Perspective

Forty-five Years of Faculty Development: The Experience of the National Teacher Training Centre, Jawaharlal Institute of Postgraduate Medical Education and Research, India

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Abstract

In the last two decades, India has seen a massive rise in the number of medical schools. As a result, numerous issues, including the availability of qualified teachers, have made medical education in India challenging. Faculty development (FD) has gained significant attention because of its importance in educational capacity building. FD programs help faculty become more aware of their professional responsibilities. Medical education units can play a vital role in FD and thus improve the quality of medical training by training the teachers. The National Teacher Training Centre (NTTC), Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, was the first center established by the Ministry of Health and Family Welfare, Government of India in 1975, with the assistance of the World Health Organization, to promote the training of health professionals in educational science and technology, including educational planning and research. This article describes the profile of activities of NTTC, which is functioning under the aegis of the Department of Medical Education (DME), JIPMER, and lists the outcomes that contributed to the success of DME with particular reference to the last decade. The establishment of DME is seen to affect the medical school positively.

Keywords: Capacity building, department of medical education, faculty development programs, medical education technology, National Teacher Training Centre

Introduction

Medical education in India was started in the 16th century when the Portuguese introduced Western medicine to India.[1,2] At the time of independence (1947), there were only 20 medical colleges that admitted 1500 students annually. After 75 years of independence, colleges have increased by 30 folds, with 606 medical colleges admitting 92,115 students yearly for the MBBS course.[3-5] Now, India has the most medical schools in the world, which means that there are more medical teachers. The need for a systematic approach to faculty development (FD) to improve quality medical education is essential to meet the health challenges of the 21st century.[4,6] It is widely accepted that teachers in the health profession should possess teaching skills for effective teaching in their classrooms.[6-9] Hence, preparing teachers is vital to enhance their teaching effectiveness.[10-12] FD is a systematic, goal-oriented approach to professional advancement and growth. FD programs (FDPs) in medical education aim to facilitate the acquisition of knowledge and skills that enable one to contribute meaningfully to the advancement of medical education and are an integral part of the teaching profession.[12-14] FDP is a critical component of institutional effectiveness in medical and health profession education. FDPs are widely practiced in many medical schools across the world as it is broadly described as any action that improves faculty members' skills and helps them advance in their careers.[10]

The degree to which medical colleges are committed to FD will be reflected in their students' achievement of

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curricular objectives.[9,10] Faculty members who participate in professional development get an improved knowledge of content, pedagogy, and technological applications for scholarly teaching and research.[10,11] Although there is literature on FD interventions, there is a shortage of information on success stories and research, demonstrating the effectiveness of different models of FDPs. Knowing the best practices in FDPs and the success stories of the centers that run these FDPs will help individuals and organizations conducting FDPs apply these strategies to sustain their FDPs and take them forward. This article aims to describe the activities of the National Teacher Training Centre (NTTC), which functions under the administration of the Department of Medical Education (DME), Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), and to highlight the outcomes that have contributed to the DME's success with particular reference to the last decade.

National Teacher Training Centre and Department of Medical Education

In the 1970s, the World Health Organization (WHO) promoted a global training program for medical teachers on educational science and technology. The University of Illinois, USA, was the nodal agency for this initiative. As a part of this initiative, Regional Teacher Training Centres (RTTCs) were set up by the WHO. In South-East Asia, RTTCs were established in Thailand and Sri Lanka. In 1974, the Government of India constituted a Working Group on Continuing Medical Education, which recommended the establishment of teacher training centers in India. As a first step, a team of three senior faculty members of JIPMER were sponsored by the WHO to undergo training at the RTTC in Peradeniya, Sri Lanka, in 1975. Because of the initiatives taken by JIPMER in the field of medical education, with the support of the faculty members who underwent the RTTC training, the first NTTC was established in JIPMER, Pondicherry, by the Ministry of Health and Family Welfare, Government of India, with the assistance of WHO in 1975. This initiative aimed to promote the training of health professionals in educational science and technology, apply systematic educational planning to medical education, and conduct educational research. The first National Course on Educational Science for Teachers of Health Professionals (NCESTHP) was held in March 1976. Encouraged by the activities of the NTTC at JIPMER, the Ministry of Health and Family Welfare established three more centers, one each at the Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, Institute of Medical Sciences, Banaras Hindu University, Varanasi, and Maulana Azad Medical College, New Delhi. The NTTC at JIPMER, popularly called the "Mother NTTC," is the only NTTC in India that continues to function and conduct the NCESTHP twice a year without interruption with the financial support provided by the JIPMER administration.

With a commitment to meet the fast-growing demand for national educational capacity building in medical education, the DME was established at JIPMER in 1994 with a mission to promote excellence in FD for quality medical education and professionalism. This led to the merger of NTTC with the DME. The DME continued to conduct the NCESTHP twice a year. The DME functions with a full-time faculty qualified in education technology and with adequate infrastructure, including a skill lab and a supporting workforce [Table 1]. Faculty members from the preclinical, paraclinical, medical, and surgical disciplines of JIPMER serve as the resource persons for the NCESTHP courses conducted at JIPMER [Table 2].

