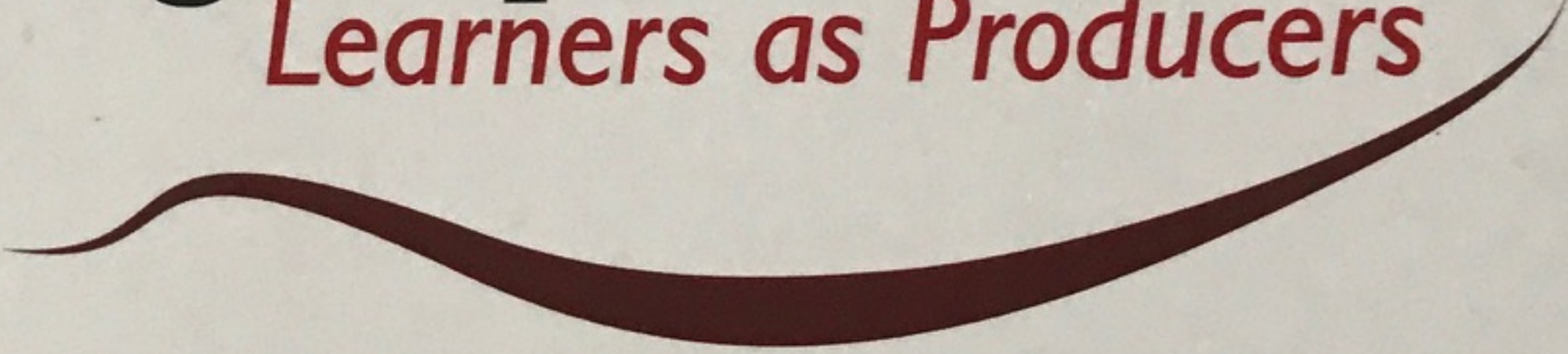


LeaP-ITE **Symposium** *Learners as Producers*



**Integrated Approach to Technology in Education
(ITE)**

**An Initiative of
TATA TRUSTS**

Resourced by



ITE

An Initiative of Tata Trusts
(Integrated Approach to Technology In Education)



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Students

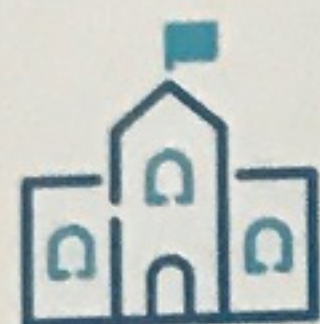
26,644

students have made ITE projects



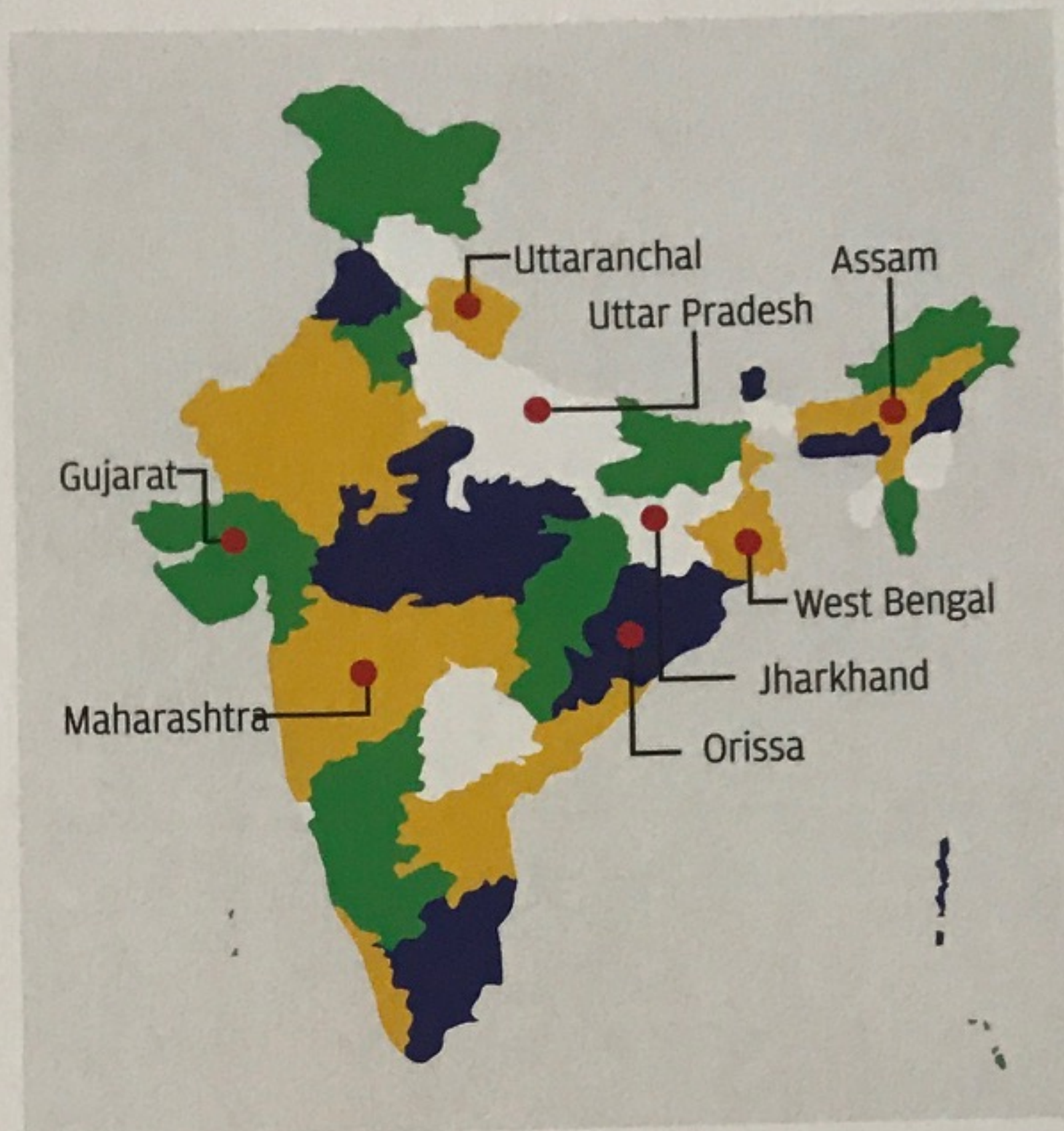
Teachers

149 teachers trained through Certificate Course in ICT and Education by TISS 3. Who together trained **2917** teachers as master trainers.

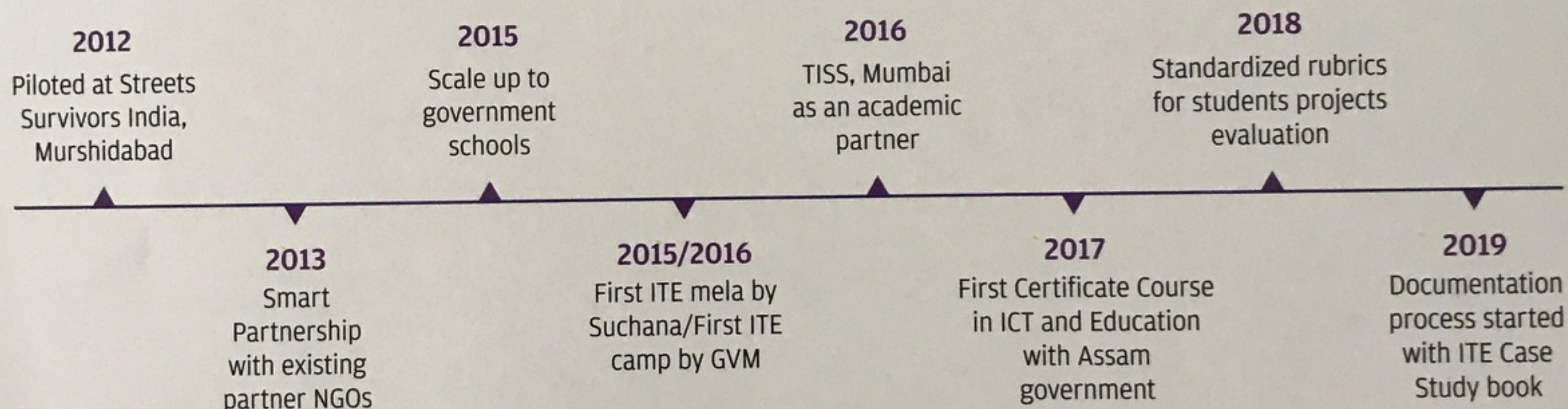


Schools

1021 government schools (**820** through master trainers), **66** learning centres and **34** madrasas reached to implement ITE.



