

A) General Information: -

1. Name of the Institute: State Council of Education Research and Training Varun Marg, Defence Colony New Delhi

2. Details of the Investigator(s):

Name	Designation	Place of posting at the time of project completion	Present place of posting	Contact No.	E-mail
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3. Project/ Study Conducted Academic Session: 2019-20

4. Institute where Project/Study submitted: State Council of Education Research and Training Varun Marg, Defence Colony New Delhi

5. Theme of the Project/Study: Teacher and Twaching

6. Level of the study: School Level

B) Summary of the Conducted Research work/Project/Study: -

1. Title: Impact of the Online Capacity Building Programme (OCBP) on Knowledge and Classroom Practices of Delhi Government School Teachers

2. Introduction:

The Online Capacity Building Program for in service teachers' was initiated by SCERT Delhi in December 2016 to build capacity of teachers in academic and non-academic areas. Till February 2019, more than 20,000 teachers of Delhi SCERT have been trained through this program on the ChalkLit mobile application. In Maths, the teachers have been trained on topics such as Mensuration, Number System, Probability, Arithmetic Progression, and Quadrilaterals. The English TGTs took a training on Language Learning Skills. The Science TGTs have undergone training on Acid, Bases and Salts. There are multiple non-academic trainings that have been developed on ChalkLit and are being offered to all teachers of Delhi Government. For instance the training on Eliminating Corporal Punishment and Prevention of Child Sexual Abuse has been taken by more than 10,000 teachers. The teams have ensured that feedback is collected at the end of each of the trainings and these indicate that more than 95% of the teachers have

found the trainings and resources offered on ChalkLit useful to enable better transactions in the classroom. All teachers in the experimental group would recommend the OCBP to be given to their other fellow teachers.

Subsequently, Delhi SCERT initiated an in depth research study of the impact of OCBP through classroom observations and teacher interviews with an objective to collect exhaustive data, analyze the same to validate the efficacy, and identify any recommendations to enable the scale up of the program. This report describes the approach and methodology adopted to conduct the research undertaken to measure the effectiveness of the Online Capacity Building. It also enlists the findings and the resulting recommendations.

3. Objectives:

The following were the key objectives of the study:

- a) To evaluate the effectiveness of the OCBP program with respect to its impact on
 - Teacher pedagogy
 - Teacher efficiency
 - Teacher empowerment
 - Student engagement
- b) To identify measures to improve effectiveness of OCBPs in Delhi
- c) To make recommendations to enable scale up the program

4. Hypotheses:

5. Research Design:

- **Research method(s):** Experimental Research Design
- **Population, Sample and Sampling technique:** sample comprised of 151 classrooms/teachers from 52 schools from all districts under Directorate of Education, Delhi. The control group was purposive and comprise of 66 teachers who had not done any OCBP training and the experimental group was representative and randomly selected from each district comprising of 85 teachers who had done OCBP trainings.
- **Tools and techniques:** During the study, classroom observations of two sets of teachers were done. One, who have not undergone the OCBP and another who have undergone training under the OCBP programme. The study was conducted on two sets of participants. Control Group comprised of classroom observations of the teachers who have not done any OCBP training Experimental Group comprised of classroom observations of teachers who underwent OCBP training.

6. Research findings:

- The teachers who have undergone OCBP focus on connecting the topic with the existing knowledge of the students by recalling the previously taught topics and then building the class from there. The other teachers on the other hand were more likely to not connect the class with the earlier topics being taught and hence the students are more likely to feel disconnected to the topic being taught.
- The teachers who underwent the OCBP training are more likely to connect the topic with real life examples that the students can connect with. The real life examples make a topic such as

Math more relatable for the students. The students in the classes of these teachers also were more likely to share how the topics connected to their lives and where do they see the application of the concept. This helps a student to be more interested in the topics being taught and be more curious about the various applications of the topic in hand. Students in the other classes on the other hand, were likely to be taught without any use of real life connect of the topic in hand and thus the students also seemed more likely to integrate the topic in their own lives.

- The use of TLMs was also significantly more in classes with OCBP intervention and thus the students who have different learning styles can connect to the teachers using multiple modes. TLMs turns the focus of the students from listening and following to seeing and trying. This shift hence can have major implications in the long term understanding of the topics.

- Teachers who underwent OCBP intervention were also more likely to predict misconceptions that the students can have in the topic being dealt. The teachers were seen asking different questions, repeating important concepts and doing frequent checks for understanding to ensure that the knowledge and skills are getting transferred properly to the students. Students in the classes of other teachers, were not given opportunities by the teacher to focus on key areas that the students are more likely to understand correctly. These gaps which develops in students grows wider as they move up the grades and deal with complex applications of the simple concepts they learnt in the earlier grades.