Until 2013, the course was 10 days long and limited to 30 participants from medical colleges across India. Based on the feedback from participants about the accessibility of learning resources, the availability of opportunities for continuing medical education, and the duration of the program, the 10-day national course was reduced to 6 days from 2015. As of April 2022, the DME conducted 84 onsite, 2 online (during COVID-19), 6 offsite national courses and trained 2226 teachers of health professionals across the country [Tables 3 and 4].

Table 1: Department of Medical Education administration

Faculty/staff	Strength
Permanent faculty	1
Technical supervisor	1
Technical assistant	1
Stenographer	1
Data entry operator	1
Multitasking staff	1

Table 2: Resource faculty and their qualifications in medical education technology

Item	*n*
Total number of resource faculty, including permanent faculty	21
Faculty underwent NTTC course (NCESTHP)	21/21
Faculty underwent NMC RBCW in Medical Education Technologies	16/21
Faculty underwent NMC AETCOM	15/21
Faculty underwent NMC CISP	16/21
Faculty underwent NMC ACME	10/21
FAIMER fellows	7/21
American College of Surgeons Certified ATLS Educator	1/21
Faculty with MEd or MHPE degrees	2/21
Faculty with PhD in Education Technology (Medical Education)	1/21

NTTC=National Teacher Training Centre, NMC=National Medical Commission, RBCW=Revised basic course workshops, AETCOM=Attitude, Ethics and Communication Module, CISP=Curriculum Implementation Support Program, ACME=Advanced Course in Medical Education, FAIMER=Foundation for Advancement of International Medical Education and Research, ATLS=Advanced Trauma Life Support, MEd=Masters in Education, MHPE=Masters in Health Profession Education, NCESTHP=National Course on Educational Science for Teachers of Health Professionals

Table 3: Details of National Course on Educational Science for Teachers of Health Professionals

	From	To	Total number of courses conducted	Total trained
On-site NCESTHP	1976	2022	84	2002
Online NCESTHP	2020	2021	02	53
Off-site NCESTHP	2014	2017	06	171
Total				2226

NCESTHP = National Course on Educational Science for Teachers of Health Professional

Table 4: State-wise, Indian faculty and country-wise World Health Organization fellows trained in National Teacher Training Centre

Country/State/WHO fellows	Number of participants
Andhra Pradesh	184
Assam	8
Bihar	80
Chandigarh	7
Chhattishgarh	51
Goa	21
Gujarat	48
Himachal Pradesh	3
Haryana	4
Jammu and Kashmir	2
Jharkhand	4
Karnataka	263
Kerala	165
Maharashtra	163
Manipur	8
Manipal	7
Madhya Pradesh	61
Meghalaya	5
New Delhi	26
Odisha	66
Puducherry	586
Rajasthan	26
Sikkim	3
Tamil Nadu	229
Telangana	35
Uttar Pradesh	46
Uttarakhand	60
West Bengal	44
Afghanistan	1
Bangladesh	6
Mongolia	1
Nepal	13
Total	2226

WHO=World health organization

Faculty Development Model of National Course on Educational Science for Teachers of Health Professionals

There are five traditional approaches to teachers' professional development. They are individually guided, observation/assessment, involvement in a development or improvement process, training, and inquiry models.[15,16] The NCESTHP follows the 'training model' of FDP. This paradigm assumes that teachers can replicate certain behaviors and techniques in their classrooms. Training improves knowledge and skills. It is also a low-cost way for teachers to learn. A typical training program includes exploration of theory, skill demonstration or modeling, practice in simulated environments, and performance feedback.[9,17,18] The other listed models are also applicable to the various teacher development programs that the DME conducts, for example, the conduct of peer observation and feedback about lectures (observation/assessment model), the undertaking of research by teachers (individually guided teacher development model), the involvement of teachers in curriculum development or program design (involvement in a development process model), and the training of teachers in educational research techniques to enable them to conduct action research to solve problems that they identify in their practice (inquiry model). Below, we outline different aspects of the FDP model used in NCESTHP.

Aim

The broad aim of the NCESTHP was to train the participants to apply the principles of educational science as applicable to undergraduates' training, especially in the areas of educational objectives, teaching–learning experiences, and evaluation.

Sessions and instructional design

The course comprises 26 sessions covering the major aspects of medical education, viz., taxonomy of learning domains, objectives, teaching–learning process and evaluation, educational research, curriculum, and academic leadership. It is conducted in a workshop format with interactive sessions such as presession homework, individual tasks, group tasks, role plays, group discussions, educational games, video-based teaching, and attitude development activities. The sessions on practicing teaching skills (microteaching), construction of multiple-choice questions (MCQs), computer-assisted learning, group dynamics, curriculum development, role-play on nonscholastic abilities, and viva-voce are completely learner centered. Previously, the course also included individual project planning and a visit to a-reputed educational institute to familiarize participants with learner-centered education.