Milestones



Objectives

- Bridge the digital divide and foster digital citizenship
- Improve learning and trigger higher order thinking skills
- Increase interest in learning and schooling
- Improve teaching pedagogy



Design

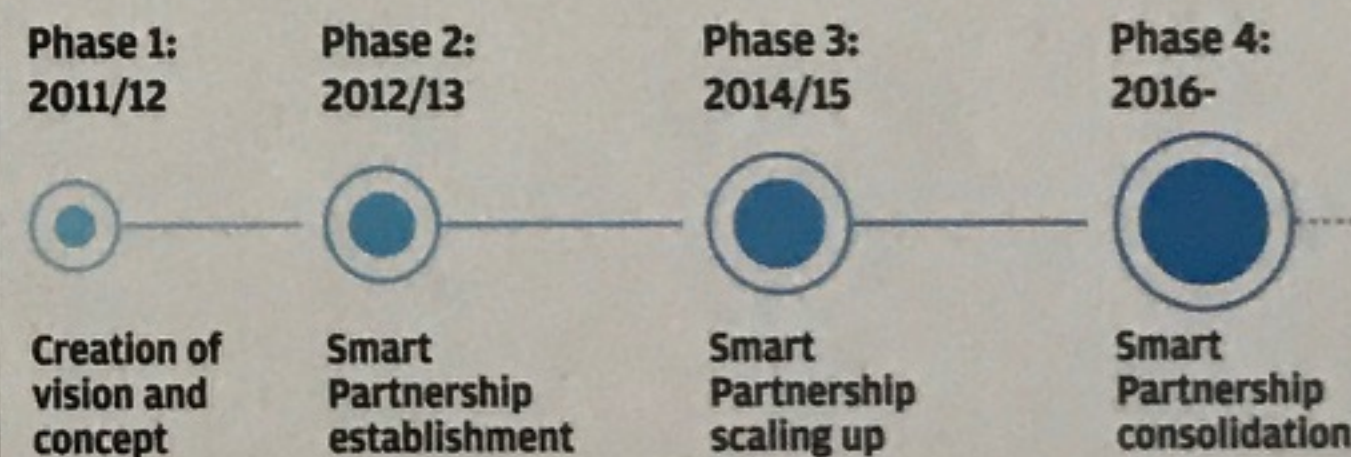
- Teachers design learning activities through lesson plans
- Students create learning artifacts with the help of technology
- Activities are integrated with the curriculum



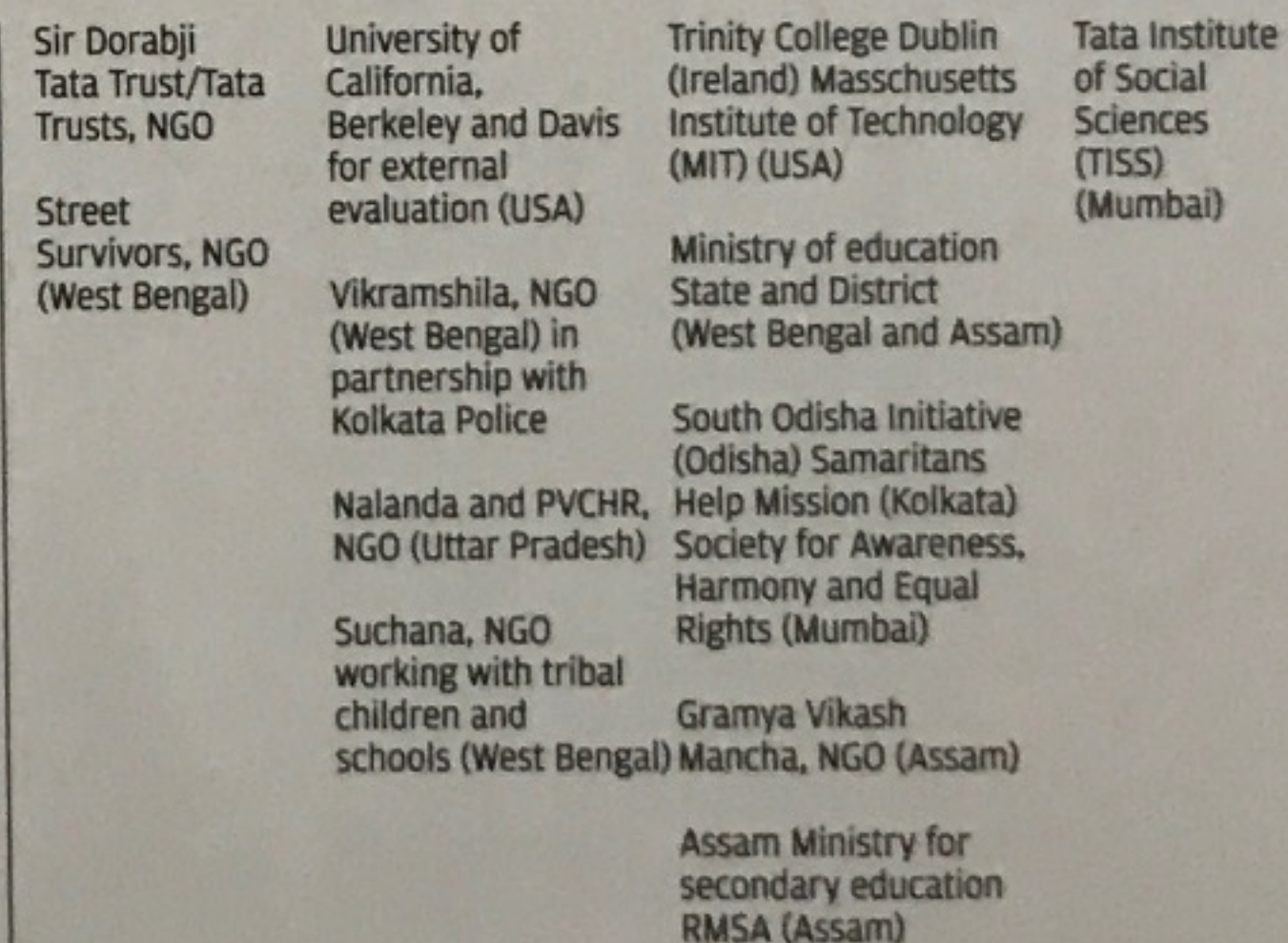
Features of adoption

- Student agency and creativity are central
- Language independent
- Organic-teacher designs using the curriculum
- Works even in the remotest-needs basic infrastructure

