational research.

Wardy NM suggested that institutes should create a culture of initiatives and opportunities for scholarship, faculty development, and advanced training and medical education units can play a vital role in developing this culture and motivating the faculty by handholding.^[11] Such empowered faculty could be trendsetters and generation leaders for evidence-based teaching-learning and assessment practices in the Indian medical education system.^[18]

Faculty development program includes activities like orientation, training, and development of faculty members to upgrade their skills as teachers, trainers, researchers, and leaders in medical education. All the freshly appointed teachers will need training in the art of teaching and opportunities for self-development in all their roles.^[19]

DK Srinivas and B V Adkoli elaborated on the evolution of medical education units and medical education technology training in India which is summarized in the following chart [Figure 1]:^[20]

The “Medical Education Units” was launched with structured objectives and defined roles. The primary

role of the MEU is capacity building of the teachers of the institute; another is to facilitate educational research. After the upgradation of MEU to regional and nodal centers, the percentage of trained faculty has increased, and there are notable contributions in the field of educational research.^[21]

The annual report 2011 focused on the compromised quality of Medical Educators due to relaxed eligibility at the time of appointment of a teacher to fulfill the adequate requirements of the number of teachers. According to Singh et al.,^[12] “Academic growth of any educational system depends upon expertise within teaching faculty; hence, high-quality faculty development is essential.” Quality of education can be enhanced by:^[1]

1. Awards and incentives to attract notable teachers,
2. Mandatory, structured orientation program on medical education incorporating innovative educational strategies.
3. Upgradation of medical education unit to the Department of Medical Education in all medical schools and motivation toward capacity building was emphasized.

In the present literature review, the researcher has observed the status of teachers trained in medical school in the pre-MEU, post-MEU, and post-upgraded MEU era by the teachers’ training centers. A literature search was performed in PubMed and Google Scholar database, and relevant articles were screened for the desired details as shown in the following PRISMA chart 2020 [Figure 2]. Training status was analyzed and compared in pre-MEU, post-MEU, and post-upgraded MEU eras.

A) Distribution of colleges sector wise [Table 1]

The first medical school in India was established in 1835 by the British Government. Till 1998, i.e. pre-MEU era total of 169 Schools was established; out of that, 115 were Government while only 54 were private. In the post-MEU period, a total of 120 medical schools were established, out of which 90 were private while only 30 were government schools. In the era of post-upgraded MEU, 190 schools were established, of which 118 were private, and 172 were government schools.^[22-24]

B) Status of trained faculty in the pre-MEU era (before 1998), post-MEU era (1999–2009), post-upgraded MEU era (2009–2017)^[22-24]

Table 1: Distribution of college sector wise

Period	Total no. of schools	Total of govt schools	Total no of private schools
1835 to 1998	169	115	54
1999 to 2008	120	30	90
2009–2017	190	72	118
Total	479	217	262