Assessment

A continuous and comprehensive assessment is followed to assess the participants' performance. A preworkshop evaluation form is circulated to know the participants' prior knowledge and experiences in medical education and their priorities with regard to the educational sciences and medical educational technologies. This helps the organizers in effective planning and execution of the workshop sessions. The continuous assessment includes one week of online precourse learning activities on Google Classroom, a pretest, feedback on the daily sessions, assessment of teaching skills during microteaching, assessment of outcomes of individual and group activities, and a posttest. A program evaluation is done at the end of the course. To promote the reflection on

learning, each day's first session begins with a report on the previous day's events and a review of the day's sessions by the participants. During this National Course, participants are asked to develop an individual project proposal for implementation in their respective institutions. This allows participants to select topics related to medical education and develop an action plan to implement and evaluate the intended outcomes. The course curriculum is regularly modified based on current trends in medical education and feedback from participants and resource faculty to address all essential components of teaching–learning and medical education technology. E-mail, Google Classroom, WhatsApp group, and direct instruction are used to disseminate knowledge and foster active learning.

Program evaluation

To design future FDPs that better meet the needs of individual faculty members and sponsoring institutions, existing FDPs must be evaluated.[9,17] We evaluate NCESTHP using a validated Kirkpatrick model with four levels of program outcomes (satisfaction, learning, performance, and career change). A daily session evaluation form, pretest, posttest, and an online survey questionnaire are utilized to collect the above data.

Level 1: The first outcome level is reaction, which measures participant satisfaction with the program. After each day's training, participants are asked to fill out a standardized feedback form. The feedback is discussed at the end of the day's faculty meeting with the day's rapporteurs. The next day's session plans may be modified based on the constructive and feasible suggestions.

Level 2: This level of outcome measures the program's impact on participants' knowledge and learning attitudes. The pre- and posttests assessed the participants' knowledge. The pre-and posttest group score difference was consistently high, indicating that the NCESTHP participants acquired knowledge.

Level 3: Outside of the training context, the third outcome level examines verifiable behavioral changes associated with FDP. Attending the NCESTHP resulted in participants creating resources and initiating educational research projects. Participants reported a development in their attitude toward educational science. They further acknowledged that these desirable changes in them were due to the group dynamics generated during the sessions and the interaction opportunities provided by the faculty and organizers during the course.

Level 4: The fourth outcome level examines the FDP's impact on the learner's professional life and the organization. The course has a nationwide influence as participants have established medical education units (MEUs) in their medical colleges. This course has supported several of today's top medical educators in India. Many have served to promote medical education technologies at work. These indicators highlight the importance of the DME at JIPMER in promoting medical education and building capacity in India.

Success indicators

Qualitative analysis of the program evaluation data revealed a high level of satisfaction among the participants. This is evident from the fact that the workshops are consistently rated as beneficial to the participants' personal and professional lives. They also recognized the practical relevance and applicability of teaching methods. Desirable changes in teaching behavior were consistently reported by many of the participants. Participants expressed that their attitudes toward organizational environments and leadership responsibilities have become more positive. Participants acknowledged that their attitude toward their organization had improved and recognized that their leadership qualities could help them achieve their institutional goals. A desirable change in their efforts toward designing and conducting educational research was evident from the research reports shared by the participants for publication in the NTTC Bulletin and the Best Educational Practices volumes published by the Alumni Association of NTTC JIPMER (AANJ). Many expressed an increased awareness of their strengths and limitations and recent trends in medical education. A strong feeling toward networking and community of practice was also expressed by many. The Medical Council of India, which is currently replaced by the National Medical Commission (NMC), praised the DME's work and recommended that NTTC in JIPMER establish similar centers in other parts of the country, as well as strengthen existing MEUs in all medical colleges. NTTC JIPMER has trained most of the heads of MEUs across the country, proving the course's value in setting up MEUs, contributing to curricular reforms, and developing teachers' capacity. Further, many alumni are now serving as heads of MEUs, members of national bodies and curriculum committees, deans, directors, and vice-chancellors of universities.

Department of Medical Education as National Medical Commission Regional Centre for Faculty Development Programs

In 2015, JIPMER was recognized as a regional center for faculty development programs in medical education technologies by the NMC of India. Eighteen medical colleges from Tamil Nadu and Puducherry are affiliated with JIPMER regional center. The JIPMER NMC Regional Centre functions with sixteen resource faculty who are qualified as per the NMC norms [Table 2].

