Directorate of Minorities
Government of Karnataka

CARING WITH COLOUR
A Manasi Kirloskar Initiative

REPORT ON EXPERIENTIAL ONLINE TRAINING FOR THE TEACHERS OF SCHOOLS MANAGED BY THE DIRECTORATE OF MINORITIES, BANGALORE

SUBJECT: MATHEMATICS AND SCIENCE

DATE: 23-09-2021 TO 08-12-2021

TRAINING CONTENT DEVELOPED AND IMPLEMENTED

BY

DIRECTORATE OF MINORITIES AND CARING WITH COLOUR-A MANASI KIRLOSKAR INITIATIVE

1. ACKNOWLEDGEMENT

The **Directorate of Minorities** provides complete information about the planning and implementation of the online teacher training program conducted for Higher Primary School Teachers of the Directorate of Minorities.

We want to thank the entire team of the Directorate of Minorities for the tremendous belief in and the support provided to Caring with Colour, which made this program successful. Amidst the COVID situation, **This program helped us reach out to the teachers from various districts all over Karnataka, providing them training in Science and Mathematics, amidst the challenging COVID situation.**

We would also like to sincerely thank **Dr. H.R Shivakumar, KAS,** Director, Directorate of Minorities **and Shri. Pundaleek Anawal,** Assistant Director (Development), Directorate of Minorities, for collaborating and extending their support for the successful implementation of the program

We sincerely thank Nodal officers, **Shri. Mithun Chakravarthy A,** Minorities Morarji Desai Residential School (MMDRS), Rangapura Kavalu, Arasikere (for Mathematics) and **Shri. Kiran Javaji,** Assistant Master of Science MMDRS Melinahanasawadi, Shivamogga (for science) for providing Caring with Colour constant support for the execution of this training program and also for their co-ordination and participation in every phase of the program; like the review of modules, communication with the teachers, facilitating the training sessions and helping in reaching out to the teachers, and many more. Sincere thanks to all Resource **Persons of the Directorate of Minorities** for their coordination and co-facilitation of the online training modules

We also thank **Smt. Manasi Tata**, CEO and **Shri. Rajeev Annaluru**, COO, **Caring with Colour,** for their support and guidance in every stage of the program. In addition, we appreciate the constant guidance and support from **CWC Team Managers – Dhatri Devi** Subrata **Majumdar and Syed Atheequlla** extended to the team for developing the content, coordination, and timely implementation of the training program.

We extend appreciation and thanks to the entire CWC team for their gigantic efforts in designing the training course, developing the modules, coordinating with the Department and Resource Persons, and above all, the facilitation of the modules, which finally resulted in the programme concluding with flying colours. Not to forget the efforts of **Smt. Vishwaja, Kum. Nisarga, and Shri. Mallesha S** for their endless efforts in co-ordinating with the Nodal Officers of the Directorate of Minorities and the Resource Persons from team CWC for the preparation and successful transaction of all the components of the training modules.

We value the active participation and response of all the teachers in all the stages of the training program, without which this program would not have been as successful.

TABLE OF CONTENTS

2. Executive Summary

2.1 Background:

Caring with Colour – A Manasi Kirloskar Initiative (CWC) in collaboration with the Directorate of Minorities (DoM), successfully implemented an innovative teacher training model online

. The goal of the collaborative partnership was to rigorously train and up skill the teachers of the Directorate of Minorities all over Karnataka towards the srealisation of the goals of the new National Education Policy (NEP) 2020 in India.

The design of the teacher training program needed to:

- Enable and enhance the Teacher academic leadership by providing them with the perspectives, skills, and knowledge required for turning their classrooms into experiential learning spaces, thereby making learning a meaningful and joyful process as suggested by NEP 2020.
- Promote teacher autonomy by providing them with the tools and skills required to create their own activity-based arts-integrated experiential lesson plans contextual to their classrooms.
- Provide a safe platform through which school teachers teaching primary grades in the schools managed by the Directorate of Minorities can remotely engage with the training programs.
- Achieve the above in a cost-effective, scalable, and replicable way that leverages user-friendly technology platforms.

CWC engaged with the Directorate of Minorities and the Resource Persons of DoM from all the 31 districts of Karnataka to design an innovative technology-driven online teacher training program. The training program:

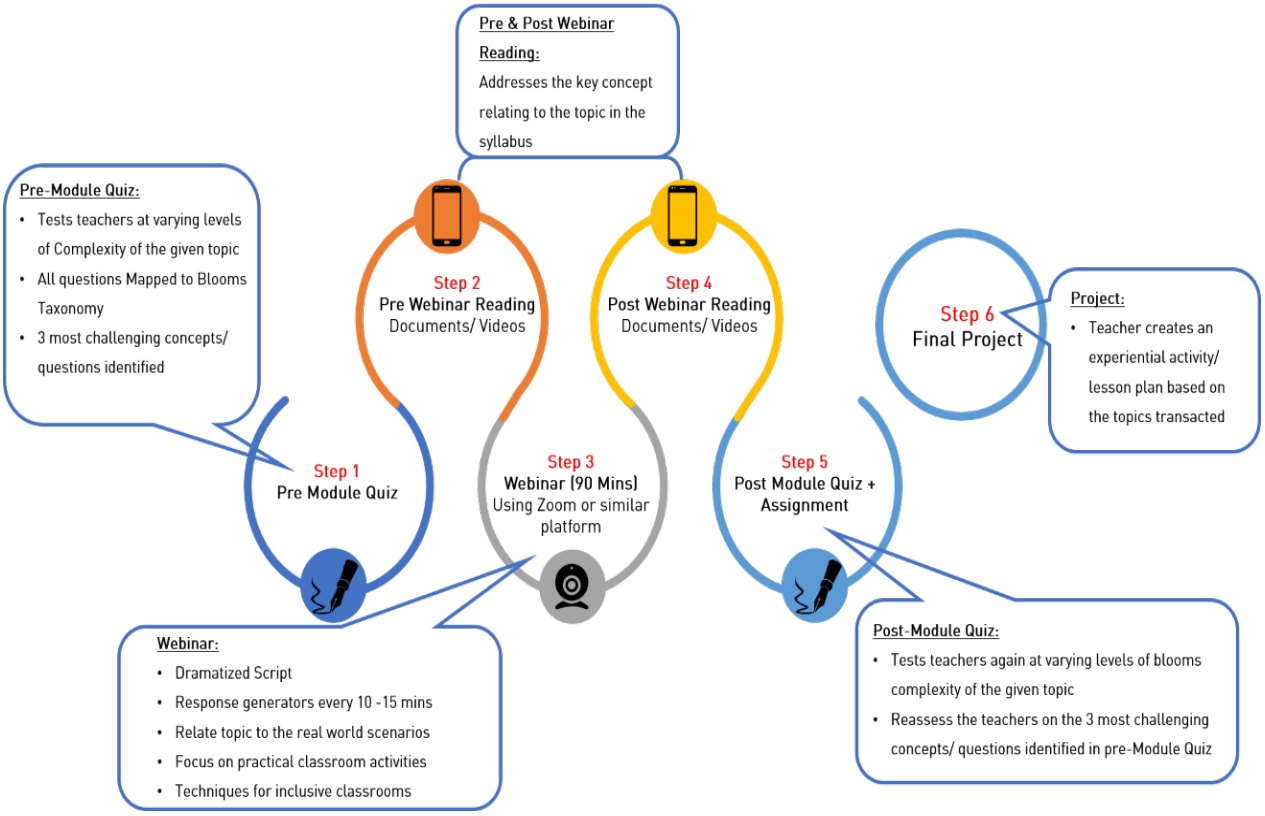
- Conducted a detailed data collection and mapping exercise through which CWC and the DoM could determine the specific subject(s) that each teacher teaching Grades 6 & 7 in all the DoM schools of Karnataka is either teaching or is interested in teaching.
- Identified the specific hard spots that teachers face in the two critical subjects of Mathematics and Science and designed training modules that can be transacted through live online sessions.
- Identified and trained the Resource persons/trainers in DOM who can be trained to deliver the live online training sessions in collaboration with CWC teacher trainers.
- Created a framework of user-friendly and no-cost / low-cost technology platforms (like Zoom, WhatsApp, YouTube live streaming, Google forms, Google Meet etc.) that any teacher can access from the safety of their homes/classrooms. The platforms were integrated such that they could all work on the same data layer at the backend. The cost to use the platforms for teachers was zero, and the cost to DoM / CWC was a small fraction compared to what would have been spent in the traditional in-person training model.

The modules were designed to ensure that the training program would provide experiential learning for teachers online. Therefore, the design of these "Experiential Teacher Training modules" needed to ensure that the training program is:

- Targeted towards the specific concepts that teachers generally find hard to understand and teach.
- Interesting and engaging to the teachers.
- Provide the teachers and the DoM with an understanding of the outcomes and improvements achieved.

- Create peer-to-peer learning opportunities and provide a discussion and learning platform to the teachers post the training.

To achieve the above, CWC designed an Online Experiential Teacher Training Model with a 6-step process that includes pre and post training assessments, pre and post training reading materials, assignments and projects through which teachers can collaborate and learn further.



2.2 Implementation of the Online Experiential Teacher Training Program:

The modules which were successfully implemented for the primary school teachers of Ramanagara, Tumkur and Madhugiri educational districts were improvised based on the feedback received from the different stakeholders of the Department. The same experiential training design was implemented for all the teachers of the Directorate of Minorities from different districts of Karnataka in collaboration with the DoM.

Directorate of Minorities Experiential Online Teacher Training Program 2021	
• **Training Mode**	Online
• **Grade Levels**	6, 7
• **Number of Teachers Participated in the Training**	210
• **Number of Training Modules Transacted**	10
• **Number of DoM Teacher Trainers participated in the Training**	12
• **Number of Learning Hours provided**	6300
• **Number of students to be benefited (Grade 4 to 7)**	31000

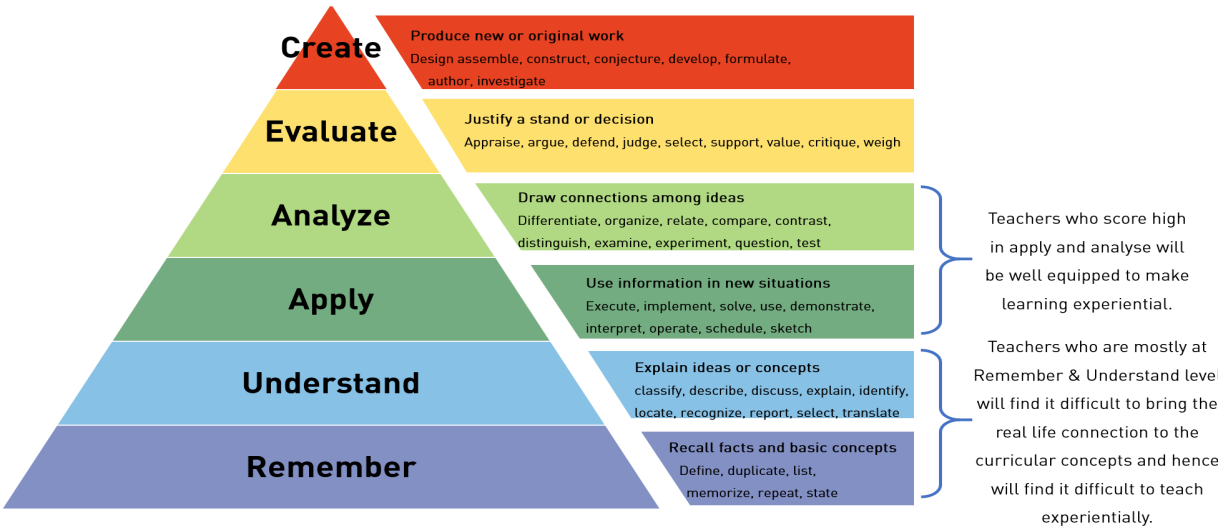
In total, 210 teachers were trained in the identified hard spots in the two key subjects of Mathematics and Science through 10 Experiential Teacher Training Modules.

2.3 Metrics for measuring Outcomes of the Training Program:

The efficiency, relevance, and improvement in teachers through the training program was measured through a rigorously designed set of metrics based on data collected through assessments and the log entries available from the technology platforms that were used.

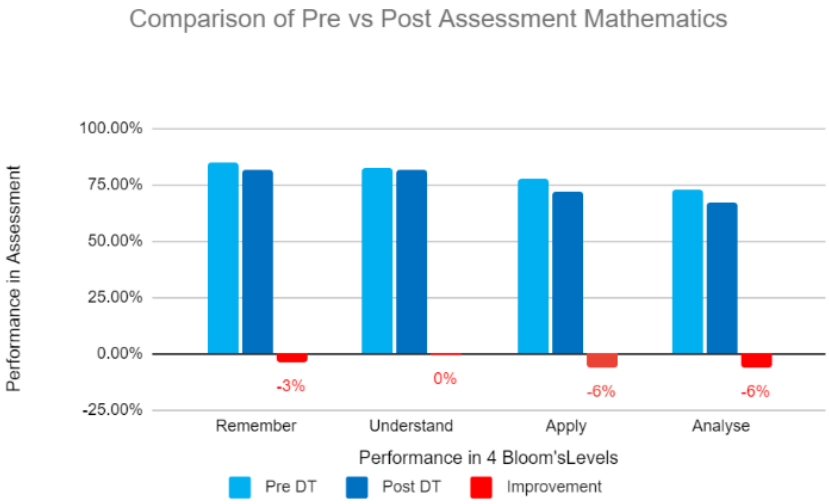
i. **The measure of Improvement in Teachers:** Two different types of metrics were used to measure improvement in the knowledge and skill of the teachers through the pre- and post-webinar assessments. The assessments themselves were structured as per Bloom's Taxonomy to measure the improvement in competency levels in the lower and higher-order skills relating to the concepts covered.
   a. **Metric 1:** The first type of assessment compared the pre vs post webinar performance of each teacher through a total of 10 questions designed at 4 different levels of Blooms (Remember, Understand, Apply and Analyse).
   b. **Metric 2:** For the second type of assessment, the three questions that most teachers answered incorrectly in the Pre-webinar assessment (which indicate a hard spot for teachers) are compared to the performance of teachers for similar questions in the post-webinar assessment.

ii. **Metric 3 (Measure of Efficiency):** Efficiency of the program (coverage of teachers and depth of participation) is measured through the participation rate engagement rate with the data logs available from the technology platforms.



iii. **Metric 4 (Measure of Relevance):** Relevance of the topics the applicability of the activities and ideas were measured through feedback polls given to participants at the end of each webinar.