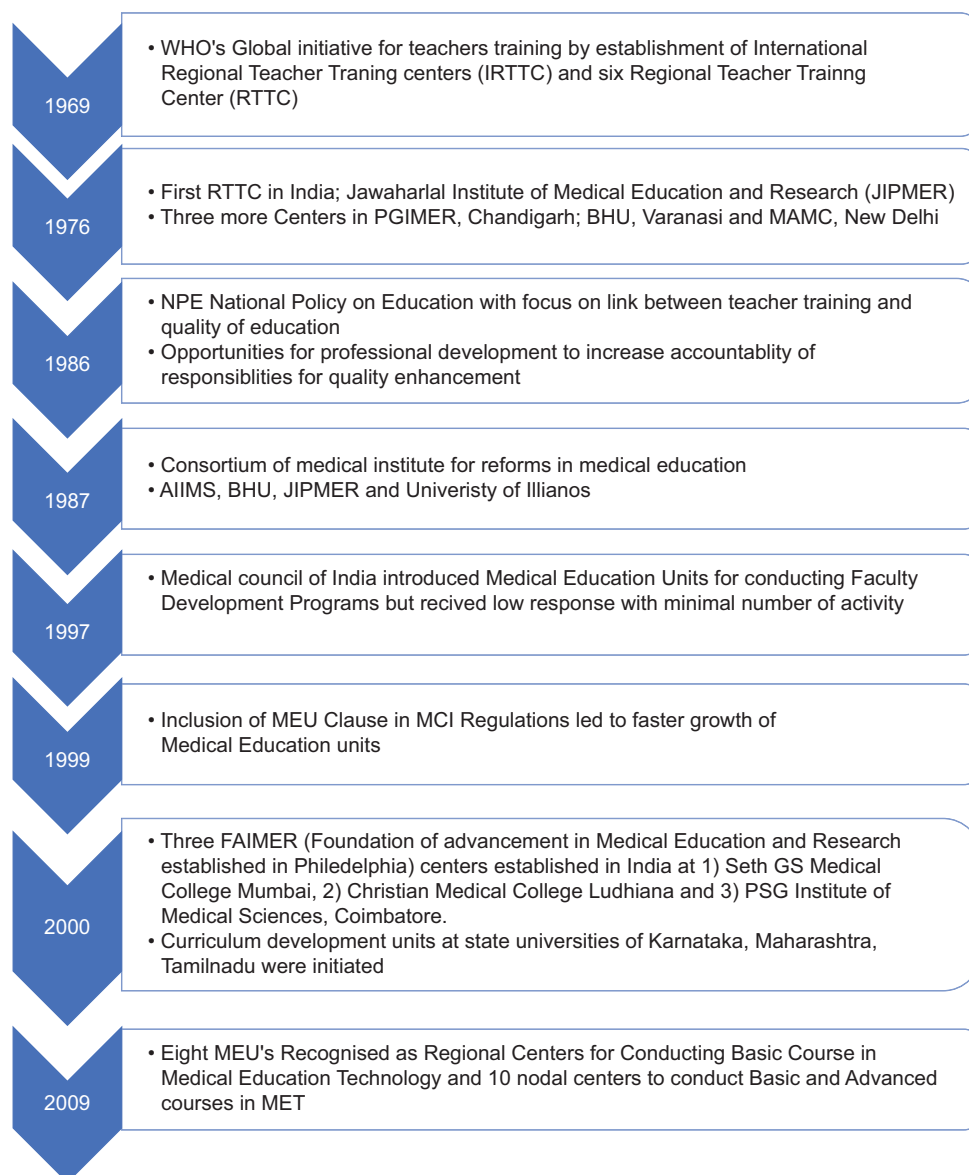


Figure 1: Evolution of Medical education units in the Indian medical education system

Till 1998, in 167 medical schools, 28177 teachers were recruited considering the intake capacity per annum. Teacher training facilities were available in the form of three national teachers' training centers established in 1975. This led to the increase in the proportion of trained faculty to only 1515 (5.38%), as shown in Table 2.

India witnessed a rapid increase in the number of medical schools from 1998 to 2008. A total of 122 medical schools were established with the recruitment of 18519 faculty. As per MCI guidelines, medical education units (MEUs) were recognized in all the medical schools with the responsibility to train their faculty in education technology. Along with three NTTCs, in 2001, three FAIMER regional institutes were established in India with permission to accommodate 16 to 20 participants per annum. With a functioning MEU in all the new

colleges, three NTTCs, and three National FAIMER institutes, the proportion of the trained faculty increased to only 5480 (11.81%). Between 2009 to 2017 additionally, 192 medical schools were established, with 27738 teachers recruited to train medical students. Considering the observations and recommendations from academic activities organized as a part of the platinum jubilee celebration of MCI, MCI has taken initiatives to establish regional centers all over India to train medical teachers in the basics of medical education. Accordingly, in 2009, MEUs of eight medical schools were recognized as regional centers for national faculty development. Considering the number of teachers, regional centers were increased to ten, and ten regional centers were upgraded to nodal centers. In this period, along with the MCI-recognized regional and nodal centers, there were three FAIMER institutes; through these faculty

Table 2: Status of faculty training before and after MEU and upgraded MEU

Period	No. of medical schools	No. of teachers available	No. of teachers trained	Percentage of teachers trained (%)
1835 to 1998	167 (Existing)	28177 (Existing)	1515	5.38
1999 to June 2009	120 (Existing)	18219 (Existing)	5480	11.81
July 2009 to Oct. 2017	192	27738	30311	50.32
Total	479	74134	37306	50.32
1985–2017				