To date, the JIPMER Regional Centre has conducted one Basic Course Workshop in Medical Education Technologies, ten Revised Basic Course Workshops (RBCW) in Medical Education Technologies, ten workshops on Attitude, Ethics and Communication Module (AETCOM), and ten curriculum implementation support programs (CISP). As of date, JIPMER as a regional center has trained 827 teachers of health professionals across Tamil Nadu and Pondicherry [Table 5].

The JIPMER Regional Centre also facilitates conduct of RBCW, AETCOM, and CISP in the colleges affiliated with

JIPMER Regional Centre, under its observation. Two thousand two hundred and seventy-seven teachers were trained in these colleges affiliated with the JIPMER Regional Centre. These were conducted in addition to the regular onsite and offsite programs [Table 6].

Offsite Faculty Development Programs, Mentoring, and Consultancy

Because JIPMER is a mentor institute to some of the Institutes of National Importance (INIs), the NCESTHP was also conducted as an offsite workshop at AIIMS Patna, AIIMS Bhopal, AIIMS Rishikesh, and AIIMS Bhubaneshwar. The DME also supports all the INIs by accommodating participants regularly in each onsite program. In recognition of its work, based on the request from the Ministry of Health and Family Welfare, Government of India, in 2014, the DME conducted a special edition of NCESTHP for the faculty members of Community and Family Medicine working in the newly started AIIMS institutions. The DME also provides consultancy to INIs and the colleges affiliated under JIPMER NMC Regional Centre to set up MEUs and faculty training programs. There are also requests coming from different medical colleges, dental colleges, and colleges running the Indian System of Medicine in other states seeking consultancy for FD and setting up MEUs. The DME actively finds ways to address those demands without affecting the routine work schedule.

Table 5: Details of workshops conducted at Jawaharlal Institute of Postgraduate Medical Education and Research National Medical Commission Regional Centre

Program	Number of workshops conducted from April 2015 to April 2022	Total participants trained in these workshops
BCW in Medical Education Technologies	1	30
RBCW in Medical Education Technologies	10	269
AETCOM	10	255
CISP	10	273
Total		827

BCW=Basic course workshops, RBCW=Revised BCW, AETCOM=Attitude, Ethics and Communication Module, CISP=Curriculum Implementation Support Program

Table 6: Workshops conducted by affiliated medical colleges under the observation of Jawaharlal Institute of Postgraduate Medical Education and Research National Medical Commission Regional Centre

Program	Number of workshops conducted	Total participants trained
RBCW in Medical Education Technologies	44	1272
AETCOM	3	88
CISP	33	917
Total		2277

RBCW=Revised basic course workshops, AETCOM=Attitude, Ethics and Communication Module, CISP=Curriculum Implementation Support Program

Institutional Programs

The DME also regularly conducts the following training programs for the faculty, residents, and students of JIPMER:

1. Two-week Foundation Course for 1st-year MBBS – Once a year
2. Interns Orientation Programme on Quality Care – Twice a year
3. Postgraduate Orientation Programme on Research, Ethics, Communication, and Evidence-informed Medicine – Twice a year
4. Tamil Language Learning Programme for Students, Residents and Faculty of JIPMER – Once a year
5. General Education for M.Sc., Nursing
6. Mentorship Program for MBBS students
7. Short FD workshops on question paper setting, blueprinting, framing MCQs, providing effective feedback, information and communication technology (ICT) tools for teaching, learning, and assessment, simulation-based skill training, academic leadership, simulation-based skill training, early clinical exposure, soft skills for medicos, critical thinking, and creativity were organized by the DME on different occasions
8. Residents are expected to learn essential nonclinical skills and soft skills, such as how to lead teams and how to teach.[19] Every year, the DME organizes the "Residents as Teachers" – a three-day training program on educational science for senior residents working in JIPMER to meet these needs. The main objective is to familiarize residents with basic teaching, learning, and evaluation methods when developing their bedside clinical and bench teaching skills. They also learn how to lead a team and work through conflicts.

Contribution to Curricular Reforms

The role of DME is multifold in a medical school that strives to improve medical education and educational research and encourage the institution to identify and adopt best practices in medical education.[12,20,21] The DME in JIPMER promotes the institution's instructional goal and the professional identity of medical education in JIPMER, which is critical to the discipline's growth. With the administrative support of the Dean (Academic), the DME has actively contributed and continues to contribute to reforming the undergraduate and postgraduate curriculum in JIPMER. In 2016, the DME was instrumental in implementing the new MBBS curriculum following the recommendations of the Graduate Medical Regulations proposed by the NMC in 2012. Currently, in association with the Dean (Academic), the DME has initiated revising the postgraduate medical education curriculum in JIPMER.

