An Innovative 'C minus 4' Model for School Students

Project Closure Report

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TABLE OF CONTENTS

THE EXECUTIVE SUMMARY

Teaching enhances the ability to learn and gain knowledge. This study shows that specific training to use interpersonal skills while teaching makes the process more effective and builds confidence. Peer learning is generally used as one of the activities in schools to encourage socio-emotional wellbeing of students. However, using this method in a cross-age classroom within the pedagogical frame work, is a differential approach that develops the personality of the student-teacher. There are many studies that substantiate the positive effects of peer learning, and cross age teaching. In this model, middle & high school student teachers are given specific training on personality development skills that they can use to teach academic subjects to junior students in a classroom setting. Such opportunities for school students to be professionally trained to teach younger peers, can be intellectually rewarding, motivate them to dream and bring positive impact on their overall development. Also, with the current emphasis on 'employability' in graduating students, the professional world is looking for interpersonal skills and leadership qualities in the candidates. Key factors like poor teacher-student ratio, and educational institutions with inadequate infrastructure lead to lack of stimulating learning experiences for the students. Coming from economically poor background and being first-generation learners, socio-economic factors also contribute to the plight of the unemployable graduates. 'C' students benefiting from the model can bridge this gap between qualification and employability.

This project introduces the unique 'C minus 4' model where, middle school as well as high school students (grade C) are mentored and given specific training to teach students four years younger (minus 4) than themselves. This study was implemented in (33) government run middle & high schools (11) from Tamil Nadu and (22) from West Bengal. A total of 66 students from IITM and 109 students from IITKGP were given the necessary training through a four-day workshop on non-cognitive and cognitive aspects of teaching. Following this training, the student-teachers were mentored on a regular basis. 'C' students were engaged in teaching junior students in their respective schools. Results, observation and analysis indicate that, besides self-confidence, the participants also developed skills like organization, planning and communication.

1. PROJECT OUTLINE

1.1. Project Background Overview

The primary objective of the 'C minus 4' model is to provide training to middle school & high school students to equip them to teach and thereby develop the necessary skills to become knowledgeable and confident individuals. Most of the existing literature, student-teacher models, teacher-training models, studies and analysis, focus on training adults who are already teachers or are aspiring to become one. Whereas, studies on training middle school students in skill development in the context of education are very few.

1.2. Hypothesis:

The hypothesis of the model states <u>if trained and mentored</u>, a student studying in grade or standard 'C' can successfully <u>teach</u> a class of students <u>four years younger</u> to him/her, i.e. standard 'C – 4'.

For example, a student (C) of class VIII, if trained and mentored from time to time, can teach class IV students (C-4) successfully.

1.3. **Methodology:**

An Awareness workshop was conducted at the IIT to make school authorities and the beneficiaries aware of the model concept. Following which selected student-teachers ('C' students) were brought to the IIT campus. They were trained in personality development skills and teaching skills by professionals. These students went back to teach younger students in their schools. The mentor teachers who helped the students in this process of teaching were also present during the workshops. The project staff mentored the 'C' students and monitored the implementation. Evaluation and surveys were conducted to assess the success of the project. A visual representation of this methodology is presented in the flow chart below (ref: Fig 1)
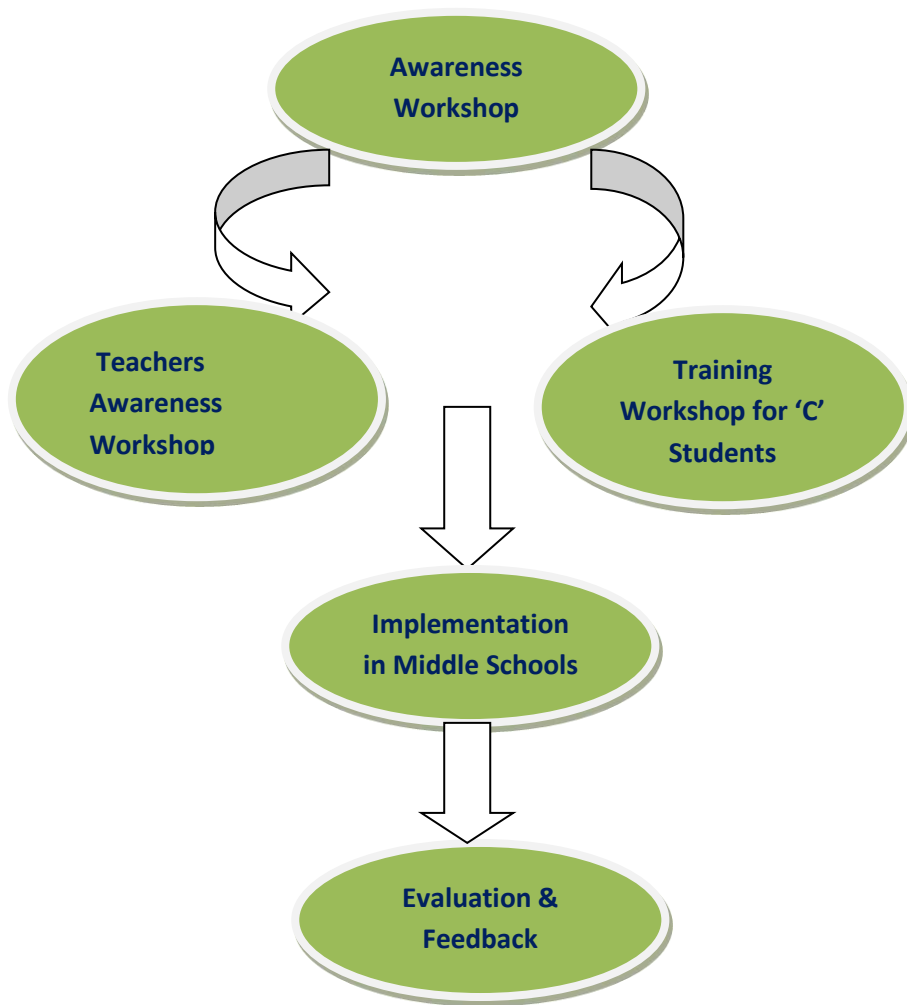
Fig 1: Model Implementation Methodology Flowchart

Implementation in Tamil Nadu

A Detailed Report

From

IIT Madras

The Team

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Diwakar R

1.4. Implementation in Tamil Nadu

The model was implemented in 11 schools from the following 3 districts in Tamilnadu. Please refer to Fig.2.
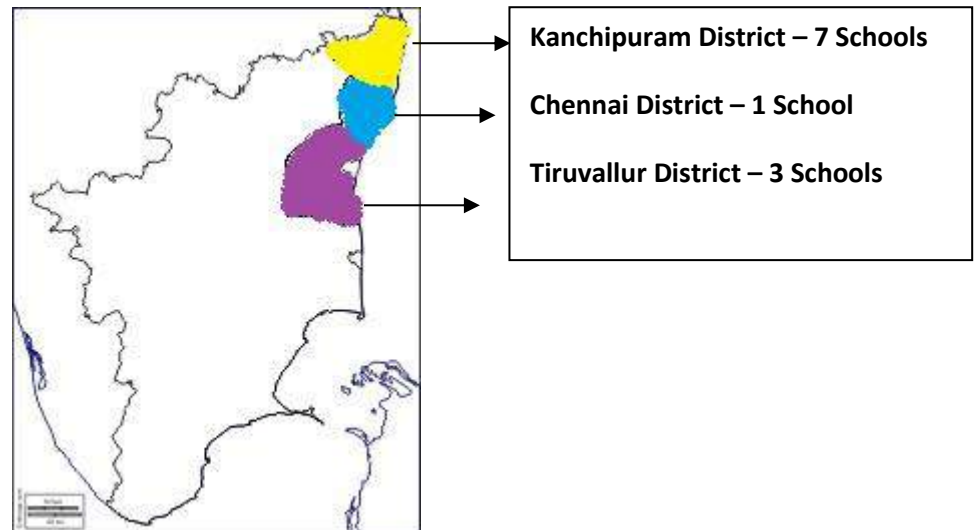

Kanchipuram District – 7 Schools

Chennai District – 1 School

Tiruvallur District – 3 Schools

Fig 2: The districts in TN where the project is implemented

1.4.1 Teachers Awareness Workshop

Participants: A total of about 150 participants comprising of teachers, principals, district education officers and the research team, participated in this 2-day workshop (refer flowchart Fig. 1).

The purpose of this workshop was to bring awareness among the participating schools about the concept of the model, the aim of the study and the process of implementation. It was expected that the participating teachers would reach out to other teachers, students and parents in their schools to discuss their interest in taking part in the study and the possibility of immediate implementation of this model. The schools which participated in this workshop were recommended by the *State Council of Educational Research and Training* (*SCERT*), Tamil Nadu, India.

1.4.2. Training Workshop for 'C' Students

Participants: A total of 11 schools from the attendees of the 'Teachers Awareness Workshop', participated in the study. Six (6) students from each of the 11 participating schools were selected based on guidelines discussed during the workshop. Mentor teachers from these 11 schools who would closely monitor and guide the 'C' students were also present. Professional trainers and teacher trainers trained the 'C' students and provided the necessary guidance during this 4-day workshop.

The objective of this workshop was to train the 'C' students with the essential techniques and skills necessary for effective class room teaching. This two-part training on cognitive and non-cognitive aspects of teaching was split between the four days of the workshop. While the first two days focused on the non-cognitive skills, the following two days focused on the cognitive aspects. The details of the two parts are as follows.

Non-Cognitive (Workshop: Day 1-Day 2)

Non-Cognitive or "soft skills" are related to motivation, and interpersonal interaction associated with an individual's personality and attitudes. With the objective to motivate the 'C' students; remove fear of public speaking; create enthusiasm and interest in teaching; the 'C' students were given soft skills training on the following (examples) key components.

   i.   Critical thinking & Problem Solving
   ii. Goal-Setting & Time Management
   iii. Self-Awareness & Communication (verbal, non-verbal, listening, presentation)

Cognitive (Workshop: Day 3-Day 4)

Cognitive skills include the ability to learn, to process, to apply knowledge, to analyze and reason, and to evaluate and make decisions. Primarily associated with the knowledge area, this part of the workshop focused on training the 'C' students to use the following (example) cognitive skills for teaching.

   i.   Learning from different sources
   ii. Making lesson plans
   iii. Teaching methods (models, preparing charts, activities, etc.)
   iv. Answering and handling questions

1.4.3 Implementation in Schools

Implementation of the 'C minus 4' model primarily refers to the act of 'C' students teaching the 'C minus 4' students, under the guidance of the mentor teachers, using the skills they were

trained in during the training workshop. The project staff visited the schools regularly to mentor the student teachers and monitor the implementation of the model. The following were the four preliminary guidelines that facilitated the implementation.

Class allotment: Each 'C' student was allotted at least two teaching periods per week and approximately up to 10 periods per month.

