

EFFICACY OF TEACHER
DEVELOPMENT COORDINATOR
PROGRAM-AN
EVALUATIVE STUDY

2021



District Institute of Education and Training (West)

(State Council of Educational Research & Training) Old Rajinder Nagar, New Delhi 110060

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Project Coordinators

Dr. D. S. Yadav Ms. Deepika Malhotra

2021-22



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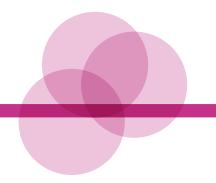
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PREFACE



Teachers Development Coordinator (TDC) program is an in-school support which facilitates the sharing of classroom practices and creates a holistic academic vision of the school to provide education for all students by unleashing the collected passion, knowledge and creativity. It is an ongoing practice through which all teachers of the school can tangibly improve their classroom practices and children's learning. Teacher Development coordinators (TDCs) are placed in all schools of DOE, their major role includes facilitating teachers to share their learning and experiences of classroom practices, providing developmental feedback to them and bring quality teaching for the students. The training for their role as a TDC is designed by core team SCERT and STiR education and further training is imparted by DIET TDC facilitators with a program manager from STiR.

This intervention is an initiative by Delhi Govt. for the quality improvement in our schools of DOE. The TDC program was started in the year 2017 to create a platform for peer learning among teachers to explore new ideas & processes of learning. It is strongly believed that the solutions from within schools are more contextual for issues of school than from outside. So, a culture of sharing teachers' best practices in the school system and to know the extent of reaching this TDC program at the implementation level in the whole district. DIET Rajinder Nagar has taken up this initiative to study the efficacy of TDC program in district West A & B particularly, as DIETs are entrusted with the key role in providing quality education and also to provide onsite support to

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teacher in the schools. The present study will also highlight the efficacy of TDC program at operational stage with support from all stakeholders- The Head of Schools (HoS), Mentor Teachers (MT), Teacher Development Coordinators (TDC), Academic Resource Team members, and Teachers who are an integral part of this program. The findings of the study will provide us an insightful reflection for the improvement in the design at the levels of various stakeholders & also help us to share the best key points again at the level of all stakeholders to take up this to the next level. Furthermore, we hope that the findings of the study will help us to strengthen the TDC program as it states the analysis of the roles of all the stakeholders clearly at the operational stage for improving it further. This will also enable us to design the themes keeping in view the outcomes of the studies.

> Dr. D. S. Yadav Ms. Deepika Malhotra

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CHAPTER ⇒

INTRODUCTION

We know that education is a continuous process. Completing a required schooling and higher education and getting the job is not the end of learning. Learning has no age. We should learn new things at every stage of our life. Similarly, the teachers who are already recruited in the schools at a particular position also need to learn new things along with the changing time. Teachers also require updating their knowledge and learn new technological skills essential for the teaching-learning process. This process of providing knowledge to the teachers already working in the schools is called professional development. Through some workshops, seminars, lectures, etc. the professional knowledge of the engaged teachers is developed time to time to update them with new skills and pedagogical techniques. Thus, in simple words, professional development is the education of working teachers to enhance their professional competencies.

Professional development is very much needed for the teachers. With the changing time, guidelines for school districts, educational technology and standards for curriculum also change continuously. So, teachers are required to keep up with latest trends and practices. After knowing new teaching strategies in professional development sessions, teachers can change their teaching styles and curricula to best suit the varied needs of the children. Professional development can also help the teachers to utilize their time in more planned and organized way as they get involve in classroom preparation, students' evaluation, curriculum development and other paper works. Being a competent and best teacher for the students, teachers are expected to have current and up-to-date information in their subject matter so that they can address and solve students' all queries. So, professional development helps them to develop their knowledge in their subject. Also it motivates the teachers for their

profession as they are assured that they are getting required professional assistance and support. It provides them a good direction to enhance and improve their profession more (Mera Events, 2020).

We know that education is included in the concurrent list of the constitution of India. Concurrent list itself means that both state and central government are responsible for the education of young generation. Both can take decisions related to our education system and influence the same. Thus, since independence, a lot of initiatives have been taken in the direction of our education system. Different commissions and policies have come at different time talking about different aspects of education system and focusing on educational changes with time. In independent India, University Education Commission came first in 1948-49, then Secondary Education Commission in 1952-53, The Education Commission or Kothari Commission in 1964-66, and then National Knowledge Commission in 2009. We also have National Curriculum Framework (NCF) in 2005 and National Curriculum Framework for Teacher Education (NCFTE) in 2009. Other than commissions, we have educational policies also such as National Policy on Education in 1968, National Policy on Education in 1986, Revised Programme of Action in 1992, and New Education Policy in 2020. Thus, we will talk about these initiatives along with other modern initiatives taken in the direction of professional development of school teachers.

The Report of the University Education Commission 1948-49 recommends professional development of the teachers by talking about refresher courses. The report says that some refresher courses should be made for high school and intermediate college teachers during the vacation. At that time, there was little incentive for the teachers to keep them intellectually alive. So the professional development of teachers should be done in the form of some lectures, exhibitions, visits, excursions, workshops, etc. The commission also talks about the responsibility of universities to conduct vacation refresher courses for the teachers. They should take care of their graduates who had become school teachers and intermediate college teachers. They should organize the courses to encourage the teachers to extend, refurnish and bring up-to-date their knowledge. After becoming teachers, their further education is left to experience and they don't get any education after job. This situation points to the name 'stagnation'. So, a teacher should become a learner from time to time to keep him/her alive and fresh in the profession. Practice must be reinforced by the theory and the old must be constantly tested by the new. Such refresher courses have other benefits also for both schools and universities. University and university teachers can come into close contact with former pupils and other school teachers. It would raise the standards of teaching and examination in schools and intermediate colleges, and thus, the university entrants would also come better trained academically.

The report also talks about the stimulus for refresher courses. Once in every four or five years, the authorities of schools and intermediate colleges and the government education departments should make certify the attendance in such refresher courses as a qualification for the promotion of teachers. In addition, the young university teacher and the brilliant intermediate college teacher may also get chance to teacher at each other's place for a year. The authorities should also make liberal provisions for travelling to any hill station or some other place as per requirement and out of pocket expenses of the teachers. Alternatively, the teachers can be given leave of absence for six months in every five years to attend advance courses at some university and obtain a certificate of attendance and good work from HOD of that university (Ministry of Education, 1963).

Report of the Secondary Education Commission or Mudaliar Commission 1952-53 gives significance and recommendation for in-service training of teachers. The reports says that pre-service teacher training gives rise to teachers' knowledge, skills and attitudes required to begin their career with a reasonable degree of confidence and eligibility. Only experience can increase the efficiency of teachers through critical analysis and individual and group efforts for improvement. Teacher training institutions should have the responsibility to include this in-service stage also to train the working teachers further. Activities for in-service training should include refresher courses, short intensive courses in special subjects, practical training in workshop, seminars and professional conferences. Also, the staff can be allowed to serve as consultants to a school or group of schools to conduct some programmes for improvement of teachers (Mudaliar, 1973).

Report of Kothari Commission 1964-66 talks about continuing professional education of teachers. As there is a rapid advance in all fields of knowledge and continuous evolution of pedagogical theory and practice with time, continuing professional education is an urgent need for the teachers. A number of agencies can contribute in the continuing

professional education of teachers. School is on top of this list, the new teachers recruited in the school should be given opportunity to learn from the experience of and consultation and discussion with the experienced teachers of that school. Staff study circles and discussion groups can be generated by the head and senior teachers to provide guidance to the new teachers. Also, education departments, training colleges and teachers' organizations can contribute in this programme.

Other than school, a large-scale and systematic organization specifically designed for in-service education programme is needed. The aim would be to provide in-service education to every teacher for at least two to three months in every five years of service. This programme should have systematically planned and organized curriculum, specifically developed materials, and properly oriented staff in-charge. It should exhibit good textbooks and source books, audio-visual material and children's work. Refresher courses, seminars, workshops and summer institutes should be organized for in-service training programme of teachers at every level, pre-primary, primary and secondary. Along with this part-time in-service education, institutes for whole-time in-service education on continuous basis should also be established.

The report gave some suggestions also to enhance in-service training programmes such as:

- Systematic follow-up should be done after a long term seminar, course or summer institute. The organizers and resource persons should be in touch with the participant teachers and the teachers should report their new activities or strategies experimented, its results and difficulties faced by them. For this exchange of ideas, a new bulletin may be published on regular basis.
- The agencies of in-service education and school education should have active collaboration and coordination with each other.
- Research in education should be told to the classroom teachers and encourage them to experiment that in their work based on the positive results of research. The problems faced by classroom teachers should be added in the research field to look up the solutions.

Along with school teacher, the report also talks about the in-service training of the college and university lecturers. Colleges should participate, individually or in group, to provide some lectures, seminars

or workshops for in-service education of higher education teachers (National Council of Educational Research and Training, 1970).

National Knowledge Commission Report 2009 focuses on the importance of teachers. It says that teachers are the single most element of the school system and India is facing shortage of well qualified and motivated teachers in our schools. Thus, there is an urgent need to train the teachers and motivate them regularly by giving incentives of different kinds for their profession. Both pre-service and in-service training of teachers is matter of concern due to lack of adequacy and poor management in many areas. The document emphasizes that pre-service training of teachers needs to be improved and regulated, and the in-service training needs expansion and major reforms in all states. In-service training has lot of problems such as inadequate quantity, uneven quality, outdated syllabi and poor management. A very big number of school teachers didn't get any in-service training at all. According to this report, DIETs are understaffed, demoralized, have inadequate infrastructure facilities, and are incapable of giving good quality training to teachers. When in-service training is done, there is no mechanism to monitor the impact of inservice programmes on the teaching-learning process in the classroom. Thus, the commission report recommends:

- Proper budgetary funds should be allocated, enhanced and explicit for teacher training needs.
- Flexibility and diversity in modalities and facilities should be there such as use of ICT, visiting trainers and local trainers.
- DIETs need to be strengthened and undergo structural changes.
- For in-service training, greater freedom of choice should be encouraged for choosing the themes to increase personal initiatives of the teachers. Therefore, the report recommends the provision of short term in-service courses (in both contact and distant mode) that the teachers can choose from.
- In-service courses need to be incentive based and making attendance compulsory for professional advancement.
- For both pre-service and in-service teacher training, there is a need to reform the curriculum. The curriculum should be framed to make it directly relevant to the teachers and their practical classroom requirements such as multi-grade teachings, special needs of first-generation learners, etc.

- ICT must be included fully in the teacher training courses.
- Open educational resources must also be accessed for teacher training.
- A web-based teachers' portal or forum needs to be developed to share their ideas and experiences with each other, and this should be incorporated in the training programs also.
- The report recommends a large scale in-service training program especially for all science teachers to keep pace with recent advances in their subjects and new pedagogic tools.
- The in-service training for teachers must be revamped with time and increased in frequency as per the needs (National Knowledge Commission, 2009).

Based on the recommendations of Kothari Commission, our first education policy was framed and released in 1968 known as National Policy on Education 1968. The policy focuses on the quality of teachers as it believes that the teacher is undoubtedly the most important element contributing in the quality of education and national development. The success of all educational endeavors is dependent on the personal qualities and character of the teacher, his/her educational qualifications and professional competence. Thus, teachers must be given an honored place in society and their service conditions should be adequate and satisfactory related to their qualifications and responsibilities. They should be given proper teacher education services, especially in-service education with due emphasis. Also, they should be provided academic freedom to pursue and public educational studies and research about the national and international issues in education (Ministry of Education, 1968).

National Policy on Education 1986 is the second Indian policy of education. The policy emphasized that a teacher has many responsibilities and multiple roles to perform such as teaching, research, development of learning resource material, and extension and managing the educational institution. That's why the teachers must be given in-service training in addition to the initial or pre-service training. Also the staff development programmes should be integrated at the state level, and coordinated at regional and national levels. Teacher education is a continuous process, and its pre-service and in-service components are inseparable. For this purpose, DIETs (District Institutes of Education and Training) should

be established with the capacity to organize pre-service and in-service programmes for elementary school teachers and for the personnel who are working in non-formal and adult education. After the establishment of DIETs, their sub-standard institutions would be phased out. Selected secondary teacher training colleges would also be upgraded to help in the work of SCERT. NCTE (National Council of Teacher Education) would get the essential resources and capability to give accreditation to the institutions of teacher-education and provide guidance related to curricula and methods. Necessary networking arrangements would be created between the institutions of teacher education and university departments of education (Ministry of Human Resource Development, 1986).

After the release of second policy of education, i.e. National Policy on Education 1986, a revised Programme of Action (POA) was also made in 1992 to give detailed guidelines regarding how to implement the policy in practical terms. The document talked about in detail how to conduct in-service training to the teachers. It has the target of reorienting preservice and in-service teacher education programmes including preschool teachers training to meet the special needs of the classroom. For in-service teachers, special training programmes would be oriented in the subjects like work experience, art education and physical education, as these subjects have inadequate facilities and resources in the schools. It also talked about setting up DIETs to provide quality pre-service and in-service training to the teachers and adult education or nonformal education personnel. For this, 306 DIETs had been sanctioned by March 1992 out of which 162 were already conducting the training programmes. To provide in-service training to all teachers at an interval of five years, the then existing centrally sponsored scheme of Teacher Education would be modified and continued. Maximum coverage would be provided to the teachers through DIETs/CTEs/IASEs. Special orientation programmes for teachers would also be launched covering about 4.50 to 5 lakh teachers per year and Teachers' Centers and School Complexes would be tried out on pilot basis. For this purpose, detailed exercise for management, curriculum, teaching-learning materials, including audio-video materials etc. would be undertaken. Use of distance mode of training would be encouraged in in-service teacher training programmes. It would be implemented by NCERT through SCERTs and DIETs with other national level institutions also providing necessary input. Major focus of the training programmes would be on the use of Operation Blackboard materials and orienting them towards Minimum Levels of Learning (MLLs) strategy emphasizing teaching of language, Mathematics and environmental studies.

According to POA 1992, the SCERTs would be made independent and autonomous so that they could oversee the functioning of DIETs, DRUs, etc. and the NCTE would also be made autonomous and statutory status, and the State Boards of Teacher Education would be set up to maintain the standards of teacher training institutions and other-related functions.

Efforts would be made to provide effective training for the pre-school education also. For secondary teacher education, some institutions would be provided programme support to give in-service training to a large number of secondary teachers. Also, the DIETs/CTEs/SCERTs faculty would be given induction and continuing training programmes designed and implemented by the NCERT, NIEPA, etc. Apart from giving in-service training to the teachers, norms for accountability of teachers would also be laid down with incentives for good performance and disincentives for non-performance, and this task would be completed by NCERT within one year. Assessment of teachers would be made based on their comprehensive performance appraisal and their continuous education and improvement (Ministry of Human Resource Development, 1992).

National Curriculum Framework (NCF) 2005 also talks about the concerns of teacher education. It says that major initiatives had been taken during mid-1990s to focus on in-service training of teachers, which has promoted the divide between pre-service and in-service teacher education. It also talks about the importance and significance of inservice education of the teachers. In-service education plays an important role in the professional growth of teachers. It also works as an agent for change in school related practices. It gives confidence to the teachers by engaging them with their practices and restating their experiences. Through in-service training, teachers are given the opportunities to engage with other teachers professionally and to update their own knowledge. It talks about the initiatives and strategies done for in-service education. Many DIETs, CTEs, IASEs and SCERTs had been set up and some yet to function as resource centers. DPEP also came in the block and cluster resource centers which made in-service teacher education and cluster-level schools as the follow-up for the main strategies for pedagogic renewal. But in spite of these efforts, the in-service education has not had any noticeable impact on teachers practice.

According to NCF 2005, in-service education is not an event but rather is a process. It includes knowledge, development and changes in attitudes, skills, disposition and practice through interactions both in workshop settings and in the school. It includes not only receiving knowledge from experts but also promotion of experiential learning, incorporating teachers as active learners, and peer group-based review of practice. A vital component of such programmes is to acknowledge self-reflection. A lacking point in training programmes is seen during the use of technology. Teachers need first-hand experience to develop an interest in the new technology and learn about it. But there is inadequate availability of computers and linkage facilities in training institutions. Both pre-service and in-service teacher education must develop the capacities of teachers to enable them to appreciate, understand and meet the challenges of the curriculum framework. In-service training must be situated within the context of the classroom experiences of teachers. DIETs should conduct the training in the way that both teachers and their schools benefit from such training. For example, instead of sending teacher trainees for inservice training by the educational administration, a cluster of schools should be identified and a minimum number of trainees (at least two, to enable some peer sharing and reflection) should be invited from each school to participate in an in-service training programme. DIETs with the coordination of BRCs could identify the schools for this purpose. Also, the mandatory days for training could be divided over the course of the year so that teaching time is not unduly affected and teacher trainees are able to make the link between theory and practice well.