Research, Publications, and Creations

Like any other academic department, a DME is responsible for innovating, evaluating, and disseminating the evaluation results. While research in medical education shares many of the same problems as other research areas, it also has unique issues that are not found in biomedical research.[22,23] The DME has carried out experiments and research in education such as content analysis of question papers, the attitude of faculty toward e-learning, preparedness of interns for hospital practice, Information and communication technology (ICT) usage by the students of medical and allied health sciences, problem-solving skills, critical thinking among interns, telemedicine and tele-education, and engaging strategies for remote learners, and has disseminated the results of the evaluation in scientific journals. DME's past and present faculty members have prepared assessment tools in their respective disciplines, published original articles in scientific journals, and authored books on educational technology and medical education.[11,24,25] Communication skill is an essential component of clinical training. Effective doctor–patient communication facilitates better compliance and health outcomes, reduces litigation, and enhances doctor and patient satisfaction.[26] The past and present resource faculty of DME have created short videos to foster communication skills among the students and residents. These videos are being effectively used by faculty and residents for teaching and learning basic communication skills through video-based education and training. The DME has also supported the Dean (Academic) in compiling a student manual for MBBS students and developing blueprint for question paper setting and tools for obtaining students and teachers feedback about teaching–learning environment and a tool for program evaluation of courses.

The DME faculty developed a free Android app called 'MedEd Explorer', which can be downloaded from Google Play Store. MedEd Explorer contains the fundamentals of educational science applicable for medical and health professions education. Teachers in medical and other health professions can use MedEd Explorer to learn and understand basic educational science concepts and terminologies. MedEd Explorer app contains text, images, full-text links, web links, video links, quizzes, feedback forms, etc. This app can be used for faculty development and capacity building activities in medical and health profession education.

New Initiatives

Advanced Trauma Life Support Instructor Course

Since 2014, JIPMER has been a center for Advanced Trauma Life Support (ATLS), functioning under the aegis of ATLS India. The DME has an ATLS educator certified by the American College of Surgeons who periodically conducts the ATLS Instructor Courses in JIPMER and other regional centers in India and other member countries of ATLS Region XVI. To date, the ATLS educator has conducted thirty instructor courses since its inception under the leadership of the ATLS India Chair.

Students feedback and peer observation

Evaluation is an integral part of medical education. Although several ways exist to evaluate teachers, student feedback is an authentic and reliable one. Student feedback can provide valuable information to faculty, students, and administrators for improving teaching, learning, and assessment practices.[27] The DME collects online anonymous feedback from students about their learning experience using a standard questionnaire. This feedback is submitted to the Dean (Academic) for further action. Peer observation enables teachers to observe and learn from others' teaching practices. It provides an opportunity to learn from each other and provide constructive feedback to other teachers. Peer observation creates opportunities to understand the impact of one's own teaching on student learning.[28] In 2020, a notified peer observation scheme was introduced by the Dean (Academic) in association with DME, where senior trained faculty are deployed as observers to observe the teaching sessions of other faculty and provide feedback based on their observations and the feedback from students. An objectively structured feedback tool and a feedback mechanism were developed by DME for this purpose. The observed teacher receives constructive feedback on how to improve their teaching. This information is responsive but not evaluative and may be used by the teacher in future teaching experiences.

Basic life support and cardiopulmonary resuscitation community outreach program

Basic life support (BLS) and cardiopulmonary resuscitation (CPR) are rapidly evolving fields. BLS and CPR are lifesaving techniques that can be used in various situations.[29,30] DME regularly organizes BLS and CPR training for the MBBS students, interns, and residents of JIPMER in association with the Department of Emergency Medicine. In an emergency, school teachers are expected to perform CPR on students.[29,30] The DME introduced a community outreach program in 2019 and conducted CPR training for the students and teachers of selected colleges in the Union Territory of Puducherry.

PhD research program

With the support of the Dean (Academic) and Dean (Research), a PhD program in medical education was started with effect from the academic year 2020–2021, and two candidates (one full time and one part time) were admitted with a monthly stipend and an intramural grant from JIPMER administration. Studies on the development of trust between the trainer and trainee in postgraduate surgical education and simulation-based medical education were the research areas undertaken by the candidates admitted to the PhD program.

JIPMER Advanced Course in Research Methodology

Lack of effective leadership is a major global threat today. To meet the contemporary threats and challenges, health organizations and medical schools, like other institutions, require competent and effective leaders.[31] With the support of the Dean (Research), the DME launched a new course titled,

"JIPMER Advanced Course in Research Methodology" with effect from 2021 to 2022. This course is meant for the faculty of JIPMER to promote leadership in research. This course was designed, developed, and implemented by the DME following the principles of hybrid pedagogy.

Skills lab

Skills lab is an instructional facility that provides a safe environment where students can practice clinical skills before applying them in real practice. They help ensure that all students learn the necessary skills and are adequately tested before working on real patients. They also help students develop, maintain, and improve their clinical abilities.[32] The DME initiated simulation-based medical education and skill training by opening a skill lab in 2012. The skill lab houses a range of mannequin simulators and task trainers that are used to impart training to faculty, residents, and students on clinical skills.