Missed classes: The 'C' students used the following methods (suitable to their school) to catch up on the missed lessons from their own classes while they went to teach the 'C minus 4' students.

i)   Reach out to class teachers after school hours or during free periods
ii)   Watch a recorded video of the missed lessons and self-learn; and if necessary clarify with class teacher
iii) Use time during extra-curricular activities if possible.

Class Duration: Typically, regular teachers taught a class for 90 minutes per period. Out of which 'C' students used 30mins to teach the class. The mentor teachers consulted the 'C' students to decide which part of the 90 minutes period would be taught by the 'C' students.

Distribution of Curriculum: Curriculum was distributed in consultation with the mentor teachers as well as the 'C minus 4' teachers. The 'C' students started off with teaching topics that were already covered by the teachers of 'C minus 4' classes and gradually taught newer topics that were not already taught to the 'C minus 4' students.

Documentation: An informal log was maintained by the mentor teachers stating the date, class allotment, topic, duration, lesson plan, activities etc. Feedback from 'C' students after the teaching period and the suggestions given by the mentor teachers were also recorded in this log and taken to consideration during further scheduling.

2.1. Results from IITM

2.1.1. Project Metrics

The questionnaire method was used to get feedback from the participants. The questionnaire was designed to elicit feedback in the same format as the training given during the 'Training Workshop' i.e. Cognitive Skills and Non-Cognitive Skills.
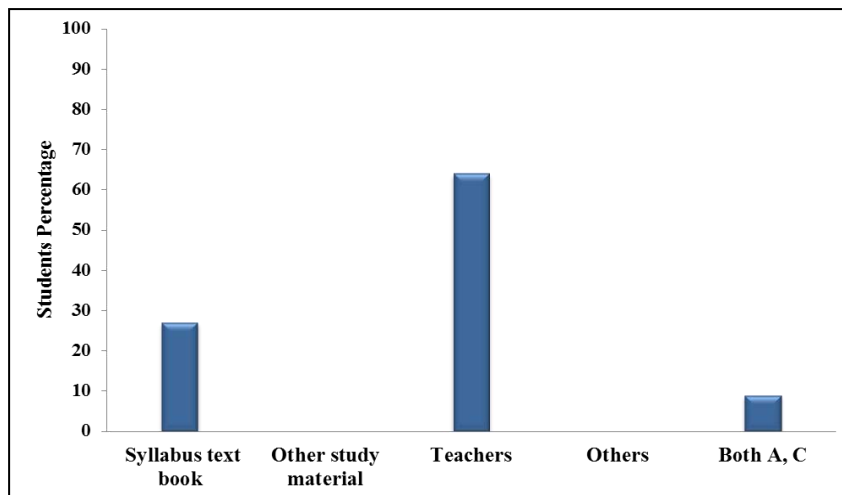
Cognitive Skills

Fig 1a: 'I learnt the subject from'

The objective of the set of first three questions was to assess the subject matter expertise.

To assess the current level and academic knowledge gained by the 'C' students during this process, their method of learning, preparation and delivery were analysed.

Question 1A *"I learnt from"* aims to identify the different methods used by the 'C' students to learn what is to be taught. As indicated in Fig 1a), while majority of the students seem to have learnt from their teachers, 27% of them have built on existing knowledge through self-learning using the prescribed text books. About 9% have chosen to learn from both their teachers as well as from the text books. This perhaps indicates that while the 'C' students are capable of self-study, they also clarified with teachers when necessary.

Besides learning from the text book and taking help from teachers, the fact that none of the 'C' students used any 'other resources' to learn the subject matter, perhaps indicates that they had sufficient knowledge to teach the subject, but gain and strengthening of knowledge during this process of learning remains to be determined.

Question 1B *"I prepared the lesson plan"* aims to measure utilization of knowledge in preparing the lesson plan for classroom teaching. This also helps in assessing the ability of 'C'

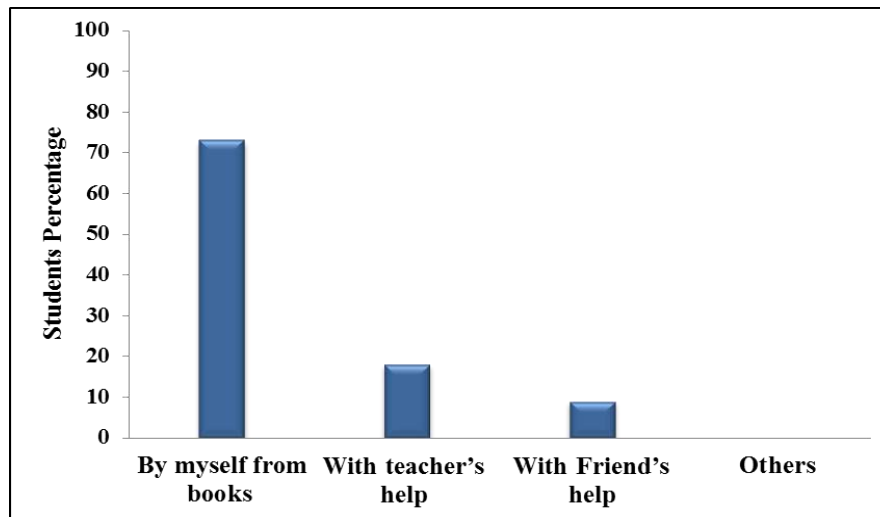students   to

Fig 1b: 'I prepared the module and lesson plan from'

breakdown the concepts with an understanding of the learners' need and style of learning. Majority of the students have prepared the lesson plan by themselves as indicated in Fig**.** 1b**.** Only 18% needed guidance from teachers and 9% took help from friends to prepare the teaching modules. The result brings out that none of the 'C' students needed help from any others to construct the lesson plan. This reinforces the fact that the 'C' students learnt the subject matter sufficiently well.

Question 1C *"I taught mostly through"* aims to understand the methods used by 'C' students for transferring the knowledge acquired during preparation and planning. This measure could also indicate the depth of knowledge. From Fig. 1c) it can be noted that 55% of the student teachers used the lecture method to teach and 36% used different activities to teach. From observations during routine field visits by the researcher and from oral feedback from the mentor teachers, it was noted that, the 36% who used activities, made use of materials, objects and charts to explain concepts. The remaining 9% used other modes such as, PPT, models and interactive theatrical methods to teach.

Clearly, despite the inadequate infrastructure and non-availability of material resources, the results show that they were still capable of being explorative and creative. Whether they will do better if such facilities are provided can be understood if a comparative study is carried out in urban schools where the infrastructure and resources are available. Also, besides this survey based study, a quantitative mechanism to evaluate the knowledge gained by the 'C' students will be valuable.

Non-Cognitive Skills
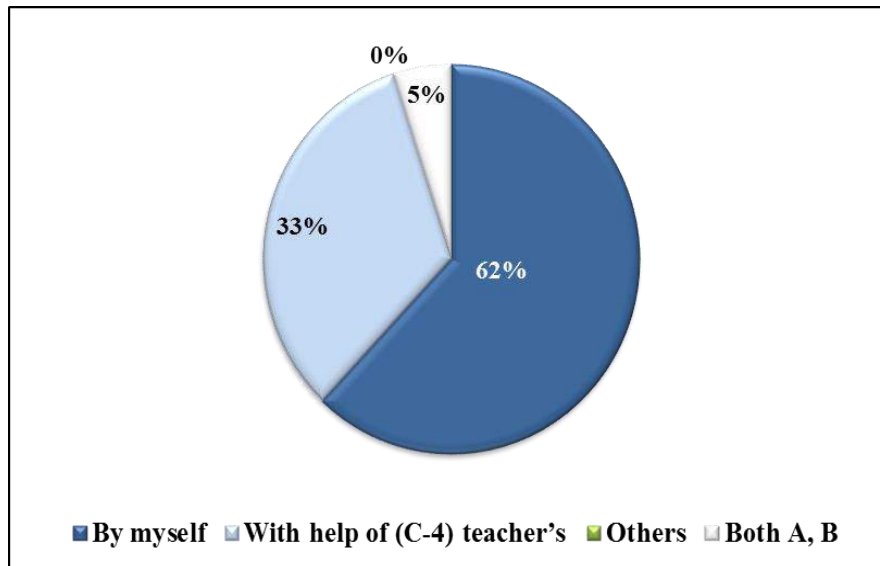
Fig 2A) 'I could control the classes'

The 'C' students were given prior training to effectively use some of the main components of soft skills, such as communication, problem solving, critical thinking, listening, time management, organisation, eye contact and body language which help in teaching. The second set of three questions aims to evaluate whether the 'C' students could apply these skills while teaching.
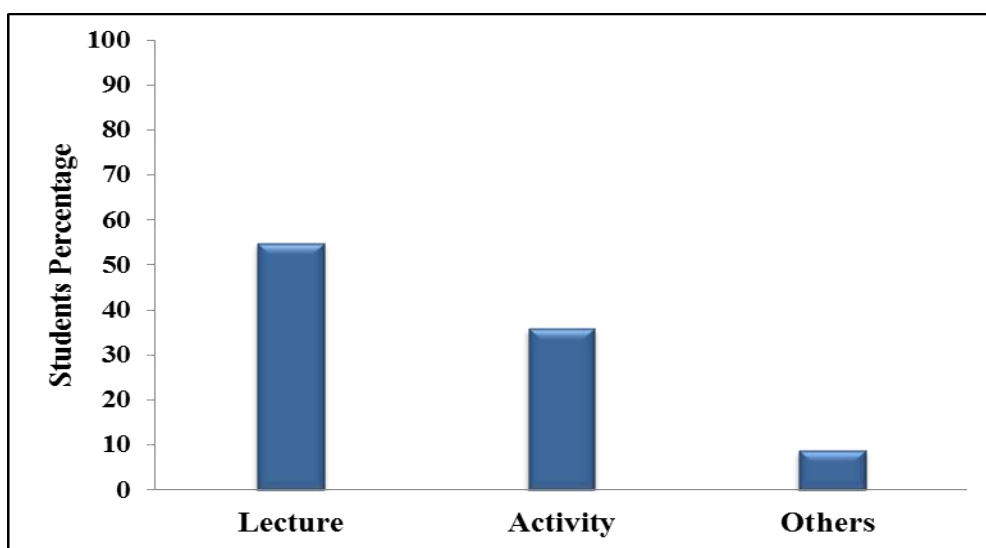
Fig 1c: 'I taught mostly through'
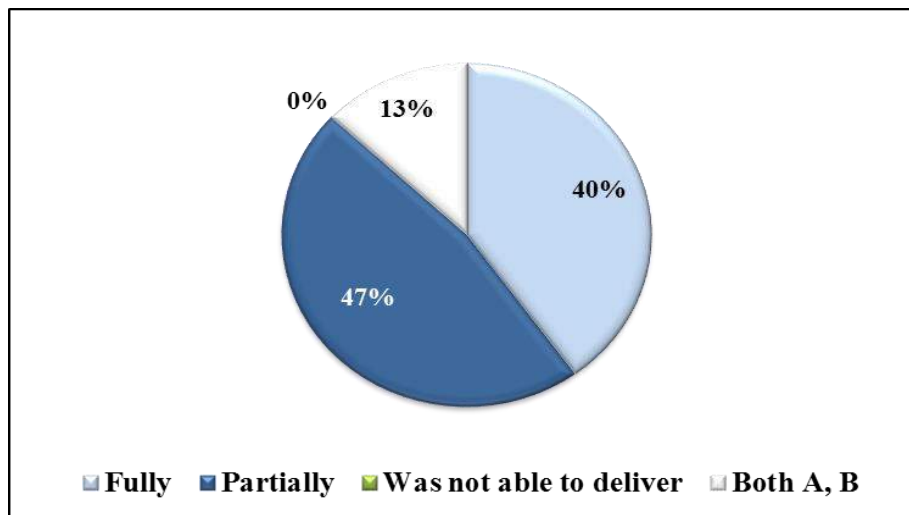
Fig 2B) 'I could deliver the lesson plan'

Question 2A *"I could control the class"* aims to understand the comfort level of the C students in playing the role of a teacher. Fig 2a) shows that majority of the students could engage the class independently. While 33% of the students took help from the mentor teachers, 5% of them sought help when needed. The data shows that, most of the 'C' students had complete control of the class at all times. The observation that 33% of the 'C' students sometimes took help from the teacher seems reasonable because, even the most experienced adult teachers find controlling a class challenging from time to time. It is noteworthy that many of them could engage the class effectively without help from any one.