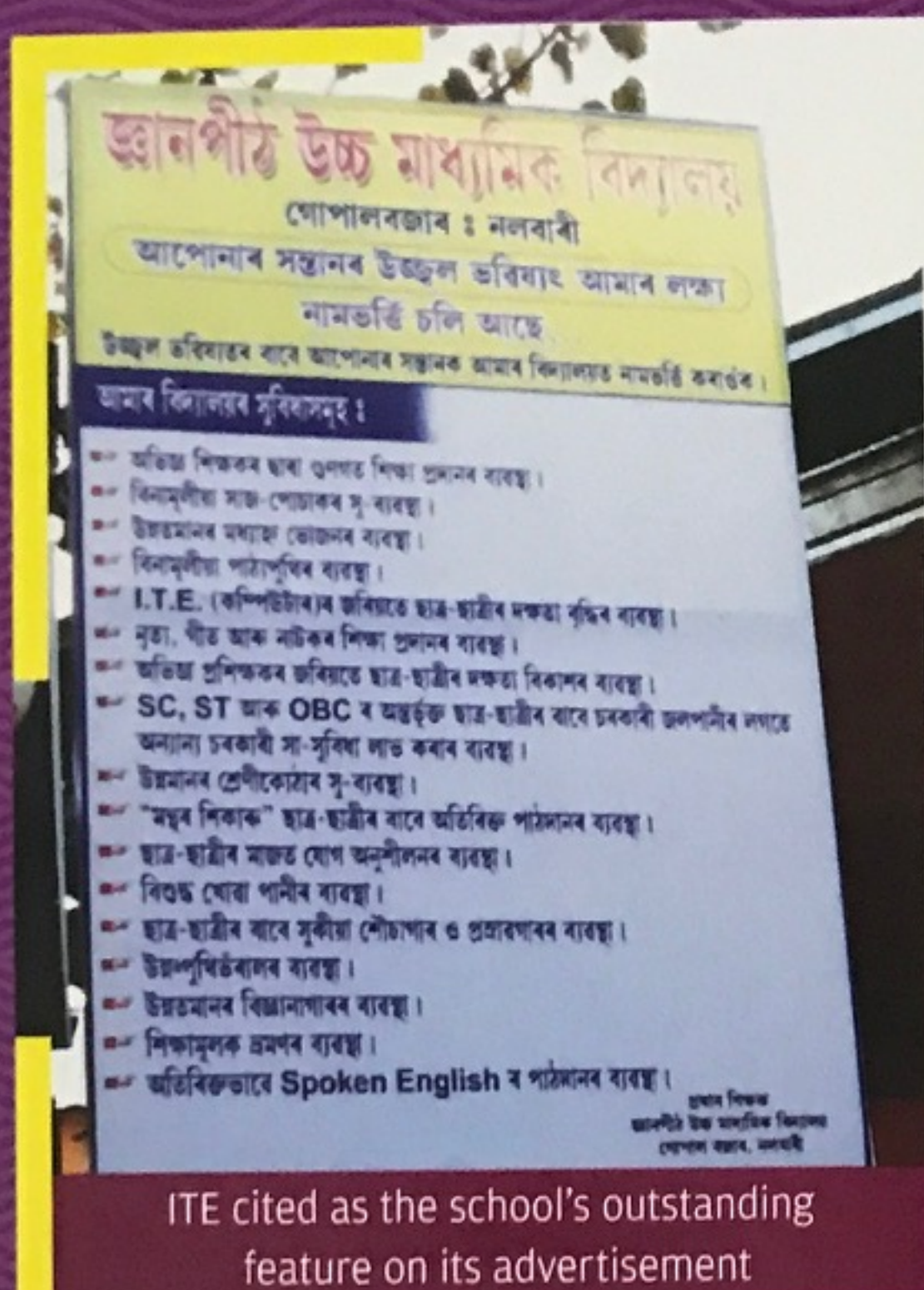
PHASES



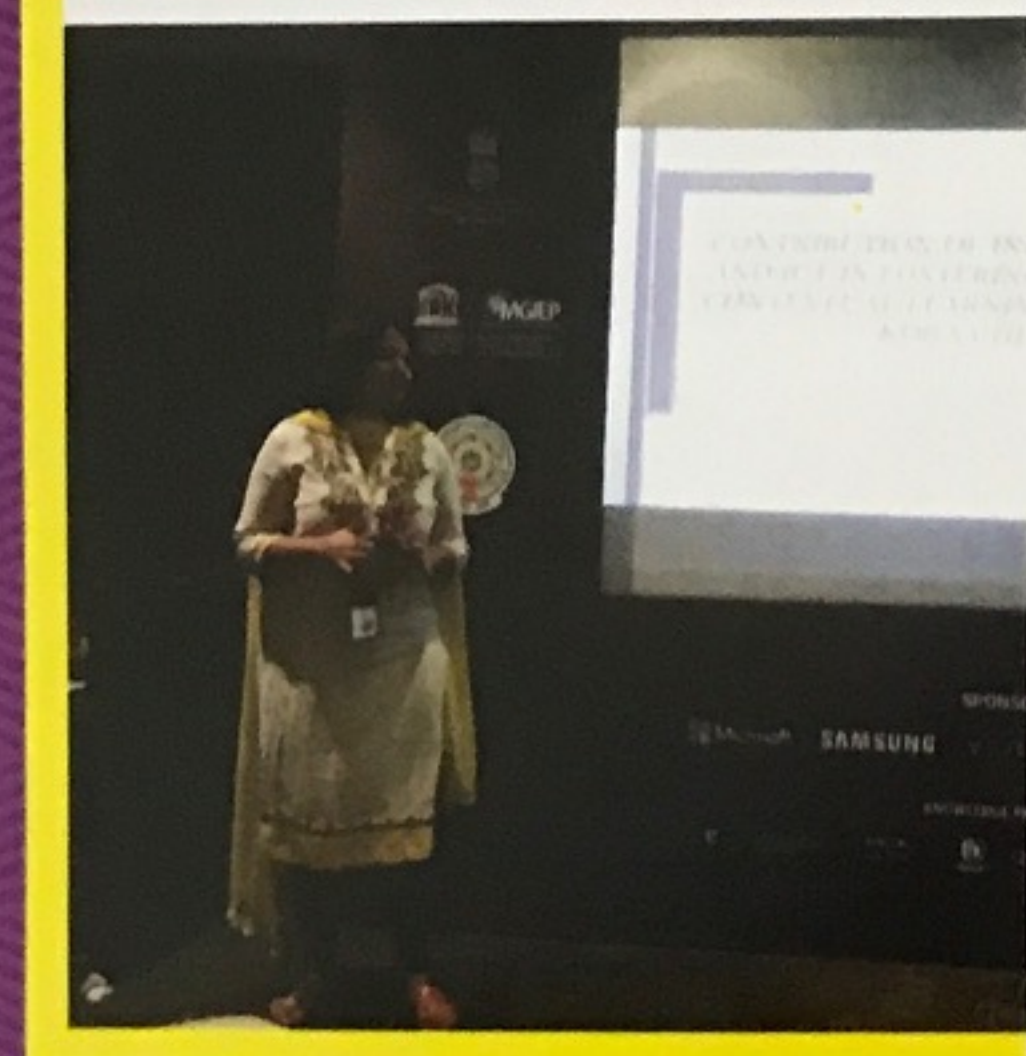
PARTNERS



Research & Impact



ITE cited as the school's outstanding feature on its advertisement



Charania, A., & Davis, N. (2016). A Smart Partnership: Integrating Educational Technology for Underserved Children in India. *Educational Technology & Society*, 19(1), 99-109.

A Smart Partnership: Integrating Educational Technology for Underserved Children in India

Amita Charania¹ and Niki Davis²

¹Tata Trusts, India / ²University of Canterbury, New Zealand / amita.charania@gmail.com / niki.davis@canterbury.ac.nz

Corresponding author

ABSTRACT

The paper explores the evolution of a large multi-stakeholder partnership that has grown since 2011 to scale digital engagement with learning through technology and decrease the digital divide for thousands of underserved school children in India. Using an in-depth case study of an initiative - school integrated approach to technology in education (SITE) spearheaded by Tata Trusts in India working in partnership with an increasing number of other organisations, the paper seeks to illustrate what a large multi-stakeholder partnership is education in and how it can work to serve education equitably. In addition to tracing the growth and development of this multi-stakeholder partnership, the paper examines the SITE model work partnership against some characteristics of education-industry-research partnerships in comparison to other partnerships at UNESCO (2015).

Keywords

Smart partnership, Education industry partnership, Change with digital technology, Integrating ICT, Digital equity

Introduction

Today, education industry partnerships can assist schools to expedite the integration of digital technologies in their pedagogy and infrastructure (Fichtelmann, 2011). Multi-stakeholder partnerships known as smart partnerships (SPs) may be particularly valuable in terms of supporting the development of more equitable educational infrastructure and reducing the digital divide, which is the gap between those who can readily and effectively access information and communication technologies (ICT) and those who do not (Krauss, 2010).

According to Davis (2011), "Smart partnerships are collaborations linking the assets and capacities of institutions with community assets and resources for powerful long-term impact." UNESCO is just one large-scale educational stakeholder that promotes the multi-stakeholder partnership as a means to "create equitable, dynamic, accountable and sustainable learner-centred digital learning ecosystems" (UNESCO, 2015, para 16). However, as Davis et al. (2016) point out, scholarly literature contains little information on the development, study, and effectiveness of education-related multi-stakeholder partnerships that have "smart" learning environments in relation to smart learning environments (Krauss et al., 2016).

At the ETEC Summit 2013, a discussion of multi-stakeholder educational partnerships suggested that some may be characterised as smart partnerships (SP) when they meet the following seven criteria (Davis et al., 2015; Leach et al., 2016):

- have partners from within and across a wide range of educational organisations and stakeholders
- have a shared purpose (vision, concept, vision) that creates synergies
- have a strategic and holistic approach
- enhance the quality of education via digital technologies (ICT)
- harness ICT mainly in order to increase educational outcomes and provide feedback aimed at improving performance

Thematic Working Group 1

Smart Partnerships

Summary Report

Niki Davis, University of Canterbury
Margaret Leach, Dublin City University
Cathy Lewis, Manchester Metropolitan University
Amita Charania, Tata Trusts & Tata Institute of Social Sciences
Hassan Nordin, Universiti Utara Malaysia

with

Ave Meja, UNESCO Bangkok
Devor Orlov, IIS Josef Stefan Institute
Deirdre Butler, Dublin City University
Vanessa Chang, Curtin University
Ben Daniel Mottis, University of Oregon
Ola Entel, University of Oslo
Olivia Lopez-Fernandez, Catholic University of Louvain