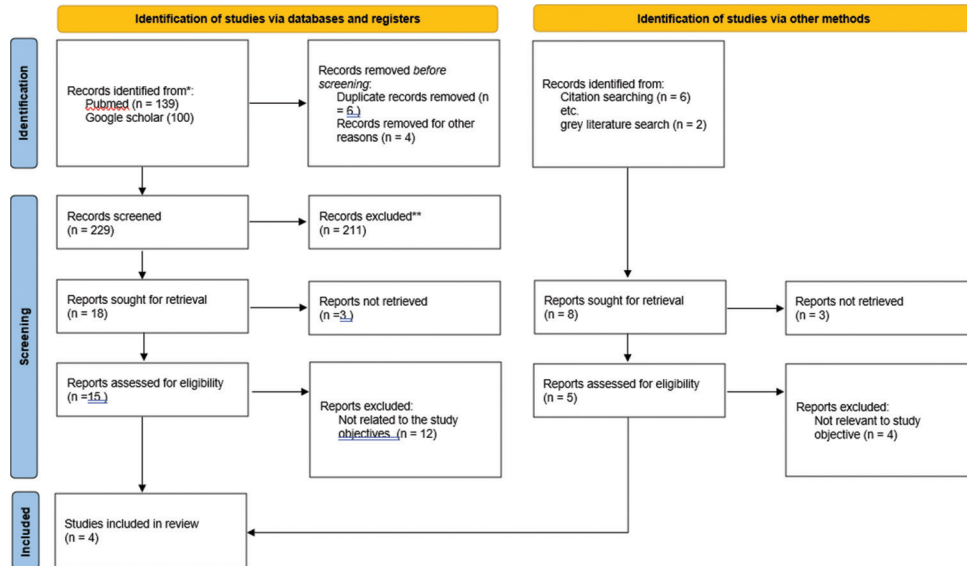


Figure 2: Prisma Chart

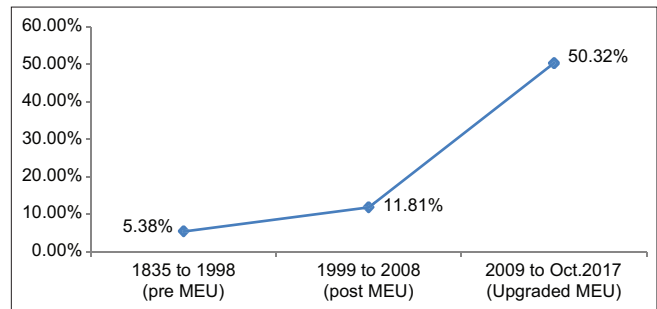
development activities, the number of faculty trained is 30311 (50.32) %.

The first medical school was established in India in 1835; till October 2017, there were 479 medical schools. In all the medical schools, 74134 teachers are recruited and only 37306 (50.32%) are trained in basic medical education.

When we compared the status of training of teachers trained in pre-MEU, post-MEU, and post-regional and nodal center periods, it was found that, during the pre-MEU period, 5.38% of teachers were trained; in post-MEU, the number became 11.81%. In post R.C. and N.C. period, it was 50.32%; this indicates a more than four times increase in the number of trained faculty after the faculty development initiatives taken by MCI [Graph 1].

C) Status of teachers trained by nodal center in Advance Course in Medical Education (ACME) and generation of educational projects^[22-24]

In the year 2014, ten regional centers were upgraded to nodal centers with a focus on CBME and advanced medical education technology. During the course, participants conducted a short educational research project and presented work in the form of posters. From 2014 to date, 776 teachers have been certified, and



Graph 1: Percentage of teachers trained before and after MEU and upgraded MEU

the same number of educational research projects is generated in Table 3 and Graph 2.