Other than contact lectures and discussions, in-service training could include a variety of activities and workshops in schools. In order to link pre-service and in-service training, the same schools can become sites for pre-service internship, and the student teachers can be asked to observe classroom transaction in these schools. This could serve two benefits- giving feedback to teacher educators for strengthening the training programme as well as becoming the basis of critical reflection by teacher trainees during the latter part of the training programme. Also, there could be interactive sessions with headmasters from the concerned schools where they could act as a facilitator for the teacher trainees. SCERTs/DIETs /BRCs and CRCs must be included in systems for monitoring and feedback to envisage academic support in follow ups, documentation and research (National Council of Educational Research and Training, 2005).

National Curriculum Framework for Teacher Education (NCFTE) 2009 introduced the phrase 'Continuous Professional Development (CPD)' for in-service training of the teachers. It talks about the aims of CPD programmes as follows:

- To explore, reflect on and develop teachers' own practice.
- To deepen teachers' knowledge of and update them about their academic discipline or other areas of school curriculum.
- To do research and reflect on the learners and their education.
- To understand and update the teachers on educational and social issues.
- To prepare them for other roles professionally linked to education/ teaching, such as teacher education, curriculum development or counseling.
- To provide the teachers, academics and intellectuals the opportunity to share their experiences and insights with others in the field.

NCFTE provides some principles also for designing in-service programmes for the teachers, such as:

- Create spaces for sharing of experiences of communities of teachers among themselves
- Design programmes with a clear sense of their aims and how the strategies of the programme will achieve these aims. Also, include a plan for post-programme support and include training/orientation of support faculty in the same.
- Giving choice of programmes to attend based on teachers' own assessment of what they need or is advised for professional requirement would provide a sound basis for in-service programmes, especially for long duration programmes and which seek to impact practice.
- Keep the content of programmes related to teachers' own experience so that they can find opportunities to reflect on these experiences.
- Programmes that seek to develop or alter basic practice need to be planned towards extensive interactions over time with the same resource group.
- Any in-service programme needs to acknowledge and respect the

professional identity and knowledge of the teacher already formed and work with and from it.

- Strengthen the teacher's own identity as a professional teacher during the programme and also establish and nurture the linkage with the academic disciplines of their interest.
- The contents of in-service activities must be related to teachers' needs and a function of their assessment of its quality.
- Don't do over-training, routinized and superficial training as it leads to cynicism and training fatigue.

According to NCFTE, 20-days training programme is mandatory for the elementary teachers. Over the year different short- and long-term courses could be designed to develop specific skills or areas of interest like teaching fractions, AIDS education, and theatre in education, etc. Use of ICT including TV, radio, telephony and internet should be added for in-service training as it is useful as resources and provides access to ideas or for the wider dissemination of information. Teachers could also be allowed for taking a year off (paid or unpaid) to pursue a course or spend time at another school, university or NGO to learn and study. If the teachers attend meetings and conferences related to the profession, e.g., on one's subject areas, it could also be counted towards professional development and the teachers could be given freedom to avail of duty leave, 3 to 4 days a year, to attend such meetings. For this, some travel funding support could also be provided to the teachers. For in-service development of teachers, they should be encouraged to participate in teacher networks, school-based networks, school twinning partnerships and union networks. At the cluster level, providing resources in the form of reference materials, access to internet resources and to resource persons is essential for CPD of teachers. At the block level, teachers could be encouraged to form subject groups to plan for development of teaching of the subject in the block through a variety of ways such as seminars, trainings, melas and children's clubs. These could be given an official status and space at the concerned block resource center linking with DIETs, CTEs and IASEs. Exchange teacher fellowships could also be provided for each district to allow selected teachers to go for three months to one academic year to a school in another state within the country or even outside the country, to teach and learn there. Based on the proposals, short-term fellowships and funding support could also be provided to the teachers either come to the DIET, CTE, IASE and University Department or carry out specific activities for the school children and teachers in their own district, for example, workshops on the art of story-telling. For the long term, some of the faculty positions in every DIET, CTE, IASE and University Department offering teacher education, may be converted into such fellowships for teachers from the district.

Regarding the organization of CPD programmes, NCFTE gave the responsibility to DPEP and SSA to provide professional development to all government school teachers through block and cluster resource centers. DIETs, IASEs and various departments and colleges of teacher education and several networks of teachers and teacher associations are also there for this purpose. Several NGOs and other agencies are also involved in providing training for teachers. Currently, only government and aided schools are given these trainings, not private schools. Also, teachers are not given any choice to attend these trainings; they are given directions to attend. There is no coordination between these agencies. Education department does not have any mechanism for coordinating the total training being undergone by teachers. So, there is a lot of over-training, repetition and overlap. In this situation, teachers must be given options for different kinds of trainings, based on their interest and requirement, and along with the recommendation of school supervisors; and training schedules must be announced well in advance. Allocation of funds, training dates, duration and other logistics must be made more decentralized and based on individual teacher's preferences, thus, instead of following the current model of mass trainings based on one-size-fits-all design. There should be a follow-up mechanism to keep track of trainings and professional activities of teachers. University and college faculties of sciences, humanities and social sciences could include extension services for school teachers. Colleges of pre-service teacher education could include extension activities to enable their own students and faculty to keep in touch with active teachers. Teacher Learning Centers (TLCs) in teacher education institutes can conduct both preservice education as well as CPD for teachers in service. Schools could also themselves develop into resource centres for neighboring schools, both government and private, and affiliated to any board. IASEs, CTEs, DIETS, BRCs and CRCs could also research and develop training aimed at overall school improvement or to target the needs of special schools or groups of children in the district. Established mechanisms for teacher support such as BRCs and CRCs could be strengthened in the skills of pedagogy and teacher support by SCERT-DIETs. Coordinators of BRCs and CRCs should be trained by SCERT-DIET to assess teachers' needs for support to function as reflective practitioners (National Council for Teacher Education, 2009).

National Education Policy (NEP) 2020 also talks about the in-service training and CPD of teachers. Teachers would be given continuous opportunities for their self-improvement and to learn the latest innovations and advances in their profession. Multiple modes such as local, regional, state, national, and international workshops as well as online teacher development modules would be followed for this purpose. Platforms (especially online platforms) would be developed for teachers to enable them to share ideas and best practices. Each and every teacher would be expected to participate in at least 50 hours of CPD opportunities every year driven by their own interests. These CPD opportunities would systematically cover the latest pedagogies related to foundational literacy and numeracy, formative and adaptive assessment of learning outcomes, competency-based learning, and related pedagogies, such as experiential arts-integrated, sports-integrated, and storytelling-based approaches, etc. School Principals and school complex leaders would also have similar modular leadership/management workshops and online development opportunities and platforms to continuously improve their leadership and management skills. Such leaders would also be expected to participate in at least 50 hours or more of CPD modules per year, covering leadership and management, as well as content and pedagogy with a focus on preparing and implementing pedagogical plans based on competency-based education. In-service continuous professional development for college and university teachers, the use of technology platforms such as SWAYAM/DIKSHA would be encouraged to administer standardized training programmes to large numbers of teachers within a short span of time (Ministry of Human Resource Development, 2020).

As we have seen that different commissions and policies came at different time period talked about the in-service training or continuous professional development of the teachers already working in the schools. These documents gave their own recommendations to update the school teachers for new advances in the teaching field. To fulfill these, Delhi government has regularly taken up many initiatives with time for inservice education of the teachers. SCERT also launched different training programmes for government school teachers such as INSET programme, Online Capacity Building Programme, Cell for School Leadership, EMC,

CLDP, MT, TDC programmes, Desh Bhakti Curriculum, etc. (SCERT, 2022).

INSET Programmes:

SCERT had been organizing Training Programmes for Teachers in smaller groups of around 50 teachers in each group. SCERT had also been organizing Orientation of Teachers in groups of large number of participants (200-400). They are proposing to organize all types of INSET Programmes (Training/Orientation) in smaller groups of 50 participants in one group. This methodology of training/orientation in a smaller group has an aim to make the training: Activity-based (either individually or in groups of five to get the first hand experiences); Participatory (discussion in smaller groups); Peer group sharing (sharing their classroom experiences and innovations with peers); and Closer Interaction with participants (Resource persons develop a closer rapport with them).

Online Capacity Building Programme:

SCERT has been providing academic resource support to the Directorate of Education (DoE) and Education Departments of MCDs, NDMC and Cantonment Board. Their focus is on quality improvement in school education with latest content and relevant pedagogical practices to create effective learning environment in classrooms. For this, SCERT organizes capacity building for all education stakeholders across all subject spectrums and other newly designed need based interventions. In the classroom situation, ICT has enormous potential to make teaching-learning process most interesting, interactive, illustrative and participatory. ICT facilitates development of user-friendly learning material accessible to all. Mobile learning, online and blended learning directly address the 3 Es of education i.e. Enable, Engage and Empower. The real strength of educational technology lies in its ability to enhance engagement, provide personalized education and equal access to all.

Cell for School Leadership (CSL):

SCERT believes strongly in the power of leadership training to shape and direct change, both in Delhi Government Schools and in individual lives and careers. Through Cell for School Leadership (CSL), SCERT programs are designed to strengthen both individual and organizational performance. This cell focuses on developing the skills of Principals and other HOS. Their programs give emphasis on core competencies and

behaviors essential to quality leadership, including emotional intelligence, interpersonal communication skills, team building, problem solving, self-awareness, and collaboration. It aims to build school leaders' expertise in classroom observation, analysis, giving feedback and designing support for instruction; build instructional leadership capacity of new and experienced principals and other school leaders; lead the implementation of major initiatives such as School self-evaluation framework; acquaint HOS with the changing roles in 21st century Teaching Learning; and creating learning cultures in schools. To achieve these aims, CSL uses a variety of techniques, including professional learning sessions, classroom walk-throughs, online learning and assessment, and individual and small-group coaching.

Along with these initiatives, SCERT started Teacher Development Coordinator (TDC) programme also which got successful with time and is still going on in the schools.

Delhi TDC Program: Concept note

Evolution

Delhi Government's earnest act is to build national love of childhood, a profound respect for teachers as trusted professionals, and a deep understanding of how children learn.

Focusing on the core ideology of highly competent teachers is the key to nation-building. They must be trained in "personalized learning", so that, instead of control, competition, stress, tests, exams, they try warmth, collaboration, and highly professionalized, teacher-led encouragement and assessment.

Delhi government in first phase has launched various initiatives in Delhi education space and as a flagship to Mentor teacher program started initially in the year 2016, Delhi Government started Teacher Development coordinator program. As a part of this program one efficient teacher is being deployed as Teacher Development Coordinator (TDC) in all government schools under Directorate of Education. The major role of TDC was centered on to provide school specific academic support and encourage peer learning/collaboration among teachers.

Introduction to TDC program

The Teacher Development Coordinator program is an initiative introduced by SCERT as the extension of the flagship Mentor Teacher Program

with the vision of creating a collaborative network of teacher teaching in all DOE Schools. This program primarily focuses on professional development through multiple platforms and envisages a Co-Learning environment where everyone will get the opportunity to experience the journey of professional growth.

The TDC program has successfully reached out to all 12 districts in the state of Delhi, covering 1029 schools. The District Institute of Education and Training (DIET) is the academic lead of the TDC program – this institute has supported the program in almost every aspect. Nine DIETs with 24 facilitators including DIET Principals, DIET lecturers, and BRPs across Delhi play a central role in the facilitation and operation of the program.

Alongside DIET staff – 200 Mentor Teachers (MTs) also provide regular school level support to the TDCs, along with nine Program Managers from STIR with one in each DIET thus supporting the TDC program in districts as well. As per the requirements of the program – various avenues and platforms of engagement were created which aimed at the professional development of the teachers.

The Teacher Development Coordinator Program is a dedicated role, which is developed to help achieve a significant strategic goal of the school of supporting teachers in creating schools as learning institutes. Teacher Development Coordinator will contribute to the development and management of a consistent and cohesive academic Development in school where everyone can learn. The Teacher Development Coordinator directly works with all the in school teachers under the guidance of the Principal to achieve the vision of program "A System where everyone can learn".

Program Objectives:

Children and young people today face a world of 'unknown unknowns'. To succeed, they need to develop a love of learning, and education systems need to support them by building the foundations of lifelong learning. This has been recognized in the development plans of many emerging countries. We support education systems to reignite intrinsic motivation in every teacher and official, to role-model the foundations of lifelong learning for every child.

Through the TDC Program, we hope that:

Every child is engaged, feels safe, loves learning, trusts and values their teacher, is curious and thinks critically. The teacher's classroom practices will be more engaging and support learning for students.

Every teacher loves teaching and intentionally improves their classroom practice. This includes improving teaching classroom practices to be more engaging and support learning with understanding.

Every local and ministry official prioritizes the support of teachers, and uses data and insights to continually improve. This also emphasizes improving teacher motivation through peer learning.

Under the five pillars of lifelong learning that we have identified, our program is designed to achieve the following outcomes for teachers so that they, in turn, can support their students in becoming lifelong learners:

These outcomes have been articulated based on our read of the evidence of effective teaching and teacher professional development, as well as that on lifelong learning more broadly. This chimes strongly with what we see on the ground – the conditions that suggest teachers have that important love of teaching.

How the Programme Works

We recognize that the above outcomes for teachers are not easy to achieve. Teachers' professional mindsets and behaviours are influenced by a complex web of systemic factors. This is why we take a system-wide approach to professional development, promoting a love of lifelong learning across the system, recognizing that effect that one group of stakeholders inevitably has on another. Our approach therefore works through role-modelling and relationships at all levels of education systems. It is based around three core principles:

- **Peer networks** (creating opportunities for everyone to share and move forward with their peers)
- Action and feedback (planning, executing, and learning from each other)
- **Reflection** (using our experiences to strengthen our skills; learning from failure and success)

These core activities underpin everything that we do for teachers, school leaders and officials. And they form the heart of our termly Learning

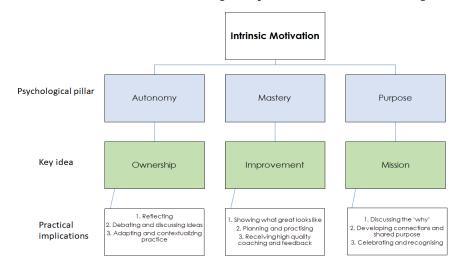
Improvement Cycles (LICs). Each LIC focuses on a different theme (e.g. check for understanding) that helps target the five pillars of lifelong learning in students. For example, while LIC 1's theme, Connect, focused on developing environments in which students feel safe and valued, LIC 4 looked at questioning techniques that can promote critical thinking. At each level of the system, we introduce monthly coaching and support to enable high-quality feedback. And regular alignment meetings at district and state levels provide an opportunity for all stakeholders to analyze data, share learning and develop plans together to strengthen delivery.

How the LIC works for the TDCs by the Mentor Teachers:

INPUTS - INTRINSIC MOTIVATION for teachers

We use the principles of autonomy, mastery and purpose to design our approach for teachers, defined below:

- Autonomy: promoting genuine teacher ownership of their professional development that allows them to effectively meet their needs and those of their students
- Mastery: supporting teachers to develop and continuously improve their knowledge and implementation of effective teaching practice, and to feel a sense of genuine progress in doing so
- **Purpose:** grounding all of our work with teachers in relation to how it promotes student learning, whilst building an 'espirit de corps' amongst teachers within and across schools; and ensuring there is constant reflection on the capacity of all learners to improve.



Brief Roles & Responsibilities

Following are some brief roles and responsibilities of the stakeholders who are the part of TDC program, given by SCERT (2017):

Teachers: "I work hard to make my classroom practice more engaging and support other teachers to do the same."

- Observe each other's classrooms to gain perspective about classroom practices
- Choose practices to bring to their own classrooms based on observations
- Be part of school levels drives to bring positive changes to school and classrooms

Academic Resource Team (ART) Members: "I lead by example in improving our classroom practice and influence other teachers in my department to do the same."

- Open to trying new classroom practices and sharing their experience with colleagues
- Focus on all students' learning, and encourage a growth mindset
- Welcome colleagues into their classrooms to observe them

Teacher Development Coordinators (TDCs): "I lead focused, structured teacher collaboration and provide feedback to improve classroom practice in our school and teacher professional development."

- Facilitate teachers to share learning and experience of classroom practice
- Provide developmental, focused feedback following classroom observations
- Focus on improving teaching across the school

Head of School (HoS): "I ensure that teachers are given the opportunity to collaborate and actively sustain a focus on improving classroom practice."