Question 2B *"I could deliver the lesson plan"* aims to understand the ability to deliver in the class. Fig 2b) shows that 40% of the students delivered their lesson plan fully. It is noted that 13% could deliver sometimes partially. While 47% of the students delivered only partially, there were no students who could not deliver the lesson plan as indicated by the data. Being able to complete a planned task and deliver successfully using effective interpersonal skills, reflects knowledge, sufficient preparation and confidence in self. Not being able to deliver a lesson plan fully could be due to variety of reasons not particularly related to the ability to deliver.

Question 2C *"I could answer questions"* aims to determine the effective use of knowledge and interpersonal skills. Fig 2c) shows that 55% of the students could always answer questions while teaching and 47% could answer sometimes. It is noteworthy that there were no 'C' students who could not answer questions at any time. Being able to answer questions is a good indicator of both knowledge level as well as confidence level.
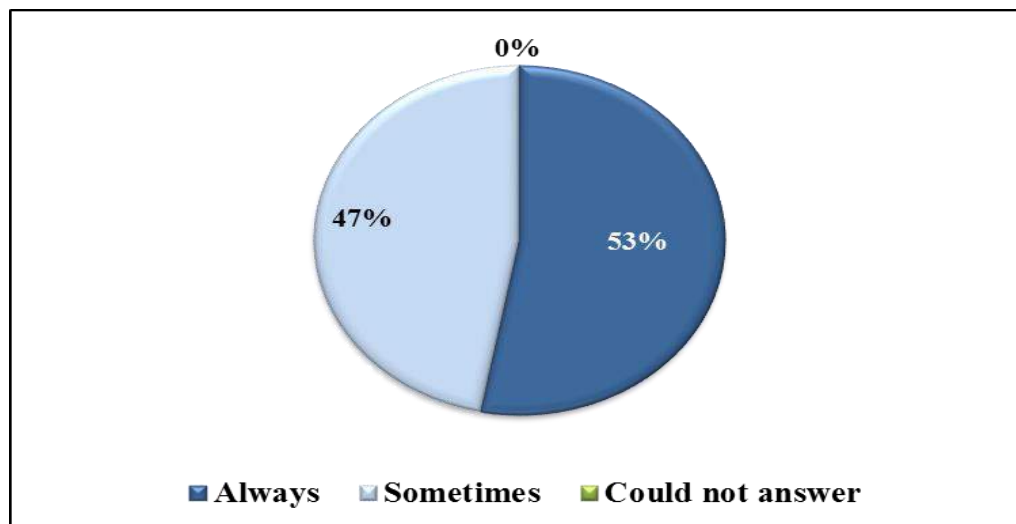
Fig 2C) 'I could answer questions'

Question 3A *"The experience of teaching junior class made me feel"* was to directly measure development at the feeling level. Clearly, more than 54% of the students gained confidence, a significant 37% felt happy and about 7% felt both happy and confident. Only 2% who have chosen 'Other' have not mentioned the specific feeling that transpired from this experience. This refelcts the feelings of joy generated from successful teaching experiences and probably from being seen as special by their peers. It also indicates the positive impact of the experince on the 'C' students.
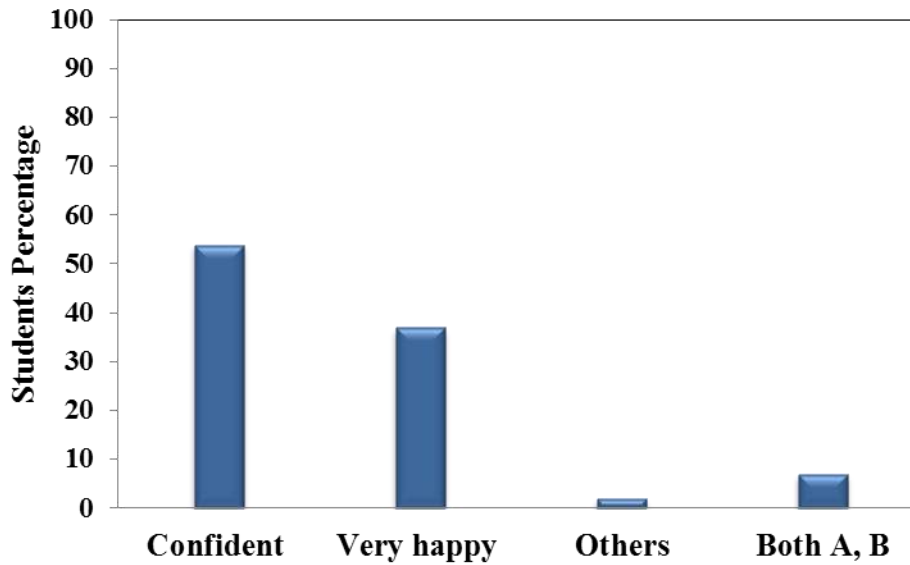
Fig 3A) 'The experiences of teaching junior classes made me feel'

Question 3B "*This teaching experience developed my skills mostly in*" aims to find out what specific skills developed from this teaching experience. Results show that a significant majority of 45% students developed planning & organising skills, while a good 42% developed communication skills. About 3% seem to have developed both. A small percentage have learnt the art of learning and about 5% have developed all three skills. These skills are considered imporant not only in teaching but also in other professions as well. The ability to effectively convey thoughts, feelings and attitude; execute a task with efficient planning and organising improves performance and aids personal growth.
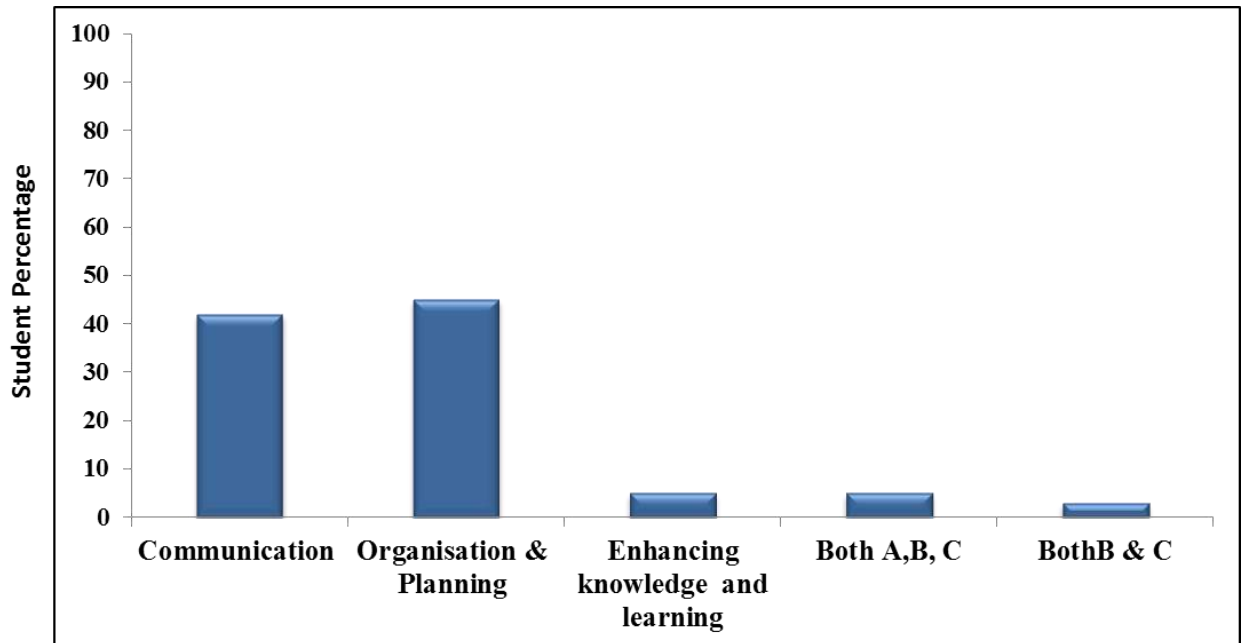
Fig 3B) 'The teaching experience developed my skills mostly in'

Question 3C *"Teaching students of my age will be"* aims to measure the confidence gained by the 'C' students. Though a very small percentage of 'C' students feel teaching peers of the same age will not be possisble, majority (42%) of the students feel comfortable with the idea of teaching same age peers. About 51% feel they can do it if trained. It is important to note that willingness to teach younger students comes with inherent maturity and sense of pride in being older. However, willingness to teach same age peers comes only when the student teacher is both confident and knowledgable.
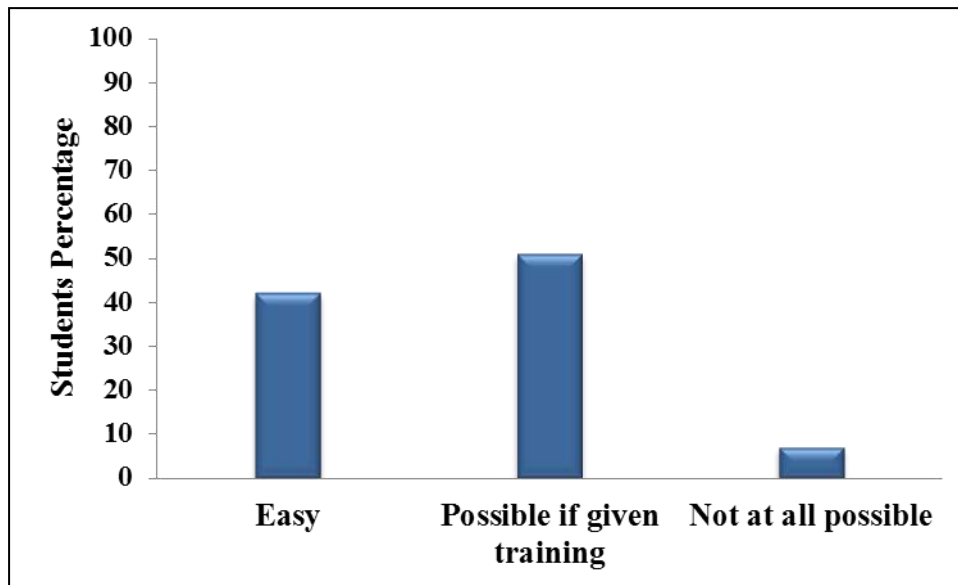
Fig 3C) 'Teaching students of my age will be'

3.0 Outcome Overview

The model had the following impact on the 'C' students

- They exhibited more comfort in public speaking especially after the training
- They gained confidence in self
- Their ability to get organized and plan improved
- Their aptitude and sense of responsibility improved
- Their interest to learn and method of learning improved

4.0 POST PROJECT TASK AT IITM

<table>
<tr><td>1. Workshop to train the 'Mentor Teachers'</td><td>2. Workshop by the trained 'Mentor Teachers' to train 'C' Students</td></tr>
<tr><td>3. Follow-up/field visit & Mentoring</td><td>4. Evaluation & Feedback</td></tr>
</table>

POST PROJECT TASKS

Training for the Mentor Teachers: This is an important step towards making the teachers understand the significance of the 'C minus 4' model as well as the critical need for training the mentor teachers.