Background and context

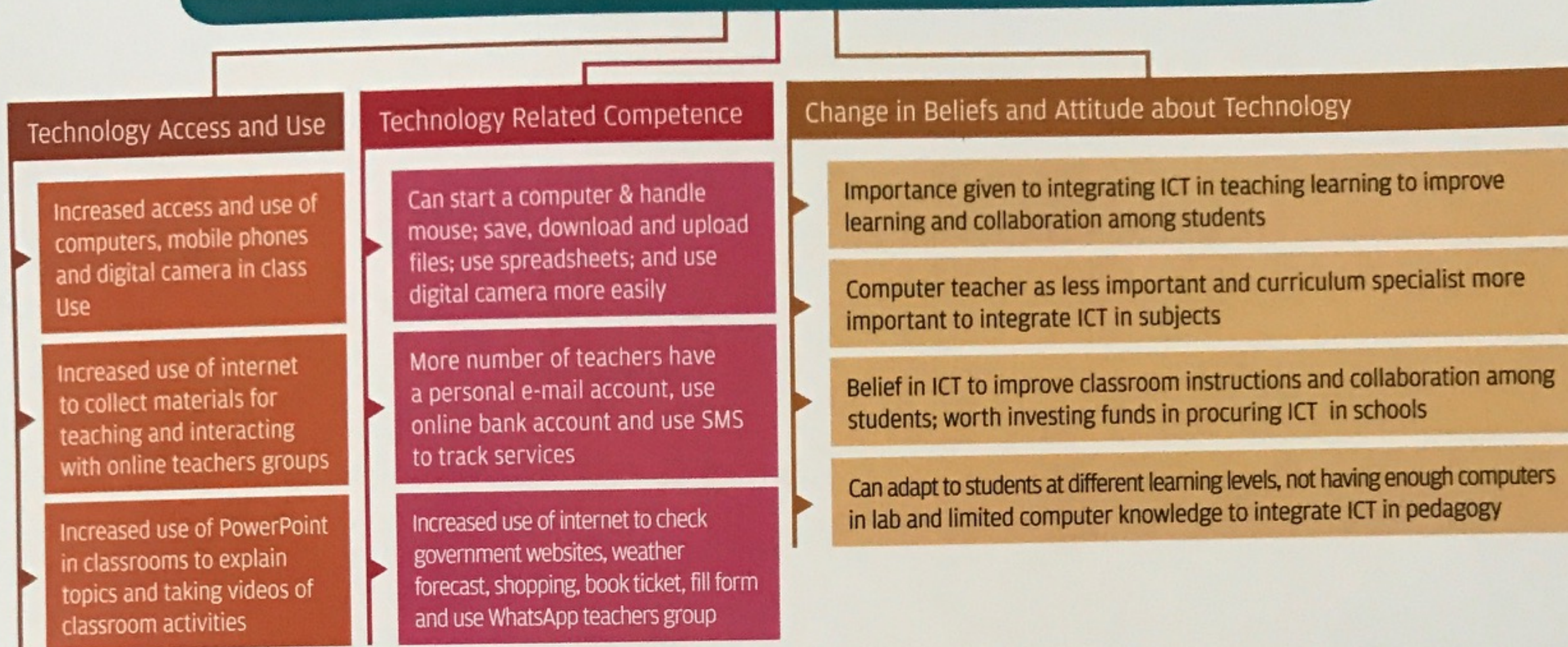
As part of its commitment towards inclusive and equitable quality education and lifelong learning for all, UNESCO (2015) has recognised the need for Smart Partnerships among education stakeholders "to create equitable, dynamic, accountable and sustainable learner-centred digital learning ecosystems" (Bridges Declaration), in line with its 2030 education agenda. UNESCO also calls for further consultation and dialogue between governments and the private sector to design scalable innovative funding mechanisms that will secure the financial resources needed to unleash the full potential of digital technologies and ICT for learning in the [Sustainable Development Goals](#).

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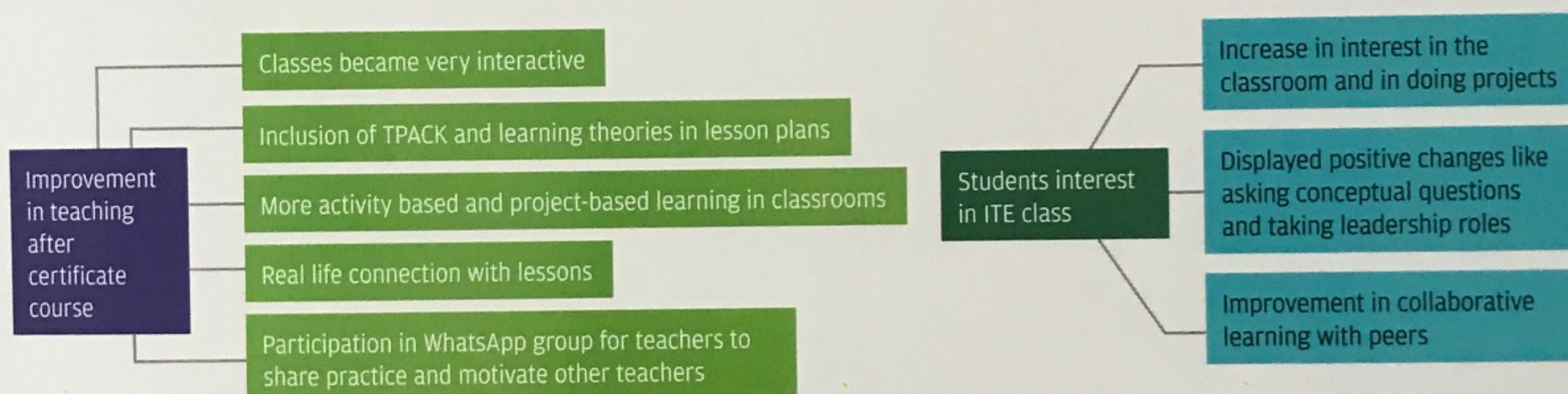


Teacher Survey

Statistically significant difference was found in Teacher variables before and after the certificate course