- Regularly invite teachers to share teaching ideas that they have found to be effective with the
- wider staff
- Ask teachers about their teaching regularly and model a focus on teaching and learning

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• Encourage teacher innovation and creativity and Champion teachers who go the extra mile

Mentor Teachers (MTs): "I provide feedback to teachers through classroom observations and support TDCs to lead effective teacher collaboration in their schools"

- Provide excellent coaching to TDCs focused on helping them be more effective in improving teaching in their schools
- Provide access to resources and ideas to help TDCs think through different elements of their pedagogy
- Model excellent facilitation to TDCs and spread a positive, constructive tone focused on improving teaching and learning

Over All Responsibility:

1. Mentor Teacher

- a. Participating in monthly Co-Learning Sessions that seek to build their conceptual clarity of LIC content and way forward to take the program by TDC CLS and ART meeting observation support.
- b. Organizing Co-Learning Sessions to build capacity in the Teacher Development Coordinators so they can provide effective support to their respective schools and Teacher Development Coordinators; and role modeling specific skills and competencies required for improving teaching & learning practices.
- c. Participating in monthly District Progress Check Meetings organized by the DIET and reflecting on qualitative and quantitative outcome of the district and making further plan of action.
- d. Support TDCs to promote peer observations and developmental feedback between teachers.
- e. Strengthen the quality of developmental feedback between TDCs and ART members/teachers/peers by observing, and giving feedback on, the process.

2. Teacher Development Coordinators

a. Participating in monthly Co-Learning Sessions that seek to build their capacity to provide high quality coaching to ART members and other teachers of the school.

- b. Organizing ART meetings in their schools in order to support the ART members' professional growth and role model specific skills and competencies required for improving teaching & learning practices.
- c. Support peer observations and developmental feedback between teachers; themselves do regular classroom observations in order to provide teachers with developmental feedback.

3. Academic Resource Team (ART) / Teachers

- a. ART members will actively participate in monthly ART meetings.
- b. ART members will implement the strategies proposed in the ART meetings and gather learning from their experiences to share in the monthly cycles.
- c. ART members will promote the culture of peer observation and developmental feedback to support each other's professional growth and strengthen teaching & learning processes.
- d. ART members will organize monthly meetings with their faculty members in order to extend learning from ART meetings to non-ART members.
- e. Non-ART members will support and participate in the monthly faculty meetings led by the ART members.

The implementation of the programme for district officials will involve:

District Institute of Education & Training (DIET)

- a) Participating in Co-Learning Sessions that seek to build their capacity to facilitate high quality trainings for Mentor Teachers and to support Mentor Teachers in implementing the programme:
- i. Organizing Co-Learning Sessions to build capacity in the Mentor Teachers so they can provide effective support to their respective Teacher Development Coordinators; and role modelling specific skills and competencies required for improving teaching & learning practices.
- ii. Supporting coordination and organization, and observing, Co- Learning Sessions led by Mentor Teachers.

- b) Conduct District Progress Check Meetings, by inviting the district's DDE District & with participation from DDE Zone, in order to extend support to Mentor Teachers & Teacher Development Coordinators based on learning from qualitative reflections and quantitative data.
- c) DIETTDC Nodal Officer coordinating with DDEs and District Coordinators in order to set priorities for the programme on a monthly basis.

District & Zonal DDEs

- a) Chair monthly District Progress Check Meetings in order to extend support to Mentor Teachers & Teacher Development Coordinators based on learning from qualitative reflections and quantitative data.
- b) Regularly communicate with the Lifelong Learning Unit at the beginning of each LIC in order to support its implementation at district level, and at the end of the LIC to review the progress.
- c) Regularly communicate with the District Coordinator on the progress of each LIC.

District Coordinators

- a) Regularly communicate with DIETs and DDEs on a monthly basis to discuss progress of each LIC.
- b) Participate in monthly Core Operational Team meetings in order to coordinate all programmatic activities and ensure alignment of the programme with other initiatives running in the district.
- c) Coach the Mentor Teachers, along with DIETs, to strengthen their capacity for school specific support; role model specific skills and competencies required for effective coaching.
- d) Participate in & support monthly District Progress Check Meetings and Co-Learning sessions.
- e) Taking lead of coordination of activities in the district after STiR's exit from the districts in 2022.
- f) A pilot will be conducted with District Coordinator in District South East to ensure effective coordination and gather learnings before initiating this process in 2022.

Lifelong Learning Unit (LLU) will have the following commitments:

- Leading the design and implementation process by the end of 2022 when STiR exits from the districts; leading the coordination of the Governance Group, Core Design Team, and Core Operational Team units of LLU after STiR's exit from the programme in 2023.
- Taking a proactive role in devising an in school scaling strategy with STiR from ART members to non-ART members, and ensuring all the necessary resources are in place for this to be a success;
- Engaging in regular field visits to network meetings, classrooms and Co-Learning Sessions to understand challenges & best practices related to the programme quality, and build a strong narrative around the shared purpose of promoting Intrinsic Motivation and Lifelong Learning.
- Devising a long-term sustainability strategy with support from STiR as to how the programme will be sustained at State level after STiR's exit in 2022 from the districts.
- Regularly update DoE and SCERT at the end of every LIC by submitting a progress report that focuses on quantitative and qualitative data that reflects the establishment of a culture of improvement, coaching practices, data based decision-making, and role modelling of core skills and competencies.
- The precise arrangements of how these are executed may vary on a district-by-district basis depending on data and specific requirements from the districts.

The implementation of the programme for Mentor Teachers, Teacher Development Coordinators and teachers will involve:

Key activities and role of stakeholders at multiple levels in state:

Stakeholder		Major activities	Nature of the role
State	SCERT Core Team	 Program designing as per the needs of schools Alignment with other programs and amplifying the impact District level progress check Producing supportive circulars and orders 	 District teachers of some DIETs Mentor Teachers of some districts STIR Education representatives from the Design and Program teams
DIET	TDC Facilitators	 Support to Mentor Teachers for TDC programs Lead facilitators for TDC co learning session and MT CLS 	 DIET Principal, DIET Faculty and DIET Facilitators Block Resource Persons (BRP)
District	Mentor Teachers	 Co- learning sessions School visits (Dist. officials) Monthly progress check and planning (DIET and MT) District Alignment Meetings (DDE, DIET and MTs) 	 Teachers volunteer to be a Mentor Each MT allotted 5-7 schools MTs do not work as a teacher during their tenure as a mentor. TDC program is one of their engagements apart from other engagements as a Mentor.

School	TDCs	 Monthly Academic Resource Team discussions Peer observations in classrooms and feedback Daily 30 mins academic discussions 	 One TDC in each school is selected by HOS TDC is an existing permanent teacher of that school Usually is the most motivated teacher of the school
	Academic Resource Team	 Academic Resource team meeting Peer feedback Classroom practice Implementation 	 10% of the most motivated teachers of each school Attend Academic Resource Team monthly meetings facilitated by TDC
	Program Manager	 Support to Mentor teachers for School Visits Support to DIET for conducting DPCM and co learning session. Classroom observations and ART meetings 	STiR Education employee One program manager for each district

Statement of Study: "A Study of Efficacy of Teacher Development Coordinator (TDC) Program in District West".

Objectives of the study:

- To study the extent of role performed by Mentor Teachers as perceived in TDC programme.
- To study the extent of role performed by Teachers as perceived in TDC programme.
- To study the extent of role performed by Teacher Development Coordinators as perceived in TDC programme.

- To study the extent of role performed by Academic Resource Team member as perceived in TDC programme.
- To study the extent of role performed by Head of School as perceived in TDC programme.

Limitations of the study:

As proposed, the data was to be collected from Heads of School (HoSs), Mentor Teachers (MTs), Teacher Development Coordinators (TDCs), Academic Resource Team members(ART), Teachers and Students but due to the pandemic, the data from the students' perspective could not be obtained. The approval for the same has already been taken from the competent authority for the timely completion of the study. Thus, the study is limited to HoS, MT, TDC, ART members & Teachers only.



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CHAPTER ⇒

REVIEW OF RELATED LITERATURE

Popova, Evans, Breeding and Arancibia (2022) conducted a study to explore the teacher professional development around the world and investigate the gap existed between the evidence shown and practice actually done in the organizations. The researchers first wanted to understand which characteristics of PD programs are associated with student test score gains and analyze the degree to which these effective characteristics are incorporated into at-scale PD programs in practice. So they developed a standardized instrument to characterize inservice teacher training, known as In-Service Teacher Training Survey Instrument. They applied this instrument to 33 already evaluated PD programs. Then they applied the survey instrument to a sample of atscale PD programs to see how these programs line up with what the evidence suggests works in teacher training. Thus, the information came from two different samples of PD programs: One sample of evaluated PD programs, those with impact evaluations that include student assessment results; and one sample of at-scale, government-funded PD programs. The study also used interview schedule for the individuals who were involved in the actual implementation of the program. The findings showed that the programs which link participation to career incentives, have a specific subject focus, incorporate lesson enactment in the training, and include initial face-to-face training tend to show higher student learning gains. In qualitative interviews, program implementers also report follow-up visits as among the most effective characteristics of their PD programs. The researchers then used the instrument to present novel data on the sample of government-funded, at-scale PD programs across 14 countries. The attributes of most at-scale teacher PD programs differ sharply from those of programs that evidence suggests are effective, with fewer incentives to participate in PD, fewer opportunities to practice new skills, and less follow-up once teachers return to their classrooms.

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The Alberta Teachers' Association, in Alberta province in Western Canada listed out some professional development activities for the professional growth of teachers. Here is the description of some of them (The Alberta Teachers' Association, 2022):

- 1. Action Research Action research is a reflective strategy that requires the data collection to enhance practice. Educators think about how current practice might be improved, followed by studying the relevant literature and conducting research to select an approach. They mostly use their classrooms as research sites. For instance, they can teach a concept in different ways to determine the best way that has greatest impact on students' learning.
- 2. Book Study Decide a schedule (date and time) for reading and discussion with a consensus of whole book study group. Choose a book on a topic that interests everyone in the group. The book should be thought-provoking, sufficiently open-ended to encourage new learning through reading and discussion and have enough depth to stimulate debate.
- 3. Classroom/School Visits Teachers visit the classrooms of colleagues to view innovative teaching practices and refine their own personal pedagogy. These visits may range from a single day up to two weeks and/or multiple visits over time.
- 3. Collaborative Curriculum Development Teachers can work together to design new planning materials, teaching methods, resource materials and assessment tools.
- 4. Education Exchange The Association administers the International Education Exchange Programs (IEEP) under the existing exchange agreements between Alberta Education and its international counterparts and the Ministry of Education in Quebec. Calendar year and short-term exchanges are offered in a number of countries.
- 5. Focused Conversations Focused conversation is a four-stage process that can help teachers reflect together about any issue (large or small). A facilitator leads the conversation and asks a series of questions that elicit responses that take the group to the in-depth implications of the topic.
- 6. Professional Development Schools These are the schools that collaborate with a university. The faculty and staff of the university work directly with field-based practitioners on problems and issues

relevant to the daily routine practices of teachers, schools and school systems. The faculty members help to identify their trends and challenges. Field development projects are collaboratively formulated between the school boards and university personnel.

Bonghanoy, Sagpang, Alejan and Rellon (2019) conducted a research on transformative professional development for mathematics teachers. The study was an attempt to redesign the current professional development training for Mathematics teachers in the Philippines. The study reviewed the background information that most of the training and seminars of Mathematics teachers ignored their local work context; was routinely and was hardly applicable to their classroom milieu. The prevalent issues in their Mathematical cognition and learning were their lack of self and environmental understanding. The study had the sample of university researchers, secondary Mathematics teachers and students from four rural public schools in the Hamiguitan Range. The study was focused on qualitative data gathered through focus group discussions and key informant interviews. The study applied the transformative professional development training to the teachers who identified their classroom issues; restructured their useful pedagogical ideas and instructional plans and materials; implemented these in their classrooms; and shared their reflections on the new teaching experiences. They revealed the results like better teacher performance, improved students' interest and maximized student participation. The study recommended the use of this transformative PD training for the teachers' work needs and learning.

CAN (2019) conducted a research to explore the obstacles on the way of professional development of teachers and suggestions to remove these obstacles in order to improve the quality in education. The sample of the study included the teachers and administrators, and the data was gathered through open-ended questions with the answers written. To analyze the data, qualitative research methods using content analysis was used. According to the responses collected from the sample, the obstacles for teachers' professional development were based on legal, pedagogical, executive and social reasons. The major obstacles for teachers' professional development included the insufficient selection, emplacement and employment of teachers, perpetual change in education system, uncertain educational politics, insufficient teachers' organizations, and lack of goal and motivation in teachers. To remove the obstacles for teachers' PD, the possible solutions suggested by the study were regulation in teachers' selection, emplacement and employment,

promotion of educational policies and schedules supporting teachers' PD, providing learning opportunities for life time, formation of a healthy career planning system, and management of every change in education as a governmental policy.

Postholm (2018) conducted a study to review the teachers' professional development in schools. The whole study is based on reviewing the literature where it reviewed different article from 2016 and 2017 focusing on teachers' professional development. The published articles chosen for review came from all over the world followed both qualitative and quantitative approaches. The study majorly focused on two questions, "What characterizes teachers' professional development in school, and how does this development influence school improvement?" The open analysis process done for studies produced five main categories to study, namely, leadership for teachers' professional development, outside resource persons and schools collaborating for teachers' PD, teacher collaboration, methods for teachers' PD, and contextual factors influencing teachers' PD. The findings of the review indicate that teachers' learning processes need to be developed if they are to lead to school improvement. It is not enough for researchers simply to study learning processes in schools; they must also conduct formative intervention studies. The study also sheds light on the further suggestion that more research must be done to show how outside resource persons, like researchers, can contribute to school development in collaboration with teachers and school leaders at work.

Darling-Hammond, Hyler and Gardener (2017) conducted a study to explore the effective teacher professional development initiatives, their features and their impact on student outcomes. For this purpose, the researchers reviewed 35 methodologically rigorous studies to demonstrate a positive link between professional development, teaching practices and student outcomes. The studies reviewed by the researchers were from the last three decades which featured an experimental or comparison group design, or analyzed the student outcomes suing statistical controls for context variables and student characteristics. The study found the major features of effective teacher professional development courses, such as content focused; having active learning; collaboration activities; uses models and modeling of effective practice; provides coaching and expert support; feedback and reflection; and of sustained duration. The study gave some implications also for policy and practice such as adopting standard for professional development; evaluating and redesigning

the use of time and school schedules; conducting needs assessments; identifying and developing expert teachers as mentors and coaches; providing technology facilitated opportunities for professional learning and coaching; and providing flexible funding and continuing education units.

Gore, Lloyd, Smith, Bowe, Ellis and Lubans (2017) conducted a research to explore the effects of professional development on the quality of teaching. This study tested a pedagogy-based, collaborative PD approach to determine their impact on the quality of teaching. A cluster randomized controlled trial was used in the study. To collect the sample of the study, some govt, schools were selected based on their interest for the study in New South Wales, Australia. Equal teachers from each school were selected randomly based on different strata school type (primary and secondary), location (urban and rural), and socio-economic status. Quality Teaching Rounds intervention was given to the sample to study its impact. Semi-structured interviews and observations were used. The results of the study found the significant positive effects on teaching quality, independent of school type (primary/secondary), school location (urban/rural), and years of teaching experience, as the approach used in the study strengthens rather than diminishes the intellectual and professional aspects of teaching. These effects were sustained six months later. Qualitative data used also illustrated the mechanisms underpinning the success of the intervention. The study also illuminated how to support teachers' learning for measurable positive impacts on teaching quality and teacher morale.

Yoo (2016) conducted a study to analyze the effect of an online professional development on teacher efficacy and teachers' self-analysis of their efficacy change. The sample of the study consisted of randomly selected K-12 teachers and school educators (both male and female). The study used the tool of a standardized Teachers' Self-Efficacy Scale (TSES) to collect the data from sample. The scale was administered twice on the sample with a five-week gap. As the study used both quantitative and qualitative methodologies, all participants' descriptive self-analysis of their own score change was examined to analyze the teachers' attributions of their self-efficacy change. The study found that teacher efficacy increased as a result of their online professional development experience. Participants' self-analysis of their efficacy change provided some possible explanations for mixed reports for the influence of experience on teacher efficacy.

Bicaj and Treska (2014) conducted a research to determine the effect of teacher professional development in raising the quality of teaching. It focused on two major aspects-Role of PD of teachers in raising the quality of teaching, and Role of that PD program in meeting the professional needs of teachers. The study used both qualitative and quantitative approaches and the literature review. The survey was conducted with the randomly selected teachers who attended In-Service Teacher Qualification program. Questionnaire and interview technique was used to collect the data from the sample. The researchers analyzed the different training programmes offered to the teachers of Kosova, investigating the effects and benefits of professional advancement on creating new knowledge and improving the quality of teaching. The results of the study verified the positive effect of professional development in improving the quality of teaching, but they did not verify the program as a mechanism to meet the professional development needs of the teachers. It can be considered more as a good opportunity to advance the existing qualifications of the teachers.

Hoque, Alam and Abdullah (2011) conducted a study to explore the impact of teacher's professional development on school improvement. The study tried to describe the teachers' professional development activities done in Bangladesh and explored the hypotheses about the relationship between teachers' traditional professional development activities and school improvement. The sample of school principals and teachers was taken from the City secondary schools from Bangladesh for the study. The data was collected using the tool of questionnaire. Hierarchical multiple regression analysis was used in the research. The findings of the study revealed that there were significant impacts of some of teachers' professional development activities on school improvement. The maximum school improvement could be achieved if schools put more emphasis on teachers' collaboration, in-service training and classroom observation, and less emphasis on individual action enquiry. The result of the study provides the important information for the policy makers, educational managers and especially for the headmasters and teachers concerned with the improvement of teachers' quality.