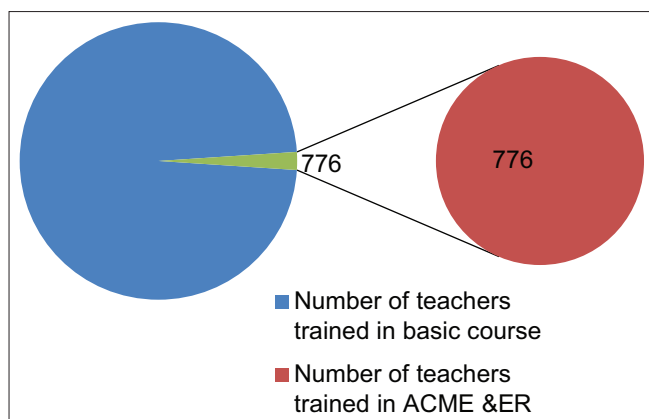
Challenges Faced by Training Centers

In this study, data were collected using a validated questionnaire that included question-related to challenges faced by the training centers. A medical school is a system that has input, process, and output as stages.^[25] Information received has been categorized on this basis as follows:

A. INPUT AS WELL AS OUTPUT: The teachers recruited in the medical school are the input and output, which are the participants of the training program.

Table 3: Status of teachers trained by nodal center in ACME and generation of educational projects

Period	Number of teachers trained in the introductory course	Number of teachers trained in ACME	Number of education research projects generated
2014–2017	37306	776	776

**Graph 2:** Status of teachers trained in Advance Course in Medical Education and ER projects generated

- Lack of motivation among teachers
- Resistance to change and attitudinal problems.
- Before and during the service teacher training for professional and self-development for medical teachers is not mandatory.
- Creative and innovative teachers are not awarded incentives (material or non-material).
- Lack of incentive, recognition, and scholarship
- Interference with a private practice
- Not proactive in their training

B. **PROCESS**—The person is integral to the process in the system administration support and the resource.

1. Administrative support

a. Lack of support from top management

The present system of recognition of medical institutions by the regulating apex councils like MCI focuses mainly on the count of teachers, buildings, infrastructure, and other facilities, which are not the measures related to the value of medical education.

b. Financial support

- No funding
- At least 1% of the school's annual budget should be reserved for medical education units' activities.

c. Infrastructure

- Should provide well-organized medical education unit with infrastructure structure and composition as per apical council guidelines
- Lack of infrastructure

d. Human resources

- Lack of faculty—full time

- Lack of support faculty

2. Trained manpower/resource person

- Lack of motivation among educators
- Motivated teachers should be given extra time for growth activities after the fulfillment of their clinical and teaching commitments.
- Groundbreaking work in the field of medical education does not receive any credit or reward from schools management.
- Teachers who have presented innovations or contributed to the progress of medical education are not suitably recognized and rewarded.
- There is no mechanism for periodic review of the performance of teachers. Teachers should be accountable.
- Efforts toward setting up medical education units and conducting faculty development programs must be recognized and credited.
- Time constraints and preoccupation with patient care
- Lack of motivation, gratitude, and scholarship

Conclusion and Recommendations

The recommendations arising out of the conclusive findings of the study are grouped into Recommendations:^[25]

1. Institutional level—operational purpose

- Effective faculty development can only be achieved by proper planning in setting up the medical education unit.
- The structure and composition are vital and should be planned well during establishing the medical education unit.
- A policy for providing more “intensives” for trained teachers should be planned.

2. Apical council

- Proposed standing mechanism.
 - Medical schools should be assigned according to geographical location to regional and nodal centers.
 - Efforts should be taken to enhance the participation of government schools.
 - Efforts should be taken to change perceptions toward private schools.
 - Medical education units should be upgraded into the Department of Medical Education in medical institutes.
 - Initiatives for broadening the scope of medical education units to Centres of Health Professional Education at Health Science University
 - Leaves and grants to the teachers attending FDPs, workshops, and conferences should be granted.
- Policymakers
 - Assess the functionality of the medical education unit during inspections

2. The status of trained faculty in the declaration form should not be notional but mandatory.
3. Upgradation of MEU to DOME should be mandatory for all medical schools.
4. The medical education Department should be included in the minimum standard requirement for undergraduate programs by MCI.
5. Equivalence status should be given to educational research publications and subjects-specific publications.
6. Educational research guidance clinics under the ambient of DOME should be mandatory.
7. Recognition of medical institutes should be based on the percentage of trained faculty available.
8. Periodic faculty development programs or training should form an essential requirement for development and promotion in the professional career
9. The apex council should identify and support the active medical units for faculty development.
10. Refresher courses should be made compulsory every five years, at least twice in the entire professional carrier of the faculty.
11. Certification of refresher courses should be linked with the grade and promotion of the faculty.

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Conflicts of interest

There are no conflicts of interest.

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