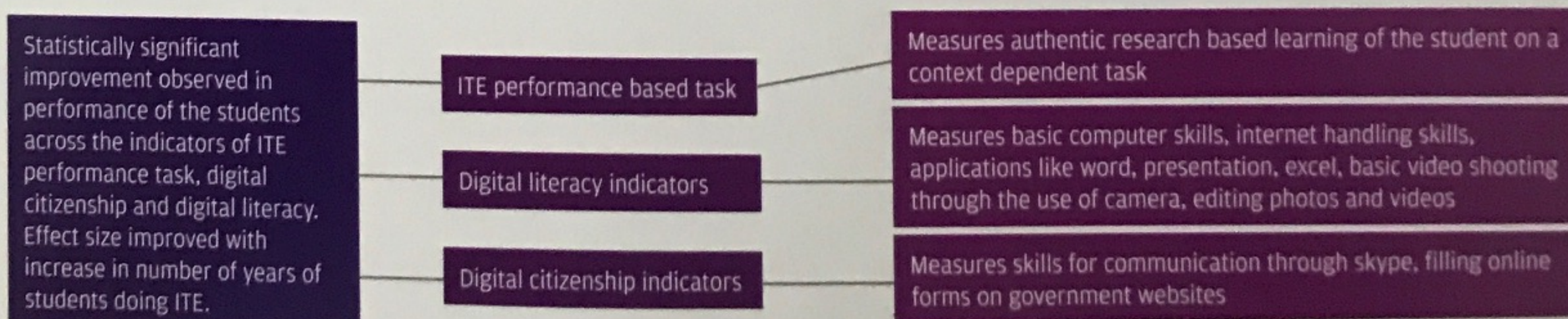
Teacher interviews



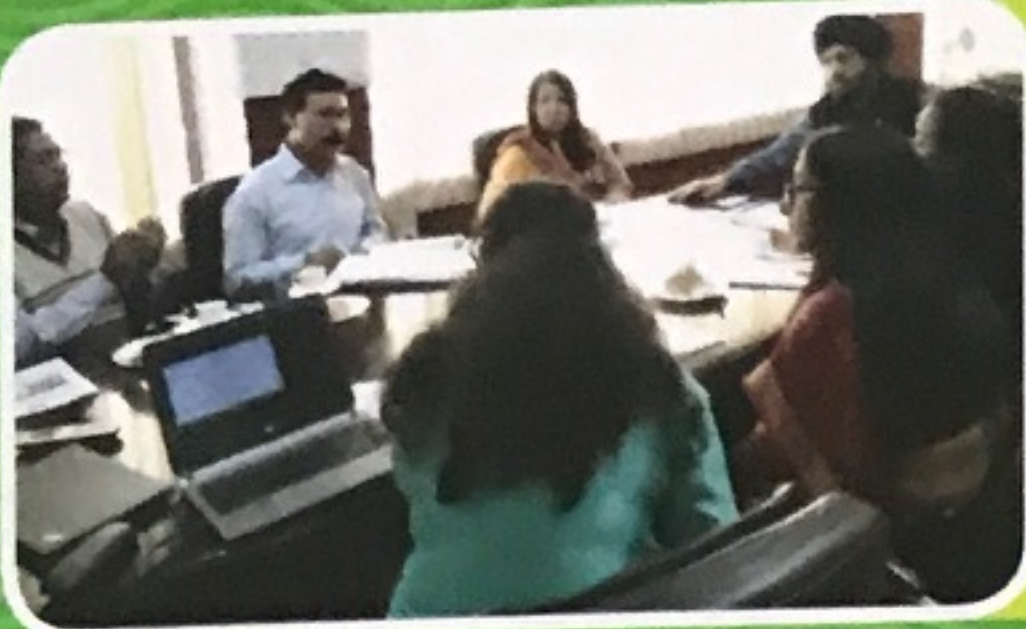
Student Projects



Student baseline endline

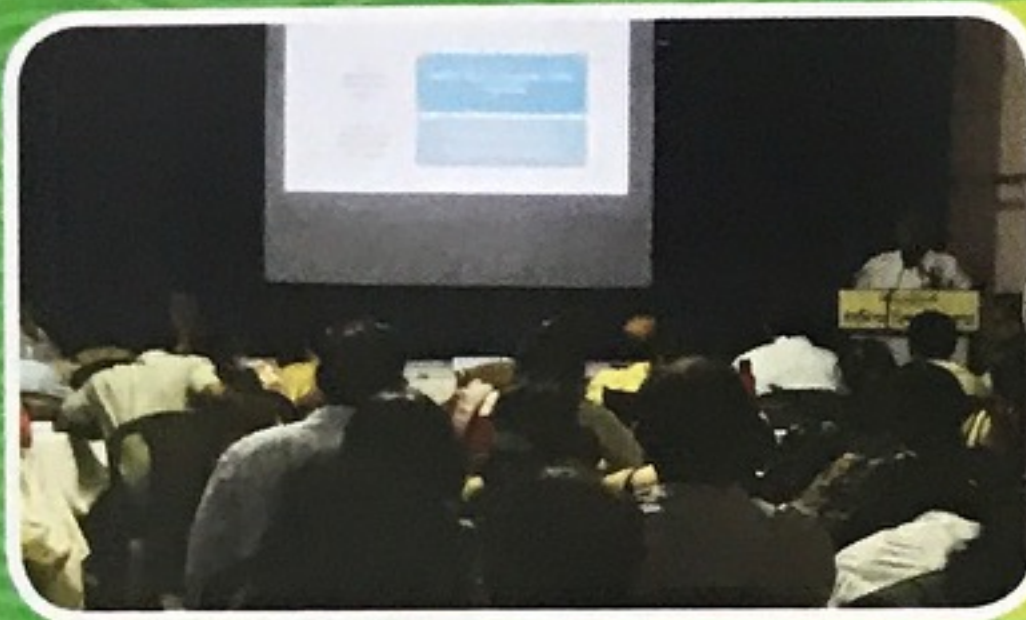


Ecosystem of ITE



ITE Core group (Assam) meeting with Tata Trusts officials, TISS Resource Team, School Inspectors, SSA officials, Local Ngo Members chaired by Mr. Shamsheer Singh, Mission Director, SSA

ITE Annual Meet, 2018 represented by TISS Faculty, Tata Trusts officials, Govt. officials, ITE Partners & Master Trainers of Certificate in Ict and Education Course, TISS.



Mr. Kartick Ch. Manna, Chairman, SSM; Mr. Chinmoy Sarkar, D.I, Secondary Education, Kolkata; Mr. Sushanta Kumar Panda, DPO, Secondary Education, Kolkata and Ms. Shubhra Chatterji, Director, Vikramshila Education Resource Society.

ITE artefact sharing meet in Madrasahs, West Bengal chaired by Mr. Abid Hussain, Director of Madrasah Education. Govt. Of West Bengal and attended by Mr. Rejaual Karim Tarafdar, Secretary, West Bengal Board of Madrasah Education (WBBME); Dr. Azizar Rahman, Deputy Secretary, (WBBME); Ms. Rahima Khatun, MLA and Board Member; Ms. Shubhra Chatterjee, Director, Vikramshila Education Resource Society; HMs and teachers from Hooghly, Howrah, Kolkata, North 24pgs and South 24 pgs, Kolkata



Students presenting their projects to Community members and parents at ITE Mela, Nalanda, Uttar Pradesh. This community events such as ITE Mela provides a scope to reach out to the community. These Melas are attended by State and district officers, local panchayat members and parents.

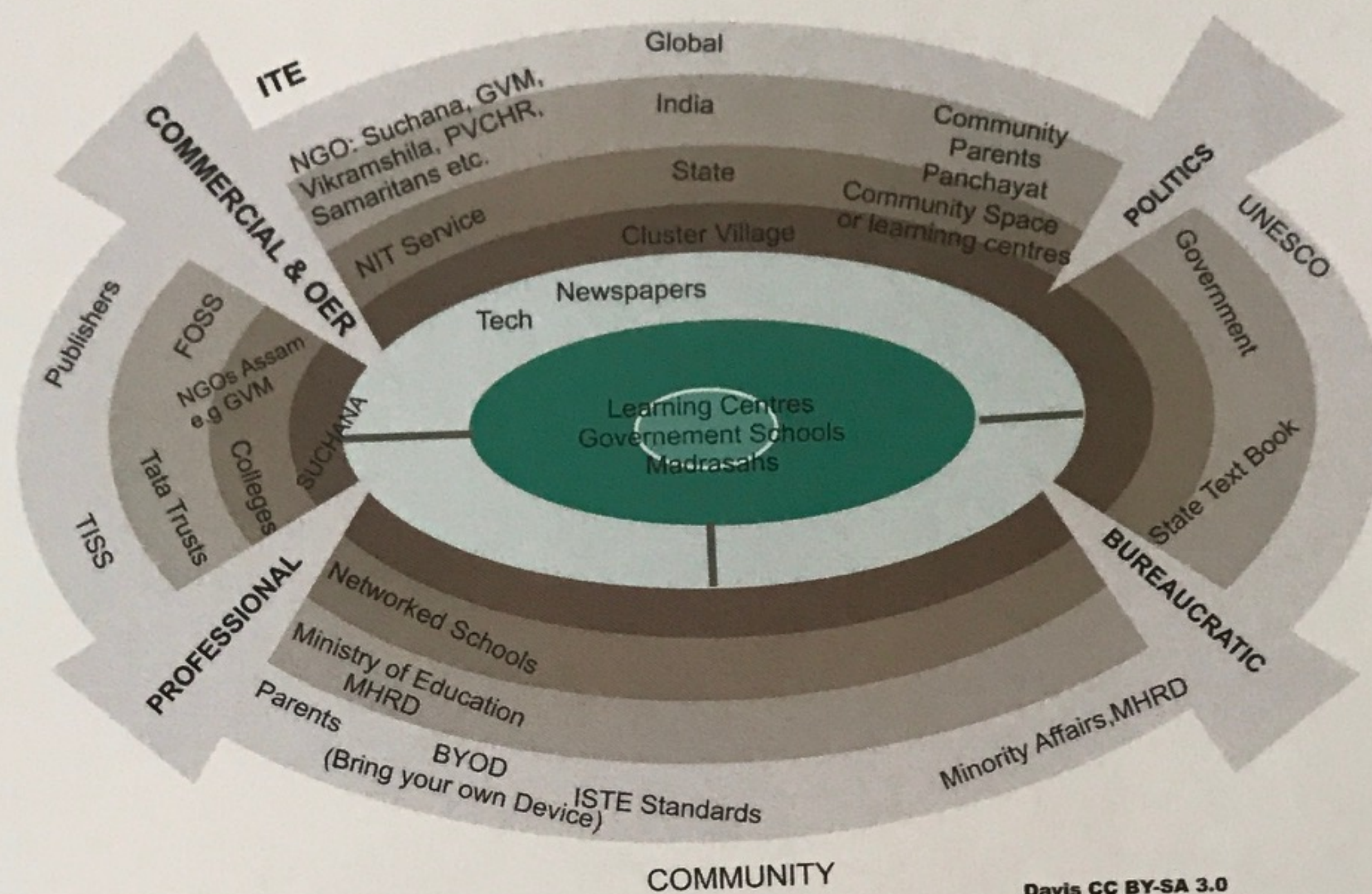
Student's presenting ITE Projects in front of Community members, State officers, Dist. Officials, Panchayat Head and Panchayat members at Livelihood Mela, CINI, Dhadgaon, Maharashtra



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ITE partnerships charted on Davis Arena



[Retrieved from Leahy, M., Davis, N., Lewin, C., Charania, A., Nordin, H., Orlic, D., Butler, D., & Lopez-Fernandez, O. (2016). Smart Partnerships to increase equity in education. *Educational Technology & Society*, 19(3), 84-98]

“

The ITE programme is very useful for the students in this modern era of science and technology. The students of our school have benefitted a lot through this programme. Now they are quite adept at making project in the ict lab in different topics under the guidance of their teachers. Moreover they now have developed their soft skills like communication, working in groups while working for different projects. Their creativity and innovation skills are also enhanced. On the whole the programme has a positive effect in the teaching learning system.