Hynes and Santos (2007) conducted a research to explore the teacher professional development program designed to prepare middle school teachers in and after school/engineering technology LEGO robotics unit. LEGO robotics unit was developed by the researchers to address the Technology/Engineering portion of the Massachusetts State Curriculum

Frameworks for Science in grades 6th-8th and 10 lessons were created based on the unit. For this purpose, Massachusetts Public Middle School teachers were participated in summer two week professional development program to learn how to implement the unit on the students. Workshop approach was followed for the program. The study focused on the aspects which got successful during the two-week PD program. The data for the study came from confidence surveys administered to the teachers, observations done by researchers and follow-up interviews conducted with the teachers after program. The program was successful in improving the teacher's confidence in their knowledge of engineering principles and teaching those to the students. The program couldn't impact much the pedagogical styles of teachers. They found difficulty in changing their pedagogy to follow inquiry based and hands-on experience approach to teach. Thus, the study recommends working more towards the aspect of pedagogical style of teachers.

Directorate of Education (n.d.) gave a report on the initiatives taken for Delhi education revolution beyond 2015. Regarding the professional development of school teachers, Delhi govt. started a 'Mentor Teacher' program to give learning support to other teachers and organize workshops suited to the pedagogical needs of their fellow teachers. A group of 200 teachers of current teachers of DoE having experience of teaching upper primary or secondary grade children serve as Academic Resource Group of the DoE. Each mentor teacher has five to six schools assigned to them which they visit regularly to observe the classroom practice and provide on-site learning support to teachers. They also create supplementary learning material, in consultation with other teachers, for children. Secondly, Delhi govt. started 'Teacher Coordinator Professional Development' program to develop 'Education Leader' within each school to assist the HoS in creating the culture of collaborative learning in schools. It also provided a platform to the DIETs to engage with the schools for in-service training. Third, Delhi govt. started the program of 'Jeevan Vidhya Shivir' which aims at consciousness development through Value Education. It is based on co-existential philosophy, conducted through a 7-days residential workshop. It seeks to engage with participants on every facet of their lives and universe and how we can live life with purpose and meaning. This program has been attended by DIET faculties, DoE teachers, Heads of Schools and Mentor teachers. Fourth, Delhi govt. also gave the 'International Exposure' to 102 HoS, 9 DIET and SCERT faculties and 8 officials of DoE who attended the education leadership

programme at Cambridge. An exposure visit to Finland was conducted for 22 HoS, 27 DIET and SCERT faculties and 10 DoE officials to observe their school system. 23 DIET and SCERT faculties, 11 DoE officials and 165 Mentor Teachers visited NIE Singapore to attend mentoring and coaching course. Fifth, Delhi govt. provided 'Hands-on Training of special Educators' to facilitate Inclusive Education and strengthen the functioning of Children with Special Needs (CWSN) studying in Delhi Govt. schools. The DoE partnered with 11 NGOs to train 764 special educators of Delhi Govt. schools. 5 days hands-on training was given to special education teachers equipping them to work across disabilities so that they can work with all students with different needs and to be able to develop Individualized Education Plans (IEPs). The DoE has appointed 262 more special educators and plans to start the second phase of the training which will help the teachers in conducting a basic screening of children with special needs. Sixth, Delhi govt. put some 'Reforms in Primary Schooling' to strengthen the learning foundation of children in Nursery, Kindergarten and primary classes of DoE schools. An integrated in-service training programme was conducted for teachers as part of their CPD whose focus was cross-disciplinary and multi-disciplinary approach in enhancing teaching learning experiences. 3,000 assistant teachers, 72 mentor teachers, 425 HoS, 12 DDEs and 4 RDEs participated in the training across 11 disciplines including English, Hindi, Math, E.V.S, Child psychology, Inclusive education, Sports, Music, Art, Story Telling, and Library Management. Along with these initiatives, Delhi govt. formed a 'Core Academic Unit' to strengthen Research and Development around issues related to children's learning and teaching learning process in our classrooms.

This chapter reviews the various research studies related to the literature of our current study. Different studies talk about different points related to in-service training or professional development of in-service teachers. Some studies explored the relevance of in-service education of teachers to improve the quality of education and some talked about the current status of continuous professional development conducted in different parts of the world. The review shows that there exists some gap between the theoretical underpinnings of different professional development initiatives taken for the teachers and the actual implementation and benefits found for those teachers. The evidence shown by the organizations in their reports and the practice actually done has a gap that needs to be bridged. The review also talks about various challenges

faced while conducting the in-service training for the teachers. Some of these include fewer incentives for teachers to participate in professional development programs, fewer opportunities to practice new skills, less follow-up on the learning once they return to their classrooms, perceptual change in education system, uncertain educational politics, insufficient teachers' organizations, lack of goal and motivation in teachers, and lack of on-site support wherein hand holding can be done on the spot. Some studies also talk about the positive implications of initiatives taken for in-service education for teachers. It leads to the improved school performance, better performance of teachers, improved interest of the students, and maximized participation of students in the classroom and their learning. In addition, the review highlights some features of effective teacher professional development programs or courses such as content focused; having active learning; collaboration activities; uses models and modeling of effective practice; provides coaching and expert support; feedback and reflection; and of sustained duration. The review sheds light on the need to work more towards the aspect of pedagogical styles of teachers as some studies found some inability of PD programs to enable the teachers to change their pedagogy styles to follow inquiry based and hands-on experience approach to teach. At the end, this review recommends adopting standard for professional development; evaluating and redesigning the use of time and school schedules; conducting needs assessments; identifying and developing expert teachers as mentors and coaches; providing technology facilitated opportunities for professional learning and coaching; and providing flexible funding and continuing education units to make in-service education more effective and beneficial. Hence, the current study is an attempt to investigate the efficacy of Teacher Development Coordinator (TDC) program as an initiative in DoE schools by Delhi Govt., to highlight the success as well as constraints hampering its affectivity and to suggest some recommendations to make it more affective in the schools.



← CHAPTER

RESEARCH METHODOLOGY

Research encompasses the defining and redefining problem, making hypothesis, collection of data, information or facts, organizing and evaluating that data for knowledge advancement. The research has the purpose of finding out the answers to the questions through the use of scientific procedures (Maheshwari, 2017).

The systematic theoretical analysis of the procedures used in a field of research is known as methodology. It entails a theoretical examination of a body of procedures and principles related to a field of study. Research methodology refers to the practical "how" of any given piece of research. It is about how a researcher plans a study in a systematic way to ensure that the results are accurate and trustworthy and that the research goals and objectives are met(Jansen&Warren, 2020). Methodology refers to the theory of getting knowledge to the methods and procedures used in the study. It provides a structure that the research will follow while proceeding in the research. It includes planning that has a central goal of solving the research problem. The aspects such as which design to use, from whom to collect data, how to collect data, how to analyze data and how to achieve an outcome, all these things come under research methodology. Although methodology is not meant for providing the solution, but it gives the theoretical underpinnings to decide which procedure or set of procedures can be applied on particular case or problem. Hence, research methodology consists of research designs, target population, sample, sampling techniques, data collection instruments, procedure of data collection, and techniques of data analysis (Kenya Projects Organization, 2012; Maheshwari, 2017).

Design of the Study

Research design is a conceptual structure of the research that guides us how to conduct the research. It is a framework that provides the guidelines to the researcher for collecting, analyzing and interpreting data. It provides a road map of the study that tells us how the study will be conducted. It is like a model or action plan on which the whole study is built with respect to the sample, data collection techniques and analytical procedures. It determines the type of research that the researcher wants to adopt. It makes our research more efficient to get maximal information. It tells us how to get relevant evidence with optimal effort, time and expenditure, depending on the research purpose. It provides the suitable conditions for data collection and analysis so as to generalize the findings of study to the population Creswell, 2012; Pandey&Pandey, 2015).

There are different research designs prevalent in social science research field, such as experimental research, descriptive research, exploratory research, action research, case study research etc. Also, we have different approaches to follow within these designs such as quantitative, qualitative and mixed method approach (having both qualitative and quantitative approaches). An approach is the research framework or paradigm that gives a boundary to the research design (Kenya Projects Organization, 2012).

The present study used the descriptive research design having quantitative approach for data collection and data analysis.

Descriptive research is used to obtain the current status of the phenomenon or situation. It describes 'what exists' with respect to the certain variables or conditions in a situation. It involves the methods ranging from survey to describe the status quo, correlation study to investigate the relationship among the variables, to the developmental studies to determine the changes over time (Key, 1997). It is used to collect detailed factual information about the population of the study. It has the goal to understand a specific set of variables in a group of individuals, their relationship between those variables and their implications. It takes a snapshot of a portion of the population and generalizes that for whole population (Wickford, 2018).

Descriptive study is used to describe the events how they are occurred and for this, it can be either quantitative, qualitative or both. It has three main purposes: to describe, to explain and to validate findings. Descriptive

research gathers the data on a particular event and then organizes, tabulates, depicts and describes the data. It usually includes the use of graphs, charts and tables for data distribution. So, usually observational and survey methods, i.e. interviews and questionnaires, are used to collect the data. While writing the report of summary data, descriptive studies use the measures of central tendency such as mean, median, mode, deviance from the mean, variation, percentage and correlation (Association for Educational Communications and Technology, 2001).

Population of the Study

The population of the study is the target population from which the actual sample is drawn. It encompasses a larger area than the concept sample frame. A population is a group of people, objects or item about which some information is sought in the research. The population refers to the total number of cases or subjects of the study. It can have objects, organizations, people or events. It is considered as a well-defined group of individuals or objects having similar characteristics and is of interest of the researcher. However, due to the huge size of populations, it is often impossible for researchers to examine every single person in the community because it is too costly and time-consuming. That's why the researchers rely on sampling strategies (Hu, 2014; Maheshwari, 2017).

The population of the current study included the five types of people such as Principals or HoS, Mentor Teachers (MTs), Teacher Development Coordinators (TDCs), Academic Resource Team (ART) members and Teachers from all DoE Schools of West A and West B districts of Delhi.

Sample of the Study

Among the huge collection of different types of subjects, or population, of the study, the researcher may be interested in doing the study on certain number of cases instead of all. This selected group of cases is known as sample (Walliman, 2011).

A sample is a part or subset of the population. The concept of sample was developed out of the challenge for researchers to test all of the individuals in a given group. The representative sample must be large enough to be statistically significant and generalizable to a larger population from which it was obtained. The main purpose of the sample is to allow researchers to conduct studies on individuals from the community in order to make conclusions that apply to the entire population (McCombes, 2022).

The selection of a number of study units from a defined population is called sampling. Sampling refers to the process of selecting a given number of subjects from a defined population as representative of the population. We select the sample for the study as it is difficult to study the entire population. It is also selected so as to make the inferences about the characteristics of the population by observing the characteristics of the sample. Sampling is done in the study to fulfill various needs such as economy of time, economy of money, true detailed knowledge, utility in experimental study and reliability due to the basis of probability theory. While selecting the sample of the study, some basic and essential questions need to be considered viz. What is the group of people from which the sample is to be selected, how many people are needed in the sample, and through which technique or process does the sample would be selected (Degu &Yigzaw, 2006; Pandey & Pandey, 2015).

There can be many ways of sampling which can be categorized in two main types: Probability or Random sampling, and Non-probability or Non-random sampling, which are further divided into different types.

The current study followed the simple random sampling technique to select the sample from the population.

As the name suggested, simple random sampling selects the sample randomly from the population. The sample is a random subset of population. Each member of the population has an equal and fair chance of getting selected for the sample. It is a very straight forward and easy method of sampling because you don't need to know everything about the population. You just close the eyes and randomly select the sample irrespective of their individual characteristics. It is just like a lottery method where every member has the same probability to get selected. The sample selected from this method is the most representative of the population and has high internal and external validity. This sampling is used to make more accurate inferences about the population due to its high representativeness. Defining the population and knowing the sample size are the basic requirements needed for this sampling (Thomas, 2020).

The sample of the current study includes the sample of School Principals, Mentor Teachers (MTs), Teacher Development Coordinators (TDCs), Academic Resource Team (ART) members and Teachers of DoE, Delhi selected randomly from the population of DoE schools of West A and West B districts of Delhi.

S.N.	Sample Type	Total Number	Male	Female
1	TDC	109	45	64
2	Teachers	1992	730	1262
3	MT	32	13	19
4	ART	600	208	392
5	HoS	68	32	36

Tools for Data Collection

Tools of data collection refer to the data gathering techniques or instruments. Tools and techniques are the ways to measure or collect the data and analyse that for the study. There are many tools or techniques for collecting the data which may vary in complexity, interpretation, design and administration. Thus, the researcher needs to decide which tools to use for the study as each tool is suitable for collecting certain kind of information (Pandey & Pandey, 2015). Some examples of these tools include questionnaire, interview schedule, attitude scale, opinionnaire, checklist, observation techniques, psychological tests, etc.

The current study used 5 self-developed Questionnaires each for five types of sample of the study. Different questionnaires were used for HoSs, MTs, TDCs, ART members and Teachers. The questionnaires consisted of the questions in the form of 5-point Likert scale. Likert scale has some statements written for which the respondents would tick the best possible option out of always, sometimes, often, rarely, never, for each statement.

The questionnaires used for TDCs, MTs, ART members and Teachers are formed based on 6 dimensions as follows:

<u>Dimensions</u>	<u>Question (Item) Number</u>
Connect	1-3
Engagement and Participation	4-7
Motivating Others	8-10
Contribution	11-14
Supporting Others	15-19
Support Received from Others	20-22

The questionnaire used for HoS was formed on 7 dimensions as follows:

<u>Dimensions</u>	<u>Question (Item) Number</u>
Connect	5-7
Motivating Others	3
Contribution	5-6, 13-15
Supporting Others	1, 4, 8-10
Support Received from Others	16-19
Professional Development	11-12
Attitude to TDC Programme	2, 20-22

After constructing these questionnaires, their pilot study was also done to test the tools. Out of the total sample, 10% respondents were taken from each type of sample for piloting all five questionnaires developed. The responses collected from the pilot samples were used to check the reliability of the tools. Then, the tools were modified based on the feedbacks and responses collected through piloting.

Their reliability was also checked using the method of 'Split-Half'. Reliability of any tool is checked to verify of the particular tool will produce the similar result if used twice on same sample. If any research tool produces stable and consistent result, it is known as reliable. Reliability is a degree to which any tool shows consistency of results. There are many methods to check reliability of any tool. The current study used 'Split-Half' method to check the reliability of all five questionnaires. In this method, a tool or test is split into two halves based on odd and even questions. Each half of the test is administered to the same individuals and then the scores calculated are used to find out the correlation between them. Same procedure is followed in the current study for all five questionnaires. Responses were collected from the pilot samples and product moment correlation is calculated to measure the reliability of the test.

The correlation coefficient values calculated for each questionnaire are as under:

Correlation value of Questionnaire used for HoS: 0.88

Correlation value of Questionnaire used for ART members: 0.93

Correlation value of Questionnaire used for Teachers: 0.90

Correlation value of Questionnaire used for MT: 1.0

Correlation value of Questionnaire used for TDCs: 0.88

The value of correlation coefficient for reliability used to vary from 0 to 1. 0 indicates no reliability correlation between the tests and 1 indicates perfect reliability correlation between both tests. The values of the current study showed that all questionnaires have correlation coefficient values more than 0.8, which is a very good number for any tool to be reliable. Thus, all questionnaire tools of the study are reliable.

Procedure for Data Collection

The practice of gathering, measuring, and evaluating correct insights for research using established approved procedures is referred to as data collection. Regardless of the subject of study, data collection is typically the first and most significant phase. The most important goal of data collecting is to collect data that is both information-rich and dependable so that data-driven research choices may be made (Question Pro, 2022).

The current study used the following procedure to collect data from the sample:

- 1. All DoE schools are divided into different districts and each district has its own online WhatsApp group of Principals of schools.
- 2. The researcher made the questionnaire in Google form and sent that in West A and West B districts' WhatsApp groups of Principals.
- 3. Similarly, DoE has WhatsApp groups for both MTs, and TDCs. So, the researcher made their questionnaires in Google forms and sent those in West A and West B districts' WhatsApp groups of MTs and TDCs.
- 4. Then, the TDCs were requested to forward the questionnaire of ART members to them directly, as the researcher had no direct access to reach them in one go. So, the Google form of questionnaire of ART members was sent in the group of TDCs and asked them to forward that to ART members.
- 5. Similarly, the researcher had no direct access to reach the school teachers in one go. So, the researcher made the Google form of

questionnaire of school teachers was sent for ART members and requested them to forward that to school teachers.