- It was also noted that the teachers who did not receive the OCBP intervention were more dependent on the textbooks while teaching in class and thus were unable to bring in contextual inputs that might improve the understanding of the students. Teachers who had undergone OCBP on the other hand were more likely to include understanding of the context and thus provide the content in a more compatible manner.

- Teacher preparedness can be a big problem in classes. It was found that less than half of the teachers in non intervention classes came to the class with a lesson plan. They were also more likely to teach without following any clear plan for the class. This leads to lack of focus on the objective being covered, lack of differentiation for students with diverse needs, lack of confidence to address student queries, and finally, lack of quality assessments to evaluate the success of a particular class. The teachers who underwent OCBP were more likely to prepare a lesson plan for the class. Their teaching approach was also based on a clear plan where the objectives were defined more clearly and better assessments were provided to the students.
- It was also noted that the teachers who took the OCBP intervention focussed on building the concepts of the students that the students can apply in different settings as well and thus preventing rote learning in the topics. The teachers in the other class presented the material in hard defined steps that the students were asked to follow without understanding the nuances of the concepts. Thus the students in such classes are more likely to make mistakes in questions where the same concept is to be applied in a different manner.
- The intervened teachers were also able to finish the entire lesson within designated time interval. This not only helps them save time and finish the entire syllabus on time and focus on revision at the right time, but it also helped the students to be focussed throughout and have more excitement in the class. The teachers in the other classes on the other hand were more likely to not complete a lesson within the right time and thus either the teachers had to leave the class without a proper assignment or they had to use the next class to finish the previous class and thus adding pressure on themselves to finish the syllabus.

7. Educational implications:

The OCBP intervention had a great impact on the pedagogy of the teachers in multiple categories. The intervention can be linked directly with the teacher's approach while introduction to the topic was based on the recall of the previous knowledge. This ensures that the students connect their existing knowledge to the new topic being taught in the class. Further the OCBP intervention led teachers to connect the knowledge to real life implementations. The students also were given opportunities to come up with their own examples, making the learning experience personal to them. The OCBP interventions exposed teachers to more ideas of using the TLMs and thus the teachers used them to clarify the concepts of the students. The study shows that the OCBP intervention resulted in the intervened teachers to become significantly more likely than other teachers to come prepared to class with a lesson plan. Coming to the class prepared ensures that a) the teachers is focused on the learning objectives to be taught b) the objectives are taught within the allocated time c) all students get deserved focus in the class d) there is scope of differentiation in the class based on the needs of the students. The study shows that the OCBP intervention resulted in the intervened teachers to become significantly more likely than other teachers to come prepared to class with a lesson plan. Coming to the class prepared ensures that a) the teachers is focused on the learning objectives to be taught b) the objectives are taught within the allocated time c) all students get deserved focus in the class d) there is scope of differentiation in the class based on the needs of the students.

8. Scope of the study:

The research shows a clear positive correlation between the teaching variables that were measured in the study and the completion of OCBP trainings by teachers. Based on the analysis of the observations made, the SCERT feels that the program should be further scaled for both academic and extra academic topics. Following are some recommendations:

- Other initiatives running in the state that have proven their effectiveness at a smaller scale should also be encouraged to bring their interventions online and develop their own OCBP trainings.
- Currently, about 6000 Delhi Math TGTs have undergone training in 4 topics. These teachers should be further exposed to other topics such as Geometry, Trigonometry, Algebra, Equations, and Inequalities etc
- The teachers in other subjects such as Social Science and Science can benefit greatly from the OCBP training as the training will help them to connect with ways to teach real life examples that makes the topic contextual for the learners.
- considering the pressure on teachers to finish their syllabus on time, the OCBPs can also support the teachers to support teachers with effective classroom and lesson planning to cover all topics on time.
- The results of the study also shows that the teachers who are given regular support via OCBPs on Chalk Lit are more likely to involve students while teaching and treat them as partners in the learning process. This approach can be useful for all the teachers considering the state's initiative to eliminate Corporal Punishment in classrooms and making it a more conducive environment for learning.
- The up skilling of teachers and school leaders in areas such as leadership, assessment development, differentiated learning in classroom etc can be provided to all the SCERT teachers in Delhi via OCBPs on ChalkLit.
- Early Childhood Education is one of the most critical areas in which the teachers need a lot of support. In the primary and pre primary classes the learning gaps of the students can be

addressed and remedial efforts can be introduced to minimize these gaps. Thus, all the teachers in the preprimary levels in Delhi should be trained on these topics using OCBP.