Rupashree Ghosh, Principal, Dumdum Rd. Govt. Sponsd. High School for Girls, Kolkata

I feel that because technology is used everywhere, this platform should be given to the students age appropriately, so that students can learn many more things beyond the curriculum, syllabus and textbook.

Romen Das, State Consultant, SSA, Assam

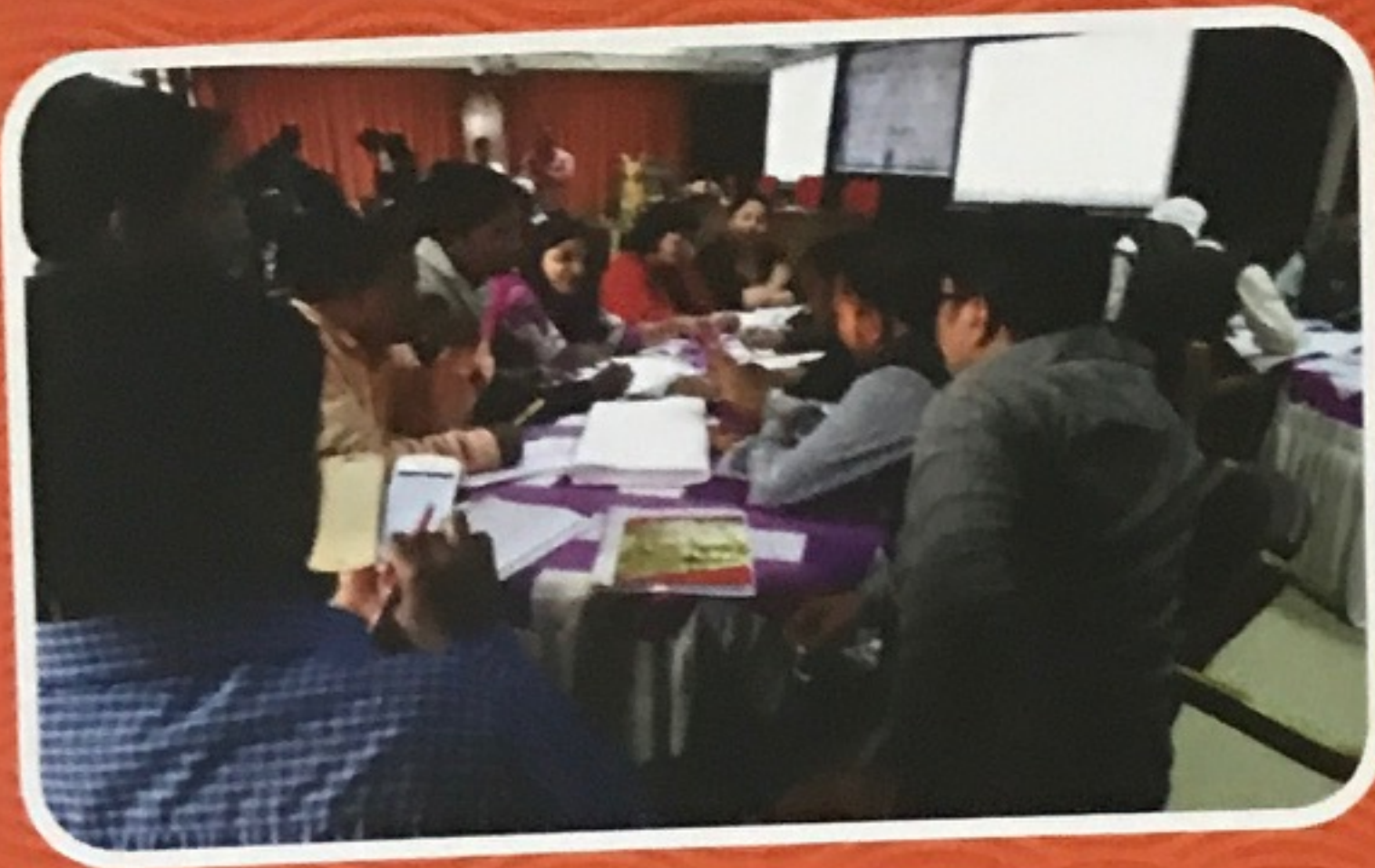
We do not have computer at home. Before ITE, my son never got a chance to touch a computer. His school did not have computer lab. He was very happy when he first got a chance to work on the computer. After ITE, he has also learnt about the use of different technologies like handling of cameras and He has also made different projects in power point. He is also attending the class regularly with interest. He shared that now he helps other students to make projects and ask his friends to come and attend the ITE Class.

He also attended ITE Student camp, Refresher Camp, ITE Meet etc. held at Gramya Vikash Mancha. After participating in the camp his confidence level and communication, skills has improved. Now, if he has questions in his mind he don't feel shy but asks immediately.

Gitanjali Barman, Parent of Saurabh Barman, Kainthalkuchi High School, Nalbari Assam (Translated from Assamese)

”

Certificate Course in ICT & Education



Face to Face training with certificate teachers



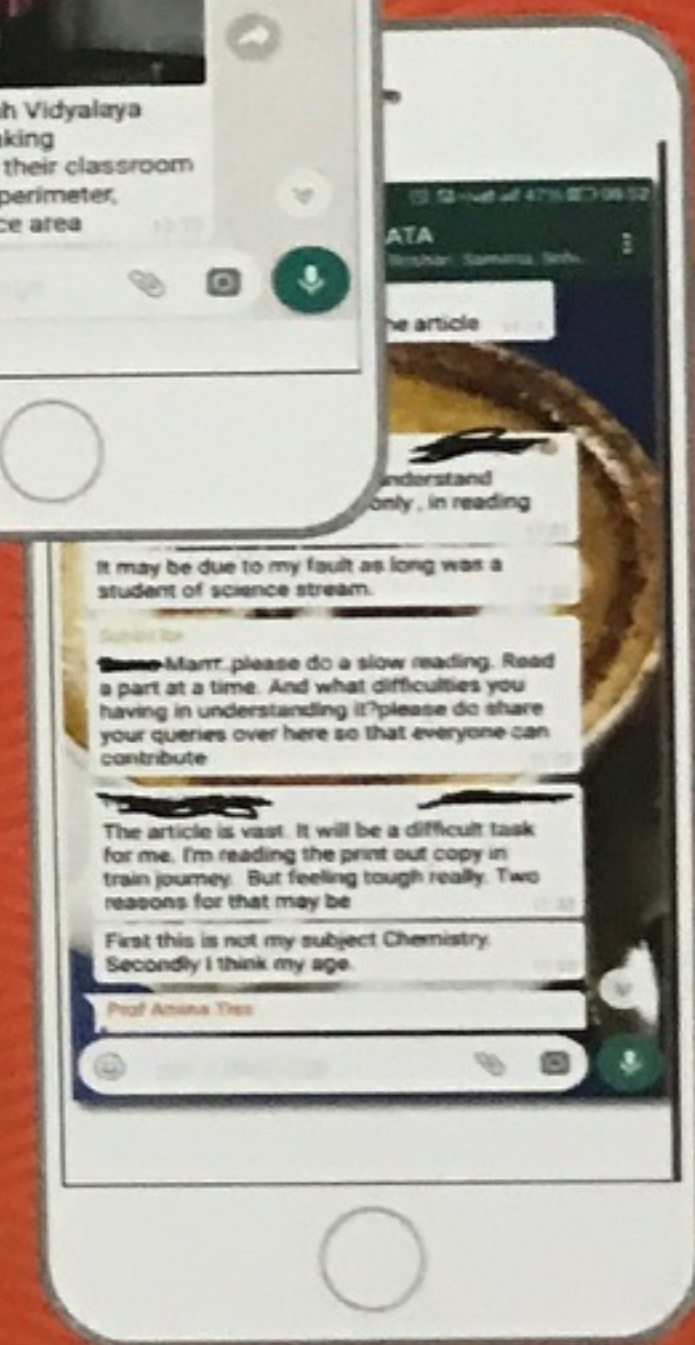
Sharing session in school by certificate teacher



Classroom implementation by certificate teacher



District-level training conducted by certificate teachers for other teachers of their districts