Part 1 of the Training Workshop:

1. The model concept, objective, benefits and beneficiaries of the model will be clearly stated for the understanding of the teacher-trainees.

2. The process of implementation, expectation and growth/extension of the implementation will be discussed in detail.

3. This is also the best place to discuss evaluation mechanism. Each school functions based on their own set of rules and policies, therefore, this workshop is a great platform to understand how the implementation can be made effective for each school, its systems and their independent functioning.

4. Theoretical aspects of personality development and the various non-cognitive skills will be taught during this training.

Part 2 of the Training Workshop:

Students and teachers from a set of 10 new schools will be brought in. During the latter part of the workshop, the teacher-trainees will train these students using the newly acquired skills, in the presence of professional trainers. This type of demonstration based hands-on training has multiple benefits.

1. Hands on training while still getting guidance from experts will boost the confidence of the teacher-trainees and give them an opportunity to learn all the aspects of training

2. At least 60 more 'C' students will get trained

3. A network among trained teachers will promote cross-school training programs. This will promote scalability and strengthen positive and constructive relationships between educational institutions.

Training by the Mentor Teachers: The trained 'Mentor Teachers' will go back to their schools and independently organise a training workshop with their students as well as teachers and students from their neighbouring schools.

This training would serve the following purposes.

1)'C' students from every batch each year from their own school will receive training

2) 'C' students from neighbouring schools will receive training

3) Mentor teachers from other schools will get hands on training and demonstration on how to train 'C' students. This will enable them to go back their school and train 'C' students and perhaps train mentor teachers from other schools as well.

Follow up & Field Visit: This is an important step towards effective implementation. Therefore, we will visit the schools during training and implementation to mentor, support, suggest and help establish the structure.

Feedback: A mechanism to evaluate performance will be devised during the training workshop for the mentor teachers. Feedback from 'C' students will be taken using the questionnaire already designed under the 'C minus 4' model. Feedback from mentor teachers regarding their training ability will be devised both in qualitative as well as for quantitative assessment format.

5.0   PROJECT AT A GLANCE

Teachers Awareness Workshop - IITM

Dr. Pijush Ghosh elucidating the concept

Students Training Program

Day 1& 2 – Distinct Activities

Day 3 & 4 - Group Activities

Implementation in West Bengal

A Detailed Report

From

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Darjiling

Jalpaiguri

Koch Bihar

Uttar Dinajpur

Dakshin Dinajpur

Maldah

Murshidabad

Birbhum

Barddhaman | Nadia

Puruliya

Bankura

Hugli

Haora | North 24 Parganas

Kolkata

Medinipur

South 24 Parganas

District of Implementation

I.   Introduction

Education is the most important at a person's disposal. Education empowers a personality and improves it. It trains and nurtures mind. It also guides to focus on different activities. Human beings learn about the world, especially how to tackle the upcoming problems through a sound education system.

Ancient Education System in India was based on making of human beings and not just for their survival. It had three simple processes, viz., Shravana, Manana and Niddhyaasana.

- *Shravana:* Indicates listening to the truths as they fall from the lips of the teacher

- *Manana:* Implies that the students need to interpret themselves the meaning of the lessons imparted by the teacher so that they may be assimilated fully

- *Nidhyasana:* Means complete comprehension of the truth that is taught so that the students may live with the truth and not merely explain it by word

The education system has been changing with the development of nations and progress of the civilization. The 21st century classroom has many characteristics associated which distinguish it from the classrooms of the past centuries. The top 10 characteristics of a 21st century classroom are:

- Student-centric approach
- Computing devices
- Activity based learning
- Adaptive learning
- Invitational environment
- Mutual respect
- Performance-based assessment
- Collaborative learning
- Emphasis on development of skills
- Promotion of education-community relations

Learning through collaboration is one of the most effective forms of modern learning. Teaching and learning in isolation are very restrictive and hinder progress. Learning in groups enhances the scope of learning and develops critical thinking. Collaborative learning activities include collaborative writing, group projects, joint problem solving, debates and more. It has redefined traditional student-teacher relationships in the classroom. Collaborative learning based on student participation is expected to be very effective. The objectives of students' participation in education can be enumerated in the following way:

- To understand and communicate various forms of argument effectively in different contexts
- To develop the ability for analyzing controversies, select and evaluate evidences, construct and refute arguments

Today, teaching-learning process focuses on learning of theories that seek to explain the process of skillfully facing the queries of students. It also helps in clarifying one's personal and social values through confrontation with the value judgments of others. Further, it encourages participating effectively in situations where decisions must be made. This means that promoting school and community relations through participation in intellectual activities is very important. It is also necessary to arrange meetings and interacting with students from other schools for socio-cultural and intellectual exchanges to realize simultaneous opportunities through leadership and group participation.

Thus, the overall objective of education today is to develop knowledge, skills and characters of the students. Since independence, a number of attempts have been made in India in this regard. The much publicized *Sarva Shiksha Abhiyan* has taken up the work of spreading education to each corner of our nation. This flagship mission is headed by the Prime Minister of the country. The programme initially aimed to provide eight years of quality elementary education for all children up to the age of 14 years in a mission mode.

II.   Education Infrastructure in Selected Indian States

However, the attention on the quality of education seems to have been low. It is just not enough to set up schools in every corner and to have less number of teachers to teach. It is not encouraging to see children going to school, but not learning up to the expectation. In addition, the classes held in the schools should be interesting and innovation for motivating the students to do well in their studies. Lack of sufficient number of teachers and innovative teaching practices can cause constraints in our schooling system. There may be lack of motivation on the part of the students as well as the teachers resulting in lack of efforts required. The situation is worse in rural areas where people do not have even sufficient number of teachers to teach. Table 1 shows data pertaining to teacher-student ratio in selected Indian states reflecting the gaps.

Table 1: Teacher-Student Ratio in Selected Indian States, 2011-12

State	Intermediate	High Schools	Upper Primary	Primary
Bihar	45	71	47	82
Goa	21	20	30	25
Gujarat	33	45	36	NA
Haryana	29	26	38	51
Maharashtra	40	32	31	29
Mizoram	15	9	9	14
Sikkim	17	15	10	7
Uttarakhand	21	16	28	23
West Bengal	53	113	255	30
Chandigarh	38	NA	30	31
Delhi	33	35	30	42
All India	33	32	34	41

Source: www.data.gov.in

The student-teacher ratio is very high in the many of the states, especially those with high population like West Bengal. While enrollment in Primary school (in the age group of 6-14 years) is over 96 percent in rural India (ASER Report, 2012), the dropout rates are also persistently high. Thus, even though access to education has increased over the years, the question remains whether such access and school attendance can equate quality of learning. Table 2 shows the dropout ratio of students in different age groups across major India states.

Table 2: Dropout Ratio of Students in Different Age Groups:

States / Union Territories	All Categories - Classes I-V	All Categories - Classes I-VIII	All Categories - Classes I-X
Arunachal Pradesh	30.9	50.0	61.4
Bihar	34.8	55.5	71.3
Gujarat	27.1	46.7	54.1
Himachal Pradesh	3.7	1.6	7.1
Karnataka	4.3	13.4	37.3
Maharashtra	9.5	26.5	37.3
Manipur	44.8	53.7	71.1
Rajasthan	43.3	56.7	61.7
Sikkim	9.1	48.8	57.4
Delhi	NA	NA	NA
Lakshadweep	13	16.2	6.3
All India	22.3	40.8	50.3

 Source: www.data.gov.in

In many regions of India, there are evidences of lack in even basic arithmetic skills. Outdated curricula, inadequate training of teachers and poor infrastructure seem to be responsible for such evidences. Even an appropriate language of instruction can be unattainable; in some areas, it is difficult to find trained teachers who can teach in either English (which is emerging as the most preferred medium of instruction across the country) or other officially recognized languages. Thus, the learning levels of students in India are low in spite of the rising number of schools and literacy rates (Table 3). It is suggested that the learning system need to be changed from a more monotonous and less interactive system to a system of education with greater involvement, interactions and participation.

Table 3: Learning Level Students in Different Standards

Std	Of those who can read words, % children who can tell meanings of the words	Of those who can read sentences, % children who can tell meanings of the sentences
I	62.1	43.1
II	59.4	46.9
III	60.1	57.3
IV	60.9	59.5
V	60.9	62.2
VI	60.5	64.8
VII	60.7	66.3
VIII	59.4	68.2
Total	60.5	63.2

Source: www.data.gov.in

III.   About the Project

Given the dismal scenario of overall education in general and rural education in particular, steps have to be taken to improve the quality of learning. The government can design schemes or increase the budgetary outlay for spreading education and enhance its level across the country, but the changes have to come from within the system. There are lots of talented students in the rural areas and they have tremendous potential to contribute. However, many a time these talents and their potentials are not utilized properly largely due to lack of necessary exposures and suitable platforms. The students, especially from rural areas desperately need exposures, enhance ability to communicate and confidence growing. The literatures suggest for enhancing participation of students in teaching-learning process. The same may be achieved with formal or informal mechanisms for student participation in teaching and self-learning. In this perspective, the present research emphasizes on experimenting the C-4 model for the high school students. This model focuses on training the school students to take up a teacher's role for junior classes. This framework is named as (C – 4) model, read as "C minus 4" model.

Objective of the Study

The basic objective of the study is to experiment and examine the suitability of C-4 model in selected high schools situated in West Midnapore district of the Indian state of West Bengal.