6. All responses were collected online through Google forms.

Organization of the Data

The act of categorising and classifying data in order to make it more useable is known as data organisation. You'll need to organise your data in a logical and orderly manner, similar to how we organise critical papers in a file folder, so that you can quickly find what you are searching. Any data holds the keys to managing your company's most valuable assets, so, the effective data organising techniques are critical which would help in contributing to the success of your organisation (Sisense, 2022).

In the current study, the data collected through the Likert scale questionnaire is organized in the tabular form. All responses are converted into numeral form and table is formed for these responses. After that specific statistical techniques are used to analyze the data.

Statistical Techniques Used in the Study

Planning, designing, collecting data, analysing, making relevant interpretations, and publishing research findings are all examples of statistical approaches used in the conduct of a study. Statistical analysis adds meaning to meaningless numbers, bringing life to data that was before dead. Only by using correct statistical tests can exact results and inferences be drawn (Ali & Bhaskar, 2016).

The Statistical techniques used in the current study are Frequencies, Percentage, and Average scores.



4

← CHAPTER

RESULT, ANALYSIS AND INTERPRETATION OF DATA

"Data analysis is the process of bringing order, structure and meaning to the mass of collected data. It is a messy, ambiguous, time consuming, creative, and fascinating process. It does not proceed in a linear fashion; it is not neat. Data analysis is a search for answers about relationships among categories of data."- Marshall and Rossman, 1990:111

Data analysis and interpretation are considered to be one of the important steps in research. After administering the questionnaires, data gathered are raw in nature then it is arranged in a certain format or order. This raw data takes the form of the information. The most critical and essential supporting pillars of the research are the analysis and the interpretation of the data. With the help of the interpretation, step one was able to achieve a conclusion from the set of the gathered data. Interpretation has two major aspects namely establishing continuity in the research through linking the results of a given study with those of another and the establishment of some relationship with the collected data. Interpretation can be defined as the device through which the factors, which seem to explain what has been observed by the researcher in the course of study.

This chapter presents the data that dealt with the research objectives and research questions of the study. This study attempted to discuss the following Research Questions:

RQ₁: To what extent Teacher Development Coordinator (TDC), Teachers, Mentor Teachers, Academic Resource Team (ART) and Head of School (HoS) have performed their role as perceived in TDC programme?

In the light of research question, the following objectives were formulated-

Objective 1: To study the extent of role performed by Mentor Teachers as perceived in TDC programme?

Objective 2: To study the extent of role performed by Teachers as perceived in TDC programme?

Objective 3: To study the extent of role performed by Teacher Development Coordinators as perceived in TDC programme?

Objective 4: To study the extent of role performed by ARTs as perceived in TDC programme?

Objective 5: To study the extent of role performed by HoS as perceived in TDC programme?

The roles of these stake holders were measured in the form of tasks/activities performed.

These tasks /activities may be categorized in the following themes:

S.N.	Theme	
1.	Connect to the other stake holders	
2.	Engagement and participation	
3.	Motivating others	
4.	Contribution	
5.	Supporting to others	
6.	Support received from others	

4.1 Role performed by Teacher Development Coordinators (TDCs)

Teacher Development Coordinators (TDCs): "I lead focused, structured teacher collaboration and provide feedback to improve classroom practice in our school and teacher professional development."

- Facilitate teachers to share learning and experience of classroom practice
- Support peer observations and developmental feedback between teachers through regular classroom observations done themselves
- Focus on improving teaching across the school
- Participating in monthly Co-Learning Sessions that seek to build their capacity to provide high quality coaching to ART members

- and other teachers of the school.
- Organizing ART meetings in their schools in order to support the ART members' professional growth and role model specific skills and competencies required for improving teaching & learning practices.

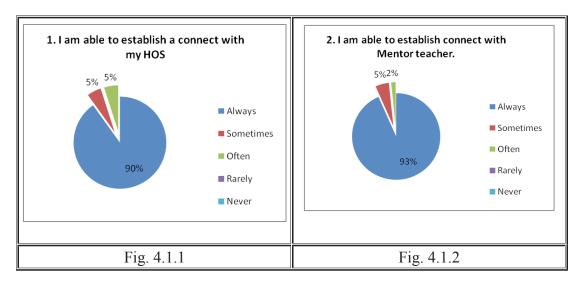
The data collected through the questionnaire was tabulated as below:

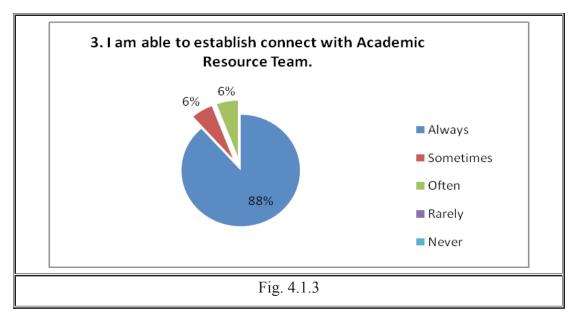
Table 4.1 **Average score of role Performed by TDCs**

S.N.	Theme	Average Score
1	Connect (item 1-3)	4.85
2	Engagement and participation (item 4-7)	4.44
3	Motivating others (item 8-10)	4.32
4	Contribution (item 11-14)	4.26
5	Supporting Others (item 15-19)	4.54
6	Support received (item 20-22)	4.82

Table 4.1 shows that almost all the Teacher Development Coordinators claimed that they were always connected (score 4.85) with their Head of School (HOS), Mentor Teacher and Academic Resource Team (ART).

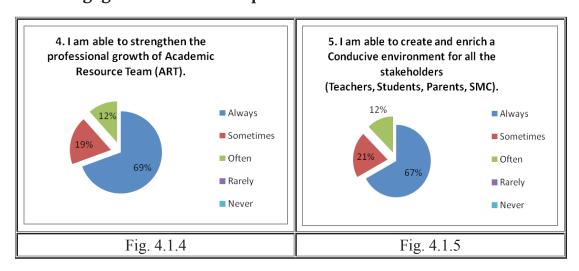
4.1.1: Connect

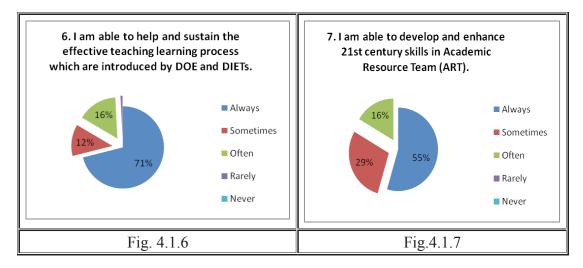




The above Fig. 4.1.1 to 4.1.3 show that TDCs are able to establish the connect with HoS, MTs & ART members. If we compare the connection of TDCs with other stakeholders, it can be interpreted that TDCs are able to connect more with their MTs than HoSs and ARTmembers.

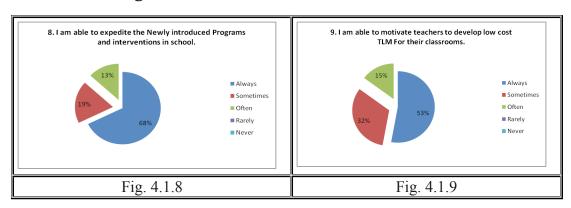
4.1.2: Engagement and Participation

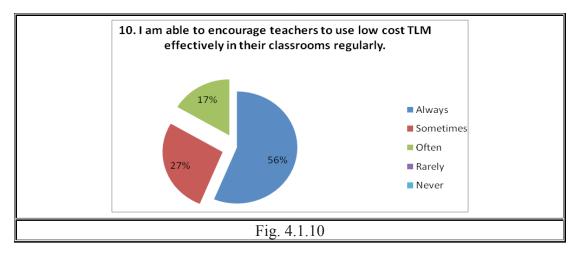




As per Fig. 4.1.4 to 4.1.7 more than half (55%) of Teacher Development Coordinators also claimed that they were always able to strengthen the professional growth of ART and to enhance their 21st century skills. It also shows that nearly half of them (45%) could not always help to strengthen the professional growth of ART and to enhance their 21st century skills in ART members. Majority (67%) of TDCs claimed that they were always able to create and to enrich a conducive environment for all the stakeholders as well as to sustain the effective teaching-learning process in the school. Some (21%) of them accepted that sometimes they were not able not create and enrich a conducive environment for all the stakeholders as well as some (12%) could not sustain the effective teaching-learning process in the school.

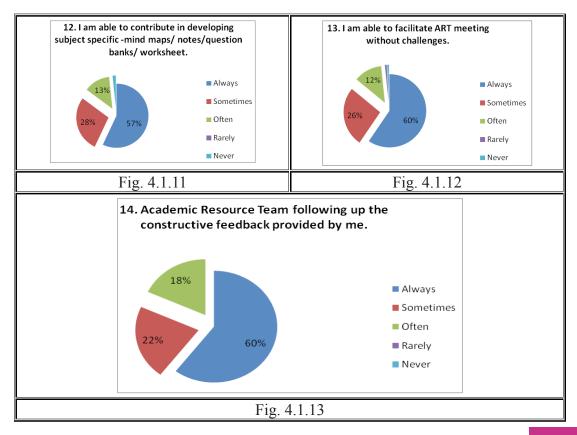
4.1.3: Motivating Others





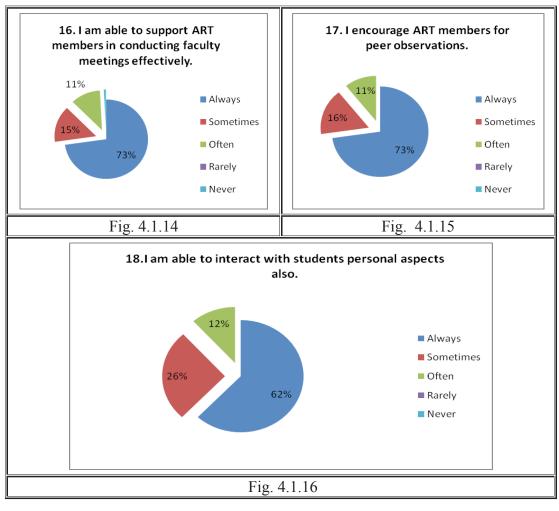
As per Fig. 4.1.8 to 4.1.10, majority of TDCs recognized their strength to motivate teachers to create low cost TLM and use it in their classrooms but a large number of them accepted that they could not always motivate teachers to create low cost TLM and use it in their classrooms.

4.1.4: Contribution



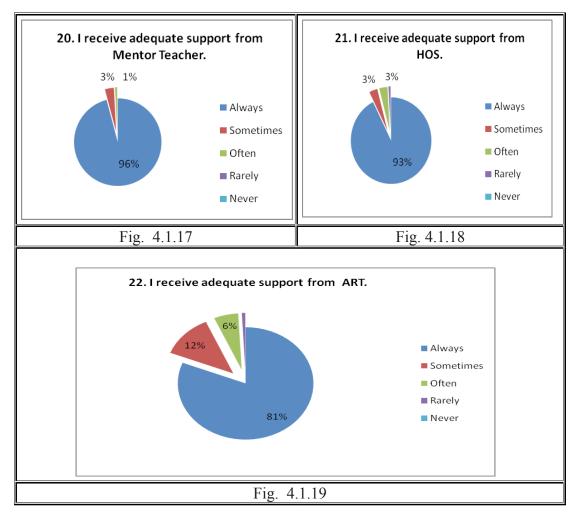
As per Fig. 4.1.11 to 4.1.13, more than half (57%) of TDCs reported that they were able to contribute in developing subject specific -mind maps/notes/question banks/ worksheet and to provide feedback to ART but some of them could not contribute. They were able to facilitate ART meetings without challenges & ART members follow up on the feed backs given by them.

4.1.5: Supporting Others



As per Fig. 4.1.14 to 4.1.16, majority of TDCs informed that they often supported ART members in conducting faculty meetings effectively and encouraged ART members for peer observations. They also discussed with ART about students' personal aspects. That is why all the TDCs said that they enjoyed their role a lot in the TDC programme.

4.1.6: Support Received



As per Fig. 4.1.17 to 4.1.19, Teacher Development Coordinators were also asked about the support they received from other stakeholders in the TDC programme. Almost all the TDCs reported that they always received adequate support from Mentor Teachers, HoS and ART members. TDC also mentioned that they got more support from the Mentor Teachers in comparison to HoS and ART members.

When the data was analyzed with the lenses of gender, the differences between the responses of male and female TDCs were seen.

Table 4.2 **Average Score of role performed by TDCs gender-wise**

S.N.	Item	Male	Female
1	Connect	4.839744	4.864734
2	Engagement and -participation	4.5625	4.362319
3	Motivating Others	4.429487	4.251208
4	Contribution	4.350962	4.195652
5	Supporting others	4.565385	4.521739
6	Support received	4.833333	4.816425

Table 4.2 shows that both the male and female TDCs were equally able to connect with their Head of School (HOS), Mentor Teacher and Academic Resource Team (ART) as well as in supporting the ART and others. Even both male and female TDCs got maximum support from others. However, the data reflects that some of the female TDCs could not motivate others and contributed less in comparison to the male TDCs.

Table 4.3 $\label{eq:approx} \mbox{Average Score of role performed by TDCs based on designation } \\ \mbox{(TGT/PGT)}$

S.N.	Item	TGT	PGT
1	Connect	4.847222	4.863945578
2	Engagement and participation	4.451389	4.443877551
3	Motivating Others	4.25463	4.43537415
4	Contribution	4.3125	4.18877551
5	Supporting others	4.577778	4.485714286
6	Support received	4.814815	4.836734694

Table 4.3 shows that TDCs who were PGTs were little bit better in connecting with and motivating other stakeholders as compared to the TDCs who were TGTs. At the same time, table also shows that the TDCs who were TGTs were a little bit better than PGTs in participating and contributing in TDC programme.

At last it can be interpreted that TDCs have performed their role successfully in order to make TDC programme successful.

4.2 Role performed by Teachers

The data collected through the questionnaire was tabulated as below:

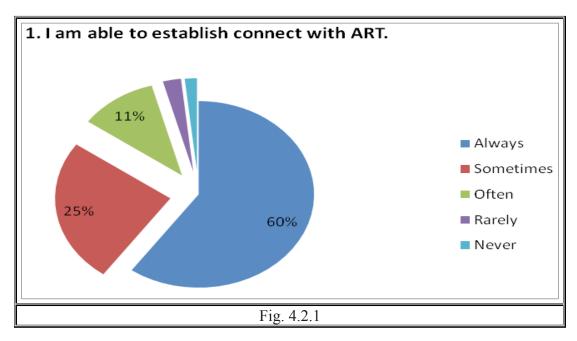
Table 4.4

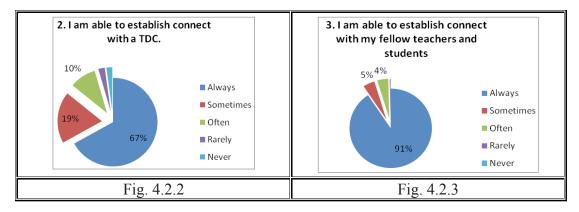
Average Score of role performed by Teachers

S.N.	Theme	Average Score
1	Connect (item 1-3)	4.48
2	Engagement and participation (item 4-10, 14)	4.43
3	Professional Development (item 11)	4.53
4	Contribution (item 12-13, 15-19)	4.55
5	Support received (item 20-24)	4.66

Table 4.4 shows that majority of the teachers claimed that they were always connected (score 4.48) with their TDC, Academic Resource Team (ART).

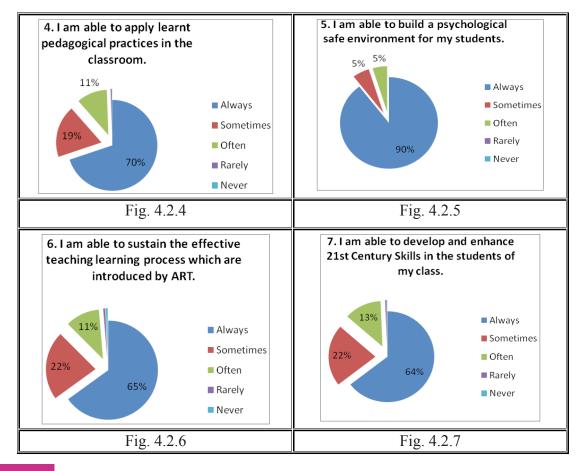
4.2.1: Connect

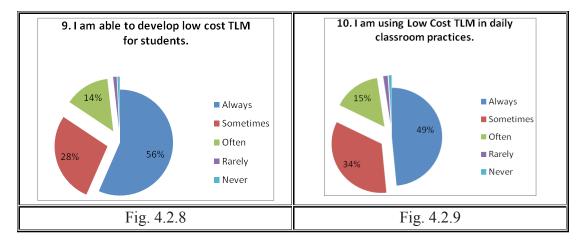




As per Fig. 4.2.1 to 4.2.3 almost all the teachers (92%) were always connected with their fellow teachers and students. It may be interpreted that teachers were more connected with their fellow teachers and students in comparison to TDC and ART.