Screenshots of Community of Practice groups on WhatsApp



Digital Portfolio submitted by the certificate teacher



Certificate distribution programme by TISS



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The Course Design - 4 months blended course

Face to face Mode (36 hours)

- Discussion on readings and practical issues on implementation, hands on activities to explore applications

Distance and implementation mode

- 45 hours of implementation on ground and training others
- 60 hours of working on assignments and participating on whatsapp forming a community of practice and use moodle for assignments and reflections

Criteria for completion

- Attend 100% F2F component
- Participate on online platform
- Completion of two assignments (graded): Lesson implementation in classroom with students in and handhold 12 to 15 teachers in the neighbourhood schools.
- Engage in Online reflections and quizzes (graded)
- Submit a digital portfolio synthesizing their learning and reflection in the course

Course of activities & Assignments

Objectives of the Course

- Teachers understand & appreciate constructivist approaches to learning
- Comprehend the role of technology in constructing meaningful learning experiences for adolescents
- Explore ICT applications
- Critically evaluate use of ICT applications & its role in enabling meaningful learning
- Understand meaningful & responsible use of ICT
- Use of ICT for CoP

Use of Online Community of Practice (CoP) and Learning Management System

- Certificate teachers also mentor their own WhatsApp groups with fellow teachers.
- More than 150 WhatsApp groups with teachers.
- Assignment submissions & online quizzes through Moodle.
- WhatsApp - to update on assignments, discussion on articles, sharing pictures of activities in school.
- Post certificate course, readings and news articles related to ICT & education and pictures of classroom implementation are posted for discussions.

After the Certificate Course

Certificate Course Teacher representing on national platforms

- 7 teachers participated in national workshop on 'Computational Thinking & Problem Solving'
- 2 teachers participated in Clix Symposium in 2018
- 3 teachers participated in state workshop for National ICT Award. 1 teacher was selected by state for National ICT Award
- 1 teacher presented experience of ITE and certificate course in 'Tech4Transformation Conclave 2017', New Delhi

Continuous Professional Development Sessions are conducted with outreach teachers on ICT & Education & its implementation in schools

- Assam - 64 monthly meetings
- West Bengal - 26 monthly meetings
- 255 principals oriented for supporting CPD sessions

5 courses

on Certificate in ICT & Education has been completed by

149 teachers in 3 states

State Partners

West Bengal Board of Madrasah Education

SSA & SCERT, Assam

Tibetan Central Administration

SSM, West Bengal

Outreach teachers' coverage through certificate course

96 trainings

were conducted by certificate course teachers with

2917 teachers

from **820 schools**

“

I have become a good planner, when to use and how to use ICT during teaching my students as well as I felt better that every student of my class became very active even the back benchers were responding.

Mr. Sajid Hussain, Teacher

Before teaching a specific topic, I now think what is the importance and value of it for children. Why are we teaching? That is the main question. I explain that to children first before starting a lesson. This way, I associate the topic to children's real life. Not only students, I now involve other teachers also in this questioning of why are we teaching a topic?

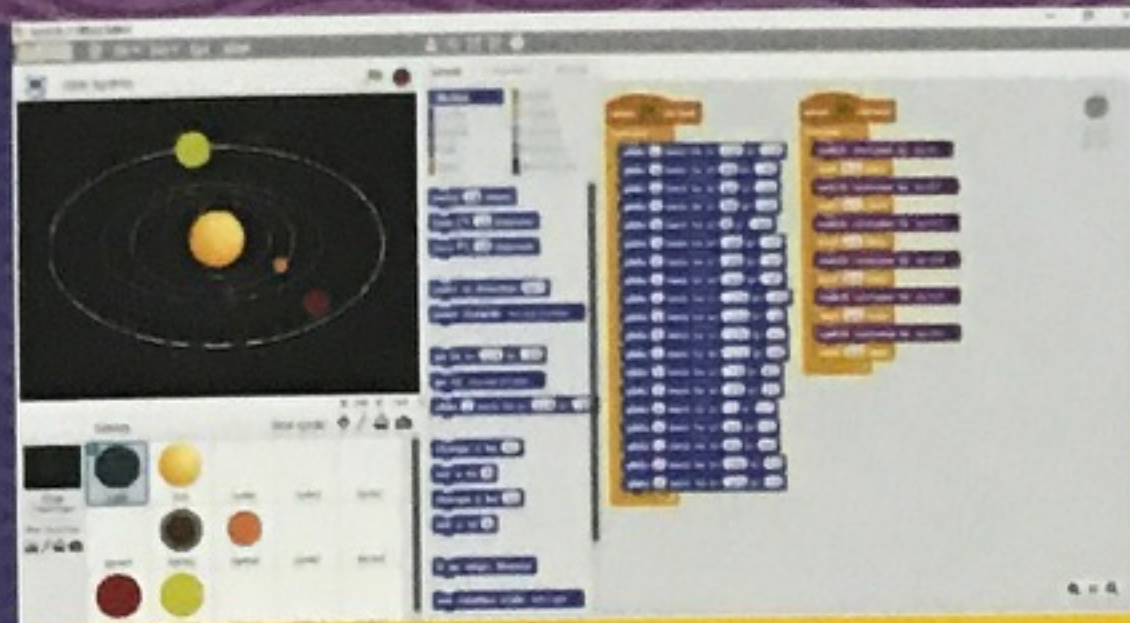
Mr. A.K.M Shamsul Huda, Teacher

”