2.4 Outcomes of the Experiential Teacher Training Model:

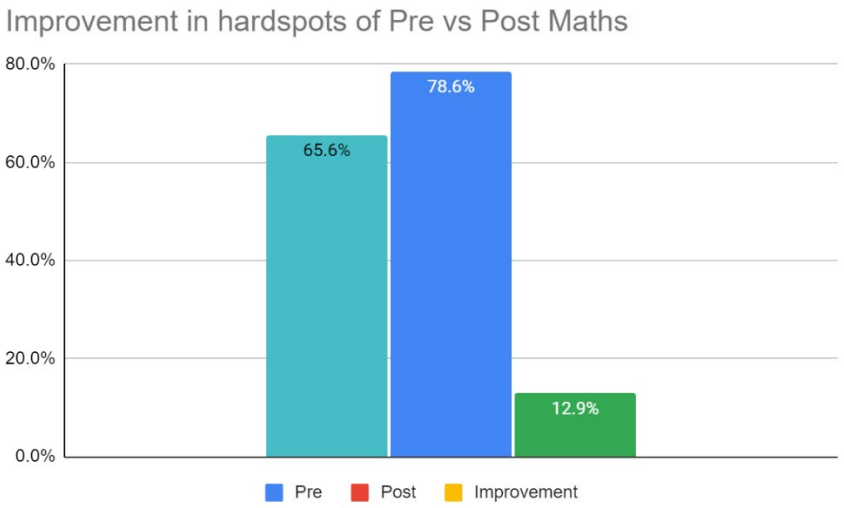


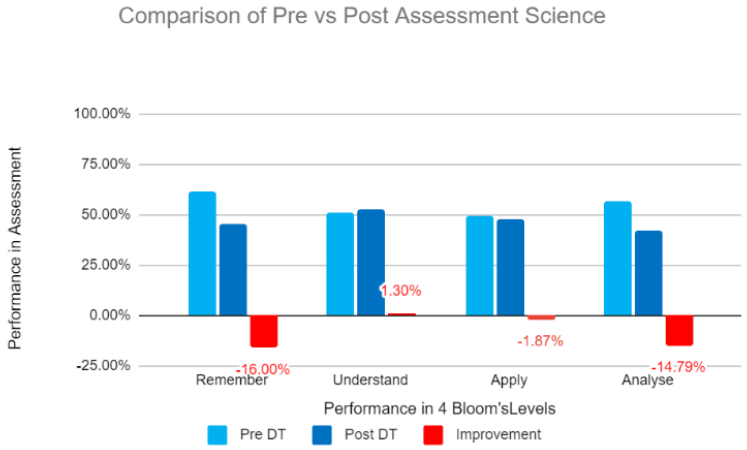
Metric 1:

Average Improvement in 4 levels of Blooms - Maths

Metric 2:

Average Improvement in 3 most challenging concepts - Maths



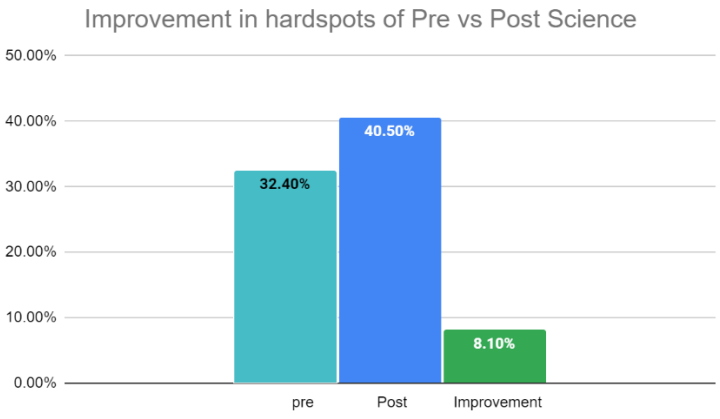


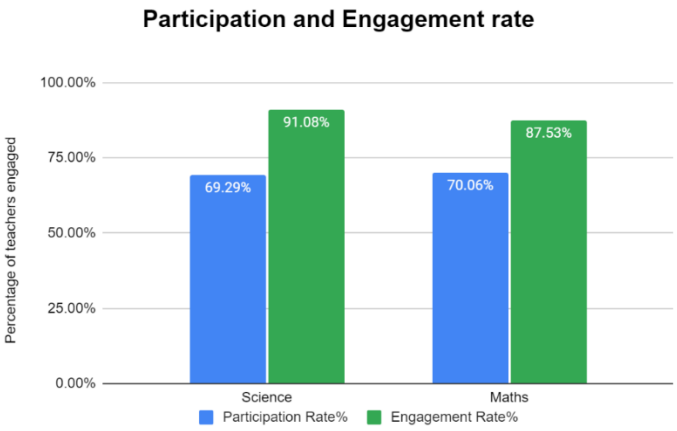
Metric 1:

Average Improvement in 4 levels of Blooms - Science

Metric 2:

Average Improvement in 3 most challenging concepts - Science



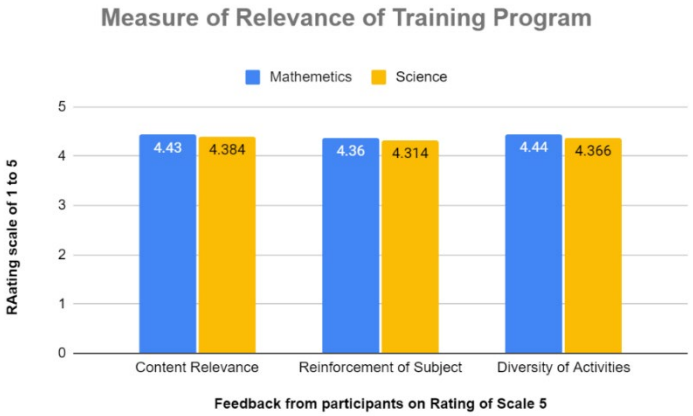


Metric 3:

Measure of Efficiency of the Training Program

Metric 4:

Measure of Relevance of the Training Program



Key Observations on the Metrics & Outcomes:

- This training program has demonstrated a framework through which large scale training programs can be conducted for the teachers in the public school system in a way that:
  - Training programmes are specifically targeted at addressing the hard spots/challenges faced by teachers in their classrooms.
  - Continuously measure the improvements made by teachers in their knowledge and skills, which can further lead to improvements in the teaching-learning process in their classrooms.
  - Incorporate the end-user feedback as an essential part of the training programs so that constant improvements can be made in the training framework.
- Post webinar assessments by design had higher difficulty levels. Hence no improvement in the post-webinar assessment can be concluded in the knowledge and skills of the teachers. A negative improvement rate suggests that teachers may not have progressed enough in clarifying their trouble spots and improving their subject matter expertise.
- In both Mathematics and Science, teachers have shown improvement in their understanding of the 3 most challenging concepts. We could see an improvement of 10.3% in the most challenging concepts. Teachers have also rated the training modules highly during the feedback (4.38 on a rating scale of 5). However, the percentage improvement in the 3 levels of blooms is negative, pointing to no significant improvement in their knowledge. **This points to the fact that the teachers need to be scaffolded and reinforced with basic mathematics and Science concepts more frequently through these kinds of training.**

2.5 Relevance of the Online Experiential Training Model for the future of Training Programs:

The teacher training model developed initially with the collaboration of the Directorate of Minorities holds a lot of promise for the post NEP-2020 and post COVID-19 world. There are several key challenges in the traditional teacher training model presently used by the Department.

a. **Loss of Quality at the last mile due to Cascading of Trainers:**

The traditional training methods use a cascading model of trainers wherein the training material and expertise are handed from the state resource persons (state-level trainers) to the district level master resource persons, who in turn conduct the training for the teachers. This cascading may result in loss of quality of the training program at the last mile. The new model tested in this program has shown the ability to centralise the trainers at the district or state level and have the most competent person conduct the training program using technology and reach every teacher directly.

b. **Mapping teachers to their specific training needs:**

The training program developed a process through which teachers who receive training in any subject are the ones who teach that subject in their schools. The training program also ensured that the modules developed for the training program specifically addressed the hard spots/challenging concepts for the teachers to transact in their classrooms. This ensured a high degree of acceptance of the training modules by the teachers and specific feedback for further improvement of the modules.

c. **Customise the model to improve the monthly Academic Meetings:**

This training program can also be conducted in a Blended learning design which can be looked at as a potential solution to significantly improve the quality of monthly academic meetings that happen at the institution/district/state level. Transaction of learning modules can be centralised at the district/state level by State level resource persons, with local facilitation done by subject experts/resource persons at the institution level.

d. **Availability of Training Artefacts post training:**

All the training material that teachers use can be readily made available to the teachers on platforms like Diksha, YouTube, Teachopia etc., thereby providing continuity & reinforcement of learning to the teachers.

e. **Time and Cost Efficiency:**

Leveraging technology to effectively reach out to a large number of teachers will result in a significant saving of time and cost. It has been estimated that the training programs conducted for the teachers of DoM have saved Rs. 10 Lakhs and above. Each of these programs would have taken almost a year to reach all teachers when conducted through traditional training models. The new model could successfully reach all teachers of DoM all over Karnataka in under 4 months, including the preparation and implementation time.

3. Introduction

Teacher professional development is an important component of improving educational quality in schools. Every year teachers of DoM have to enhance their subject knowledge and teaching skills with the eventual goal of improved student learning outcomes in their classrooms. However, despite the various training programs conducted by the Department over the years, there hasn't been a perceptible change in the teaching methodologies utilised in the classrooms [1] or any significant improvement in learning outcomes at the student levels as seen from the ASER [2] and NAS [3] reports.

It can be argued that there are several fundamental design and last-mile implementation aspects that are resulting in a lack of improvements like a mismatch between the actual training needs of the teachers vs the training programs conducted, using a cascaded model of trainers, having a training framework that can provide teachers with an opportunity to reflect on the learnings and improvements made, a lack of ongoing engagement with teachers post-training that can help teachers translate their learning into classroom practice etc.

With the new National Education Policy 2020 emphasising the need to turn classrooms into experiential learning spaces [4], it is imperative that we take a fresh look at the teacher training frameworks to plug the gaps and deliver on the promise of improved learning outcomes for students. Caring with Colour – A Manasi Kirloskar Initiative (CWC) has been working towards the goal of making experiential learning a reality in every classroom in India through various experiential teacher training programs and experiential teaching content that enables teachers to turn every lesson in the prescribed textbook into a joyful experiential learning activity for students. With the COVID-19 pandemic bringing the entire education system to a grinding halt, CWC worked with various stakeholders within the education department to support the student and teacher communities to ensure continuity of learning during the pandemic [5].

The efficiency, relevance, and improvement in teachers through the training program was measured through a rigorously designed set of metrics based on data collected through assessments and the log entries available from the technology platforms that were used.
Given the safety considerations enforced during the COVID pandemic (travel constraints due to lockdowns, social distancing etc.), the regular method of face-to-face training for the teachers was deemed to be difficult and unsafe. Hence there was a need to evolve a new model for training the teachers.
The goal of the collaborative partnership of the DoM & CWC was to evolve a teacher training framework that can:

a. Enable and enhance the Teacher academic leadership by providing them with the perspectives, skills and knowledge required for turning their classrooms into experiential learning spaces, thereby making learning a meaningful and joyful process as suggested by NEP 2020.
b. Promote teacher autonomy by providing them with the tools and skills required to create their own activity-based arts-integrated experimental lesson plans contextual to their own classrooms.

c. Provide a safe platform through which all the primary school teachers in the district can remotely engage with the training programs, thereby adhering to the norms and operating procedures of the government during the COVID-19 Pandemic.
d. Achieve the above in a cost-effective, scalable, and replicable way that leverages user-friendly technology platforms.

This report lays out the innovative teacher training framework. It is to be noted that the entire training program, while developed during the COVID-19 pandemic, was consciously designed so that the underlying framework would be applicable even when the schooling system returned to normalcy. One of the uniqueness of the training program lies in the extent to which the power of technology was leveraged not only to reach every single teacher of DoM but also to identify the improvements made by the teachers as a result of the program.

The report provides a detailed description of the design of the training program, the process that was used to engage with the stakeholders and conduct it and the outcomes that were achieved. The report also provides key insights into the relevance of such innovations for the future of the teacher training frameworks in India.

CWC came up with content that is experiential in nature, is activity-based and engaging for the teachers. The Online Teacher Training modules were co-developed along with the Resource Persons (RPs) of the DoM. The same was co-delivered by the RPs and CWC facilitators with the help of the Nodal officers of the DoM at the district level, with support from District Officers of the DoM and the Principals and HMs of the Minority Residential schools and day schools, for the successful implementation of the program.

Out of 301 teachers registered for the training program, 210 teachers participated in the online training program in Mathematics and Science subjects across Karnataka
The teachers actively participated in the training, and the implementation team (CWC & DoM) received excellent feedback not only from the participants but also from senior lecturers and Nodal officers of the DoM.

4. Aims & Objectives of The Training Program

The primary goal of the initiative was to develop a teacher training framework that could help teachers to realise the goal of adopting experiential learning methods as envisaged in the National Education Policy 2020. In addition, the framework was to provide the DoM with the ability to run the program online during the times of the COVID-19 pandemic and normal situation as well.

The key objective of the training modules centred around "enabling and enhancing the teacher academic leadership" and "promoting teacher autonomy" in the classroom by providing them with the tools and skills required to create their own activity-based arts-integrated experiential lesson plans that are contextual to their classrooms. It has been widely recognised in literature that leadership in any system requires the correct

enablement of an individual's knowledge, skills, attitudes, and perspectives. When translating this to the context of the academic leadership of teachers, it is extremely important for a teacher to have the right depth of knowledge, pedagogical skill, a self-reflective attitude towards the student's and one's o0wn learning and the right perspectives on the "why of education" to realise the goals of NEP 2020.

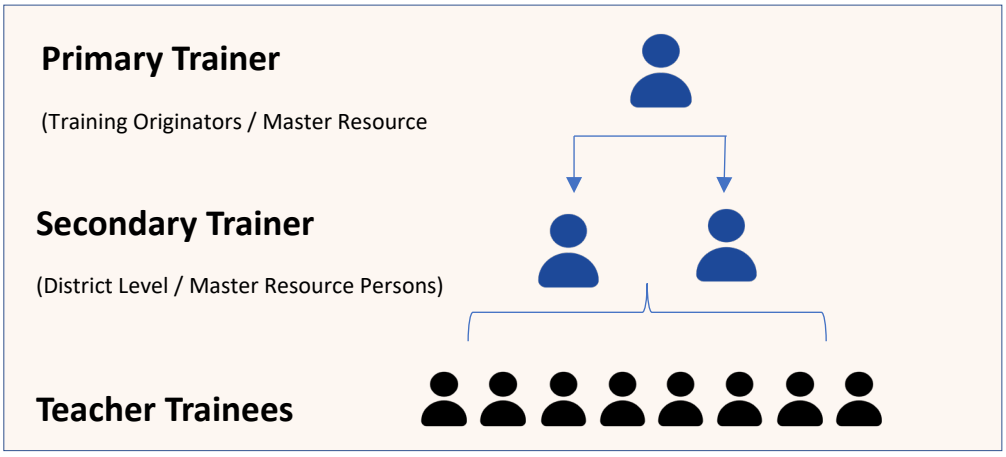
The main aim of this training program was to enable teachers to develop the competencies to create a better classroom learning environment and to develop a scalable and replicable teacher training framework. The framework should be such that it can address various shortcomings in the traditional model.

Towards this end, each training module was designed to:

- Enable teachers to deepen their understanding of concepts covered in the textbook. In addition, the focus was placed on helping teachers realise the "real-world" connection for the concept at hand.
- Enhance pedagogical skills required to develop teaching strategies to transact the concepts experientially in their classrooms. This involved giving teachers an idea of how to contextualise learning and make classrooms inclusive for students with disabilities.
- Explore various summative and formative assessment methods to ensure the attainment of learning competencies in students.
- Build awareness on various non-textbook resources available in various online platforms like DIKSHA, Teachopia etc., which can be leveraged in their classrooms.