Foundation course for allied health sciences

In collaboration with the Dean (Academic), the DME extended its academic support in designing and conducting a formal year-long foundation course for the first year of B.Sc., Allied Health Sciences, the first of its kind in India, beginning with the academic year 2021–2022.

Faculty development programs for JIPMER Karaikal

JIPMER Puducherry started a new medical college at Karaikal in 2016. The DME conducted a series of offsite workshops to train JIPMER Karaikal's faculty in skills and strategies of teaching, question paper setting, and simulation-based medical education.

Educational response to COVID-19

The COVID-19 pandemic has disrupted medical education and health-care systems globally.[33] The DME responded to the challenges posed by COVID-19 in various ways. The 83rd and 84th NCESTHP and other institutional programs and short workshops were conducted completely online. The usual 6-day face-to-face NCESTHP was redesigned for online instruction and conducted as ten forenoon sessions on weekdays with weekend assignments. The sessions were designed and delivered both in asynchronous and synchronous mode, and the contents were organized appropriately for transactions on digital platforms. Various digital tools, including Zoom for live interaction, Interactive PowerPoint with voice over, Google Classroom for asynchronous activities, Testmoz for pretest and posttest, Google Forms for online feedback and program evaluation, Poll Everywhere, and VoxVote for interactive presentations, were judiciously used to deliver course content effectively and efficiently. WhatsApp was effectively used for group communication, discussion, and activity. Simultaneously, YouTube was used for microteaching and submitting microteaching videos for fulfilling the course requirements. Evaluation of participants engagement in learning was done at different stages (i.e., presession and precourse, during the session, postsession, and postcourse). Evaluation is based on the participation in Google Classroom activities and other asynchronous activities, participation in live sessions, completion of group tasks, creation of new learning resources, daily feedback from participants, program evaluation, and submission of a report of any action research undertaken after attending this course. The interaction analysis of Google Classroom and WhatsApp groups and the outcomes of group tasks revealed that the participants had generated an adequate volume of knowledge. The offline activities enabled the participants to become collaborators and creators of new learning resources in the form of e-modules, monographs, powerpoint presentations, and video lessons.

Webinars

Webinars were used as an engagement strategy to engage the remote learners in the wake of COVID-19. Sixteen structured national webinars on various topics in medical education were organized during the COVID-19 to engage NTTC alumni and other teachers in health professionals. Before the lockdown, due to COVID-19, the DME proactively conducted an in-house workshop on ICT tools in medical education, which helped JIPMER faculty to use digital tools for remote teaching during the lockdown period. The DME released a strategy document on engaging remote learners in medical education in the wake of COVID-19.[34]

Alumni Association of NTTC, JIPMER

Participants who have successfully undergone the NCESTHP become a member of the Alumni Association of NTTC, JIPMER (AANJ). All members receive information on the activities and programs organized by the DME. The DME in association with the AANJ has organized the following activities:

Medical education conference (MEDUCON)

Medical education conferences help keep up with current research, communicate best practices, and develop new skills and techniques.[35] The MEDUCON is organized every 2 years to bring together the NTTC alumni, other health professionals, and residents to share their teaching, learning, and research experiences. Nine MEDUCONs have so far been held through 2021. The next MEDUCON is scheduled for 2023.

Educational short film festival (MEDICOFF)

Movie clips and short films can serve as effective teaching tools to teach medical students and residents about psychosocial aspects of medicine. It also promotes active learning, which is a part of constructivist learning theory, in which learners actively build concepts or ideas upon preexisting foundations.[36] Considering this, the first national educational short film festival titled, "Medicina Corto Film Fest (MEDICOFF)," was held in March 2022 to raise awareness about short films in medical education and encourage creativity among teachers, residents, and students.

National Teacher Training Centre Bulletin

NTTC Bulletin was an official publication of the AANJ that

intended to disseminate the outcomes of the educational projects undertaken by the NTTC alumni. The NTTC Bulletin ceased publishing in 2013 and was replaced by "Effective Educational Practices in Health Profession" – a compilation of educational experiments and projects conducted by NTTC alumni and their findings. Its first book was published in 2020, and a second one is being compiled.

Lessons Learned

- It is the participants learning needs that drive the success of any FDP
- Precourse faculty meetings aided in delivering sessions in line with course objectives
- Content organization for online and offline teaching is vital
- Lesson planning is essential for content transfer
- Teacher educators must possess knowledge and skill of curriculum, pedagogy, and technology
- Learning activities that emotionally connects the participants leads to proper attitude development
- Time management is challenging in large group teaching
- Knowledge and skill of new teaching–learning resources is essential for effective delivery and sustainability of any training program
- Optimal use of technology yielded desirable learning outcomes
- To ensure achieving the desired learning outcomes among learners under direct instruction and among online learners, choosing appropriate learner engagement strategies is vital
- Success comes from collaboration and teamwork
- Program evaluation is the cornerstone for reflective practice in FDP. Further research into the underlying factors influencing transfer (level 3 of Kirkpatrick's model) could improve the effectiveness of FDP
- Result-driven FDP centers and DMEs can inspire other institutions.