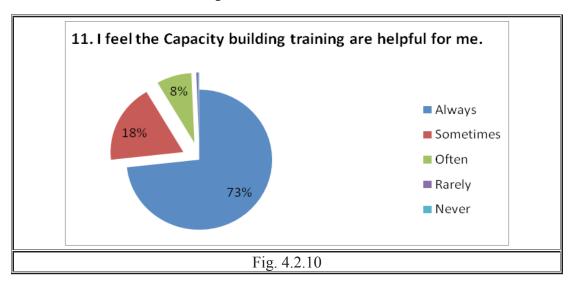
4.2.2: Engagement & Participation





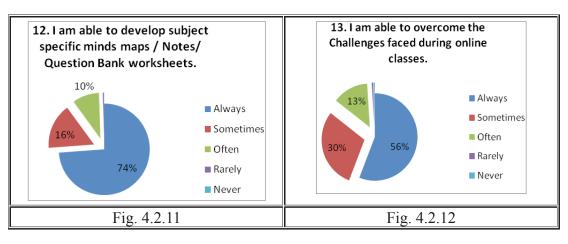
As per Fig. 4.2.4 to 4.2.9, majority (70%) of teachers accepted that they were always able to apply the pedagogical practices and larger majority (89%) was able to build a psychological safe environment for students. Nearly majority (65%) of them also informed that they were able to sustain the effective teaching-learning process which was introduced by ART. Majority (57+14=71%) of the teachers reported that they were able to develop and use low cost Teaching-Learning Material (TLM). Very few of them also accepted either they could use TLM in the classroom rarely or never.

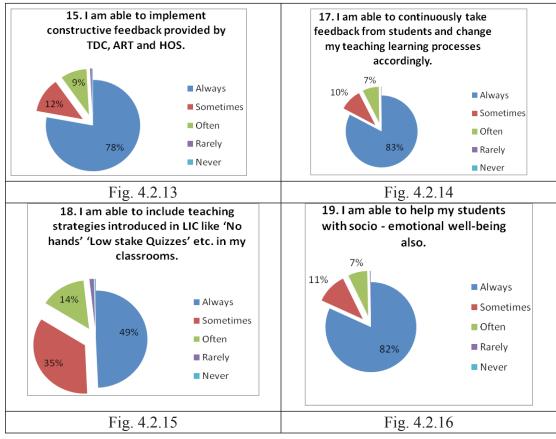
4.2.3: Professional Development



As per Fig. 4.2.10, all the Teachers found the capacity building training helpful for them to enhance the TDC programme.

4.2.4: Contribution

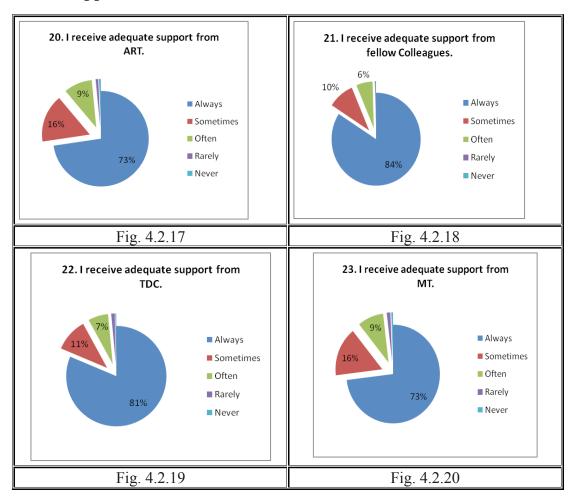


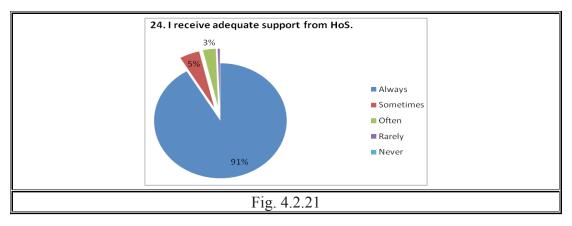


As per Fig. 4.2.11 to 4.2.16, majorly all teachers are able to develop subject specific mind maps/notes/questions Bank/ worksheets. They are also able to overcome the challenges of online classes by implementing

feedback given by TDC, HoS & ART. Majority of the teachers informed that they always participated in faculty meetings facilitated by ART and implemented the feedback provided by TDC, ART and Head of School. They were able to help their students for socio-emotional well-being. That is why all the Teachers said that they enjoyed their role a lot in the TDC programme. Half of them also admitted that sometimes they could not include teaching-learning strategies introduced in LIC in their classrooms.

4.2. 5: Support received





As per graphs 4.2.17 to 4.2.21, teachers were also asked about the support they received from other stakeholders in the TDC programme. Teachers reported that they received adequate support from Mentor Teachers, HoS and ART members. The charts also show that a large number of mentor teachers (27%) and ART members (27%) could not provide support to the teachers all the time while almost all the teachers reported that their HoS always supported them.

When the data was analyzed with the lenses of gender, the differences between the responses of male and female Teachers were seen.

Table 4.5 **Average Score of role performed by Teachers gender-wise**

S.N.	Item	Male	Female
1	Connect	4.484237074	4.492957746
2	Engagement and -participation	4.454129887	4.421126761
3	Professional Development	4.544766709	4.527464789
4	Contribution	4.567285174	4.554828974
5	Support received	4.615384615	4.690140845

Table 4.5 shows that both the male and female Teachers were equally able to connect with their Head of School (HOS), Mentor Teacher and Academic Resource Team (ART) as well as in supporting the ART and others. Even both male and female Teachers got maximum support from others. However, the data reflects that some of the female Teachers could not motivate others and contributed less in comparison to the male Teachers.

4.3 Role performed by Mentor Teacher

Mentor Teachers (MTs): "I provide feedback to teachers through classroom observations and support TDCs to lead effective teacher collaboration in their schools"

- Provide excellent coaching to TDCs focused on helping them to be more effective in improving teaching in their schools
- Provide access to resources and ideas to help TDCs think through different elements of their pedagogy
- Model excellent facilitation to TDCs and spread a positive, constructive tone focused on improving teaching and learning
- Participating in monthly Co-Learning Sessions that seek to build their conceptual clarity of LIC content and way forward to take the program by TDC CLS and ART meeting observation support.
- Organizing Co-Learning Sessions to build capacity in TDCs so they can provide effective support to their respective schools and TDCs; and role modeling specific skills and competencies required for improving teaching & learning practices.
- Participating in monthly District Progress Check Meetings organized by the DIET and reflecting on qualitative and quantitative outcome of the district and making further plan of action.
- Support TDCs to promote peer observations and developmental feedback between teachers.
- Strengthen the quality of developmental feedback between TDCs and ART members/teachers/peers by observing, and giving feedback on, the process.

The data collected through the questionnaire was tabulated as below:

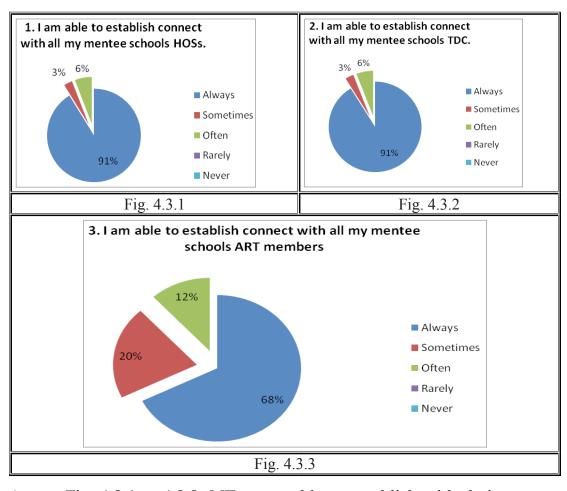
Table 4.6 **Average Score of role performed by Mentor Teacher**

S.N.	Theme	Average Score
1	Connect (item 1-3)	4.7
2	Engagement and participation (item 4-7)	4.4
3	Motivating others (item 8-10)	4.26

4	Contribution (item 11-14)	4.16
5	Supporting Others (item 15-19)	4.5
6	Support received (item 20-22)	4.5

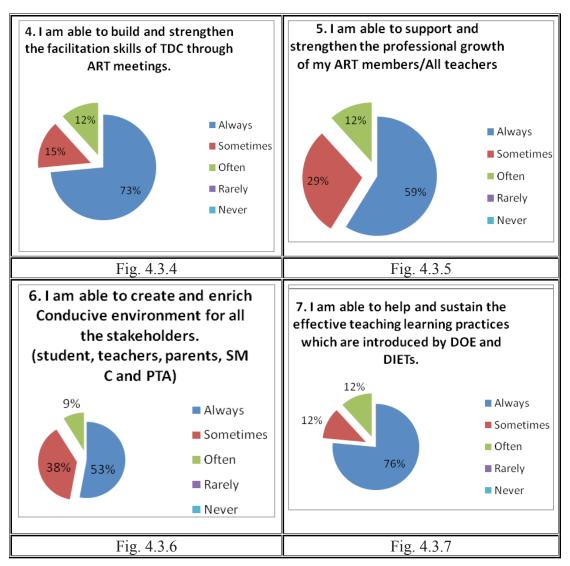
Table 4.6 shows that almost all the Mentor Teachers claimed that they were always connected (score 4.7) with their Head of School (HOS) &TDC. When they were responding regarding their connection with Academic Resource Team (ART), they reported that they could not always connect with a large number of ART members.

4.3.1: Connect



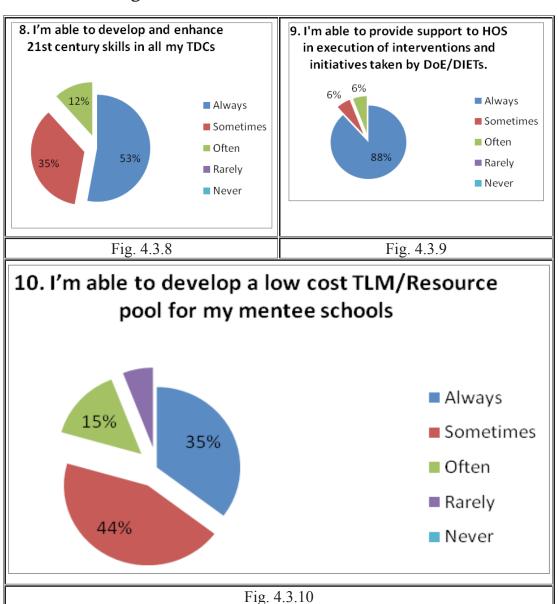
As per Fig. 4.3.1 to 4.3.3, MTs were able to establish with their mentee schools HOS, TDC & ART members. It is also clear that they were able to connect with HoS & TDC more in comparison to ART members.

4.3.2: Engagement & Participation



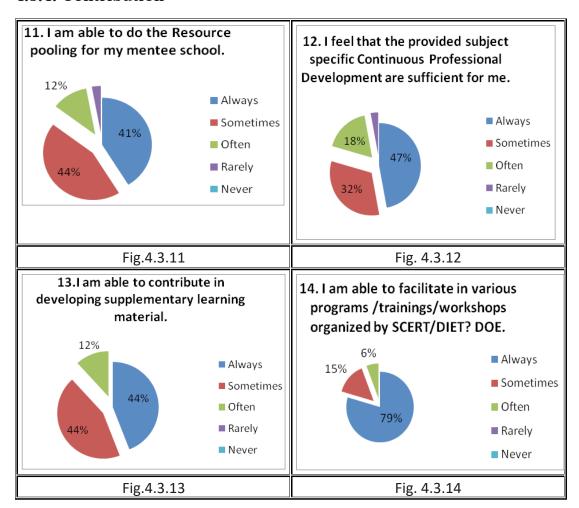
As per Fig. 4.3.4 to 4.3.7, majority of the Mentor Teachers were always able to strengthen the facilitation skills of TDC and professional growth of ART members and to enhance their 21st century skills among TDCs. The Mentor Teachers mentioned that they were able to create, and enriching conducive environment for all the stakeholders (student, teachers, parents, SMC and PTA) as well as to sustain the effective teaching-learning practices which were introduced by DoE and DIETs in the school. Almost all the Mentor Teachers recognized their strength to create low cost TLMs and did resource pooling for their mentee schools.

4.3. 3: Motivating Others



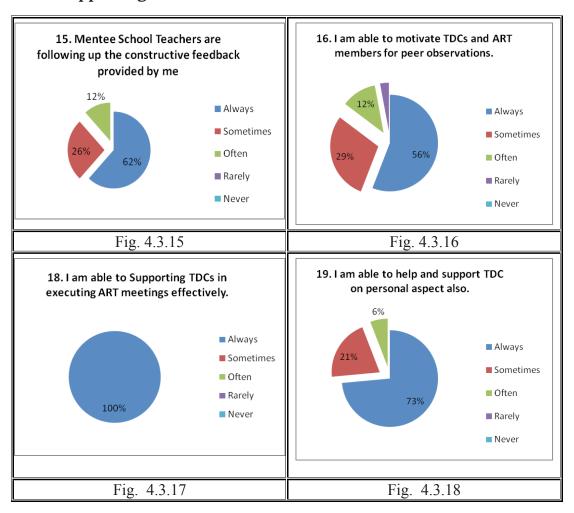
As per graphs 4.3.8 to 4.3.10, more than half of the mentor teachers reported that they were able to develop and enhance 21st century skills in TDCs. Also, they were able to motivate and support their HoS in execution of intervention and initiatives taken by DoE/ DIETs. But very few of them were able to develop low cost TLMs for their mentee schools.

4.3.4: Contribution



As per Fig. 4.3.11 to 4.3.14, almost all Mentor Teachers reported that they were able to contribute in developing subject specific -mind maps/ notes/ question banks/ worksheet and to provide feedback to ART. They are also able to do Resource Pooling for their mentee schools. They facilitate in various training programs organized by SCERT/DIET/DoE for which their CPD training is sufficient for them.

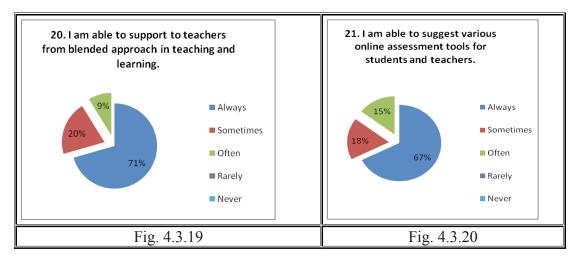
4.3.5: Supporting Others



As per Fig. 4.3.15 to 4.3.18, Mentor Teachers informed that they always supported ART members in conducting faculty meetings effectively and encouraged ART members for peer observations. Even they also discussed with ART about students personal aspects.

That is why all the Mentor Teachers told that they enjoyed their role a lot in the TDC programme. MTs were also able to support the teachers in their blended approach of teaching learning process and online assessment tools.

4.3.6: Support Received



As per Fig. 4.3.19 & 4.3.20, mentor teachers were able to support other stakeholders & received the same from them. MTs also got adequate support from their mentee school teachers, TDCs & ART members as they follow up the feed backs given by MTs.

When the data was analyzed with the lenses of gender, the differences between the responses of male and female Mentor Teachers were seen.

Table 4.7 **Average Score of role performed by Mentor Teacher gender-wise**

S.N.	Item	Male	Female
1	Connect	4.809524	4.7
2	Engagement and –participation	4.267857	4.525
3	Motivating Others	4.333333	4.21667
4	Contribution	4.357143	4.025
5	Supporting others	4.457143	4.58
6	Support received	4.571429	4.45

Table 4.7 shows that both the male and female Mentor Teachers were equally able to connect with their Head of School (HOS), Mentor Teacher and Academic Resource Team (ART) as well as in supporting the ART and others. Even both male and female Mentor Teachers got maximum support from others. However, the data reflects that some of the female

Mentor Teachers could not motivate others and contributed less in comparison to the male Mentor Teachers.

4.4 Role Performed by Academic Resource Team (ART)

Academic Resource Team (ART) Members: "I lead by example in improving our classroom practice and influence other teachers in my department to do the same."

- Open to trying new classroom practices and sharing their experience with colleagues
- Focus on all students' learning and encourage a growth mindset
- Welcome colleagues into their classrooms to observe them
- Actively participate in monthly ART meetings.
- Implement the strategies proposed in the ART meetings and gather learning from their experiences to share in the monthly cycles.
- Promote the culture of peer observation and developmental feedback to support each other's professional growth and strengthen teaching & learning processes.
- Organize monthly meetings with their faculty members in order to extend learning from ART meetings to non-ART members.