5. Design of The Teacher Training Program

The traditional framework of any Government in-service teacher training program involves centralised module design (typically at the central/state/district level) with decentralised implementation at the district/block/school level through a cascading model of trainers. This model, also generally known as the "Cascaded Model of Teacher Training", is the most widely used framework for large scale teacher training programs in India [6][7][8].



In this framework, training generally happens in physical venues like district centres in small batches of 30 to 40 participants in each session. While this offline, in-person training model can be effective with deep experiential learning opportunities for teachers if coordinated and conducted properly. However, various operational challenges result in several shortcomings for this method of training.

In this initiative, CWC has developed and used a "Direct-to-Teacher" framework of training in which the various aspects of the teacher training program as proposed in the National Curriculum Framework for Teacher Education (NCFTE) 2009 have been implemented. In this "Direct-to-Teacher" framework, several design changes have been done to help mitigate the shortcomings of the traditional training methods.

The key design improvements developed by the "Direct-to-Teacher" framework can broadly be categorised under the following design elements:

i. **Needs:** Training targeted towards the needs
ii. **Content Design:** Content Design that facilitates effective learning during & after the training session
iii. **Execution:** A delivery mode that ensures quality at the last mile and an ability to conduct training during the Pandemic situation
iv. **Evaluation:** That provides insights into the short-term and long-term impact of training

5.1 Design Consideration 1: Training that targets the actual needs of the teachers.

Knowing the audience and their requirement are the key steps before any intervention. Therefore, as a first step in designing and conducting the Training Program, data about the teacher participants and the training needs of the teachers are required.

- The teachers' data includes their personal details, school details, subject and the grades they teach, and the number of years of experience and their interest in learning different subjects to enhance their subject matter expertise. This data helps in designing training modules that address the needs of the participants.
- Their training needs in terms of the concepts which are difficult to transact in their classrooms are to be gathered.
- The Resource Persons with good subject matter expertise need to be identified in the Department who can be involved in developing suitable modules for the teachers and co-facilitate the sessions.

The traditional training model has several shortcomings that can be addressed in the Online Direct to Teacher Training Model, which was implemented very successfully for teachers of DoM.

Shortcomings in Traditional Training Model	Implications for new design
i. There is not enough systematic analysis of the training needs of teachers which can be used for designing training content.	i. Needs Analysis a. A detailed analysis of the training needs of the teachers must be conducted. b. Training needs must be discovered at a granular level which includes the subjects that each teacher needs the training in, the topics/themes in the spiral curriculum that the teacher finds as hard spots, as well as the critical concepts / sub-concepts that the teacher generally finds challenging to understand or teach
ii. Training content and modules are generally not based on the identified training needs.	ii. The training modules need to be developed to meet the identified training needs of the teachers
iii. Module development is centralised but lacks enough scope to customise it for local training needs at the district/block level	iii. Provide flexibility and space for the subject experts and resource persons at the district/block level to customise the modules for their contextual needs.

All training content and approaches should be based on the classroom needs of the teachers, may it be content enrichment, need for skills and strategies in classroom organisation and management, or understanding student's learning strategies, error analysis, and learners' assessment.

"Direct-to-Teacher" Framework Solution to the issues:

The National Curriculum Framework for Teacher Education (NCF-TE) 2009 also identifies the above three areas as critical factors to consider while designing the teacher training programs. NCFTE states that–

"*The objective should be to develop professional development programmes that are rooted in classroom realities and directly address teachers' needs.*"

NCFTE also states that:

"*The principle of choice of programmes to attend, based on the teacher's own assessment of what he/she needs or is advised, based on some valid assessment of professional requirement, would provide a sound basis for in-service programmes, especially those that are of a long duration and which seek to impact practice.*"

In line with these principles, The Direct-to-Teacher training framework developed in this initiative tries to address the above aspects by determining the actual training needs of the teachers through:

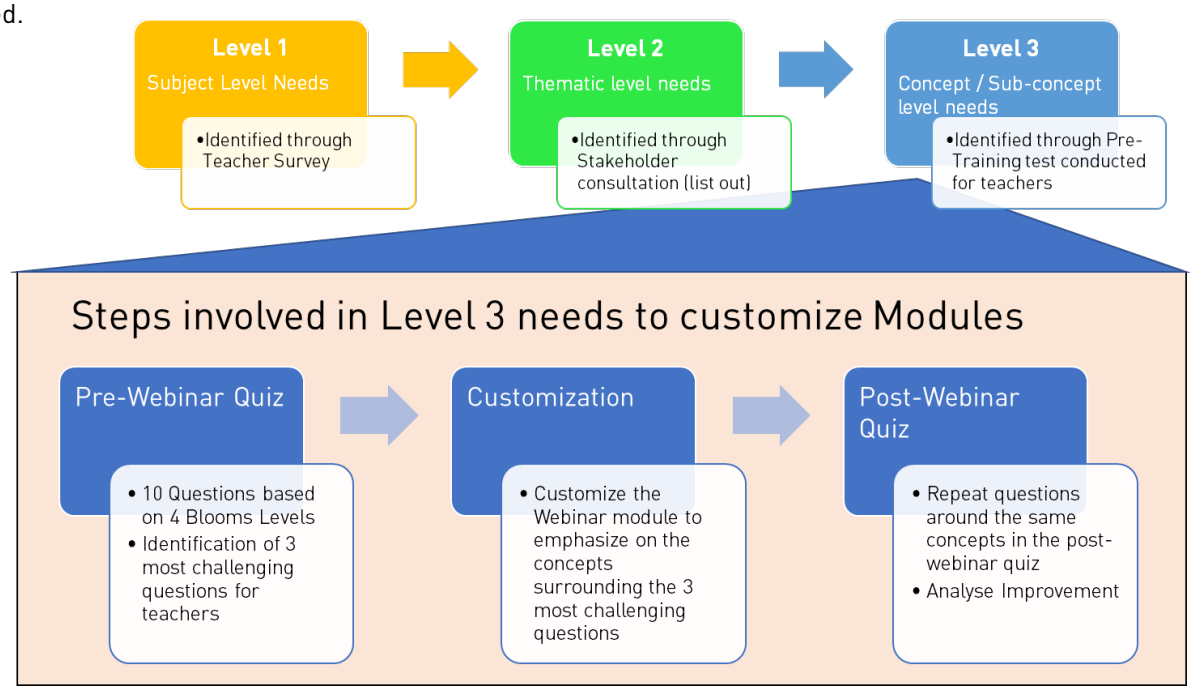
i. **Discovering the training needs of the teachers at three different levels:**

a. **Level 1:** Subjects in which each teacher would like to be trained is to be identified through the survey of teachers using easy to use technology platforms like google forms.

b. **Level 2:** Topics/themes of the spiral curriculum that teachers generally find as hard spots/challenging in each subject to be identified through a thorough stakeholder consultation with the DoM resource persons, nodal officers, and other subject matter experts of the Department.

c. **Level 3:** Specific concepts/sub-concepts that teachers find challenging in a particular theme to be identified through a pre-training assessment. This assessment can be made easy to participate using tools like google forms. Concepts/sub-concepts that are identified as challenging topics for teachers can be covered in greater detail in each webinar, thereby ensuring that the training program focuses more on the challenges faced by teachers.

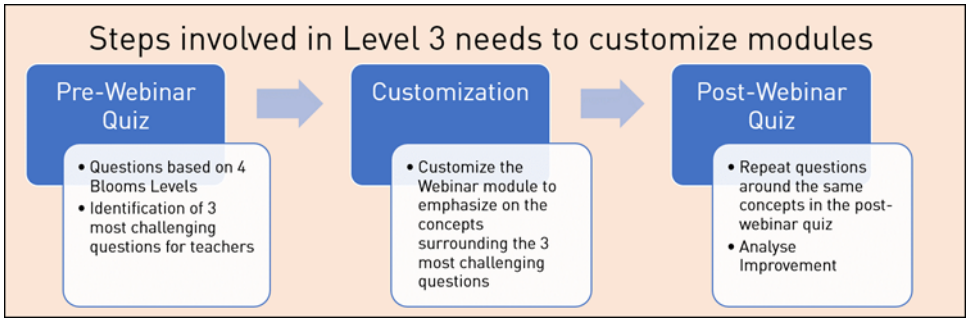
The above data points can be collected in many ways. However, the collection of such data through traditional methods like paper-based surveys is time-consuming, tedious, and prone to errors. Hence, an online tool that facilitates easy data collection and subsequent analysis is necessary. The Direct-to-Teacher framework utilised google forms as the data collection medium due to its user-friendly design and the ease of integrating data into analysis tools like excel, google sheets etc. Additionally, the Teacher training surveys, opinion, feedback surveys and most importantly, for uploading the assignments and projects executed by the teachers, google forms were utilised.



ii. Developing Modules based on identified needs:

The 3 levels of needs identified in the Direct-to-Teacher framework help us determine how to conduct the training programs specifically targeted towards the needs of the teachers. As such, Level 1 data allows the trainers to schedule teachers only for those subjects that the teachers are either presently teaching or have expressed interest in teaching. Level 2 data allows trainers to pick only those curricular themes/concepts the teachers find as hard spots. Level 3 helps the trainers identify the specific sub-concepts in which the teachers may have gaps in their subject-matter understanding and helps them pay more attention to those sub-concepts during the webinar delivery.

Using these 3-Levels of needs, the teacher training programs conducted under the Direct-to-Teacher framework have helped the training providers specifically target the training programs towards the needs of the teachers.



iii. Customisation of modules for contextual needs:

This framework provides scope for co-development and co-facilitation of the training modules by various levels of stakeholders of the Department (Nodal officers, Resource Persons etc.). The Resource Persons from the Department give their inputs during the development and review of the training content to create and modify content that suits the diverse classroom teaching needs and builds on the present competence of the teachers. This provides the space and flexibility for customising the modules to meet the contextual training needs of the teachers.

5.2 Design Consideration 2: Content Design that facilitates effective learning during & after the training session

Having an effective content design for a teacher training program is of key importance. Andragogical principles dictate that the content design for the teacher training sessions must provide plenty of opportunities for teachers to reflect on their experiences and bring them to the learning process. The content transacted in the sessions must be interactive and must be directly related to the day-to-day challenges faced by teachers in their classrooms.

NCFTE 2009 states that,

"The content of programmes must be such that teachers can relate to it from their own experience and also find opportunities to reflect on these experiences." And that *"Interactivity must not be compromised on any account."*

In line with the principles described in NCFTE-2009, the Direct-to-Teacher training framework incorporates several design elements that make learning experiential and engaging to the teachers. In addition, a comprehensive course structure is used that helps the teachers reflect on the various concepts/sub-concepts transacted in the webinar and understand how their knowledge and perspectives have changed as a result.

5.2.1 Components of the Training Program

The training program consists of 3 distinct phases:

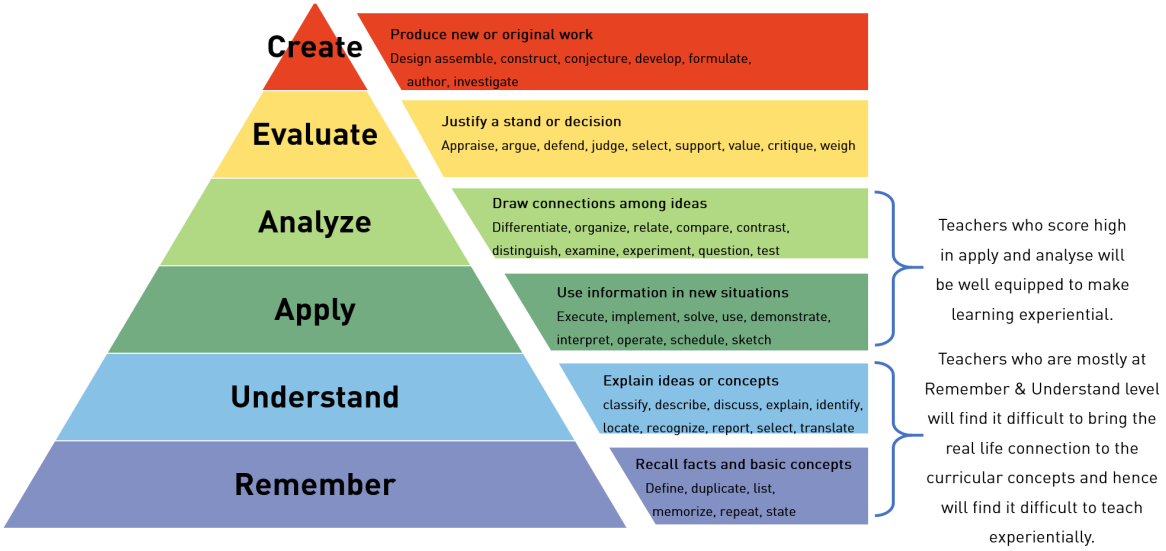
i. Pre-Training Phase
ii. Training Phase
iii. Post-Training Phase

i. Pre-training Phase:

This phase of the training program is designed to:

a. Allow the participant teacher to reflect on their knowledge and perspectives about the topic they are being trained on through a Pre-Training assessment.
b. Read and relate to the topic of training so that they are oriented for the training session.
c. Help the trainers determine the gaps in the subject-understanding of teachers so that the training session can be modulated according to the needs of the participants.

Pre-training assessment: The Pre-training assessment is designed as an easy to participate quiz for teachers. They are asked to answer 10 Multiple Choice Questions (MCQs) relating to the topic of training. The MCQs are of varying degrees of complexity and are mapped to the first 4 levels of Blooms Taxonomy [9] (Remember, Understand, Apply and Analyse). This design of the assessment helps the trainers ascertain the depth of knowledge that participants have in the topic.



Teachers with a robust understanding of the topic at an apply and analyse levels will easily be able to see the interrelationship of the topic at hand with the phenomena around them in their daily life and hence are better placed to adopt experiential teaching techniques in their classrooms as envisaged by NCF-2005 and NEP-2020. As such, the goal of the training program can be thought of as helping teachers to deepen their subject understanding to an analyse level, where they will easily be able to draw connections among varying ideas and concepts in the curriculum. Google forms were chosen as the tool to conduct the assessments. This has the benefit of an user-friendly interface for teachers to use and a robust set of analysis tools that trainers can use at the backend to understand the performance of teachers at a granular level.

Pre-training resources: The pre-training resources are designed to orient the teachers towards the topics that will be transacted during the training sessions. This constitutes various types of materials like documents, videos etc. which introduce and provide an overview of the concepts to the participants.