Research Methodology

The methodology adopted in the present study includes the following:

- Building awareness amongst the school teachers, parents and students through workshops, discussions and individual interactions on pros and consequences of the proposed model
- Involving different stakeholders including the administrative boding while implementing the proposed model and examining its impacts.
- Selecting the C level students in consultation of school authorities, parents and other stakeholders

- Imparting of training to the C level students by experts
- Involving the C level students in teaching junior students in respective schools
- Testing the efficacy of the model through parametric and psychological methods
- Modification of the model on the basis of feedback from various stakeholders including the students

Table 4: Literacy Status in the Study Area

Block	Type	Total Population	Literates Population	Literacy Rates
Kharagpur-I	Total	258040	176744	68.49
Kharagpur-I	Rural	165961	108200	65.20
Kharagpur-I	Urban	92079	68544	74.44
Kharagpur-II	Total	183440	122415	66.73
Kharagpur-II	Rural	183440	122415	66.73
Midnapore	Total	191705	116837	60.95
Midnapore	Urban	191705	116837	60.95

Source: Census (2011)

The study area is in the district of West Midnapore with a population of 5.91 million and literacy rate of 79.04 percent. The schools that have been chosen for the study are located in Kharapur-I block, Kharagpur-II block and Midnapore (Sadar) block, which have literacy rate of 68.5 percent, 60.8 percent and 61 percent respectively (Table 4). Hence, the literacy level in the selected blocks is not very encouraging and thus has enough scope to experiment and test the efficacy of the C-4 model. There are a lot of scopes to improve the education levels in these blocks. While West Midnapore is one of the 250 backward districts of the country, the situation is even worse in a large part of the study areas vis-à-vis the average at district level.

Specific Target Segment That Will Benefit

This project is expected to benefit three different groups. The segment that will be benefited the most is the student group of rural segments. The parents of the participating students and the schools are also likely to be benefitted directly or indirectly in the process. This pilot project will help us evaluating the potential of the C-4 model. This will provide us with deeper understanding about the several challenges involved in implementing the model and also major changes or modifications necessary to make this model relevant, feasible and useful for the rural education system.

Critical Questions Involved in the 'C-4' Model

While carrying out the project, the study team has attempted to address the following questions

- Will the school teachers accept this model?
- Can a senior student effectively teach a junior student?

- Will the guardians accept the fact that their kids are being taught by senior students of the same school?
- How should the study materials be distributed among the teachers and the C students?
- What would be the right mechanism to train the C students?
- What should be the selection criteria of C student given different views of different teachers?
- What subjects should be preferred to be taught first under this study?
- To what extent can a teacher cooperate/contribute for implementation of the project?
- To what extent can the students have enthusiasm and motivation for this project?

However, many of the above questions can be answered only if a model is actually implemented and testing of efficacy is carried out.

Steps Followed in the Study

Preliminary Stage
- Seminar for concerned teachers and their views to be documented

Training
- Selecting students and training them in technical and interpersonal skills

Implementation
- The C students will teach as per the chapters assigned by the guides and teachers

Analysis

The feedback data are collected throughout the study period and necessary modifications in the model are done

IV.   Important Observations

The present study emphasized on involvement of various stakeholders at different stages of implementation of the model. In order to under the views of various stakeholders including the experts, a questionnaire based interview was carried out. The present section presents major observations emerged from such interactions.

Views of the Concerned Teachers

The interactions with the teachers were based on the following key questions:

Will it be effective?	Criteria for selection of students?	Which subject to start with?	Extent of teacher's cooperation?	Extent of students enthusiasm?
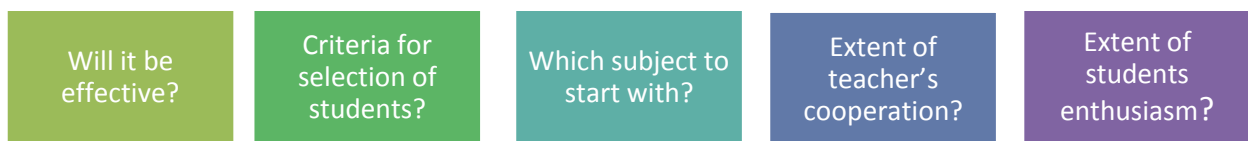
Q1. Will it be effective..?
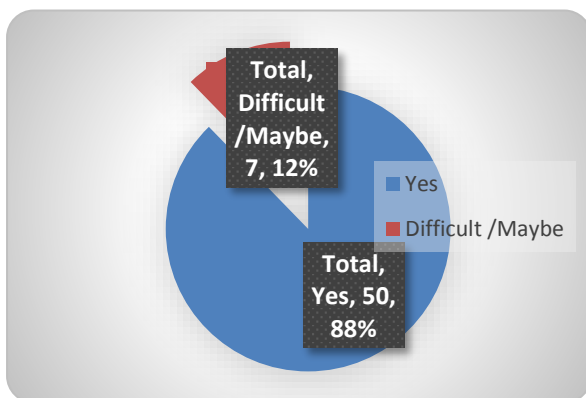
Majority of the teachers are of the opinion that the project can be very helpful in improving the personality and intellect of the C students and in improving learning of the C-4 students. Around 88 percent of the respondents are of the opinion that the model has every potential to be successful. However, the rests feel that the project may face some challenges, such as operational problems, administrative challenges, etc. Nevertheless, they are optimistic about the efficacy of the model provided the mentioned issues are addressed.

Q2. What should be the criteria for selection of C student?

33
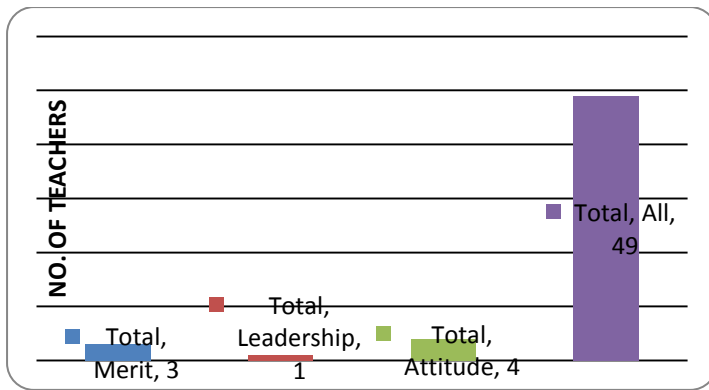
The opinion on this matter is subjective. The above graph shows how different qualities are considered by the teachers to select the C students for the project. The observations are as expected. While there are very few teachers who singularly rate one quality higher than the others, most of the teachers believe that all the qualities should be considered while selecting the students. A combination of merit, leadership and attitude can make someone a great teacher. As many as 49 teachers (i.e. 86 percent of the respondents) believe in weighing all the qualities.

Q3 What should be the useful subjects to start with?

.
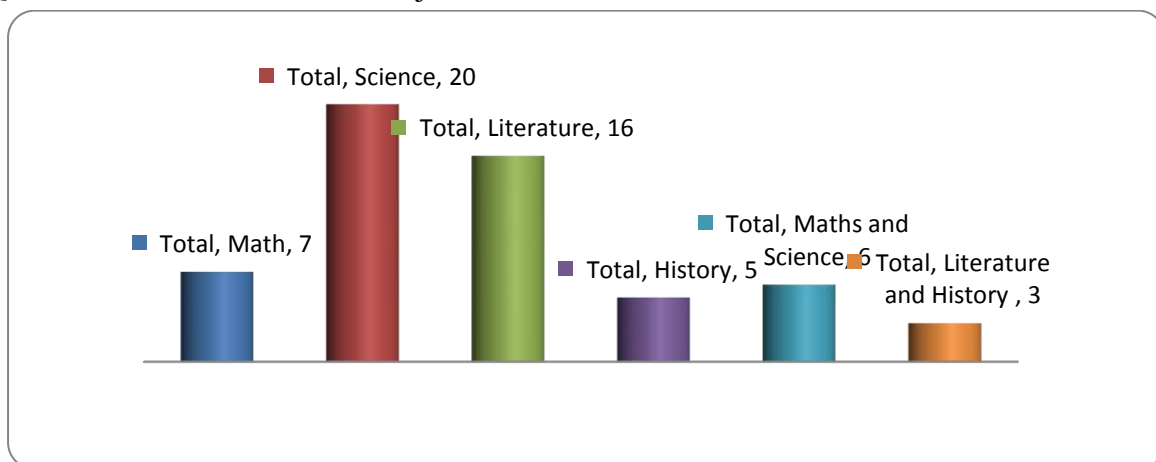
The opinion in this regard varies widely. Teachers form science backgrounds opt for Science and Mathematics, whereas those with Arts background prefer Literature and History. The above graph shows that Science is valued very highly even when compared with Mathematics. Literature is suggested by 16 teachers. While History and Mathematics are backed by a small number of teachers (only 5 and 7 respectively), the combination of subjects such as (Mathematics + Science) get support of only 6 teachers and History and Literature get consent of only 3 teachers. Thus, Science turns out to be the most important subject.

Q4.To what extent can the teachers cooperate?
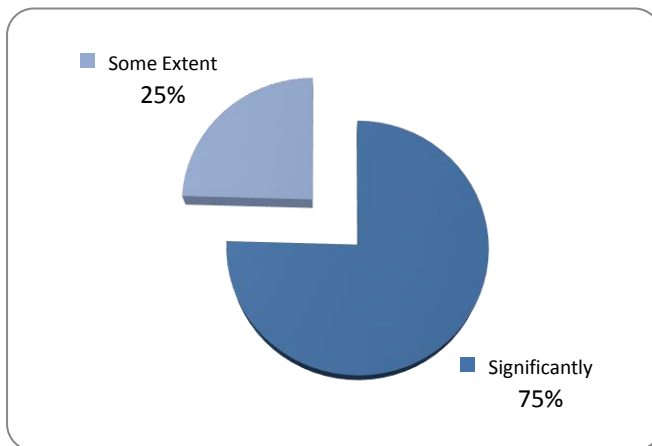
The teachers are very optimistic about the model. As regards their interest in participation and contribution to the project, around 75 percent would like to contribute significantly to the project. This shows the inhibition of the teachers in letting the students to take their place is not that strong. They are in support of this initiative and will be ready to come forward to make this a successful project.

Q5. Will the students come forward and participate?

The responses of the teachers about their own participation and enthusiasm are observed. The following chart presents teachers' perceptions about how the students would be willing to be a part of this project:
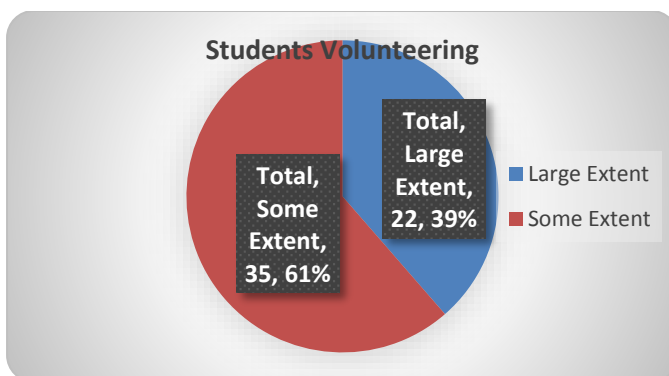
The teachers are of the view that most of the students in the rural areas have the lack of confidence in teaching. This may make them reluctant to come forward at the beginning, but the initiative is likely to be well received. The teachers perceive that around 39 percent of the students will show great enthusiasm in favour of the project, whereas the rest may be interested to some extent.