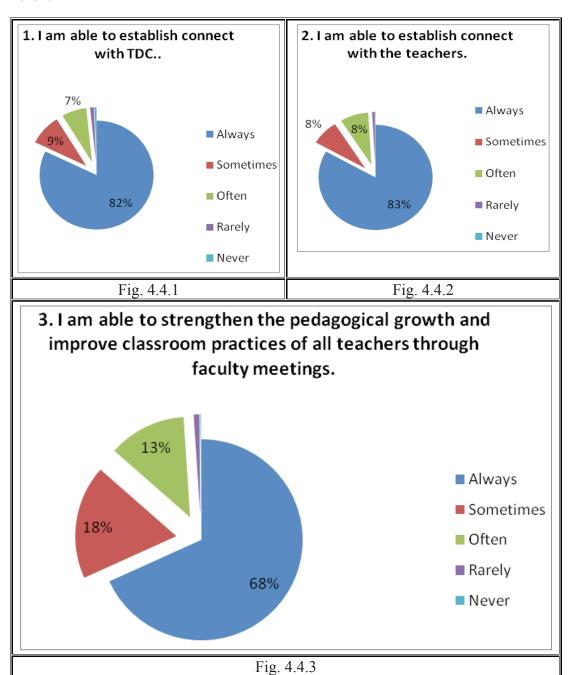
The data collected through the questionnaire was tabulated as below:

Table 4.8 **Average Score of role performed by ART**

S.N.	Theme	Average Score
1	Connect (item 1-3)	4.63
2	Engagement and participation (item 4-7)	4.45
3	Motivating others (item 8-10)	4.43
4	Contribution (item 11-14)	4.42
5	Supporting Others (item 15-19)	4.5
6	Support received (item 20-22)	3.97

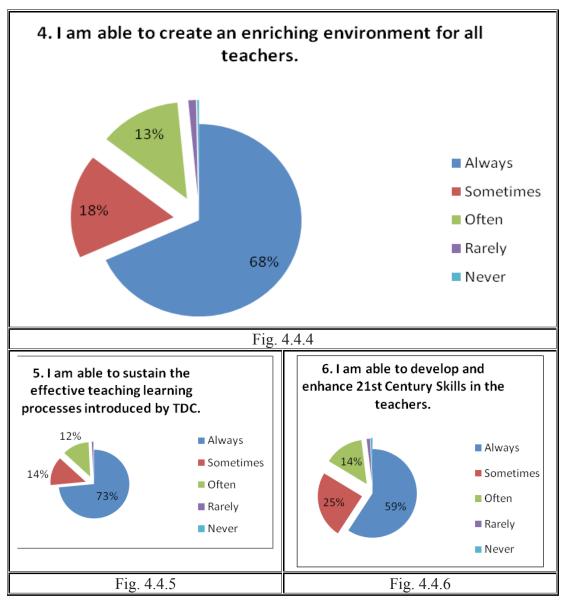
Table 4.8 shows that almost all the Academic Resource Team (ART) members claimed that they were always connected (score 4.63) with their TDCs and Teachers.

4.4.1: Connect



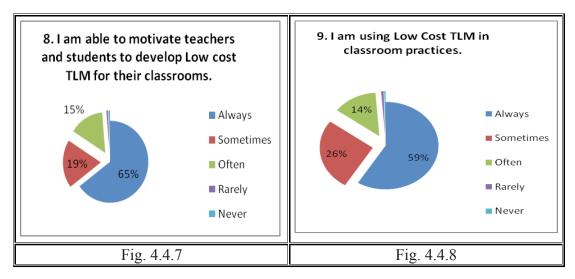
As per Fig. 4.4.1 to 4.4.3, ART members are able to connect with TDC & Teachers.

4.4.2: Engagement & Participation



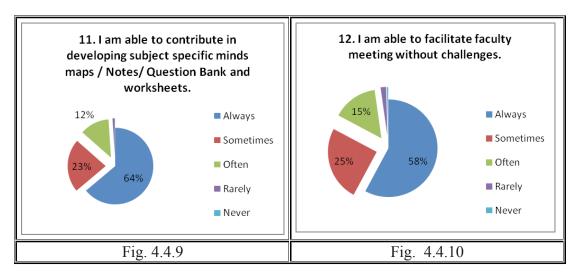
As per Fig. 4.4.4 to 4.4.6, almost all the ART members claimed that they were always able to strengthen the professional growth of ART and to enhance their 21st century skills .The ART members mentioned that they were able to create and enrich a conducive environment for all the stakeholders as well as to sustain the effective teaching-learning process in the school.

4.4.3: Motivating Others



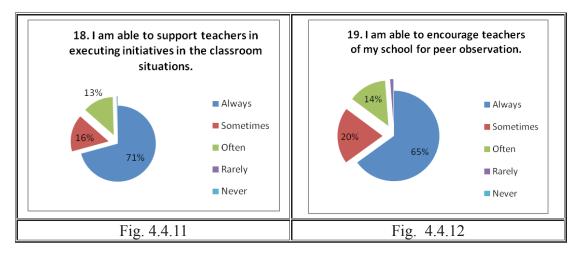
As per Fig. 4.4.7 & 4.4.8, majority of ART members recognized their strength to motivate teachers to create low cost TLM and use it in their classrooms. A large number of ART members also accepted that they could not always motivate teachers and students to develop and use low cost TLM in the classroom.

4.4.4: Contribution



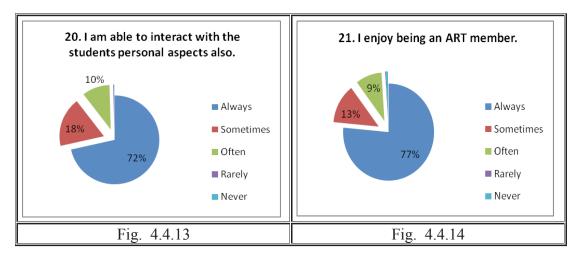
As per Fig. 4.4.9 & 4.4.10, majority of ART members reported that they were able to contribute in developing subject specific -mind maps/ notes/ question banks/ worksheet and to provide feedback to ART. They are also able to facilitate faculty meetings without challenges.

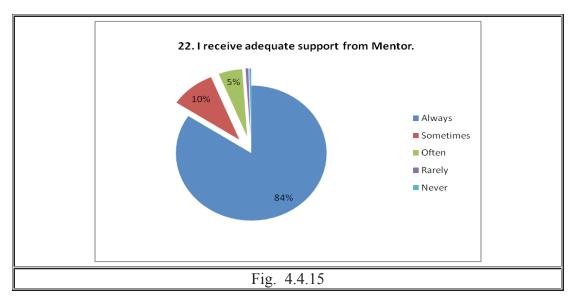
4.4.5: Supporting Others



As per Fig. 4.4.11 & 4.4.12, majority of ART members informed that they often supported ART members in conducting faculty meetings effectively and encouraged ART members for peer observations. They also discussed with ART about students' personal aspects. That is why all the ART members said that they enjoyed their role a lot in the TDC programme.

4.4.6: Support Received





As per Fig. 4.4.13 to 4.4.15, ART members were also asked about the support they received from other stakeholders in the TDC programme. Almost all the ART members reported that they received adequate support from Mentor Teachers.

When the data was analyzed with the lenses of gender, the differences between the responses of male and female ART members were seen.

Table 4.9 Average Score of role performed by ART gender-wise

S.N.	Item	Male	Female
1	Connect	4.63	4.63
2	Engagement and -participation	4.46	4.45
3	Motivating Others	4.40	4.45
4	Contribution	4.44	4.42
5	Supporting others	4.50	4.52
6	Support received	3.90	4.01

Table 4.9 shows that both the male and female ART members were equally able to connect with their Head of School (HOS), Mentor Teacher and Academic Resource Team (ART). The results reflect equal engagement,

participation and contribution of both male and female ART members in TDC programme. Even both male and female ART members found equally capable in providing and getting support from teachers and others.

Table 4.10

Average Score of role performed by ART based on designation (TGT/PGT/PRT)

S.N.	Item	TGT	PGT	PRT
1	Connect	4.66	4.55	4.48
2	Engagement and -participation	4.48	4.34	4.40
3	Motivating Others	4.45	4.37	4.46
4	Contribution	4.46	4.34	4.19
5	Supporting others	4.53	4.47	4.30
6	Support received	4.76	4.57	4.62
Average		4.56	4.44	4.41

Table 4.10 shows that ART members who were TGTs were little bit better in performing their role in TDC programme than the PGTs and PRTs. At the same time, table also shows that the ART members who were PRTs were a little bit behind than PGTs in performing their role in TDC programme.

At last it can be interpreted that ART members have performed their role successfully in order to make TDC programme successful.

4.5 Role performed by Head of School

The data collected through the questionnaire was tabulated as below:

Table 4.11 **Average Score of role performed by HoS**

S.N.	Theme	Average Score
1	Connect (item 5-7)	4.78
2	Motivating others (item 3)	4.66
3	Contribution (item 5-6, 13-15)	4.66
4	Supporting Others (item 1, 4, 8-10)	4.62
5	Support received (item 16-19)	4.63
6	Professional Development (11-12)	4.67
7	Attitude to TDC Programme (2, 20-22)	4.56

Table 4.11 shows that almost all the Heads of Schools claimed that they were always connected (score 4.78) with their Teacher Development Coordinator (TDC), Mentor Teacher and Academic Resource Team (ART).

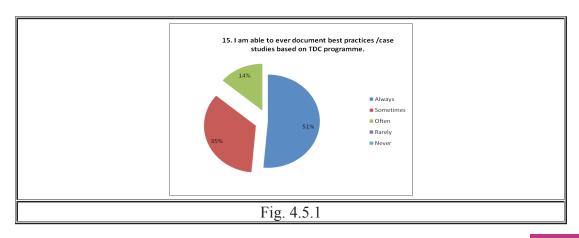
4.5.1: Connect

HoSs were always connected with their Teacher Development Coordinator (TDC), Mentor Teacher and Academic Resource Team (ART).

4.5.2: Motivating Others

Almost all the HoSs recognized their strength to motivate teachers to create low cost TLM and use it in their classrooms.

4.5.3: Contribution



As per Fig. 4.5.1, almost all the HoS claimed that they were always able to strengthen the professional growth of ART and to enhance their 21st century skills. The HoS mentioned that they were able to create and enrich conducive environment for all the stakeholders as well as to sustain the effective teaching-learning process in the school. Almost all HoSs reported that they were able to contribute in developing subject specific mind maps/ notes/question banks/ worksheet and to provide feedback to ART.

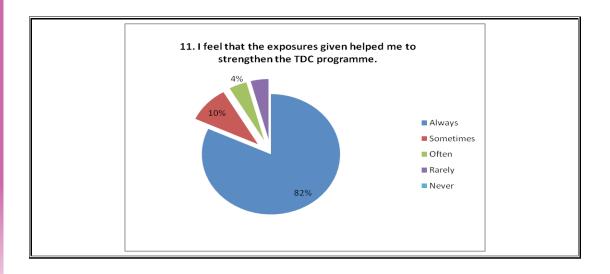
4.5.4: Supporting others

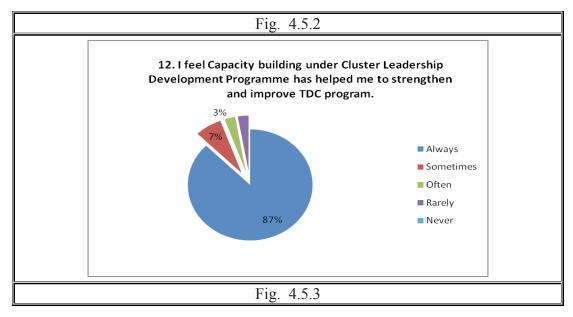
HoSs informed that they always supported ART members in conducting faculty meetings effectively and encouraged ART members for peer observations. They also discussed with ART about students' personal aspects. That is why all the HoSs said that they enjoyed their role a lot in the TDC programme.

4.5.5: Support received

HoSs were also asked about the support they received from other stakeholders in the TDC programme. Almost all the HoSs reported that they received adequate support from Mentor Teachers, HoS and ART members HoS also mentioned that they got more support from the Teachers in comparison to TDC and Mentor Teachers.

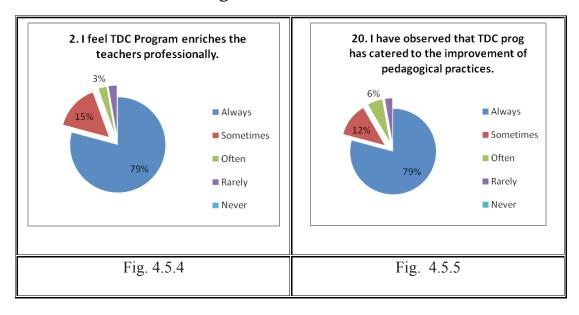
4.5.6: Professional Development

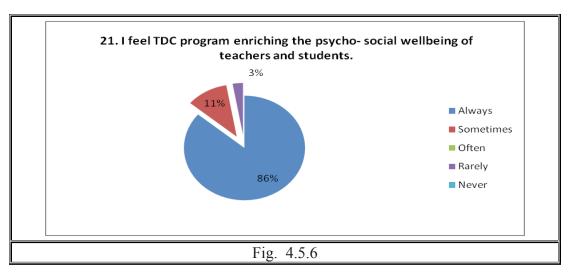




As per Fig. 4.5.2 & 4.5.3, majority of HoS admitted that the professional development they were given helped them to strengthen the TDC programme. The exposures given to them in various cluster Leadership Development Programme helped them to improve & make TDC programme more effective.

4.5.7: Attitude to TDC Programme





As per Fig. 4.5.4 to 4.5.6, majority of HoS felt that TDC program enriched teachers professionally and improved pedagogical practices. At the other end some HoS (20%) also felt that sometimes TDC did not enriched teachers professionally and could not improve pedagogical practices. Almost all (90%) HoS felt that TDC program enriched the psycho-social well-being of teachers and students.

When the data was analyzed with the lenses of gender, the differences between the responses of male and female Head of Schools were seen.

Table 4.12 Average Score of role performed by HoS gender-wise

S.N.	Item	Male	Female
1	Connect	4.68	4.45
2	Motivating Others	5	4.85
3	Contribution	4.51	4.31
4	Supporting others	4.86	4.72
5	Support received	4.82	4.74
6	Professional Development	4.76	4.64
7	Attitude to TDC Programme	4.70	4.62
		4.76	4.62
Average			

Table 4.12 shows that male Head of Schools performed a little bit

better than female Head of Schools in all the dimensions of their role as perceived in TDC programme. The results reflect that almost all the male and female HoSs showed a highly positive attitude towards the TDC programme and also appreciated the professional development received and support received from others. However, the data reflects that some of the female HoSs could not always motivate others and contributed less in comparison to the male HoSs.

Conclusion

The results showed that all the stakeholders of the TDC programme performed their tasks successfully. Almost all TDCs, Mentor Teachers, Teachers and ART members informed that they all were able to connect with others and they could motivate and encourage others to perform their role and tasks as perceived in TDC programme. Further, the results also showed that all TDCs, Mentor Teachers, Teachers and ART members claimed that they all were able to support others in performing their respective tasks and also received adequate support from others. The data collected also depicted that all TDCs, Mentor Teachers, Teachers and ART members were engaged all the time and participated in TDC programme.

In short, the data revealed that all the stakeholders of TDC programmed performed their roles effectively. Hence it may be understood that the TDC programme was implemented in the schools successfully.

← CHAPTER

SUMMARY, CONCLUSIONS & RECOMMENDATIONS

Summary of the Study

Professional development is very much needed for the teachers. With the changing time, guidelines for school districts, educational technology and standards for curriculum also change continuously. So, teachers are required to keep up with latest trends and practices. Thus, a lot of initiatives have been taken in the direction of our education system and providing in-service education to the teachers. Teacher Development Coordinator (TDC) programme is one of those initiatives which works towards the upliftment of in-service teachers and upgrade them with the chanting time and needs of education. The current study entitled "A Study of Efficacy of Teacher Development Coordinator (TDC) Program of District West" aims to study the effectiveness of this TDC programme in the region of district West A and B. It uncovers the roles performed by different stakeholders of education as perceived in TDC programme. For this purpose, the study used the descriptive research design having quantitative approach. The population of the current study included the five types of people such as Principals or HoS, Mentor Teachers (MTs), Teacher Development Coordinators (TDCs), Academic Resource Team (ART) members and Teachers from all DoE Schools of West A and West B districts of Delhi. Among this population, the sample of all five types was selected through simple random sampling technique. To collect the data from the sample, the current study used 5self-developed Questionnaires each for five types of sample of the study. Different questionnaires were used for HoSs, MTs, TDCs, ART members and Teachers which consisted of the questions in the form of 5-point Likert scale. The questionnaires used for TDCs, MTs, ART members and Teachers were based on 6 dimensions, namely, Connect, Engagement and Participation, Motivating Others, Contribution, Supporting Others, and Support Received from Others; while the questionnaire used for HoS was based on 7 dimensions, namely, Connect, Motivating Others, Contribution, Supporting Others, Support Received, Professional Development, and Attitude to TDC Programme. After constructing these questionnaires, their reliability was also checked using the method of 'Test-retest' having correlation coefficient values more than 0.9 approximately for all five questionnaires. The responses were collected from the sample through Google Forms sent on their WhatsApp groups using online media. The data collected was categorized using coding method and analyzed using frequency tables, mean and pie-charts. First research question of the study was to find out to what extent Teacher Development Coordinators (TDCs), Teachers, Mentor Teachers, Academic Resource Team (ART) members and Head of School (HoS) have performed their role as perceived in TDC programme. For this purpose, the study made five objectives particularly for each sample to study extent of role performed by them, viz. to study the extent of role performed by Mentor Teachers as perceived in TDC programme; to study the extent of role performed by Teachers as perceived in TDC programme; to study the extent of role performed by Teacher Development Coordinators as perceived in TDC programme; to study the extent of role performed by ARTs as perceived in TDC programme; and to study the extent of role performed by HoS as perceived in TDC programme. The role of these stake holders were measured in the form of tasks/activities performed categorized in the themes or dimensions mentioned above. So, the data collected can also be analyzed using the same dimensions.