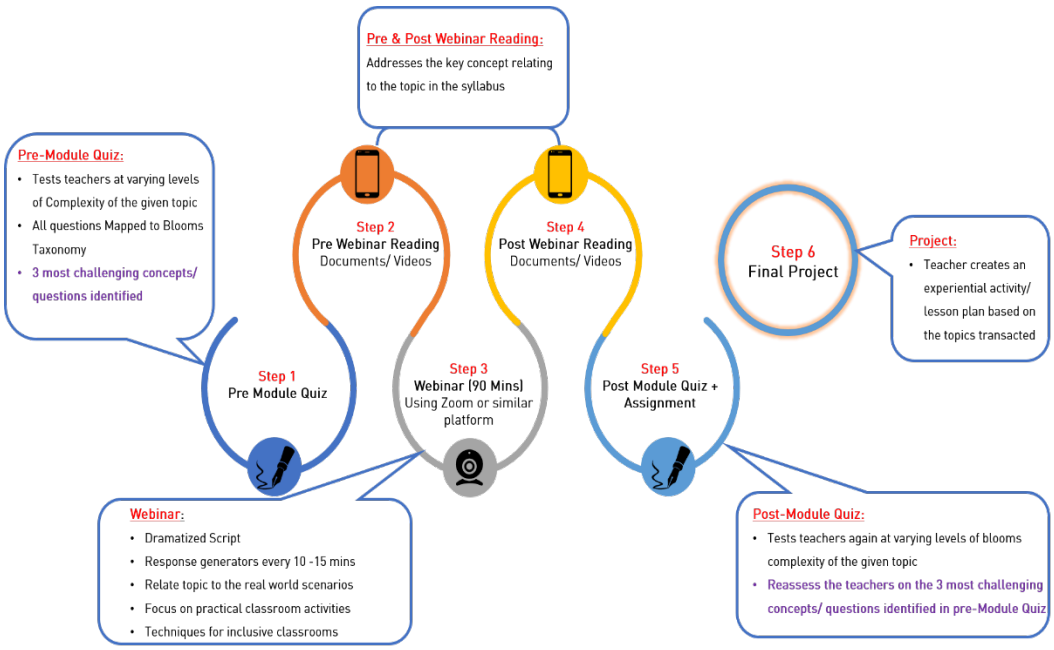
ii. Training Phase

The training sessions are designed to be live online webinars that provide a highly engaging and interactive learning experience to the participants. These sessions are conducted using online platforms like Zoom that provide significant interactivity features for the participants. The sessions are limited to 90 minutes to ensure optimal levels of attention and engagement and reduce screen fatigue for participants [10]. In addition, each 90-minute training module is transacted once every 2 days (for a maximum of 2 hours), allowing teachers enough flexibility to perform their day-to-day routine while attending the training programs.

Module Design is based on a well thought out set of adult learning principles. Each training module is designed to allow the participants to joyfully engage themselves throughout the 90-minute session. Various content design elements like dramatised scripts that teachers can readily relate to, videos, simulations, poll questions, chat box

questions, concept maps, ideas & activities for classroom transactions, ideas for assessments in the classroom are embedded into each webinar. Participants are also provided with a list of teaching resources mapped to the curriculum that they can access in their classrooms and overcome the limitation of using only textbooks to teach. In addition, online resources from DIKSHA, NCERT, DSERT and Teachopia etc.. are provided to the teachers.

Response generators (like poll questions and chat box questions) are utilised in 10 to 15-minute intervals to retain participant attention [11]. In addition, some of the webinars also included live Q&A and interaction sessions with the respective subject nodal officers in which participants can directly provide their feedback/opinion on the suitability and effectiveness of this method of the training program.



Webinar flow is made experiential with examples that directly connect the topic to the day-to-day life outside the classrooms. The content allows the participants to understand how to make their classrooms lively by quoting examples that are more contextual and connected to students' living environment.

The design of the module allows the participants to provide feedback towards the end of the session, which helps trainers further improve the modules. Feedback questions were designed to seek participant opinion on content suitability, the effectiveness of the session in reinforcing subject knowledge and the diversity of activities discussed in the session.

The training program is designed to include a large number of participants (up to 1000 participants in each session) at a time. The flexibility of the Direct-to-Teacher framework provides the scope for adding additional content as required to contextualise the module while scaling up without compromising the quality.

iii. Post-training Phase

The post-training phase is designed to help the participants reflect upon their learnings from the training sessions and deepen their understanding of the topics discussed in the webinar. The components of this phase also help the trainers understand the effectiveness and impact of the training program on the progression of the teachers. The post training phase has the following components:

a. **Post-training resources:** post-training materials are designed to help the teachers engage with the concepts relating to the training topic more rigorously. These can be reading materials, videos, and links to related articles/documents that reinforce the understanding of the participants on the concepts that were covered in the training. These materials allow the teachers to dive deep into the subject matter discussed during the training.

b. **Post-training assessment:** The design of the post-training assessments is like that of the pre-training assessment in which teachers take an assessment of 10 MCQs, which are mapped to the 4 levels of Blooms Taxonomy (remember, understand, apply and analyse levels). These assessments not only help the teacher reflect on the concepts discussed during the webinar but also help deepen their understanding through the apply and analyse order questions. This assessment, in combination with the Pre-Training assessment, is designed to help the trainers and the education department administration and leadership assess the outcomes of the training program.

c. **Post-training Assignments and Project:** The assignments and projects are designed to help the teacher apply the knowledge gained towards creating experiential teaching collaterals for their classrooms. In addition, this provides an opportunity to discuss the ideas with their peers, which helps in expanding their knowledge and skills on the topic. The assignments generally include simple and easy-to-execute tasks like; creating teaching-learning materials (TLM), performing experiments, creating experiential lesson plans, creating and solving puzzles & problems based on concepts, etc.

d. **Webinar Videos**: The intensive use of technological tools in this design allows the trainers to easily provide recordings of the webinar sessions allowing the participants to have an on-demand and easy reference to the training content. The recordings can be easily made available on open-source platforms like YouTube of the Department etc. This will help reinforce the learning of the concepts discussed in the webinar.

The content design principles used in the Direct-to-Teacher training framework can significantly enhance the effectiveness and outcome of the training programs. This framework also has the potential to mitigate some of the operational level shortcomings of the traditional training program in which the trainers may not have the granular level of data on the precise training needs of the teachers and may not have the ability to integrate the

diverse types of engaging and experiential activities into their sessions for their lack of infrastructural provisions at their district/block level training centres [12].

5.3 Design Consideration 3: A delivery mode that ensures quality at the last mile.

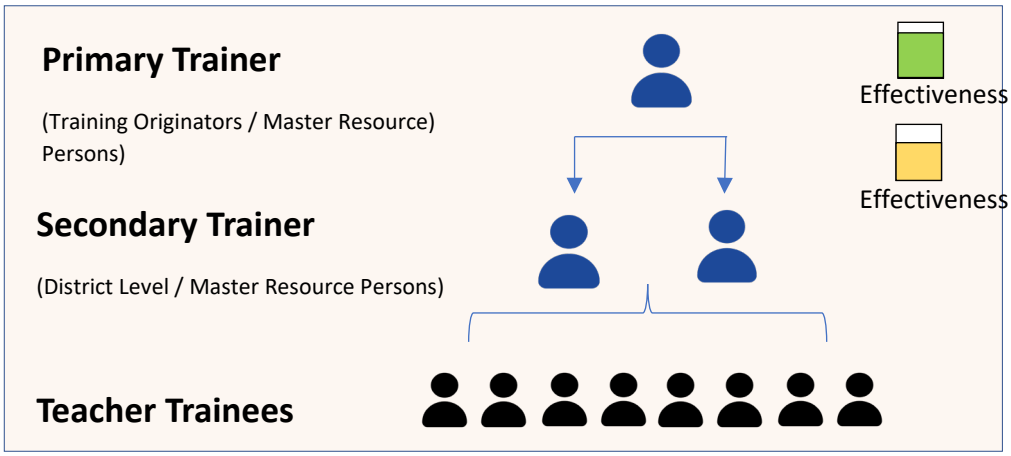
The Teacher training programs conducted by the Department, by their very nature, are large scale, given the magnitude of the government schooling system. Just as it is important to ensure that the training modules are designed effectively, it is also of critical importance to ensure that the delivery of the training at the last mile (i.e. to the teachers) is done at the highest possible quality. The teacher trainers must be thoroughly knowledgeable in the subject area and must adopt best practices and processes while conducting the sessions.

5.3.1 "Direct-to-Teacher" Framework for Training Delivery

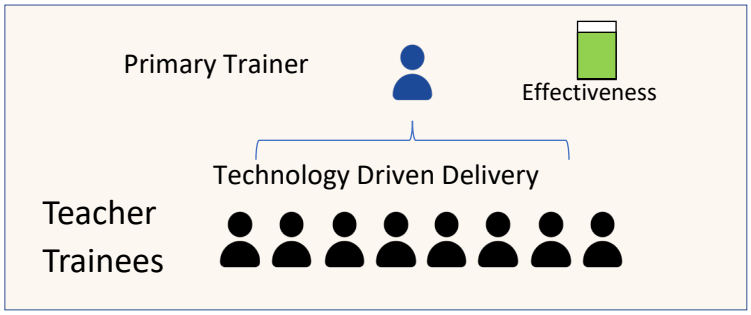
NCFTE says,

"The quality of pedagogical inputs in teacher education programmes and the manner in which they are transacted to realise their intended objectives depend largely on the professional competence of teacher educators."

"Although the cascading model has come to be accepted as the way of disseminating information in most in-service training programmes, it appears to have failed to significantly improve the performance of educators."



To mitigate the quality concerns usually faced in the Cascaded model of trainers, this initiative came up with a "Direct-to-Teacher" training framework. The training program can be delivered at a large scale to all the teachers in a district using technology. In this model, training can be conducted as live online programs with various types of interactive features as described in the earlier section. The training programs conducted using this model have shown that the quality of delivery at the last mile can be maintained when the Primary trainers/Master trainers are able to deliver the training program directly to the teachers.



5.3.2 Leveraging Technology in Delivery of training

Technology can play a major role in facilitating and transforming the quality of teacher training programs. In this initiative, several technology platforms have been brought together to form a cohesive technology-based delivery system that can function without training the teachers separately on technology usage. To achieve this, the Direct-to-Teacher model focused on using freely and widely available apps for teachers.

Designing the program delivery purely based on technology platforms has allowed for Resource persons of CWC and DoM to collaborate closely. Using Zoom as the primary webinar platform has allowed the model to make the sessions interactive while reaching an audience as large as 1000 participants per session.

Purpose	App Used
• **Communication with teachers**	WhatsApp
• **Conducting Assessments, Feedback, Data collection Surveys**	Google Forms, Google Sheets &Excel
• **Webinar Platform**	Zoom, YouTube Live Streaming (limited use)
• **Content Creation & Sharing between CWC & DOM RPs**	MS Office apps, Google Drive, Google Docs, sheets, WhatsApp etc.
• **Meetings with RPs**	Google Meets, Zoom
• **Assignments and projects submission from teachers**	Audio-visual editing Android apps, pdfs,
• **Content Publishing for Post-Training access by Teachers**	YouTube

5.3.3 Cost and Time Efficiencies in Reaching Last Mile

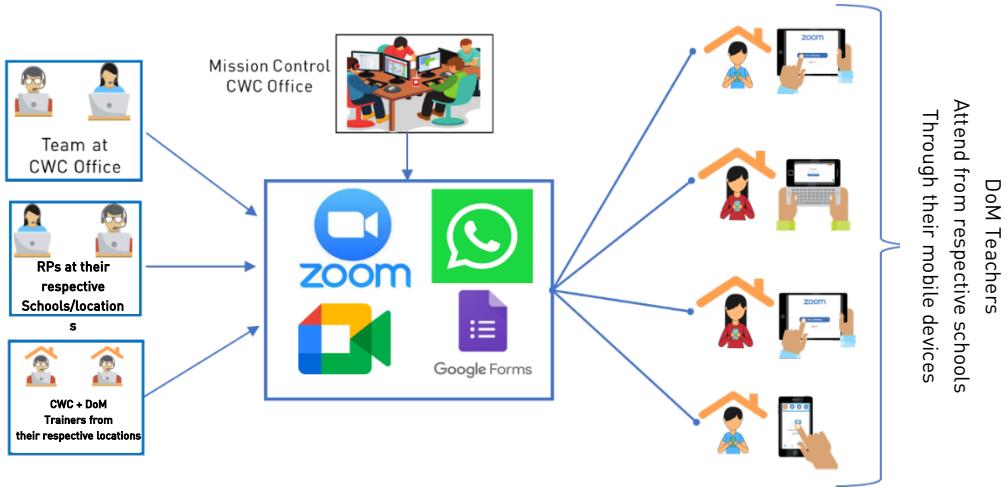
The time taken for any largescale training program to be completed using traditional methods depends on the number of teachers who need to be trained and the geographical spread of the district

The studies have shown that the budgetary constraints have impacted in-service teacher training programs negatively, in some cases resulting in a reduction in the number of training programs conducted by the DoM[12]. It has been estimated that the Direct–to–Teacher model would result in an 80% to 90% cost saving as compared to the traditional cascading training model, which is done offline. The cost reduction is generated primarily from the reduction in the cost of travel and dearness allowance paid to the participants, food and refreshments for the participants, stationery and other material costs.

The Direct–to-Teacher training also has the advantage of reducing the cycle--time of the training. This model provides for repetitive training for reinforcement of learning in short cycles. For example, the training can be repeated to the same set of participants every month or even twice a month if needed.

5.3.4 Delivery of Training During COVID-19 Pandemic

The ability to conduct training programs during the COVID-19 Pandemic was one of the key design requirements of this initiative. The technology-driven design of the program has ensured that the training program could be successfully conducted despite the stringent travel restrictions and social distancing norms that were in effect during the pandemic. The SOPs of the pandemic strictly required that gatherings using the common washrooms, utensils, etc. are avoided. Resource Persons who are geographically located in different places could synchronously conduct the live Direct-to-Teacher training programs by leveraging the power of online meeting platforms. Teachers could attend sessions from the safety of their homes or classrooms. The participants can attend other elements of the training program, like, going through the reading materials, attending quizzes, working on the assignments and projects independently through online tools on their mobiles. This could ensure the safety of both the participants and Resource Persons while attending the training program.



5.4 Design Consideration 4: Provide insights into the short-term and long-term impact of training

"What is not measured is not Manageable". It is of utmost importance that the quality, participation, and impact of the training program are properly measured in order to design the subsequent set of training interventions for teachers. The training program design must include detailed metrics that provide granular data on various aspects of the program. Such data should enable rigorous post-training analysis leading to the understanding of the progress made by teachers and the nature and scale of subsequent programs.

The Direct-to-Teacher training framework has a metric design that helps the education leadership in the district evaluate the following criteria.

a. **Improvement in Teachers**
   i. **Metric 1:** Performance in Assessments: Pre Vs Post-Webinar.
   ii. **Metric 2:** Performance in 3 Most Challenging Questions: Pre Vs Post Webinar.