The views discussed above can have considerable implications for fine tuning the structure, functioning and efficacy of the project.

V. Programmes Organized under the Project

1. Inception Workshop (Training Programme)
- Day-1: 22/04/2016
- Venue: Steel Technology Centre, IIT Kharagpur
- Chief Guest: Dean (CEP), IIT Kharagpur
- Special Guest: Dr. Pijush Ghosh (IIT Madras)
- Resource Persons: Educational Psychology - Dr. R.K. Pradhan
  Role of Educational Technology – Dr. A. Mohanty

Participating Schools:

Sl. No	School Name	No. of Students	No. of Teachers
1.	All Saints Church School, Kharagpur	7	2
2.	Gurguripal High School (H.S.)	5	2
3.	Laudaha V.A.S.T. Vidyapith (H.S.)	5	1
4.	Kharagpur Utkal Vidyapith (H.S.)	6	1
5.	D.A.V. Public School, Midnapore	5	2
6.	Gobindapur Makrampur S.S.S. Niketan	5	1
7.	K.D.P. Lalbahadur Sastri Vidyapith	5	2
8.	Bhadutala Vivekananda High School	6	2
9.	Daharpur A.P.K.B. Vidyabhavan	6	2
10.	Digri Sanaturium High School (H.S.)	5	1
11.	Rohini C.R.D. High School	5	1
12.	Deshapran High School (H.S.)	5	2
13.	Khelar Gajendra High School (H.S.)	5	2
14.	Gopali I.M High School (H.S.)	5	1
15.	Radhamohanpur Vivekananda High School	4	2
16.	Moupal Deshapran Vidyapith (H.S.)	5	2
17.	S. E. Rly. Girl's High School, Kharagpur	4	2
18.	Kamiachak Vidyasagar Vidyabhavan	5	1
19.	Harma Jaminibala Balika Vidyamandir	5	2
20.	Kharagpur South Side High School (H.S.)	4	1
21.	Khandibandh Kokilmoni High School (H.S.)	5	1
22.	Gobardhanpur P.N. Vidhayatan	4	1

Attendance: Students – 99; Mentor Teachers – 26; Parents – 06; Research Scholar -03
Total – 134

Inception Workshop (Training Programme)
- Day-II: 23/04/2016
- Venue: Steel Technology Centre, IIT Kharagpur
- Resource Persons: Educational Psychology - Dr. R.K. Pradhan
  Teaching Pedagogy – Prof. S. K. Sarkar (NSOU)

Participation School:

Sl. No	School Name	Students No	Teachers No
1.	All Saints Church School, Kharagpur	7	2
2.	Gurguripal High School (H.S.)	5	2
3.	Laudaha V.A.S.T. Vidyapith (H.S.)	5	1
4.	Kharagpur Utkal Vidyapith (H.S.)	6	1
5.	D.A.V. Public School, Midnapore	5	2
6.	Gobindapur Makrampur S.S.S. Niketan	5	1
7.	K.D.P. Lalbahadur Sastri Vidyapith	5	2
8.	Bhadutala Vivekananda High School	6	2
9.	Daharpur A.P.K.B. Vidyabhavan	6	2
10.	Digri Sanaturium High School (H.S.)	5	1
11.	Rohini C.R.D. High School	5	1
12.	Deshapran High School (H.S.)	5	2
13.	Khelar Gajendra High School (H.S.)	5	2
14.	Gopali I.M High School (H.S.)	5	1
15.	Radhamohanpur Vivekananda High School	4	2
16.	Moupal Deshapran Vidyapith (H.S.)	5	2
17.	S. E. Rly. Girl's High School, Kharagpur	4	2
18.	Kamiachak Vidyasagar Vidyabhavan	5	1
19.	Harma Jaminibala Balika Vidyamandir	5	2
20.	Kharagpur South Side High School (H.S.)	4	1
21.	Khandibandh Kokilmoni High School (H.S.)	5	1
22.	Gobardhanpur P.N. Vidhayatan	4	1

Attendance: Students – 99; Mentor Teachers – 26; Parents – 06; Research Scholar -03; Total - 134

2. One Day Student Training Programme

- Date: 23/04/2016
- Venue: Steel Technology Centre, IIT Kharagpur
- Resource Persons: Activities & Awareness - Prof. G. Saha (IIT Kharagpur)
  Teaching Methodology - Prof. S. Matilal (IIT Kharagpur)
  Mathematical Aptitude - Mr. K. Pati (Retired Teacher)

Participation School:

Sl. No.	Name of the School	No of Students
1	All Saints Church School	5
2	Gurguripal High School (H.S.)	5
3	Kharagpur Utkal Vidyapith (H.S.)	6
4	Gobindapur Makrampur S.S.S. Niketan	5
5	K.D.P. Lalbahadur Sastri Vidyapith	5
6	Bhadutala Vivekananda High School	6
7	Digri Sanatorium High School (H.S.)	5
8	Deshapran High School (H.S.)	5
9	Radhamohanpur Vivekananda High School	4
10	Moupal DeshapranVidyapith (H.S.)	5
11	S. E. Rly. Girl's High School,	4
12	Kamiachak Vidyasagar Vidyabhavan	4
13	Kharagpur South Side High School (H.S.)	4
14	Khandibandh Kokilmoni High School (H.S.)	5
15	Gobardhanpur P.N. Vidhayatan	4

Total Attendance: Students – 72; Mentor Teachers –30; Parents – 04; Research Scholar -03; Total - 109

3. One Day Student Training Programme

- Date: 25/02/2017
- Venue: Bhadutala Vivekananada High School (H.S.)
- Resource Persons: Prof. Sachinandan Sau (Retired Professor of V.U.)
                          Dr. Anil Kumar Ghosh (Retired Head Master)

Participating Schools:

Bhadutala Vivekananda High School (H.S.)	05 Students & Mentor Teacher
Moupal Deshapran Vidyapith (H.S.)	05 Students & Mentor Teacher
Gurguripal High School (H.S.)	05 Students & Mentor Teacher
Deshapran High School (H.S.)	05 Students & Mentor Teacher
Khandibandh Kokilmoni High School (H.S.)	05 Students & Mentor Teacher

Total Attendance: Students – 25; Mentor Teachers –05; Total - 30

4. One Day Student Training Programme

- Date: 11/03/2017
- Venue: Moupal
- Deshapran Vidyapith (H.S)
- Resource Persons: Mr. Sibasis Jana (Asstistant Prof. in English, PBTTC)

Participating Schools:

Bhadutala Vivekananda High School (H.S.)	05 Students & Mentor Teacher
Moupal Deshapran Vidyapith (H.S.)	25 Students & Mentor Teacher
Gurguripal High School (H.S.)	05 Students & Mentor Teacher

Deshapran High School (H.S.)   05 Students & Mentor Teacher
Khandibandh Kokilmoni High School (H.S.)   05 Students & Mentor Teacher

Total Attendance: Students – 45; Mentor Teachers –05; Total - 50

5. Third Student Training on Innovative 'C-4' Model for High School Students

- Day-I   08/07/2017
- Venue: Steel Technology Centre [Seminar Hall, IIT Kharagpur]
- Chief Guest: Prof. Rahul Mitra (HOD, Department of Metallurgical and Materials Engineering, IIT Kharagpur)
- Special Guest: Dr. Arunava Praharaj (Sub-Inspector of Schools, Paschim Medinipur)
- Resource Persons: Dr. Bhabesh Pramanik (Principal, Institute of Education, Haldia for English)
Dr. Surapati Pramanik (Assistant Professor, Department of Mathematics, Nandalal Ghosh B T College, North 24 Parganas for Mathematics)

Participating Schools:

Bhadutala Vivekananda High School (H.S)	05 Students & Mentor Teacher
Moupal Deshapran Vidyapith (H.S)	04Students & Mentor Teacher
Gurguripal High School (H.S)	04 Students & Mentor Teacher
Deshapran High School (H.S)	03 Students & Mentor Teacher
Chudanga High School (H.S)	02 Students & Mentor Teacher
Kharagpur Utkak Vidyapith (H.S)	02 Students & Mentor Teacher
Kharagpur South Side High School (H.S)	04 Students & Mentor Teacher
Radhamohanpur Vivekananda High School (H.S)	07 Students & Mentor Teacher

Participating Students No:

Old Batch English Students No:	05 Students
New Batch English Students No:	10 Students
Old Batch Mathematics Students No:	06 Students
New Batch Mathematics Students No:	08 Students
New Batch Science Students No:	01 Student
New Batch Bengali Students No:	01 Student

(For new batch, students of only Class VIII were selected. The old batch comprises students of Class IX & X)

Total Attendance: Students – 31; Mentor Teachers –10; Parents - 02;
Research Scholar - 03; Project Staff – 01; Total - 47

Third Student Training on Innovative 'C-4' Model for High School Students

- Day-II   09/07/2017
- Venue   Steel Technology Centre [Seminar Hall, IIT Kharagpur
- Resource Persons   Dr. Makhanlal Nanda Goswami
                        (Assistant Professor, Midnapore College (Autonomous),
                        Paschim Medinipur for Science)
                        Dr. Bibhaskanti Mandal (Associate Professor, Y. S. Palpara
                        College, Purba Medinipur for Bengali,
                        Dr. Asis Kumar Dandapat (Principal, Hijli College, Paschim
                        Medinipur for Teaching Pedagogy)

Participating Schools:

Bhadutala Vivekananda High School (H.S.)	07 Students & Mentor Teacher
Moupal Deshapran Vidyapith (H.S.)	06Students & Mentor Teacher
Gurguripal High School (H.S.)	05 Students & Mentor Teacher
Deshapran High School (H.S.)	06 Students & Mentor Teacher
Chudanga High School (H.S)	03 Students & Mentor Teacher
Kharagpur Utkak Vidyapith (H.S)	03 Students & Mentor Teacher
Kharagpur South Side High School (H.S)	04 Students & Mentor Teacher
Radhamohanpur Vivekananda High School (H.S)	04 Students & Mentor Teacher

Participating Students No:

Old Batch Science Students No:	09 Students
New Batch Science Students No:	15 Students
Old Batch Bengali Students No:	04 Students
New Batch Bengali Students No:	07 & 01 Oriya Student
New Batch English Students No:	01 Student
New Batch Mathematics Students No:	01 Student

(For new batch, students of only Class VIII were selected. The old batch comprises students of Class IX & X)