First dimension talks about 'Connect to the other Stakeholders' of education. The findings of the study revealed that almost all stakeholders were always connected with each other as per the situation demanded. For instance, TDCs were always connected with their HoS, MT and ART; Teachers were always connected with their TDC and ART but more with their fellow teachers and students; MTs were always connected with their HoS and TDC, but couldn't always connect with a large number of ART members; ART members were always connected with their TDCs and Teachers; and HoS were always connected with their TDC, MT and ART members. Thus, all stakeholders of education had good connection with each other.

Second dimension talks about 'Engagement and Participation'. Majority of TDCs were always able to strengthen the professional growth of ART and to enhance their 21st century skills. They were always able to create

and to enrich a conducive environment for all the stakeholders as well as to sustain the effective teaching-learning process in the school. Similarly, teachers were also able to apply the pedagogical practices and to build a psychological safe environment for students. Many of them were able to sustain the effective teaching-learning process which was introduced by ART.MTs were able to strengthen the facilitation skills of TDC and professional growth of ART members and to enhance their 21st century skills among TDCs. They were able to create, and enriching conducive environment for all the stakeholders (student, teachers, parents, SMC and PTA) as well as to sustain the effective teaching-learning practices which were introduced by DOE and DIETs in the school. ART members were also able to strengthen the professional growth of ART and to enhance their 21st century skills.

Third dimension talks about 'Motivating Others'. Majority of TDCs recognized their strength to motivate teachers to create low cost TLM and use it in their classrooms. Similarly, MTs were able to create low cost TLMs and did resource pooling for their mentee schools. ART members and HoSs also recognized their strength to motivate teachers to create low cost TLM and use it in their classrooms.

Fourth dimension talks about their 'Contribution' in TDC programme. Majorly, TDCs were able to contribute in developing subject specific mind maps/notes/question banks/worksheets and to provide feedbacks to ART. Teachers were also able to develop and use low cost TLM and subject specific mind maps/notes/question banks/worksheets. All the Teachers found the capacity building training helpful. They always participated in faculty meetings facilitated by ART and implemented the feedback provided by TDC, ART and Head of School. MTs, ART members and HoSs were able to contribute in developing subject specific mind maps/notes/question banks/worksheet and to provide feedback to ART.

Fifth dimension talks about 'Supporting to others'. TDCs often supported ART members in conducting faculty meetings effectively and encouraged ART members for peer observations. They also discussed with ART members about students' personal aspects. Teachers were also able to help their students for socio-emotional well-being. MTs, ARTs and HoSsalways supported ART members in conducting faculty meetings effectively and encouraged ART members for peer observations. Even they also discussed with ART members about students' personal aspects.

Sixth dimension talked about 'Support Received from others'. Almost all the stakeholders received support from each other at the time of need. TDCs always received adequate support from MTs, HoS and ART members. Teachers received adequate support from MTs, HoS and ART members. A large number of MTs and ART members could not provide support to the teachers all the time while almost all the teachers reported that their HoS always supported them. All MTs received adequate support from MTs, HoS and ART members. ART members received adequate support from MTs.HoSs received adequate support from MTs, HoS and ART members, but more from teachers.

Two more dimensions used for HoS were 'Professional Development' and 'Atitude to TDC programme'. Majority of HoS admitted that the professional development they were given helped them to strengthen the TDC programme. The exposures given to them in various Cluster Leadership Programmes helped them to improve and make TDC programme more effective. They also had positive attitude towards the TDC programme. They felt that TDC program enriched teachers professionally and improved their pedagogical practices. It also enriched the psycho-social well-being of teachers and students.

If we talk about the gender differences in the response of various stakeholders of education, the data showed that all male and female stakeholders were equal in four dimensions except 'Motivating others' and 'Contribution'. The female stakeholders performed lesser than that of male stakeholders with respect to motivating others and contributing in TDC programme for effective education. Also, the qualifications of TDCs and ART members had an impact on their performance and their contribution. TDCs who were PGTs were little better in connecting with and motivating other stakeholders as compared to the TDCs who were TGTs. Also the TDCs who were TGTs were a little better than PGTs in participating and contributing in TDC programme. Similarly, ART members who were TGTs were little better in performing their role in TDC programme than the PGTs and PRTs.

Thus, it can be interpreted that all stakeholders enjoyed and performed their role successfully in order to make TDC programme successful. Hence, the TDC programme was implemented in the schools successfully.

Conclusion of the Study

First research question of the study was to find out to what extent Teacher Development Coordinators (TDCs), Teachers, Mentor Teachers (MTs), Academic Resource Team (ART) members and Head of School (HoS) have performed their role as perceived in TDC programme. For this purpose, the study made five objectives particularly for each sample to study extent of role performed by them. The role of these stake holders were measured in the form of tasks/activities performed categorized in six dimensions for TDCs, MTs, ART members and Teachers (Connect to the other stakeholders, Engagement and participation, Motivating others, Contribution, Supporting to others, and Support received from others), and seven dimensions for HoS (Connect to the other stakeholders, Motivating others, Contribution, Supporting to others, and Support received from others, Professional development, and Attitude to TDC programme). The data collected can also be analyzed using the same themes or dimensions.

First dimension talks about 'Connect to the other Stakeholders' of education. The findings of the study revealed that almost all stakeholders were always connected with each other as per the situation demanded. For instance, TDCs were always connected with their HoS, MT and ART; Teachers were always connected with their TDC and ART but more with their fellow teachers and students; MTs were always connected with their HoS and TDC, but couldn't always connect with a large number of ART members; ART members were always connected with their TDCs and Teachers; and HoS were always connected with their TDC, MT and ART members. Thus, all stakeholders of education had good connection with each other.

Second dimension talks about 'Engagement and Participation'. Majority of TDCs were always able to strengthen the professional growth of ART and to enhance their 21st century skills. They were always able to create and to enrich a conducive environment for all the stakeholders as well as to sustain the effective teaching-learning process in the school. Similarly, teachers were also able to apply the pedagogical practices and to build a psychological safe environment for students. Many of them were able to sustain the effective teaching-learning process which was introduced by ART.MTs were able to strengthen the facilitation skills of TDC and professional growth of ART members and to enhance their 21st century skills among TDCs. They were able to create, and enriching conducive environment for all the stakeholders (students, teachers, parents, SMC

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Thus, it can be interpreted that all stakeholders enjoyed and performed their role successfully in order to make TDC programme successful. Hence, the TDC programme was implemented in the schools successfully.

Suggestions for Further Scope

The study has the following further scopes for the research:

- 1. The current study focused on districts West A and West B only. Further studies can be done covering all districts of Delhi. A comparative study among the districts can also be studied.
- 2. Based on the study such initiative can also be taken in other states of India and also a comparison can be done among the states.
- 3. The current study followed the descriptive research design. The study may be done by using other research designs to explore.
- 4. Tools other than the questionnaire may be used. Some qualitative methods can also be used such as interview schedule and observation of classrooms to triangulate the data and findings.

5. The efficacy of TDC programme was studied from the lens of stakeholders only. Further research can be carried out to extend the study from the dimension of students who are the ultimate beneficiary of the study.

Recommendations of the Study

- 1. There is a need to motivate teachers to create low cost TLM for their classroom use.
- 2. There is a need to strengthen and enrich conducive environment for all stakeholders to increase its efficacy.
- 3. There is a need to build the capacity of developing subject specific mind maps/question banks/worksheets/notes for effective teaching.
- 4. It is also recommended that the capacity of the teachers should be strengthened to develop and enhance 21st century skills in the students.
- 5. There is a need to find out the type of online challenges faced by the teachers for the conduction of online classes. Also, a need has been felt to create a support system which includes the development of attitude towards online resources, infrastructure, and hands-on trainings for integrating technology in classroom teaching.
- 6. The study recommends that there is a need to identify the reasons for non-implementation of LIC strategies in the classroom by the teachers and provide them the requisite support.
- 7. The study also recommends that there is a need of continuous professional development programs for the teachers and ART members.
- 8. It is recommended that more MTs may frequently pool on the resources from their mentee schools to motivate the teachers to share their learning resources and experiences with each other.
- 9. It is recommended to overcome the challenges faced by the teachers to follow up the feedback given by MTs.
- 10. It is recommended to expose MTs to the strategies that could support them to encourage and motivate TDC and ART members for peer observation.
- 11. There is a need to identify and remove the challenges faced by ART members to facilitate faculty meetings.

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Mentor Teacher Inventory

S.N.	Item	Always	Sometime	Often	Rarely	Never
1.	I am able to establish connect with all my mentee schools HOSs.					
2	I am able to establish connect with all my mentee schools TDC.					
3	I am able to establish connect with all my mentee schools ART members.					
4	I am able to build and strengthen the facilitation skills of TDC through ART meetings.					
5	I am able to support and strengthen the professional growth of my ART members/All teachers.					
6	I am able to create and enrich Conducive environment for all the stakeholders. (student, teachers, parents, SMC and PTA).					
7	I am able to help and sustain the effective teaching learning practices which are introduced by DOE and DIETs.					
8	I'm able to develop and enhance 21st century skills in all my TDCs.					
9	I'm able to provide support to HOS in execution of interventions and initiatives taken by DoE/ DIETs.					

10	I'm able to develop a low cost TLM/Resource pool for my mentee schools.			
11	I am able to do the Resource pooling for my mentee school.			
12	I feel that the provided subject specific Continuous Professional Development are sufficient for me.			
13	I am able to contribute in developing supplementary learning material.			
14	I am able to facilitate in various programs / trainings/workshops organised by SCERT/ DIET? DOE.			
15	Mentee School Teachers are following up the constructive feedback provided by me.			
16	I am able to motivate TDCs and ART members for peer observations.			
17	I am able to update Mentor visit register regularly.			
18	I am able to Supporting TDCs in executing ART meetings effectively.			
19	I am able to help and support TDC on personal aspect also.			
20	I am able to support to teachers from blended approach in teaching and learning.			
21	I am able to suggest various online assessment tools for students and teachers.			

Teacher Development Coordinator Inventory

S.N.	Items	Always	Sometime	Often	Rarely	Never
1	I am able to establish a connect with my HOS.					
2	I am able to establish connect with Mentor teacher.					
3	I am able to establish connect with Academic Resource Team.					
4	I am able to strengthen the professional growth of Academic Resource Team (ART).					
5	I am able to create and enrich a Conducive environment for all the stakeholders (Teachers, Students, Parents, SMC).					
6	I am able to help and sustain the effective teaching learning process which are introduced by DOE and DIETs.					
7	I am able to develop and enhance 21st century skills in Academic Resource Team (ART).					
8	I am able to expedite the Newly introduced Programs and interventions in school.					
9	I am able to motivate teachers to develop low cost TLM For their classrooms.					

10 I am able to encourage teachers to use low cost TLM effectively in their classrooms regularly. 11 I feel that the provided subject specific Continuous Professional Development (CPD) are sufficient for me. 12 I am able to contribute in developing subject specific —mind maps/ notes/question banks/ worksheet. 13 I am able to facilitate ART meeting without challenges. 14 Academic Resource Team following up the constructive feedback provided by me. 15 I am able to support ART members in conducting faculty meetings effectively. 17 I encourage ART members for peer observations. 18 I am able to interact with students personal aspects also. 19 I enjoy my role as a TDC. 20 I receive adequate support from Mentor Teacher. 21 I receive adequate support from MOS.	1.0	T 11 /	i	Ī		
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		from ART.				

Inventory for Academic Resource Team

S.N.	Items	Always	Sometime	Often	Rarely	Never
1	I am able to establish connect with TDC.					
2	I am able to establish connect with the teachers.					
3	I am able to strengthen the pedagogical growth and improve classroom practices of all teachers through faculty meetings.					
4	I am able to create an enriching environment for all teachers.					
5	I am able to sustain the effective teaching learning processes introduced by TDC.					
6	I am able to develop and enhance 21st Century Skills in the teachers.					
7	I am able to execute programs and initiatives taken by DoE/DIETs.					
8	I am able to motivate teachers and students to develop Low cost TLM for their classrooms.					
9	I am using Low Cost TLM in classroom practices.					
10	I feel Capacity building training are helpful for me.					
11	I am able to contribute in developing subject specific minds maps / Notes/ Question Bank and worksheets.					

12	I am able to facilitate faculty meeting without challenges.			
13	I am able to address the challenges of teachers and students.			
14.	I participate actively in the ART meetings.			
15	I am able to implement constructive feedback provided by TDC.			
16	I am able to maintain and update the faculty meeting register.			
17	I am able to record and appreciate the best practices done by teachers.			
18	I am able to support teachers in executing initiatives in the classroom situations.			
19	I am able to encourage teachers of my school for peer observation.			
20	I am able to interact with the students personal aspects also.			
21	I enjoy being an ART member.			
22	I receive adequate support from Mentor.			
23	I receive adequate support from HOS.			
24	I receive adequate support from TDC.			
25	I receive adequate support from fellow.			

Inventory for Head of School

S.N.	Items	Always	Sometime	Often	Rarely	Never
1.	I fully support MT in executing their roles and responsibilities in school.					
2	I feel TDC Program enriches the teachers professionally.					
3	I inspire faculty in charges of various disciplines to be a part of ART meetings.					
4	I support TDC in smooth functioning of LIC and ART meetings.					
5	I am able to devote 90-minute time period as prescribed for LIC.					
6	I feel that faculty meetings are organized smoothly.					
7	I am able to create a psychological safe environment for all teachers, students and among other stakeholders.					
8	I am able to guide and support teachers to adopt 21st century skills for quality.					
9	I am able to motivate and facilitate teachers in creating low cost TLM.					

10	T1-1- 4	1	1	
10	I am able to build a culture of			
	appreciation for passionate teachers.			
11	I feel that the			
	exposures given			
	helped me to strengthen the TDC			
10	programme.			
12	I feel Capacity building under			
	Cluster Leadership			
	Development Programme has			
	helped me to strengthen and			
	improve TDC			
13	program. I feel my			
13	participation in ART			
	meetings helps to strengthen the TDC.			
14	I am able to			
	share the TDC interventions done			
	in further official			
15	proceedings. I am able to ever			
13	document best			
	practices /case studies based on			
	TDC programe.			
16	I provide constructive			
	feedback to			
	teachers through CDC (Connect-			
	Disconnect-			
	Connect) in ART Meetings.			
17	I receive adequate			
	support from Mentor Teacher.			

18	I receive adequate support from TDC.			
19	I receive adequate support from ART.			
20	I have observed that TDC programe has catered to the improvement of pedagogical practices.			
21	I feel TDC program enriching the psycho- social wellbeing of teachers and students.			
22	I ensure the prior discussion of agenda of LIC by TDC/MT.			

Inventory For teachers

S.N.	Items	Always	Sometime	Often	Rarely	Never
1	I am able to establish connect with ART.					
2	I am able to establish connect with a TDC.					
3	I am able to establish connect with my fellow teachers and students.					
4	I am able to apply learnt pedagogical practices in the classroom.					
5	I am able to build a psychological safe environment for my students.					
6	I am able to sustain the effective teaching learning process which are introduced by ART.					
7	I am able to develop and enhance 21st Century Skills in the students of my class.					
8	I am able to implement initiatives in my classroom.					
9	I am able to develop low cost TLM for students.					
10	I am using Low Cost TLM in daily classroom practices.					
11	I feel the Capacity building training are helpful for me.					
12	I am able to develop subject specific minds maps / Notes/ Question Bank worksheets.					

I am able to overcome the Challenges faced during online classes.					
I participate actively in faculty meetings facilitated by ART.					
I am able to implement constructive feedback provided by TDC, ART and HOS.					
I am able to maintain and update the teacher's diary.					
I am able to continuously take feedback from students and change my teaching learning processes accordingly.					
I am able to include teaching strategies introduced in LIC like 'No hands' 'Low stake Quizzes' etc. in my classrooms.					
I am able to help my students with socio - emotional well-being also.					
I receive adequate support from ART.					
I receive adequate support from fellow Colleagues.					
I receive adequate support from TDC.					
I receive adequate support from MT.					
I receive adequate support from HoS.					
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NOTES

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