Note: Metric 1 & 2 are measured through the Pre-Training and Post Training assessments taken by teachers through google forms

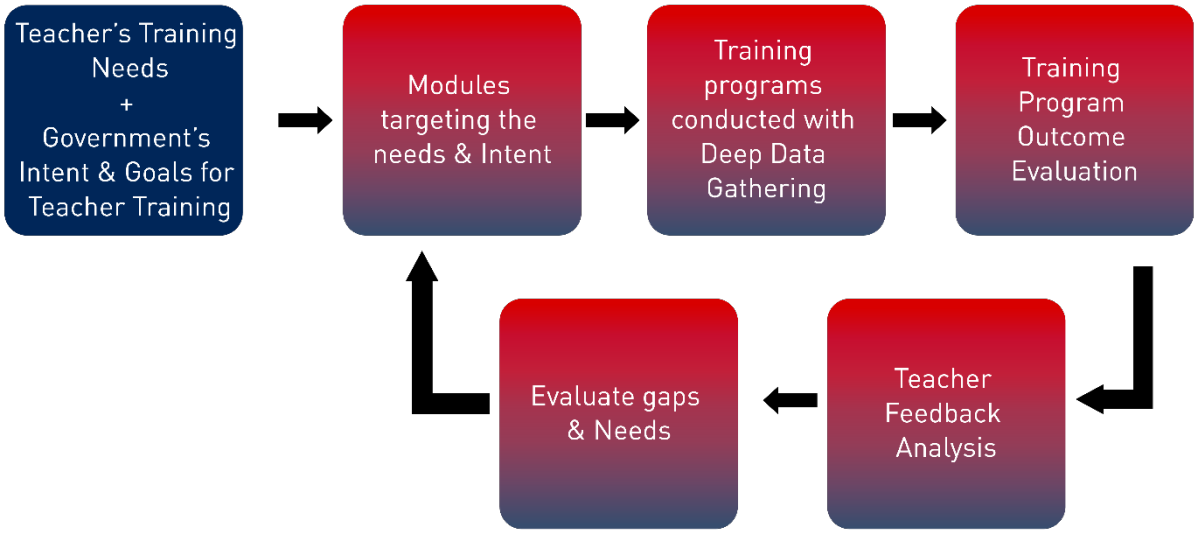
b. **The Efficiency of the Program**
   i. **Metric 3** – Part 1: Breadth of Participation (Number of participants out of the total number of teachers)
   ii. **Metric 3** – Part 2: Depth of Participation (Number of participants successfully engaged)

Note: Metric 3 is measured through the digital logs of the participants available on Zoom

c. **Relevance to Participant's Needs**
   i. **Metric 4** – Part 1: Suitability of Content for Teachers
   ii. **Metric 4** – Part 2: Usefulness in Reinforcement of Subject Knowledge
   iii. **Metric 4** – Part 3: Diversity of Activities proposed for the topic

Note: Metric 4 is measured through the feedback poll questions given to participants on zoom at the end of each webinar

The design of the metrics in the Direct–to–Teacher framework provides the space for the PLAN DO CHECK ACT principle, which is one of the effective management tools used in various industries across the world. Through these metrics, trainers will be able to identify the training modules that are not impactful and the reasons for the same, so that appropriate remediation can be brought in for the next round of training.
This metric design represents a significant improvement over the traditional cascading model of training wherein the amount of data that can be collected for analysis and improvements is quite limited.



6. Implementation of the Direct-to-Teacher Training Program

The Direct-to-Teacher Framework was to conduct DoM teacher training programs covering all the DoM school teachers of Karnataka. These training programs have been conducted in close collaboration with the DoM.

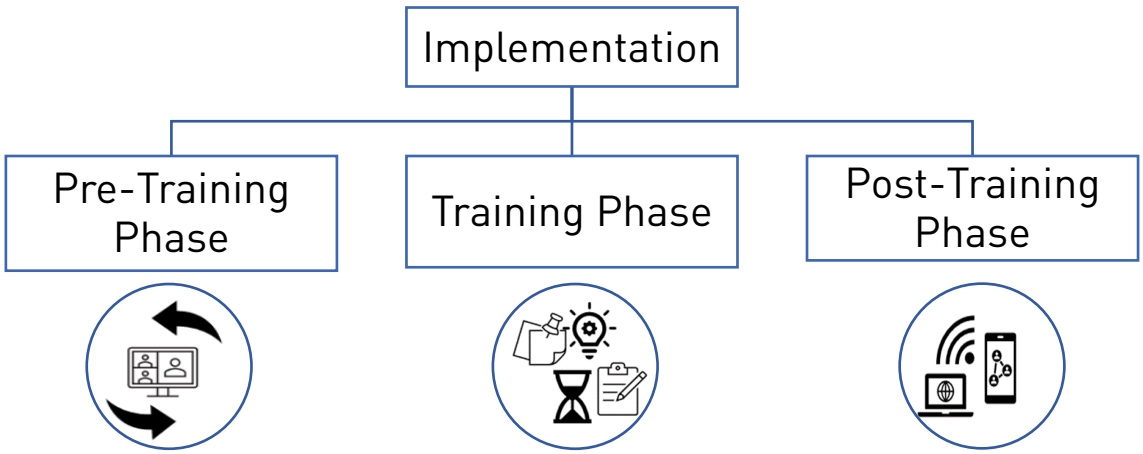
Coverage Details:

DoM Online Teacher Training Program 2021	
• **Training Mode**	Online
• **Grade Levels**	6, 7
• **Number of Teachers that Participated in the Training**	210
• **Number of Training Modules Transacted**	10
• **Number of DoM Teacher Trainers that participated in the Training**	12
• **Number of Learning Hours provided**	6300
• **Number of students who benefited (Grade 6 and 7)**	31000

Description of the Program Implementation:

The process of implementation was designed to address the suggestions and opinions of the department stakeholders who were involved in the training program. The DoM anchored the training program and provided the required administrative support for the smooth implementation of the program. The Implementation process can be broadly classified into 3 phases, namely:

I. **Pre-Training Phase**
II. **Training Phase**
III. **Post-Training Phase**

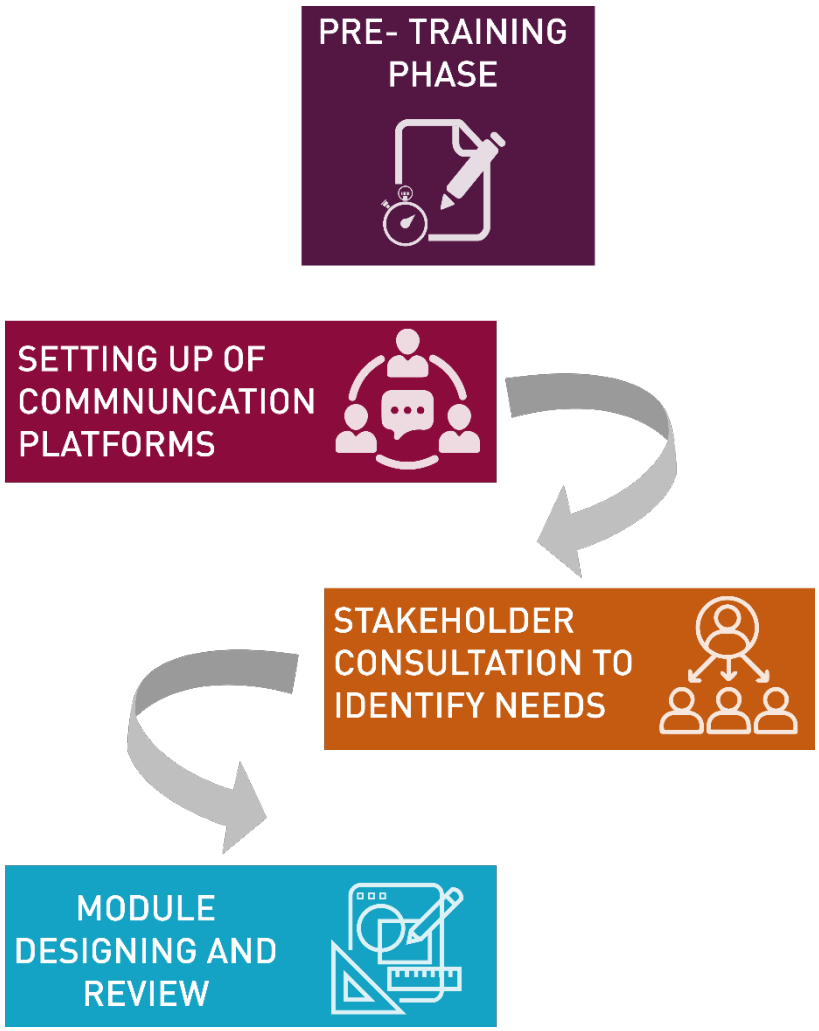


I. Pre-Training Phase:

In this phase, the initial groundwork and the preparatory work are carried out before the actual training.

This phase can be classified into 3 sub-phases which are:

SCHEMATIC REPRESENTATION OF THE STEPS INVOLVED IN PRE-TRAINING PHASE



a. **Setting up of Communication platforms:**

- Teachers' data of the DoM was collected from the DoM using Google forms. This data was used to group the teachers into subject-specific batches.
- Resource Persons for each subject were identified from the DoM. SPOCs (Single Point of Contact) from CWC for each subject were identified to coordinate with the Nodal officers and subject RPs from the Department.
- The Nodal officers and the CWC SPOCs scheduled training dates and prepared timelines for the training.
- Block-wise, subject-specific WhatsApp groups were created. These groups were utilised to share circulars, training schedules, Pre and Post training reading materials, links to Pre and Post Quizzes and invitation links to the training session with the teachers.

b. **Stakeholder consultation to identify needs:**

- Hard spots are concepts in each subject that needed scaffolding for better subject-matter understanding and transaction of those concepts in the classroom. The Nodal Officers, the RPs for all the subjects and the CWC SPOCs deliberated and came up with a list of concepts identified as hard spots.
- Simultaneously, the subject teams at CWC also came up with a list of concepts that are complex to understand and tricky to transact in the classroom. This list of concepts which came out of both the deliberations with the CWC's experience in the government schools, formed the base content for all the modules of the Math and Science subjects

c. **Module Designing and Review:**

- The design of the course was based on the guidelines prescribed by NCERT/ DSERT and NISHTHA. Specific elements such as learning outcomes, interlinking of concepts, assessments, transactional ideas/ activities on how to transact a concept in the classroom, connecting of concepts to day-to-day life were included.
- The CWC Resource persons created learning modules based on the needs of the teachers after analysing the teachers' responses to the Pre-training Quizzes.
- To keep the webinar interesting and the participants engaged throughout the session, elements of storytelling were utilised like narrative to discuss a concept, characters to grab the attention of participants, videos, and simulations to enrich the engagement and understanding of the concept.
- Designing the module for an online platform requires meticulous utilisation of the features that the given platform has to offer. The Poll questions and Chats features available on the Zoom platform were utilised to increase teachers' engagement with the content in the module.
- The modules had poll questions at strategic sections to allow the teacher to inform the facilitator about their engagement with the content, understanding of the content and much more. Specific questions were created and asked at such intervals to elicit answers from the teachers through the Chat feature.

- After a round of internal review within the CWC subject, team members, RPs, and Nodal Officers from the DoM reviewed the modules along with the CWC RPs on google meet. They gave their inputs to enhance the quality of the modules.
- The subject team members worked on the suggested changes and paved the way for rehearsals for the module presentation.
- The rehearsals of the Module presentation were done between the RPs of both the DoM and CWC on Google Meet and Zoom

II. Training Phase:

The training phase comprises of multiple stages in it for effective training. The following are the different stages involved in this phase:

a. Orientation:

- The Nodal officers and RPs were oriented on using Zoom as the technology platform for the facilitation of webinars.
- The roles of CWC members, Nodal Officers and RPs during the training program were discussed and delegated. The modules were finalised by the subject RPs, Nodal officers and the CWC subject team.

b. Rehearsals:

- 2 DoM subject-RPs and 2 CWC subject team members were assigned to facilitate each module. This team gathered regularly using Google meet and Zoom to rehearse for facilitating the webinar.

c. Sharing and Analysis of the Pre-Assessment:

- The Pre-Webinar Quiz was shared as Google forms through the respective WhatsApp groups by Nodal Officers. The questions asked in the Pre-Webinar Quiz helped us identify the 'baseline' subject matter knowledge of the teachers in the given concepts.
- Analysing the quiz responses received by the teachers showed 3 least correctly answered questions, which revealed the concepts in which they needed scaffolding. These concepts were considered immediate hard spots and were addressed during the webinar.
- Regular follow-up was done with the participants by both Nodal Officers and CWC SPOCs to ensure that the teachers took up the quiz.

d. Sharing of Pre-reading materials:

- Preliminary discussion notes and brainstorming material on the concepts to be covered in the webinar were shared with the participants through respective subject WhatsApp groups by Nodal Officers.

e. **Facilitation:**

i. The invitation links for the webinar session were shared with the participants on the same WhatsApp groups by Nodal Officers.

ii. **Inauguration** of the program was carried out, and the stakeholders and teacher-participants across all the subjects attended the session and received a schedule and an overview of the online training program.

iii. **Content:** The main presentation of the topic with detailed topical discourse using a dramatised script which had role plays with characters and storylines to discuss a concept along with videos and simulations. Additionally, transactional ideas and activities which could be used to deliver the concepts experientially in a classroom were also a part of the sessions.

iv. **Interactivity**: The features of Poll Questions and Chats of Zoom were utilised to keep the session interactive and let the participants convey their understanding at regular intervals.

v. **Feedback:**

The feedback of the training session was collected in 3 ways:

- **Through Poll Questions**: Teachers' feedback on content suitability, re-enforcement of subject matter and diversity of activities were collected.
- Teachers also shared their views on:
  - Whether they felt confident to take up Experiential teaching methodology to their classrooms.
  - Their awareness of various types and sources of content available apart from the textbook.
  - Whether they seek further training on Experiential teaching methodology.
- **Through Live Feedback-Video chat**: Few of the teachers provided verbal feedback and suggestions on the quality of the sessions, expected frequency of the training, and improvement of the program.

vi. **Queries/doubts**: Teachers asked content specific queries and got them clarified by the facilitators (RPs) during the webinar in the Live feedback session and Chat section. After the webinar, the queries were raised in the subject-specific WhatsApp groups where the RPs and the co-participants provided clarifications.

f. **Sharing of Post-reading materials:**

Additional and supplementary reading materials and additional ideas on transactional activities on how to teach the concepts in the classroom discussed in the webinar were shared through the respective WhatsApp groups by Nodal officers.

SCHEMATIC REPRESENTATION OF THE STEPS INVOLVED IN TRAINING PHASE

g. **Sharing of The Post-Webinar Quiz:**

The Post-Webinar Quiz links were shared with the teacher participants through the WhatsApp groups. This quiz helps to track the understanding levels in the participants for the concepts covered in each module in the webinar.

3 additional questions linking to the 3 most incorrectly answered questions from the Pre-Quiz were added in the Post-Quiz to evaluate the improvement in understanding on those specific concepts (Hard-Spots).

Regular follow-up was done with the participants from both Nodal Officers and CWC SPOCs to ensure that the teachers took up the Post-Webinar Quiz.

h. **Sharing of Assignments:**

Simple assignments such as creating Teaching-Learning Materials (TLMs), lesson plans on a small topic, experiments, puzzles, etc., based on the concepts covered in the webinar, were shared through the WhatsApp groups. Participants attempted one assignment for every module.

Regular follow-up was done with the participants by both Nodal Officers and CWC SPOCs to ensure that the teachers completed their assignments.

i. **Project:**

A subject-specific Project, based on the concepts covered in each subject was assigned, to be created by the participants. This was shared using the same WhatsApp groups. However, the projects were not shared or executed by the teachers because the schools started after a long vacation due to Covid and the teachers had to cover the learning loss by conducting additional classes.