Total Attendance: Students – 38; Mentor Teachers –10; Parents-01; Research Scholar - 01; Project Staff – 01; Total - 51

Third Student Training on Innovative 'C-4' Model for High School Students

Day-III	15/07/2017
Venue	Steel Technology Centre [Seminar Hall, IIT Kharagpur]
Resource Person:	Dr. Surapati Pramanik (Assistant Professor, Department of Mathematics, Nandalal Ghosh B T College, North 24 Parganas for Mathematics)
	Dr. Asis Kumar Dandapat (Principal, Hijli College, Paschim Medinipur for Teaching Pedagogy)
	Dr. Sujit Pal [Deputy D.P.I. Training for Creativity and Activity Based Learning]
	Shri Subhra Dey [D.R.E.O (P D) for Learning Skill]

Participating Schools:

Bhadutala Vivekananda High School (H.S)	07 Students & Mentor Teacher
Moupal Deshapran Vidyapith (H.S)	05Students & Mentor Teacher
Gurguripal High School (H.S)	09Students & Mentor Teacher
Deshapran High School (H.S)	06 Students & Mentor Teacher
Chudanga High School (H.S)	05 Students & Mentor Teacher
Kharagpur Utkak Vidyapith (H.S)	05 Students & Mentor Teacher
Kharagpur South Side High School (H.S)	04 Students & Mentor Teacher
Radhamohanpur Vivekananda High School (H.S)	11 Students & Mentor Teacher

Participating Students No:

New Batch Class VIII Students No:	41Students
Old Batch Class IX Students No:	11Students

(For new batch, students of only Class VIII were selected. The old batch comprises students of Class IX & X)

Total Attendance: Students – 52; Mentor Teachers –01 ; Parents-03; Head Master-01; Research Scholar -04; Project Staff-01; Total - 62

Third Student Training on Innovative 'C-4' Model for High School Students: Some Moments

Day-I [08/07/2017]

Day-II [09/07/2017]

Day-III [15/07/2017]

6. Other Student Training Activities

Sl. No.	School	Date	Purpose
1.	Bhadutala Vivekananda High School (H.S.)	29/03/2017	Training
2.	Moupal Deshapran Vidyapith (H.S.)	29/03/2017	Training
3.	Gurguripal High School (H.S.)	30/03/2017	Training
4.	Deshapran High School (H.S.)	31/03/2017	Training
5.	Gurguripal High School (H.S.)	04/04/2017	Training
6.	Deshapran High School (H.S.)	04/04/2017	Training
7.	Bhadutala Vivekananda High School (H.S)	05/04/2017	Training
8.	Moupal Deshapran Vidyapith (H.S.)	06/04/2017	Training
9.	Deshapran High School (H.S.)	08/04/2017	Project Meeting
10.	Moupal Deshapran Vidyapith (H.S.)	08/04/2017	Project Meeting
11.	Bhadutala Vivekananda High School (H.S.)	08/04/2017	Project Meeting
12.	Chuadanga High School (H.S.)	08/04/2017	Project Meeting
13.	Deshapran High School (H.S.)	12/04/2017	Training
14.	Gurguripal High School (H.S.)	12/04/2017	Training
15.	Chudanga High School (H.S.)	02/05/2017	Training
16.	Chudanga High School (H.S.)	04/05/2017	Training
17.	Deshapran High School (H.S.)	04/05/2017	Training
18.	Bhadutala Vivekananda High School (H.S.)	05/05/2017	Training
19.	Moupal Deshapran Vidyapith (H.S.)	05/05/2017	Training
20.	Gurguripal High School (H.S)	15/05/2017	Project Meeting
21.	All Saints Church School (Kharagpur)	15/05/2017	Project Meeting
22.	Bhadutala Vivekananda High School (H.S)	16/05/2017	Training
23.	Moupal Deshapran Vidyapith (H.S)	16/05/2017	Training
24.	Chudanga High School (H.S)	17/05/2017	Training
25.	Deshapran High School (H.S)	17/05/2017	Training
26.	Kharagpur Utkak Vidyapith (H.S)	18/05/2017	Training
27.	Kharagpur South Side High School (H.S)	18/05/2017	Training
28.	S.E .Rly Girls' High School, Kharagpur	19/05/2017	Interaction
29.	Kharagpur South Side High School (H.S)	21/06/2017	Project Meeting
30.	Kharagpur Utkak Vidyapith (H.S)	21/06/2017	Project Meeting
31.	Gurguripal High School (H.S)	22/06/2017	Project Meeting
32.	Moupal Deshapran Vidyapith (H.S)	22/06/2017	Project Meeting
33.	Bhadutala Vivekananda High School (H.S)	22/06/2017	Project Meeting
34.	Kharagpur South Side High School (H.S)	04/07/2017	Interaction
35.	Kharagpur Utkak Vidyapith (H.S)	04/07/2017	Interaction
36.	Gurguripal High School (H.S)	05/07/2017	Interaction
37.	Moupal Deshapran Vidyapith (H.S)	05/07/2017	Interaction
38.	Bhadutala Vivekananda High School (H.S)	05/07/2017	Interaction
39.	Chudanga High School (H.S)	05/07/2017	Interaction
40.	Deshapran High School (H.S)	05/07/2017	Interaction
41.	Radhamohanpur Vivekananda High School	06/07/2017	Interaction
42.	Bhadutala Vivekananda High School (H.S)	27/07/2017	Evaluation
43.	Gurguripal High School (H.S)	29/07/2017	Evaluation
44.	Kharagpur Utkak Vidyapith (H.S)	01/08/2017	Evaluation
45.	Deshapran High School (H.S)	03/08/2017	Training

46.	All Saints Church School (Kharagpur)	04/08/2017	Training
47.	Chudanga High School (H.S)	12/08/2017	Evaluation
48.	Deshapran High School (H.S)	12/08/2017	Training
49.	Kharagpur South Side High School (H.S)	16/08/2017	Training
50.	Bhadutala Vivekananda High School (H.S)	17/08/2017	Project Meeting
51.	Moupal Deshapran Vidyapith (H.S)	17/08/2017	Project Meeting
52.	Chudanga High School (H.S)	22/08/2017	Evaluation
53.	Deshapran High School (H.S)	22/08/2017	Evaluation
54.	All Saints Church School (Kharagpur)	23/08/2017	Evaluation
55.	Radhamohanpur Vivekananda High School	25/08/2017	Evaluation
56.	Gurguripal High School (H.S)	26/08/2017	Evaluation
57.	Kharagpur South Side High School (H.S)	28/08/2017	Evaluation
58.	Kharagpur Utkak Vidyapith (H.S)	28/08/2017	Evaluation
59.	Kharagpur South Side High School (H.S)	30/08/2017	Training
60.	Kharagpur Utkak Vidyapith (H.S)	30/08/2017	Training
61.	Bhadutala Vivekananda High School (H.S)	31/08/2017	Training
62.	Moupal Deshapran Vidyapith (H.S)	31/08/2017	Training
63.	All Saints Church School (Kharagpur)	01/09/2017	Evaluation
64.	Kharagpur Utkak Vidyapith (H.S)	04/09/2017	Training
65.	Kharagpur South Side High School (H.S)	04/09/2017	Training
66.	Chudanga High School (H.S)	05/09/2017	Training
67.	Deshapran High School (H.S)	05/09/2017	Training
68.	Gurguripal High School (H.S)	06/09/2017	Training
69.	Kharagpur Utkak Vidyapith (H.S)	07/09/2017	Training
70.	Chudanga High School (H.S)	08/09/2017	Training
71.	Deshapran High School (H.S)	08/09/2017	Training
72.	Radhamohanpur Vivekananda High School	09/09/2017	Training
73.	Bhadutala Vivekananda High School (H.S)	11/09/2017	Evaluation & Interaction
74.	Moupal Deshapran Vidyapith (H.S)	11/09/2017	Evaluation & Interaction
75.	Gurguripal High School (H.S)	12/09/2017	Evaluation & Interaction
76.	All Saints Church School (Kharagpur)	13/09/2017	Evaluation & Interaction
77.	Chudanga High School (H.S)	14/09/2017	Evaluation & Interaction
78.	Deshapran High School (H.S)	14/09/2017	Evaluation & Interaction
79.	Kharagpur Utkak Vidyapith (H.S)	15/09/2017	Evaluation & Interaction
80.	Kharagpur South Side High School (H.S)	15/09/2017	Evaluation & Interaction
81.	Radhamohanpur Vivekananda High School	16/09/2017	Evaluation & Interaction
82.	Bhadutala Vivekananda High School (H.S)	18/09/2017	Training
83.	Moupal Deshapran Vidyapith (H.S)	18/09/2017	Training
84.	Chudanga High School (H.S)	20/09/2017	Training
85.	Deshapran High School (H.S)	20/09/2017	Training
86.	Gurguripal High School (H.S)	21/09/2017	Training
87.	Kharagpur Utkak Vidyapith (H.S)	22/09/2017	Training
88.	Kharagpur South Side High School (H.S)	22/09/2017	Training
89.	All Saints Church School (Kharagpur	22/09/2017	Training

Other Student Training Activities: Some Moments

C. Evaluation of Students' Performance (for Old Batch: Class IX-X)

Subject: English (Evaluation by External Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
MDV	Mampi Mahata (X)	4	9	9	4	4	4	4	4	42
BVHS	Debjani Chakraborty (X)	3	8	8	4	3	2	4	4	36
GHS	Nandita Samanta (IX)	4	9	7	5	3	3	4	4	39
RVHS	Rahul Guin (IX)	2	7	6	3	3	1	3	3	28
RVHS	Sayan Bera (IX)	3	8	7	3	3	3	3	3	33

Subject: English (Evaluation by School Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
MDV	Mampi Mahata (X)	5	8	9	3	4	5	3	2	39
BVHS	Debjani Chakraborty (X)	1	3	4	1	3	1	2	1	16
GHS	Nandita Samanta (IX)	4	8	8	4	4	4	4	4	40
RVHS	Rahul Guin (IX)	4	8	7	4	3	4	4	4	38
DHS	Birgopal Ghosh (X)	4	5	5	4	3	4	3	3	31
RVHS	Sayan Bera (IX)	3	8	7	4	3	3	4	4	36

Subject: Mathematics (Evaluation by External Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
BVHS	Dishari Ghosh (X)	2	7	7	3	3	2	4	3	31
MDV	Akashdeep Hazra (X)	4	8	8	3	4	4	4	3	38
GHS	Bithi Patra IX	3	7	7	3	4	3	3	3	33
RVHS	Suman Das Adhikary (IX)	3	8	6	3.5	3.5	1	4	4	33
DHS	Sk. Asik Ekbal (X)	3	6	6	3	3	3	3	3	30
RVHS	Somnath Mishra (IX)	3	7	8	3	3.5	4	3.5	3	35