Way Forward

Looking at the strengths of the DME, the following immediate avenues look promising to diversify its activities and make the existing activities sustainable:

- Considering the demand for higher qualifications in medical education technologies across the nation, the NCESTHP may be converted into an Advanced Diploma Course that can be conducted in a hybrid model
- The DME has adequate resources to start a postgraduate program in Health Profession Education
- The DME can engage in more educational research through national and international collaborations
- More fulltime faculty may be recruited for strengthening and diversifying the DME activities
- Conduct longitudinal FDPs in educational research
- Organize NTTC alumni into learning communities where they share and reflect on their teaching–leaning practices, collaborate, and learn from each other
- Opportunities for collaborations at the national and international level on educational research and FD may be explored
- Explore possibilities for mobilizing research grants in medical education research
- Establish networking with local medical colleges for sharing of knowledge and expertise in medical education and research
- Find ways to enter into the national educational decision-making forums to contribute to educational decisions at the national level
- NTTC Alumni Association of JIPMER can be engaged more productively through collaborative projects
- Suggest policy measures for integrating educational sciences in postgraduate medical education programs offered in JIPMER
- Look at opportunities for creating specific teaching–learning resources as per current trends in medical education.

Conclusion

Many factors pose challenges to medical education in India, one of which is the scarcity of trained faculty. FDPs assist in sensitizing, equipping, and empowering teachers to carry out their professional responsibilities. A medical education department is becoming an increasingly important component of a medical school. They play a vital role in FD and, as a result, improve the quality of medical education by training the teachers. The DME at JIPMER has contributed to medical education at the national, regional, and institutional levels by coordinating with the Dean (Academic) and the Dean (Research) and has been successful in terms of effectiveness. All of these were made possible because of the work done by people who have led NTTC and DME in different roles over the last 40 years and the standards set by them have always been high. This article may be helpful to those who wish to establish or expand a medical education department. MEUs looking for new opportunities can benefit from the experiences shared in this article. It could also help medical educators to understand how a department like this can support them. This may differ depending on where they work, but the fundamentals remain the same. The best practices can be shared if they are applicable and transferable. A medical education department's job is to educate, serve, and research. Its work includes undergraduate education, postgraduate education, professional development, and medical education. Other health-care professionals could also use these activities. A successful medical education department is a multiprofessional team with diverse skills and expertise. The DME's structure and role will vary depending on the medical school it is located in.

FDPs that produce positive outcomes in learning and teaching practices will attract teachers to FDPs. The scope of FDPs should encompass social skills important for collaboration, professional growth, management, and leadership. Thus, publishing the outcomes of DME activities and its best

practices will inform other MEUs to adopt applicable best practices in their institutes.

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Conflicts of interest

ZZ is presently the Head of Dept of Medical Education (DME) at JIPMER, Puducherry. KD was previously heading the DME at JIPMER, Puducherry and continues to be a resource faculty in the DME.