Regular follow-up was done with the participants by both Nodal Officers and CWC SPOCs to ensure that they completed their Projects.

j. **Collection of Assignments.**

Google forms were created and shared with all the participants through the same WhatsApp groups, in which they uploaded images, videos and PDFs of the completed assignments and projects. These forms were shared after the 10-days period given to the participants for preparation and completion of the assignments and projects.

Regular follow-up was done with the participants by both Nodal Officers and CWC SPOCs to ensure the submission of Assignments

III. Post-Training Phase

This is an important phase for any stakeholders as it gives a picture of the implications and impact of the training program. In addition, it paves the way for future engagements. This phase comprises 2 sub-phases, namely:

a. Output and Outcome Analysis

Analysing the outcomes is also an important process followed in the post-training phase of the program. The outcomes derived from the program were analysed using the metrics that describe the impact and implications of the training program.

SCHEMATIC REPRESENTATION OF THE STEPS INVOLVED IN POST - TRAINING PHASE

Metrics used in the Training Program: For every training, there are 4 sets of parameters/metrics that can be analysed for each subject, and they are defined below:

- **Metric 1: Overall Performance - Pre Vs Post Webinar Assessment**
- **Metric 2: Improvement in Hard Spots**
- **Metric 3: Efficiency of the Program**
- **Metric 4: Relevance of the program**

Improvement in Teachers:

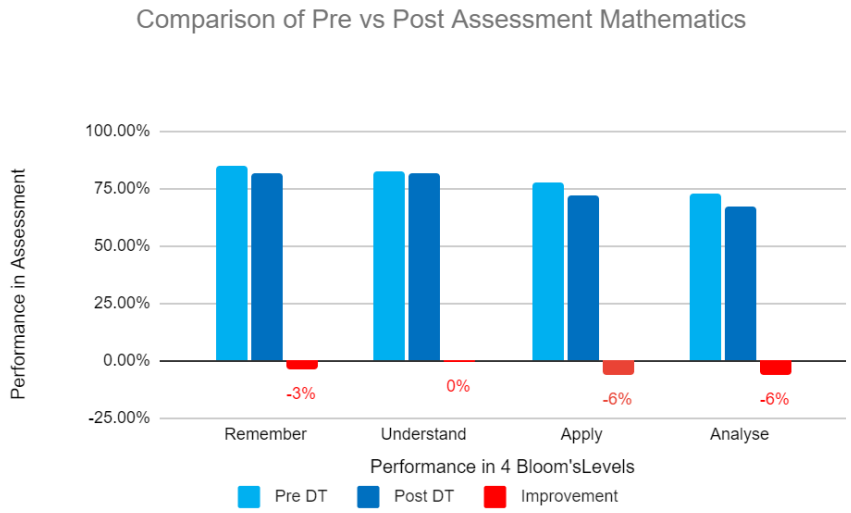
Webinar assessments are one of the quick tools to gauge the effectiveness of the training program, The responses obtained from the teacher participants on the hard spots form another basis for analysis. Hence these two aspects form individual metrics, which together describe the improvement of the teachers understanding of the subject matter after the conduction of the training session.

Metric 1: Overall Performance - Pre Vs Post Webinar Assessment:

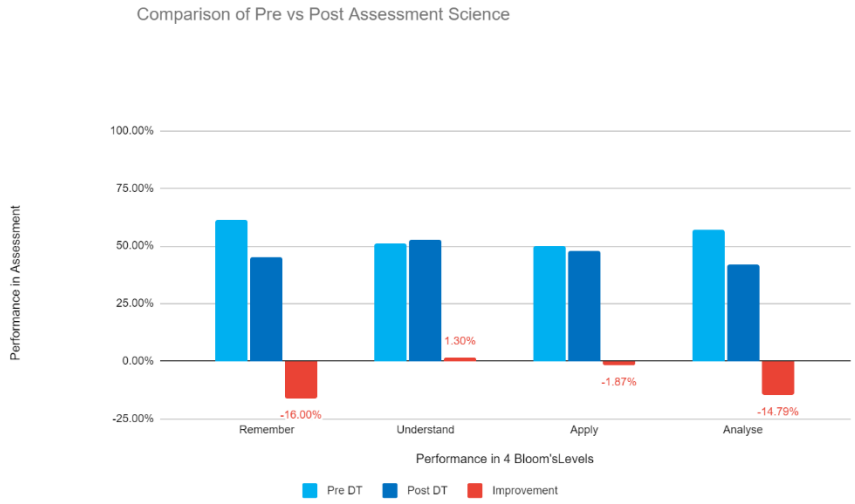
- In this metric, the performance of the teachers in the pre-webinar Vs post-webinar assessment is compared to understand the improvements made through a total of 10 questions designed at 4 different levels of Blooms (**Remember, Understand, Apply and Analyse**).
- Bloom's taxonomy helps us understand the depth of knowledge and skill that the teacher has acquired in the topic they are being trained.
- The first two levels of Blooms (i.e., remember and understand) represent a basic level of understanding that the learner has in the topic. As the depth of understanding improves, the learner will acquire the ability to use the knowledge gained in the topic to apply to new situations presented. A further improvement in the depth of understanding leads the learner to draw connections between the various ideas relating to the concept. The learner in this stage will be able to organise the information in a way that can lead to examining and experimenting with the ideas from a new perspective.
- Experiential teaching, in its essence, requires the teacher to be able to draw connections between the various concepts and ideas in the textbook, identify where the concepts can be found in the day-to-day life and bring them in a measured way into the classroom for the learner to experience them. This, in essence, requires the teachers to have an in-depth understanding of the concepts.
- The training program design presumes that teachers need to have sufficient expertise at both the apply and analyse levels. The overall goal of building the subject matter expertise of the teachers is to enable them to rise to the level of "evaluate and create" where the teachers are empowered to justify/criticise what is working and not working, and can independently create new content, teaching and learning methodologies and assessment tools required for their classroom situations. The assessment used in this training program did not have questions relating to *Evaluate* and *Create* levels of Bloom's.

- A total of 10 questions were used in pre and post webinar assessments given to teachers. A general guideline of 3 questions in each of remember and understand levels and 2 questions in each of the apply and analyse levels was used in the assessments. However, the nature of the topic required a deviation from the guideline in some cases.
- The assessments, designed as multiple-choice questions (MCQs), were sent to the teachers through google form links disseminated through the teacher WhatsApp groups.
- The following graphs depict the Pre-Assessment vs post-Assessment performance in Mathematics and Science subjects. For each subject, their respective inferences have been drawn.

Subject: Mathematics



Subject: Science



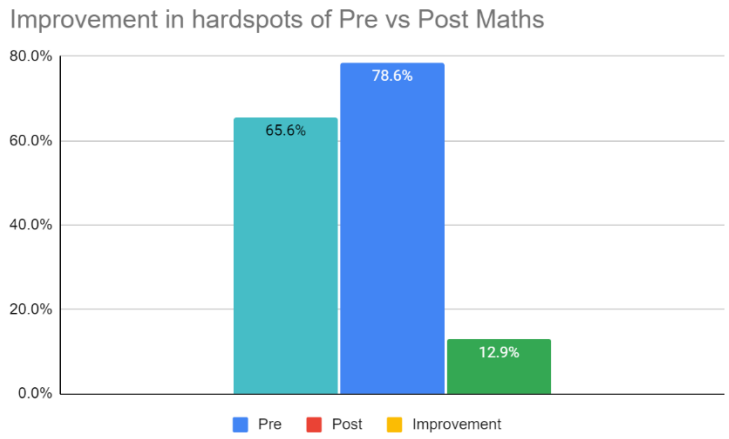
Inference:

- Post webinar assessments by design had higher difficulty levels hence no improvement in the post-webinar assessment can be concluded in the knowledge and skills of the teachers. A negative improvement rate suggests that teachers may not have progressed enough in clarifying their trouble spots and improving their subject matter expertise.
- In both Mathematics and Science, teachers have shown improvement in their understanding of the 3 most challenging concepts. For example, we could see an improvement of 10.3% in the most challenging concepts. Teachers have also rated the training modules highly during the feedback (4.38 on a rating scale of 5). However, the percentage improvement in the 3 levels of Blooms is negative, pointing to no significant improvement in their knowledge. **This points to the fact that the teachers need to be scaffolded and reinforced with basic mathematical and Science concepts more frequently through these kinds of training.**

Metric 2: Improvement in Hard Spots:

- In this metric, the three questions that most teachers answered incorrectly in the Pre-webinar assessment (which indicates hard spots for teachers) are compared to the performance of teachers for similar questions in the post-webinar assessment.
- An analysis was done for each pre-webinar assessment before the webinar was conducted to identify the 3 questions with the most incorrect answers. First, the key concepts that are central to these questions were identified and discussed during the webinar. Subsequently, three additional questions centred on the same ideas were created and were administered to teachers as a part of the post-webinar assessment.
- A comparison of the performance in these three questions between pre-webinar and post-webinar will provide an idea of the improvements that can be made in the understanding of teachers when concept specific remediation is done.
- In general, it was noticed that the three questions that teachers answered incorrectly in the pre-quiz belonged to the apply and analyse levels of Blooms, indicating a lack of depth in those concepts. Therefore, these concepts were taken as immediate hard spots for teachers and were scaffolded during the webinar.
- Dedicated questions in the Post Quiz assessed whether this scaffolding was effective for improvement in the understanding of the concepts covered as hard spots.
- The following graphs depict the improvement in hard spots in Mathematics and Science subjects. For each subject, their respective inferences have been drawn.

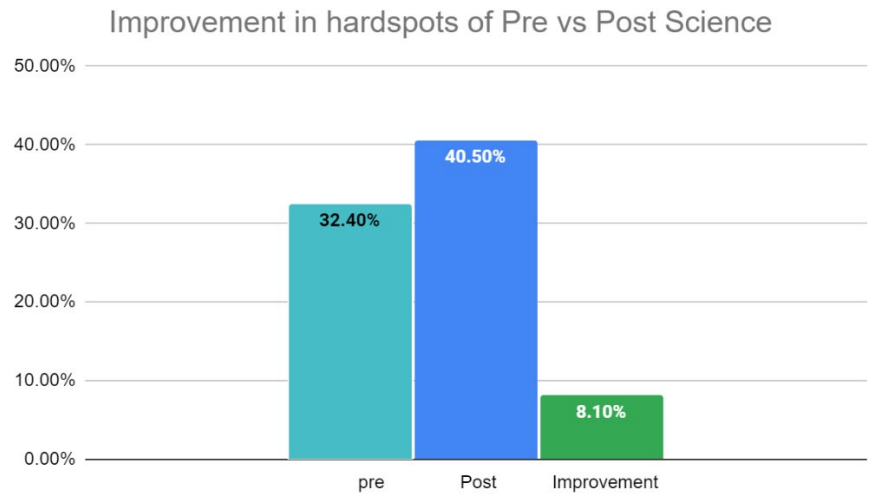
Subject: Mathematics



Inference:

- Around 12.9% of improvement is observed in Mathematics.

Subject: Science



Inference:

- Around 8.10% of improvement is observed in Science, and it is substantial compared with the other subjects as it is connected directly to the immediate surroundings.
- Participants could easily relate the concepts to day-to-day activities.
- Overall, this can be attributed to the steps taken to bridge their understanding in the concepts in which the teachers had performed poorly in Pre-quiz, like usage of simulations, interesting videos/images, connecting the concepts with examples from day-to-day life, simple animations to explain concepts, use of activities to involve the participants in problem-solving etc.

Metric 3: Efficiency of the Program:

The efficiency of the program is evaluated based on how good and engaging the sessions were for the participants and is measured as below:

i. **Participation Rate of Teachers:**

The participation rate of teachers is defined as the number of teachers that attended the webinar session for every 100 teachers invited.

ii. **Engagement Rate of Teachers:**

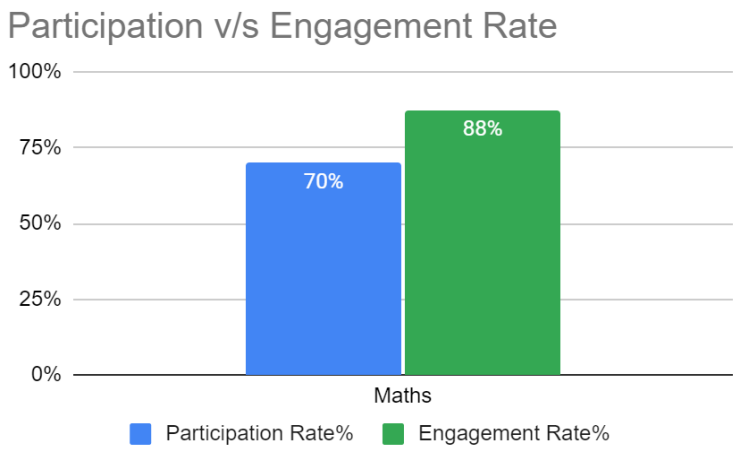
The engagement rate of teachers is defined as the number of teachers that actively participated in the webinar out of the total number of teachers that attended the session. This accounts for the number of teachers answering the poll questions during the session.

- The following data depicts the participation rate and engagement rate of teachers for Math and Science subjects.

MATHEMATICS

- The training included teachers teaching Grade 6 & 7. 249 teachers were invited from all the blocks of the Directorate of Minorities district.
- On an average, 70 % of teachers have attended all the modules in Mathematics.

MODULE NAME	Number of participants	Number of audiences engaged	% of Engaged Audience
Playing with Numbers	156	129	82.7%
Fractions	110	92	83.64%
Integers	94	90	95.74%
Algebra	99	88	88.89%
Rational Numbers	105	91	86.67%



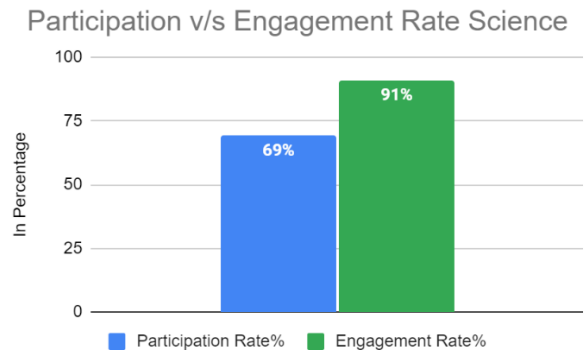
Inference:

- The percentage of participants actively engaged during the sessions shows that the content was engaging to the teachers.
- This could be attributed to the design of facilitation, where at strategic intervals, teacher responses were elicited to make them reflect on the ongoing discussions on specific concepts and answer brain teasers, leading into the upcoming discussion through polls and chats

SCIENCE:

- The training included teachers teaching Grade 6 & 7 in DoM managed schools. A total of 213 teachers were invited from all the Directorate of Minorities districts.
- On an average, 69% of teachers have attended all the modules in Science.

MODULE NAME	Number of participants	Number of the audience engaged	% of Engaged Audience
Body movements	85	67	78.8%
Electricity	95	88	92.63%
Habitat and adaptation	83	75	90.36%
Acid base and neutralisation	102	98	96.08%
Motion and measurements	120	117	97.50%



Inference:

- During specific intervals, facilitators asked questions to the teachers using poll questions, and teachers responded to them.
- Around 91% of the teachers actively answered the poll questions during the sessions.