Subject: Mathematics (Evaluation by School Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
BVHS	Dishari Ghosh (X)	4	7	8	5	4	5	4	4	41
MDV	Akashdeep Hazra (X)	3	8	8	3	4	4	3	4	37
GHS	Bithi Patra (IX)	3	7	8	5	5	5	4	4	41
RVHS	Suman Das Adhikary (IX)	5	8	8	5	5	4.5	5	4.5	45
DHS	Sk. Asik Ekbal (X)	2	5	4	2	3	2	3	2	23
RVHS	Somnath Mishra (IX)	4	8	9	4.5	4.5	5	5	4	44

Subject: Science (Evaluation by External Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
MDV	Subhendu Sing (X)	3	5	6	4	3	3	3	2	29
MDV	Seuli Biswas (X)	4	6	6	4	3	4	2	3	32
BVHS	Mahuya Kapat (X)	2	5	5	3	4	4	2	2	27
BVHS	Lakshmi Sing (X)	2	4	4	3	2	3	2	2	22
GHS	Sudip Ghorai (X)	2	5	6	4	2	3	2	3	27
RVHS	Alapan Maity (IX)	3	6	7	4	4	3	2	3	32
RVHS	Suvam Mandal (IX)	2	4	5	3	3	3	2	2	24
DHS	Suvadra Bera (X)	2	4	4	2	2	2	2	2	20
DHS	Santanu Ghosh (IX)	2	6	4	3	2	3	2	2	24

Subject: Science (Evaluation by School Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
MDV	Subhendu Sing (X)	2	7	5	4	4	4	4	3	33
MDV	Seuli Biswas (X)	4	8	10	3	4	4	4	2	39
BVHS	Mahuya Kapat (X)	2	6	5	3	3	3	2	2	26
BVHS	Lakshmi Sing (X)	2	6	5	3	2	2	2	2	24
GHS	Sudip Ghorai (X)	4	8	8	4	4	4	4	3	39
RVHS	Alapan Maity (IX)	5	9	10	5	5	4	5	4	47
RVHS	Suvam Mandal (IX)	5	8	9	4	5	5	4	4	44
DHS	Suvadra Bera (X)	3	6	6	3	3	3	3	3	30
DHS	Santanu Ghosh (IX)	3	6	6	3	3	3	3	3	30

Subject: Bengali (Evaluation by External Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
MDV	Akash Ghosh (X)	5	8	10	5	4	3	4.5	4	43.5
BVHS	Arpita Bhunia (X)	4.5	7	9	4	4.5	3	4	4	40
DHS	Tanushree Adhikary (X)	3	7	7	4	4	4	4	3	36
GHS	Animesh Petal (IX)	4	7	7	4	4	5	4	3	38

Subject: Bengali (Evaluation by School Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
MDV	Akash Ghosh (X)	4	8	9	8	4	4	4	3	44
BVHS	Arpita Bhunia (X)	3	8	8	4	4	3	4	4	38
DHS	Tanushree Adhikary (X)	3	6	6	4	3	3	4	3	32
GHS	Animesh Petal (IX)	4	6	6	3	4	4	3	3	33

Evaluation of Students' Performance (for New Batch: Class VIII-IX)

Subject: English (Evaluation by School Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
SSHS	Chandra Sekhar Manna	4	8	8	4	4	4	4	4	40
UV	Nandini Sahu	2	6	5	3	2	2	2	2	25
MDV	Susmita Hazra	4	7	8	2	5	5	2	1	34
BVHS	Ranit Mahata	2	5	5	3	1	2	4	2	27
BVHS	Pranab Mandal	4	6	7	3	2	1	3	3	29
GHS	Snigdha Adak	2	6	6	4	3	2	3	3	29
DHS	Ankita Mahata	4	5	4	3	4	3	3	3	29
CHS	Titly Khatun	4	6	6	4	3	3	3	3	32
RVHS	Swarnendu DAS	3	7	7	3	3	3	3	3	32
RVHS	Sujoy Pradhan	3	6	7	3	3	3	3	3	31
ASCS	Sayani Sanyal	1	6	4	3	4	0	3	2	23
ASCS	Abhishek Ghosh	2	6	7	4	0	0	3	0	22
ASCS	K. Deekshita	1	5	4	3	3	0	4	1	21

Subject: Mathematics (Evaluation by School Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
SSHS	Aakash Das	4	10	8	5	5	5	4	4	45
UV	Sneha Das	4	7	8	4	5	4	3	3	38
MDV	Mrinmoy Ghosh	4	9	9	5	5	5	5	4	46
BVHS	Subha Das	3	6	7	3	3	3	3	3	31
GHS	Riya Maji	5	9	7	5	5	3	4	4	42
DHS	Deep Chakroborty	3	7	6	3	3	3	3	2	30
CHS	Sahadul Khan	4	7	6	3	4	4	4	4	36
RVHS	Dinesh Murmu	4.5	9	8.5	5	5	3	5	4	44
ASCS	Aishika Bera	3	8	7	4	2	4	3	1	32
ASCS	Sourav Sen	1	7	3	4	3	0	2	1	21

Subject: Science (Evaluation by School Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
SSHS	Kaushik Singh	3	7	7	4	5	5	4	4	39
UV	Monalisha Sahu	3	6	8	4	4	5	3	3	36
UV	Bipul Acharya	3	5	5	3	4	3	4	3	30
MDV	Anupama Pal	4	8	8	4	4	4	4	4	40
MDV	Moupiya Pal	3	7	8	4	4	4	3	4	37
BVHS	Avijit Koley	2	5	5	3	3	3	2	2	25
BVHS	Lakhikanta Panja	2	5	6	4	4	3	2	2	28
GHS	Suresh Chakraborty	3	8	7	3	2	3	4	2	32
GHS	Tanaya Chakraborty	4	8	7	4	2	3	3	3	34
DHS	Avijit Bhunia	4	6	6	3	4	3	3	3	32
DHS	Barsha Gayen	4	8	8	4	4	4	4	4	40
CHS	Sudip Gayen	2	3	3	2	2	4	2	2	20
CHS	Md. Kaif Khan	3	5	5	4	2	4	2	2	27
RVHS	Samrat Das	5	9	8	5	3	3	5	4	42
RVHS	RudraPrasad Pattanayek	4	8	7	5	4	3	5	5	41
ASCS	Kamal Jadav	3	8	9	4	4	0	5	3	36
ASCS	Nisha Nath	3	7	5	4	2	4	4	1	30

Subject: Bengali (Evaluation by School Teacher)

School Name	Name	Introduction (5)	Question (10)	Explanation (10)	Voice Modulation (5)	Use of Board (5)	Use of Teaching Aids (5)	Participation of the Students (5)	Reinforcement (5)	Total (50)
SSHS	Akash Show	3	6	7	4	4	4	4	5	37
UV	Ankita Kar Oriya	3	7	6	4	3	3	4	2	32
MDV	Debolina Ghosh	3	7	7	3	3	3	3	4	33
BVHS	Saheli Chakraborty	2	8	8	4	4	4	4	3	37
BVHS	Sneha Jana	4	8	8	4	4	4	3	4	39
GHS	Satyajit Sahoo	3	6	5	3	4	3	4	4	32
DHS	Basudev Bera	3	5	4	3	3	3	3	4	28
CHS	Rafida Khatun	3	7	5	3	3	3	3	4	31

Conclusions:

Education is the backbone of every country. It nurtures talents and prepare citizen for building the future of the nation. Therefore, providing quality and sustainable education is one of the major challenges of any government, society or country. The popular slogan of "Skilled India and Build India" conceived by the present government of India primarily highlights essence of the effectiveness of education system that provides quality and employability. These two are the markers of sustainable education system. Education for sustainable development empowers people to change the way they think and work towards a sustainable future. "Access to quality education on sustainable development at all levels and in all social contexts, to transform society by reorienting education and help people develop knowledge, skills, values and behaviours needed for sustainable development has been the prime aim of UNESCO in recent times" (UNESCO, 2017, https://en.unesco.org/themes/education-sustainable-development).

The present study examines the effectives of C- 4 model in the state of West Bengal and brings out useful information that would be very useful for educationist, administrator and policy makers in different sectors of education. The study has been very fruitful in achieving its initial goal in developing awareness among teachers, parent and school authorities about the concept of C-4 Model through field survey, workshops, individual interaction with teachers, students, parents, and school authorities. The project has also partially achieved its goals in terms of developing over all personality of C-students through training, teaching exposure, and knowledge based efficacy through training imparted by experts, trainers and teachers in the field of language, mathematics , science, geography , history, and educational psychology, etc.

The C-4 model has created tremendous interest and motivation among students, teachers and parents and is likely to be very cost effective in-terms of time, efforts, and economy if implemented. This pilot project has opened up many new avenues not only for teaching but also for effective learning and skill building through talent acquisition. Tremendous improvements have been observed during different workshops conducted under this project in senior students with regard to their personality development, teaching skills, language proficiency, interpersonal skills, and overall development of knowledge skills and attitudes. On the other hand, it has been seen that junior students are more happy, comfortable, satisfied and motivated to learn freely from

their seniors due to less fear, anxiety and tension that they naturally experience from their teachers in regular class room situation. These are some the features of the C-4 model that would be very beneficial and effective. This is also very timely when most of the Indian states suffer from heavy shortage of teacher and delivery of quality education. The C students will be great resource to fill the gap of the teacher - student ratio for making the class room more effective, interactive and educative by paying proper attention to the needs of the junior students.

Although the project has generated lots of interest and ideas, it still requires lots of experiment to assert its sustainability for years to come. Therefore, the investigators of the project feel that the next phase of the work will be very crucial in terms of recommendation and implementation of this innovative C- 4 model for high school students in the state of West Bengal, India.

A Request Note from the Principal Investigator

On behalf of the IIT Madras and IIT Kharagpur project teams, I would like to thank TechnipFMC CSR cell for providing funding and supporting us running this project. This 'C minus 4' project has been implemented successfully in 11 schools in three districts of Tamil Nadu and more than in 20 schools in Midnapur (W) district of West Bengal. Through this project, we are able to reach to more than 150 C students, train them with necessary skills of teaching and help them to discover their potential. Without the support of TechnipFMC, this would have remained undone.

The success of a model significantly depends on two factors i) sustainability and ii) scalability. We are now coming up with different mechanisms by which this model can be made sustainable. One of the techniques we are planning to implement immediately is to 'Train the Trainers' or 'Train the Mentor Teachers'. This will not only help in developing a self-sustainable model but also increase the number of beneficiaries and thus contribute towards the scalability.

We request for some financial support from TechnipFMC CSR cell for our 'Train the Trainers' project, which is the first step towards the sustenance process of 'C minus 4' model. We are including one separate extension proposal on this along with the closure report. We are confident that TechipFMC will consider this for funding and support us to take this 'C minus 4' model to a new height.

Once again, on behalf of IIT Madras and IIT Kharagpur project team, I would like to express my deepest gratitude for supporting our project.

Thank you.

Pijush Ghosh.
IIT Madras
Project Links: https://home.iitm.ac.in/pijush/rural_school_project1.html

https://youtu.be/XvqcbIvFEew