References

1. A Text-Book of Ayurveda: (Ayurveda Sikhsaa)/Edited by A. Lakshmipathi. Wellcome Collect. Available form: https://wellcomecollection.org/works/agbbrzp8. [Last accessed on 2022 Apr 21].
2. Anshu, Supe A. Evolution of medical education in India: The impact of colonialism. J Postgrad Med 2016;62:255-9.
3. Deo MG. Doctor population ratio for India – The reality. Indian J Med Res 2013;137:632-5.
4. Bansal P, Supe A. Training of medical teachers in India: Need for change. Indian J Med Sci 2007;61:478-84.
5. List of College Teaching MBBS | NMC. Available from: https://www.nmc.org.in/information-desk/for-students-to-study-in-india/list-of-college-teaching-mbbs/. [Last accessed on 2022 Apr 14].
6. Ananthakrishnan N. Acute shortage of teachers in medical colleges: Existing problems and possible solutions. Natl Med J India 2007;20:25-9.
7. Supe A, Burdick WP. Challenges and issues in medical education in India. Acad Med 2006;81:1076-80.
8. Steinert Y. Faculty development: From program design and implementation to scholarship. GMS J Med Educ 2017;34:Doc49.
9. Salajegheh M. Organizational impact of faculty development programs on the medical teacher's competencies. J Educ Health Promot 2021;10:430.
10. Bhatnagar K, Srivastava K, Singh A. Is faculty development critical to enhance teaching effectiveness? Ind Psychiatry J 2010;19:138-41.
11. Steinert Y, Mann K, Centeno A, Dolmans D, Spencer J, Gelula M, *et al.* A systematic review of faculty development initiatives designed to improve teaching effectiveness in medical education: BEME Guide No. 8. Med Teach 2006;28:497-526.
12. Davis MH, Karunathilake I, Harden RM. AMEE Education Guide no. 28: The development and role of departments of medical education. Med Teach 2005;27:665-75.
13. Benor DE. Faculty development, teacher training and teacher accreditation in medical education: Twenty years from now. Med Teach 2000;22:503-12.
14. Kadambari D, Kumar S, Zayapragassarazan Z, Parija SC. Improving Discipline-Based Undergraduate Medical Curriculum: An Evidence Informed Approach. Singapore: Springer; 2018. Available from: https://www.springer.com/gp/book/9789811313097. [Last accessed on 2019 Jan 29].
15. Joyce B, Showers B. Student Achievement through Staff Development. Undefined; 1988. Available form: https://www.semanticscholar.org/paper/Student-Achievement-Through-Staff-Development-Joyce-Showers/f52c269d12a30a51bb50b4e3d21767d34f0ab64c. [Last accessed on 2022 Apr 21].
16. Sparks D, Loucks-Horsley S. Five Models of Staff Development for Teachers. Undefined; 1989. Available form: https://www.semanticscholar.org/paper/Five-Models-of-Staff-Development-for-Teachers.-Sparks-Loucks-Horsley/4af8489c00dd11a03d8d08f5ae5c41600ac98e2a. [Last accessed on 2022 Apr 21].
17. Liao S, Hsu S. Evaluating a continuing medical education program: New world Kirkpatrick model approach. Int J Manag Econ Soc Sci. 2019;8:266-79.
18. Sood R. Medical education in India. Med Teach 2008;30:585-91.
19. Messman A, Kryzaniak SM, Alden S, Pasirstein MJ, Chan TM. Recommendations for the development and implementation of a residents as teachers curriculum. Cureus 2018;10:e3053.
20. Al-Wardy NM. Medical education units: History, functions, and organisation. Sultan Qaboos Univ Med J 2008;8:149-56.
21. Bhuiyan PS, Rege NN. Evolution of medical education technology unit in India. J Postgrad Med 2001;47:42-4.
22. Deo MG. Need for research oriented medical education in India. Indian J Med Res 2009;130:105-7.
23. Coates WC, Love JN, Santen SA, Hobgood CD, Mavis BE, Maggio LA, *et al.* Faculty development in medical education research: A cooperative model. Acad Med 2010;85:829-36.
24. Ananthakrishnan N, Sethuraman KR, Kumar S. Medical Education – Prinicples and Practice. Puducherry: Alumni Association of NTTC JIPMER; 2000. p. 191.
25. Arulsamy S, Zayapragassarazan Z. Teaching Skills and Strategies. Hyderabad: Neelkamal Publications; 2010. p. 252.
26. Sethuraman KR. Communication Skills in Clinical Practice. 2nd ed. New Delhi: Jaypee Brothers Medical Publishers; 2016. p. 238.
27. Husain M, Khan S. Students' feedback: An effective tool in teachers' evaluation system. Int J Appl Basic Med Res 2016;6:178-81.
28. Siddiqui ZS, Jonas-Dwyer D, Carr SE. Twelve tips for peer observation of teaching. Med Teach 2007;29:297-300.
29. Alharbi MM, Horaib YF, Almutairi OM, Alsuaidan BH, Alghoraibi MS, Alhadeedi FH, *et al.* Exploring the extent of knowledge of CPR skills among school teachers in Riyadh, KSA. J Taibah Univ Med Sci 2016;11:497-501.
30. Zayapragassarazan Z. Urgent need to train teachers and students in first aid and CPR. Educ Med J 2016;8:89-92.
31. Citaku F, Violato C, Beran T, Donnon T, Hecker K, Cawthorpe D. Leadership competencies for medical education and healthcare professions: Population-based study. BMJ Open 2012;2:e000812.
32. Al-Yousuf NH. The clinical skills laboratory as a learning tool for medical students and health professionals. Saudi Med J 2004;25:549-51.
33. Alsoufi A, Alsuyihili A, Msherghi A, Elhadi A, Atiyah H, Ashini A, *et al.* Impact of the COVID-19 pandemic on medical education: Medical students' knowledge, attitudes, and practices regarding electronic learning. PLoS One 2020;15:e0242905.
34. Zayapragassarazan Z. COVID-19: Strategies for Engaging Remote Learners in Medical Education. F1000Research 2020;9:1-18. Available at: https://doi.org/10.7490/f1000research.1117846.1. [Last accessed on 2020 Aug 08].
35. Mishra S. Do medical conferences have a role to play? Sharpen the saw. Indian Heart J 2016;68:111-3.
36. Kadeangadi D, Mudigunda S. Cinemeducation: Using films to teach medical students. J Sci Soc 2019;46:73.