Metric 4: Relevance of the program:

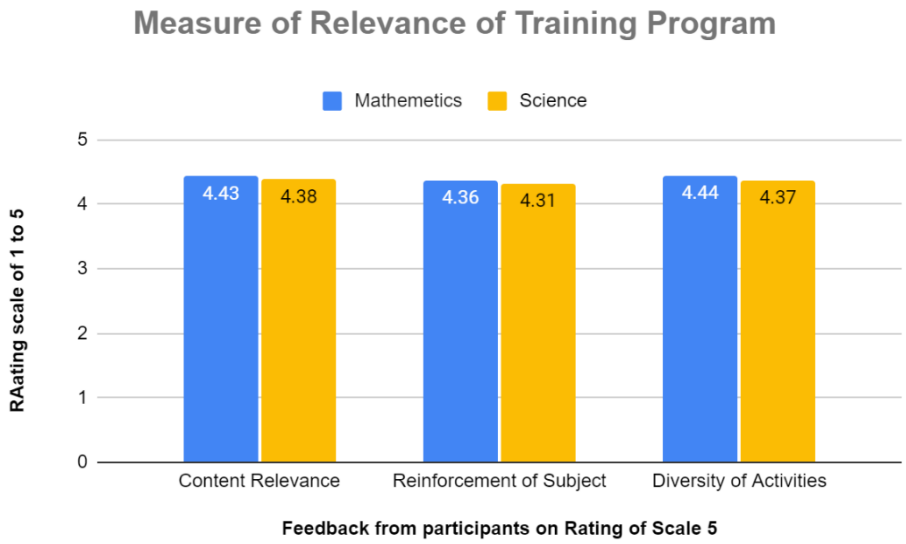
i. **Rating on Training Sessions:**

Rating for the training session is defined as the feedback received from the teachers for the particular webinar. The criteria on which the teachers gave their feedback were:

- Content Suitability,
- Re-enforcement of Subject and
- Diversity of Activities.

Teachers also reflected on-

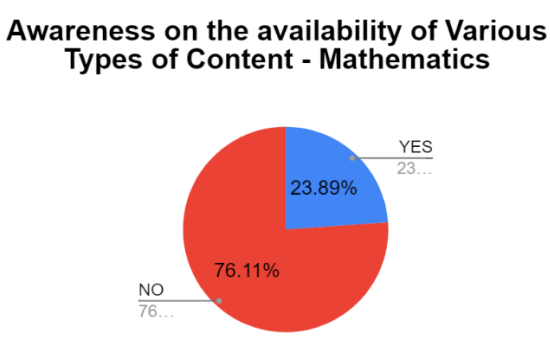
- Whether they felt confident to take Experiential teaching methodology to their classrooms.
- Their awareness of various types and sources of content available, apart from the textbook.
- Whether they seek further training on Experiential teaching methodology.

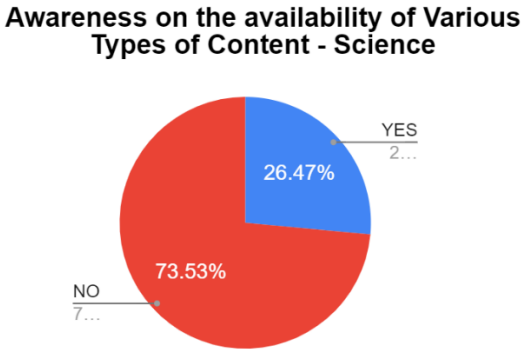


Inference:

- The teachers rated an average of 4.41 out of 5 on how contextual and suitable the concepts and activities were in the program. This can be attributed to the phase of need analysis done, where a list of concepts was identified as 'Hard Spots' through deliberations between the DOM and CWC.
- The teachers rated an average of 4.36 out of 5 on how the different stages of the training program contribute to enhancing their subject-matter expertise. This can be attributed to the steps taken to bridge their understanding of the concepts they had not performed so well in the Pre-quiz. Those specific concepts were stressed and scaffolded through modifications to the actual webinar and reading materials.
- The teachers have rated an average of 4.40 out of 5 on how diverse and varied the activities were in the webinar. This could be attributed to the process of using experiential activities to discuss the concepts and ideas (activities) to transact those concepts in the classroom in each subject, using low-cost, no-cost Teaching-learning materials

ii. Awareness of the availability of Various Types of Content:

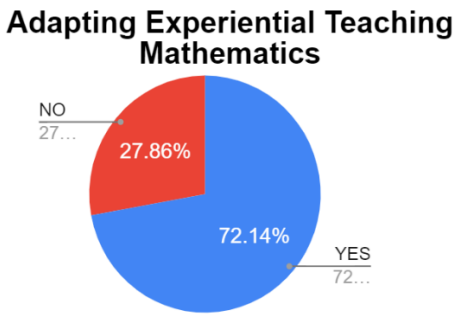


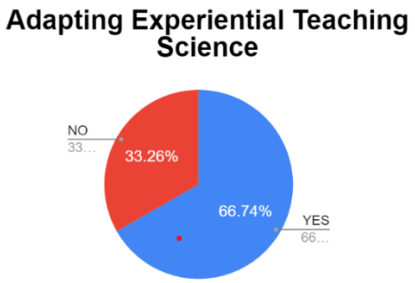


Inference:

- An average of 25.18% of teachers from all subjects expressed that they know the various types and sources of content/resources apart from the textbook.
- An average of 74.82% of teachers from all subjects expressed that they are unaware of sources of content/resources apart from the textbook. To address this, links to websites/articles etc., experiential activities/ideas to teach concepts, were shared throughout the program (both in the webinar and post-training reading materials) for every concept in each module.
- Hence, on average, 74.82% of teachers came to know about various sources of content/ resources apart from textbooks from this training program.

iii. Teaching the concepts experientially:





Inference:

- An average of 69.44% of teachers expressed that the concepts discussed in each module can be experientially taught in the classroom and that they are willing to teach these concepts experientially in their classrooms.
- An average of 30.56% of teachers expressed that the concepts discussed in the modules cannot be taught experientially by them and that they require further training on how the concepts can be taught experientially in the classroom. This is a clear indication that continued, and recurring training needs to be planned and implemented in the future in the district.

b. Feedback from RPs & Nodal Officers and Scope for Improvement:

The process of feedback from the stakeholders involved in the program is very critical for continuous improvement of the design of the program content, structure of the module and transaction of the module to the participants. The feedback process consists of collecting the feedback at different stages from the stakeholders. The nature of feedback collected at different levels is listed below. , When analysed, the feedback received gives us insights for developing future training programs.

- Feedback from Nodal Officers and Resource Persons is taken in terms of the different elements of training design, like pre and post quizzes, pre and post reading materials, assignments, and projects. The feedback is also taken with respect to coverage of concepts and additional concepts required to be covered in future, which are the hard spots for teachers.
- For some modules, the RPs suggested that a single concept be delivered, and deeper discussions of such concepts can be held in the webinar instead of covering multiple concepts in a single module.
- The RPs have themselves suggested some topics/ that can be taken up in the upcoming modules.
- The RPs and Nodal Officers have expressed the need for more such experiential training to be organised and transacted to the teachers at least once every week. Some resource persons opine that such interventions are necessary and should be done on a need-based basis.
- The majority of the Resource Persons and Nodal Officers have rated positively on the transaction of the training, which includes quality of modules, quality of webinar facilitation, etc.
- Shri. Dr. H R Shivakumar, K.A.S. Director and Shri. Pundaleeka Anawal, Asst Director, mentioned the positive outlook of the program and appreciated the efforts of the RPs and CWC for making the program successful and mentioned that they would be happy to collaborate with CWC and conduct such kinds of online programs in the future. They insisted on the participants' learnings getting translated into classroom practices.. They also spoke about the advantages of the online training method, which is cost-effective, easily scalable, transactionally effective, and especially safe for the teachers during pandemic times.

7. Duration of the Training Program

The Direct to Teacher training program design was unique in engaging participants in every stage of the training program using available technological tools. As this program was implemented online, the transaction of the modules had to be made more interesting to the participants by having dramatised script supported by videos, simulations, poll questions, chat questions, and concept maps followed by assignments and projects.

The preparatory phase, where the design of the module, orientation to RPs and preparing for facilitation requires 2 months as this was being done collaboratively with the RPs of the DoM. The implementation phase, which involves the online Webinar sessions for the participants, requires 3 months to complete the transaction of 10 modules in 2 subjects, namely, Mathematics and Science, at the rate of one module per week. The post-

implementation phase, where the feedback and outcome analysis is done along with the preparation of webinar videos, requires 1 month.

In total, the time required to design and implement and evaluate the Direct-to-Teacher training program required around 4 months to cover all the teachers in the DoM. For the DoM, the training development and implementation process started in the month of September 2021 and ended in the month of December 2021.

MATHEMATICS

SECTION	TOPIC	DATE	FACILITATORS & NODAL OFFICERS	
			CWC	DOM
6th & 7th Grades	Playing with numbers	23-09-2021	Co-ordinator: • Mrs. Vishwaja B. • (SPOC & Facilitator) • Ms. Nisarga (Anchor) Facilitators: • Ms. Shilpa K • Mrs. Nagasmitha • Mr. Vijendra Bhat • Mrs. Vishwaja B. • Ms. Brundha S J • Mrs. Pooja Jain • Mrs. Bhanushree	Nodal Officers: • Mr Mithun Chakravarthy A Facilitators: • Mr. Mithun Chakravarthy • Mr. Thalvar Shivappa • Mr. Kajappa Madyal • Mr. Nagappa Kamber • Mrs Anitha K • Mr Arun Kumar
	Fractions	30-09-2021		
	Integers	08-10-2021		
	Algebra	22-10-2021		
	Rational numbers	27-10-2021		

SCIENCE

SECTION	TOPIC	DATE	FACILITATORS	
			CWC	DOM
Grade 6 & 7	Body Movement	10-11-2021	Co-ordinator: • Ms. Nisarga (Anchor, SPOC & Facilitator)	Nodal Officers: • Mr. Kiran Javaji
	Electricity	17-11-2021	• Ms. Anusha S. • Mrs Bindu Krishna • Mrs Bhanushree N. • Mr. Rahul Srinivasan • Ms. Nisarga B S • Mrs Brunda • Ms. Suma	• Mr. Kiran Javaji • Mr. Vinayak K Sonar • Mr. Ninganna S • Mr. Adiveppa Hosur • Mrs Ashwini Kulkarni • Mrs Jyothi C Thotigere
	Habitat & Adaptation	24-11-2021		
	Acids, Bases & Neutralisation	01-12-2021		
	Motion and Measurement	08-12-2021		

8. Factors contributing to the success of the Direct to Teacher training program

Several factors contributed to the success of this Direct to Teacher experiential training model. A few of them are crucial, which are explained below.

a. **Institutional Leadership Coordination and cooperation from Officers, Nodal Officers and Resource Person of DOM**

One of the important functions of the DOM is to empower teachers academically by designing and implementing continuous professional development programs for them. Having the ongoing pandemic situation, the DOM collaborated to implement online teacher training for the DoM teachers all over Karnataka.

The DOM provided the enabling environment for the execution of the training program by assigning the subject Nodal Officers and administrative support. The efforts of the DOM in terms of institutionalising the process has paved the way for good response and support from the District level officers and HMs of the schools.

b. **Design and development of the modules and facilitation**

CWC had the experience of designing and facilitating sessions for teachers as part of teacher academic development. CWC successfully engaged teachers to enhance their conceptual understanding of Mathematics and Science. This helped CWC come up with the new Direct-to Teacher experiential design of the program. Further, it was necessary for CWC to develop the modules on the topics, which were difficult and

challenging for the teachers to transact experientially to the students. The topics were selected out of the list of topics that the RPs and the DOM felt were the hard spots for teachers where they needed conceptual clarity and help to understand the same.

The facilitation of modules provided enough space and opportunity for Resource Persons (RPs) from the DoM to involve and participate in the complete facilitation process. This process has not only resulted in the development of confidence among the RPs but also the ownership of the process, which has contributed to the success of the program to a very large extent.

9. Relevance for the future of the Training Programs:

The online teacher training program developed and implemented through the collaboration between the DOM-Directorate of Minorities & CWC has a lot of scope for the post NEP-2020 and post COVID-19 world. There are several key challenges in the traditional teacher training model used by the education department that can effectively be solved using this online training model.

a. **Loss of Quality at the last mile due to Cascading of Trainers:**
   The cascading may result in the loss of quality of the training program at the last mile. This new model tested in this program has shown the ability to centralise the trainers at the district or state level and have the most competent person conduct the training program using technology to reach every teacher directly without diluting the content and quality at the last mile.

b. **Mapping teachers to their specific training needs:**
   The online training program developed a process through which teachers who receive training in any subject(s) are the ones who teach that subject in their schools. In a sense, this training program does not force or pressurise teachers to undergo training neither in the subjects they do not teach or are not interested in. The training program also ensured that the modules developed for the training program specifically addressed the hard spots/challenging concepts for the teachers to transact in their classrooms. This ensured a high degree of acceptance of the training modules by the teachers and specific feedback for further improvement of the modules.

c. **Customise the model to improve the continuous professional development of teachers:**
   This training program can also be conducted in a Blended learning design with higher primary school teachers as a potential solution to significantly improving the quality of the monthly learning cycles. Transmission of learning modules can be centralised at the district/state level by State level resource persons with local facilitation done by subject experts/resource persons in each cluster level. This design has been tested in the Tumkur and has been successfully implemented.

d. **Availability of Training Artefacts post-training:**

All the training materials that the teachers use can be readily made available to the teachers on platforms like Diksha, Youtube etc. thereby, providing continuity & reinforcement of learning to the teachers.

e. **Time and Cost Efficiency:**

Leveraging technology to effectively reach out to a large number of teachers will result in significant time and cost saving to the department. It has been estimated that the training programs conducted in the Directorate of Minorities have around 10 lakh. The new model could successfully reach all teachers of the DoM in under 4 months, including the preparation and implementation time, most importantly at the convenience of teachers.

f. **Generation of Open-Source Teacher Training Assets:**

This online training program leverages the capabilities of the technology significantly, the high-quality training modules and assets created during the training programs; reading resources, pre and post-test materials and assignment documents, webinar videos, etc., can easily be made available to the other teachers of the DOM through an open-source platform like the Dept YouTube. These resources are available for the teachers to go through repeatedly, which reinforces the learning, and will also help the DOM to design new programs on similar lines.

10. Annexure:

10.1 Feedback received from teachers during the training

thank you for conducting such a good webinar.....it will be helpful in our teaching experience....

respected sir /madam , you would have taken properties instead this.only operations are here

needed more information. Nothing is there in this class.

I was not knowing about veniculum...helped me. very nice...very interactive. I like this

meeting, conversation and explanation should be in English Medium

Dear facilitators your way teaching is superb. It helps me to make the students to learn with giving daily life activities

tq sir and madam all 5 webinars are to helpfull for us....

come with the modules for 9th and 10th grade topics

sir choose training hours other than than school hours...due to pandemic we have short time to conduct classes

Simple topics were covered in the time

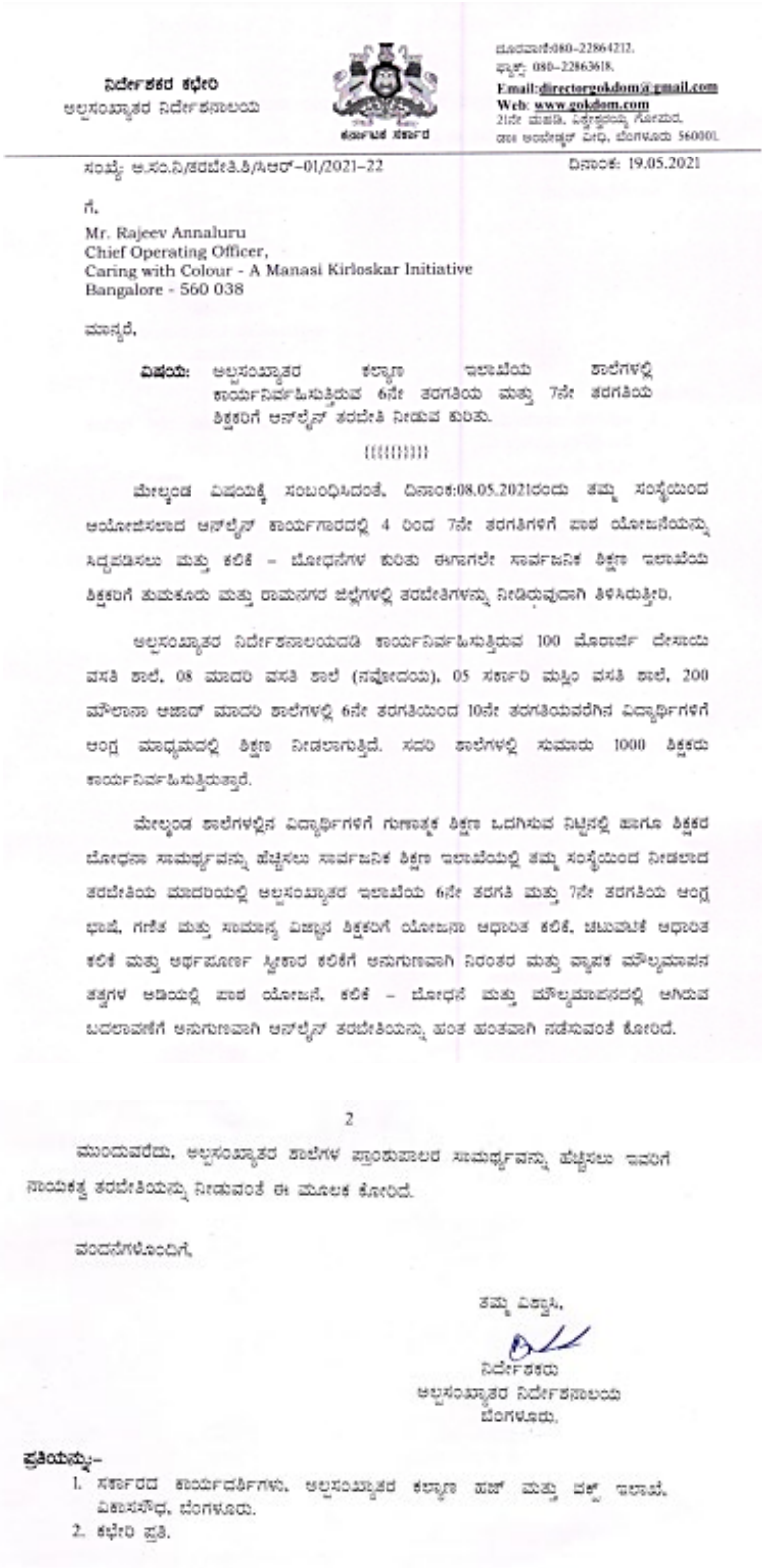
I request u all to do physic class

very nice activities... Excellent

super and very easy to understand the lesson

The webinar topics should have been for higher classes

10.2 Copy of the training circular issued by the DOM



ನಿರ್ದೇಶಕರ ಕಛೇರಿ
ಅಲ್ಪಸಂಖ್ಯಾತರ ನಿರ್ದೇಶನಾಲಯ

ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ದೂರವಾಣಿ:080-22864212.
ಫ್ಯಾಕ್ಸ್: 080-22863618.
Email:directorgokdom@gmail.com
Web: www.gokdom.com
21ನೇ ಮಹಡಿ, ವಿಕ್ಟೋರಿಯಾ ಸೌಧ,
ಡಾ॥ ಅಂಬೇಡ್ಕರ್ ವೀಧಿ, ಬೆಂಗಳೂರು 560001.

ಸಂಖ್ಯೆ: ಅ.ಸಂ.ನಿ/ತರಬೇತಿ.ತಿ/ಸಿಆರ್-01/2021-22 ದಿನಾಂಕ: 19.05.2021

ಗೆ,
Mr. Rajeev Annaluru
Chief Operating Officer,
Caring with Colour - A Manasi Kirloskar Initiative
Bangalore - 560 038

ಮಾನ್ಯರೆ,

ವಿಷಯ: ಅಲ್ಪಸಂಖ್ಯಾತರ ಕಲ್ಯಾಣ ಇಲಾಖೆಯ ಶಾಲೆಗಳಲ್ಲಿ ಕಾರ್ಯನಿರ್ವಹಿಸುತ್ತಿರುವ 6ನೇ ತರಗತಿಯ ಮತ್ತು 7ನೇ ತರಗತಿಯ ಶಿಕ್ಷಕರಿಗೆ ಆನ್‌ಲೈನ್ ತರಬೇತಿ ನೀಡುವ ಕುರಿತು.

{{{{{{{{{{

ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ದಿನಾಂಕ:08.05.2021ರಂದು ತಮ್ಮ ಸಂಸ್ಥೆಯಿಂದ ಆಯೋಜಿಸಲಾದ ಆನ್‌ಲೈನ್ ಕಾರ್ಯಗಾರದಲ್ಲಿ 4 ರಿಂದ 7ನೇ ತರಗತಿಗಳಿಗೆ ಪಾಠ ಯೋಜನೆಯನ್ನು ಸಿದ್ಧಪಡಿಸಲು ಮತ್ತು ಕಲಿಕೆ – ಬೋಧನೆಗಳ ಕುರಿತು ಈಗಾಗಲೇ ಸಾರ್ವಜನಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆಯ ಶಿಕ್ಷಕರಿಗೆ ತುಮಕೂರು ಮತ್ತು ರಾಮನಗರ ಜಿಲ್ಲೆಗಳಲ್ಲಿ ತರಬೇತಿಗಳನ್ನು ನೀಡಿರುವುದಾಗಿ ತಿಳಿಸಿರುತ್ತೀರಿ.

ಅಲ್ಪಸಂಖ್ಯಾತರ ನಿರ್ದೇಶನಾಲಯದಡಿ ಕಾರ್ಯನಿರ್ವಹಿಸುತ್ತಿರುವ 100 ಮೊರಾರ್ಜಿ ದೇಸಾಯಿ ವಸತಿ ಶಾಲೆ, 08 ಮಾದರಿ ವಸತಿ ಶಾಲೆ (ನವೋದಯ), 05 ಸರ್ಕಾರಿ ಮತ್ತಿಂ ವಸತಿ ಶಾಲೆ, 200 ಮೌಲಾನಾ ಆಜಾದ್ ಮಾದರಿ ಶಾಲೆಗಳಲ್ಲಿ 6ನೇ ತರಗತಿಯಿಂದ 10ನೇ ತರಗತಿಯವರೆಗಿನ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಆಂಗ್ಲ ಮಾಧ್ಯಮದಲ್ಲಿ ಶಿಕ್ಷಣ ನೀಡಲಾಗುತ್ತಿದೆ. ಸದರಿ ಶಾಲೆಗಳಲ್ಲಿ ಸುಮಾರು 1000 ಶಿಕ್ಷಕರು ಕಾರ್ಯನಿರ್ವಹಿಸುತ್ತಿರುತ್ತಾರೆ.

ಮೇಲ್ಕಂಡ ಶಾಲೆಗಳಲ್ಲಿನ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗುಣಾತ್ಮಕ ಶಿಕ್ಷಣ ಒದಗಿಸುವ ನಿಟ್ಟಿನಲ್ಲಿ ಹಾಗೂ ಶಿಕ್ಷಕರ ಬೋಧನಾ ಸಾಮರ್ಥ್ಯವನ್ನು ಹೆಚ್ಚಿಸಲು ಸಾರ್ವಜನಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆಯಲ್ಲಿ ತಮ್ಮ ಸಂಸ್ಥೆಯಿಂದ ನೀಡಲಾದ ತರಬೇತಿಯ ಮಾದರಿಯಲ್ಲಿ ಅಲ್ಪಸಂಖ್ಯಾತರ ಇಲಾಖೆಯ 6ನೇ ತರಗತಿ ಮತ್ತು 7ನೇ ತರಗತಿಯ ಆಂಗ್ಲ ಭಾಷೆ, ಗಣಿತ ಮತ್ತು ಸಾಮಾನ್ಯ ವಿಜ್ಞಾನ ಶಿಕ್ಷಕರಿಗೆ ಯೋಜನಾ ಆಧಾರಿತ ಕಲಿಕೆ, ಚಟುವಟಿಕೆ ಆಧಾರಿತ ಕಲಿಕೆ ಮತ್ತು ಅರ್ಥಪೂರ್ಣ ಸ್ವೀಕಾರ ಕಲಿಕೆಗೆ ಅನುಗುಣವಾಗಿ ನಿರಂತರ ಮತ್ತು ವ್ಯಾಪಕ ಮೌಲ್ಯಮಾಪನ ತತ್ವಗಳ ಆಧಿಯಲ್ಲಿ ಪಾಠ ಯೋಜನೆ, ಕಲಿಕೆ – ಬೋಧನೆ ಮತ್ತು ಮೌಲ್ಯಮಾಪನದಲ್ಲಿ ಆಗಿರುವ ಬದಲಾವಣೆಗೆ ಅನುಗುಣವಾಗಿ ಆನ್‌ಲೈನ್ ತರಬೇತಿಯನ್ನು ಹಂತ ಹಂತವಾಗಿ ನಡೆಸುವಂತೆ ಕೋರಿದೆ.

2

ಮುಂದುವರೆದು, ಅಲ್ಪಸಂಖ್ಯಾತರ ಶಾಲೆಗಳ ಪ್ರಾಂಶುಪಾಲರ ಸಾಮರ್ಥ್ಯವನ್ನು ಹೆಚ್ಚಿಸಲು ಇವರಿಗೆ ಸಾಂಯಿಕ್ಷ ತರಬೇತಿಯನ್ನು ನೀಡುವಂತೆ ಈ ಮೂಲಕ ಕೋರಿದೆ.

ವಂದನೆಗಳೊಂದಿಗೆ,

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ನಿರ್ದೇಶಕರು
ಅಲ್ಪಸಂಖ್ಯಾತರ ನಿರ್ದೇಶನಾಲಯ
ಬೆಂಗಳೂರು.

ಪ್ರತಿಯನ್ನು:-
1. ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿಗಳು, ಅಲ್ಪಸಂಖ್ಯಾತರ ಕಲ್ಯಾಣ ಹಜ್ ಮತ್ತು ವಕ್ಫ್ ಇಲಾಖೆ, ವಿಕಾಸಸೌಧ, ಬೆಂಗಳೂರು.
2. ಕಛೇರಿ ಪ್ರತಿ.

10. 3 Sample Poster

10.4 Memories of the Training Program

Mr. Kiran Javaji

Science Nodal Officer

Mr. Mithun Chakravarthy A

Maths Nodal Officer

Mrs. Ashwini (Science RP)

Mr. Ninganna (Science RP)

Mr. Nagappa Kamber - Maths RP

11. References

[1] Pratham Education Foundation, New Delhi, India. (2016, November). *Improving literacy and math instruction at scale in India's primary schools: The case of Pratham's Read India program*. Journal of Educational Change. https://www.pratham.org/wp-content/uploads/2020/02/3_J-Edu-Change_Improving-Literacy-and-Math-Instruction.pdf

[2] ASER. (2019, January). *Annual Status of Education Report (Rural) 2018*. ASER Centre. https://img.asercentre.org/docs/ASER%202018/Release%20Material/aserreport2018.pdf

[3] NCERT-National Council of Education and Training. (2019). *National Achievement Survey- National Report to inform Policy, Practices and Teaching Learning*. MHRD- Ministry of Human Resource Development, Government of India. https://ncert.nic.in/pdf/NAS/WithReleaseDate_NPPTL.pdf

[4] NCERT-National Council of Education and Training. (2019). *National Achievement Survey- National Report to inform Policy, Practices and Teaching Learning*. MHRD- Ministry of Human Resource Development, Government of India. https://ncert.nic.in/pdf/NAS/WithReleaseDate_NPPTL.pdf

[5] CaringwithColour. (2021, February 8). *Project Based Learning* [Video]. YouTube. https://www.youtube.com/watch?v=JkpUBrd1yCo

[6] Dichaba, M. M., & Mokhele, M. L. (2012). Does the Cascade Model Work for Teacher Training? Analysis of Teachers' Experiences. *International Journal of Educational Sciences*, 249–254. https://www.tandfonline.com/doi/citedby/10.1080/09751122.2012.11890049?scroll=top&needAccess=true

[7] Turner, F., Brownhill, S., & Wilson, E. (2017). The transfer of content knowledge in a cascade model of professional development. *An International Journal of Teachers' Professional Development*, *21*(2017), 175–191. https://www.tandfonline.com/doi/full/10.1080/13664530.2016.1205508?src=recsys

[8] Indian Institute of Technology - Bombay, India. (n.d.). *Cascade Model of Teacher Professional Development: Qualitative Study of the Desirable Characteristics of Secondary Trainers and Role of Primary Trainers*. Https://Www.Cse.Iitb.Ac.in/~sri/Papers/Cascade-Icce2018.Pdf. Retrieved March 30, 2021, from https://www.cse.iitb.ac.in/~sri/papers/cascade-icce2018.pdf

[9] Bloom's Taxonomy, University of Central Florida, https://fctl.ucf.edu/teaching-resources/course-design/blooms-taxonomy/

[10] Morgenroth, J. (2017, September 2). *5 Things To Consider To Find The Optimal Length Of A Training Course*. Https://Elearningindustry.Com/. https://elearningindustry.com/length-of-a-training-course-5-things-consider

[11] Fishman, E. (2016, July 5). *How Long Should Your Next Video Be?* Https://Wistia.Com/. https://wistia.com/learn/marketing/optimal-video-length

[12] H., & D. (n.d.). *In-service Teacher Training for Public Primary Schools in Rural India* (Working paper). Columbia (Rukmini Banerji, 2016)Global Centers | South Asia (Mumbai) Columbia University. http://righttoeducation.in/sites/default/files/In-service%20Teacher%20Training%20for%20Public%20Primary%20Schools%20in%20Rural%20India.pdf

12. List of abbreviations

- CWC- Caring with Colour
- DOM- Directorate of Minorities
- DSERT- Department of State Education and Training
- NCERT- National Council for Education Research and Training
- NCF-TE: National Curriculum Framework for Teacher Education
- NGO - Non-Government Organisation
- NISHTHA- National Initiative for School Heads' and Teachers' Holistic Advancement
- PPT- PowerPoint Presentation
- RP- Resource Person
- SOPs- Standard Operating Procedures
- SPOC- Single Point of Contact