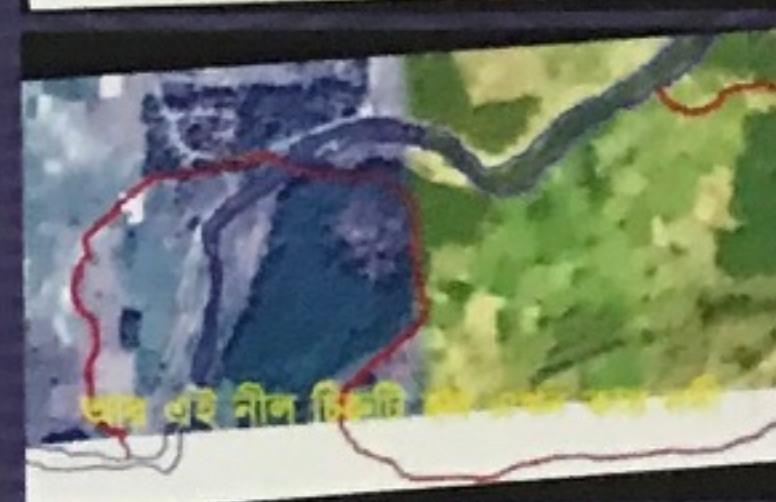
Learners as Producers



Project on local market in Nalbari, Assam created using multimedia

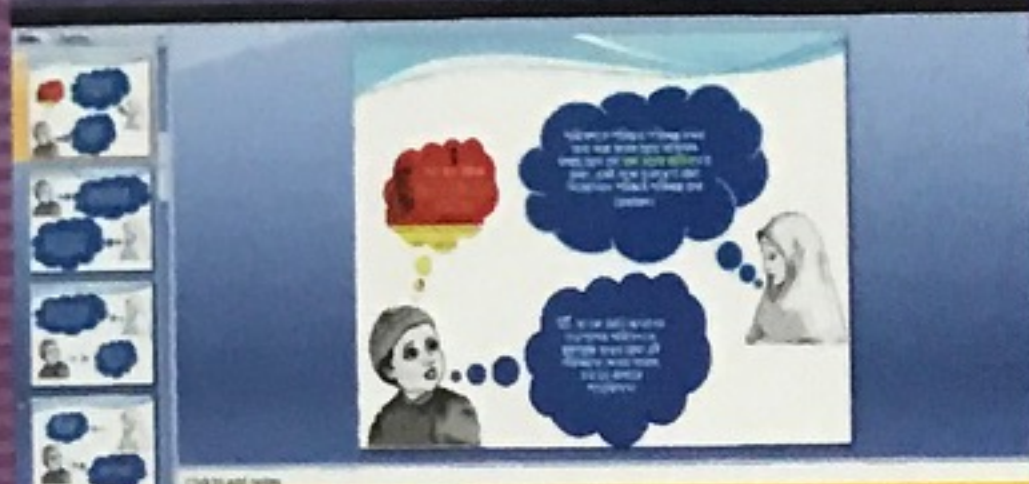


Project on rotation and revolution of first five planets made using scratch

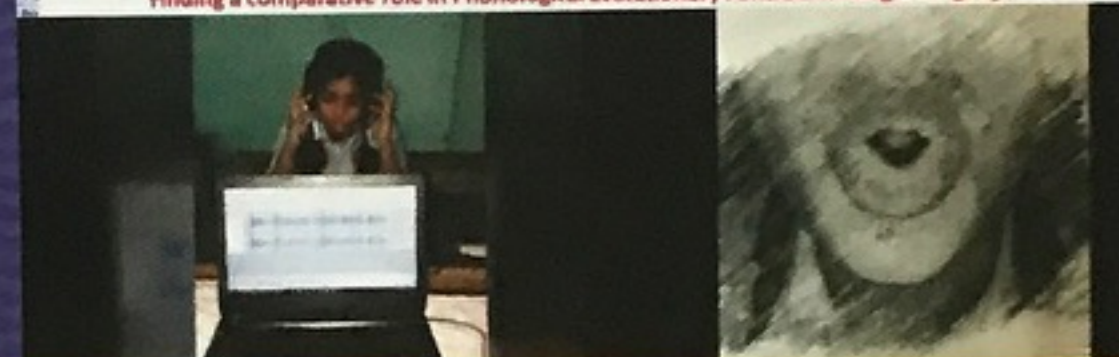
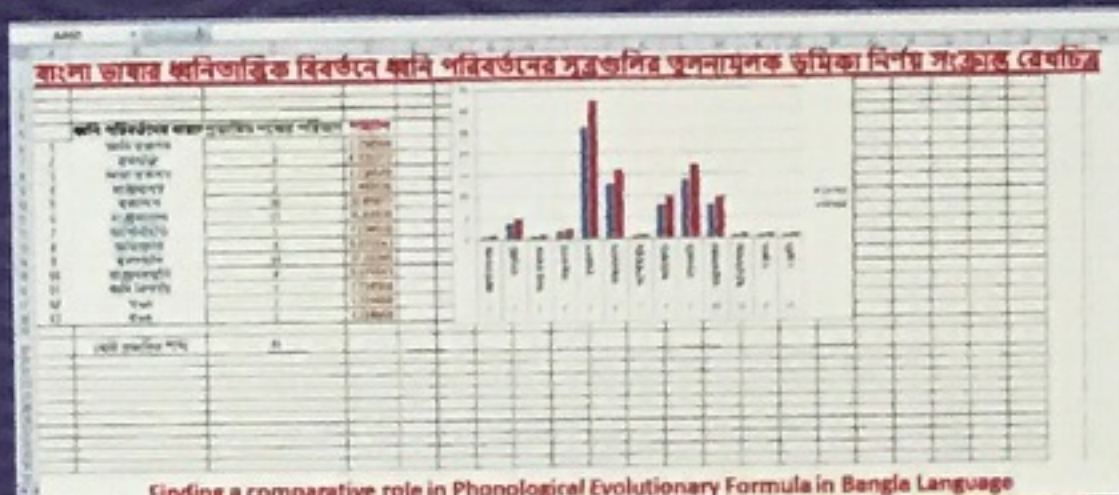


STUDENT NAME-
DAYAL, MONIKA, SOMNATH, BINAYAK,
RAKHI, SHYAMOLLI, JHILIK KONRA
TEACHER NAME- SANDIP MAJHI AND NOBIN
SUBMISSION DATE - 15/12/14
PRESENTATION DATE - 15/12/14

Project on change in the course of Kopai River at Rindanga Village, Birbhum presented using Movie maker



Project on cleanliness integrating Din (faith) and Duniyavi (Worldly) completed using Multimedia



Project on phonological evolution in Bangla created using Audacity, Multimedia and spreadsheet



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The process

Based on the lesson plan designed by teacher, students work in groups of 3-5 members. Sometimes they even collaborate with their community.

They collect and interpret relevant information about a topic, contextualizing it to their local environment.

Using ICT applications and information from various sources, students solve a problem at hand.

Students use their agency in this whole process to create learning artifacts which leads to knowledge deepening.

“ I was observing a science class in a school in rural Assam. The teacher asked a girl to answer a question about electricity and conductors. The girl was unable to answer the question, which was answered by another student correctly. The bell rang just a few minutes later and the same teacher started his ITE class in Biology. Laptops were given to each group of students and were asked to continue working on the projects they were making. The girl who was unable to answer the question a few minutes ago, grabbed the laptop, opened Google and started reading about the question that she was unable to answer. A few minutes later, she started explaining to the students next to her as to why she was unable to answer the question asked before and how she understands the concept better. This is a clear example of student agency.”

TISS resource team member

Learning

Projects are assessed using the following rubrics

Rubric - Assessing Student Projects*

Criteria (Scale- 1 to 4)

Authentic learning	Originality of content
	Students make personal meaning
Knowledge deepening/ construction	Interpretation of information included in project
	Comparisons with other concepts/subjects/subject matter
	Higher order thinking skills visible in the project
Research undertaken	Thorough research and depth of the topics visible in the project, finding information from relevant sources
Creativity/Innovation and construction of new ideas	Students being able to choose a project, do out of the box thinking, and take a step forward and implement something in their context
Technical skills	Technical tools are used appropriately
Organisation/Coherence	Logical flow of content and ideas, making navigation easy

*Charania, A; Avadhanam, R. (2018). Occe, Linz, Panel presentation on Equity In Access To Technologies In Education In India And Access To Adaptive Technologies

“ Suchana is a community organization working on rural poverty with a focus on education with Adivasi people and scheduled castes. With the introduction of ITE, the focus from computer literacy shifted towards making learning authentic using project based learning that connects curriculum with technology.”

Rahul Bose

(ITE Coordinator, Suchana Organization, Birbhum, West Bengal)

Project score analysis shows significant improvement in scores over time on the following indicators: Authentic learning, Research undertaken, Creativity and construction of new ideas and technical skills

Beyond the Classroom- ITE Camp and Mela

Camps are generally residential, with the objective to have concentrated sessions on problem solving skills, computational thinking skills, and other 21st century skills while producing learning artefacts at the same time.

ITE Mela is a platform for the students to showcase their learning artefacts to community members in their village, parents, other students, teachers, ITE resource members, and government officials. Participant students are given stalls where they present their artifacts and also get a chance to interact with the public and many officials.

Camps

- Students make their own computer games on Scratch and offer others to play.
- Solve Fermi Problems
- Create own brainstorming problem.
- Learn new ICT applications (Arduino Uno, Phet etc.)
- Create robotic-cars, anti-theft alarms, fire-alarm systems, automatic street light systems, etc. using robotics
- Participate in carrying out live telecast of the camp exhibition and anchoring the event

ITE Mela

- Students present their learning artefacts at stalls.
- Visitors interact and ask questions to students
- Formal presentation of projects by students to audience
- Hands-on experience for the visitors on computational thinking, robotics and other interactive projects
- Public Speaking and Presentation skills

Problem Solving, Computational thinking, Public Speaking, Presentation skills and other 21st Century skills

“ I am in class V and first time I have made a computer game which very less students can make. I used Scratch and some simple coding to control the game. I am sure it will help me in future and I really enjoyed making it.”

Alfia Iqram, Samaritan Mission School

“ The effort is commendable. An entirely out of the box approach introduced in classroom learning in government schools. The students in these schools get minimum exposure to Information Technology, it is highly praiseworthy that the approach can be initiated through vernacular medium.”

Ishita Ghosh (Principal, Debendra Vidyapith for Girls)

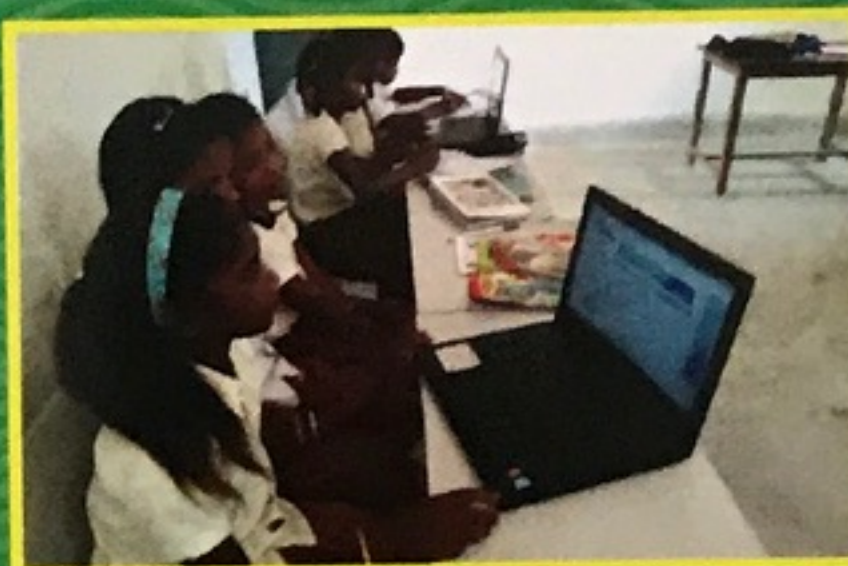
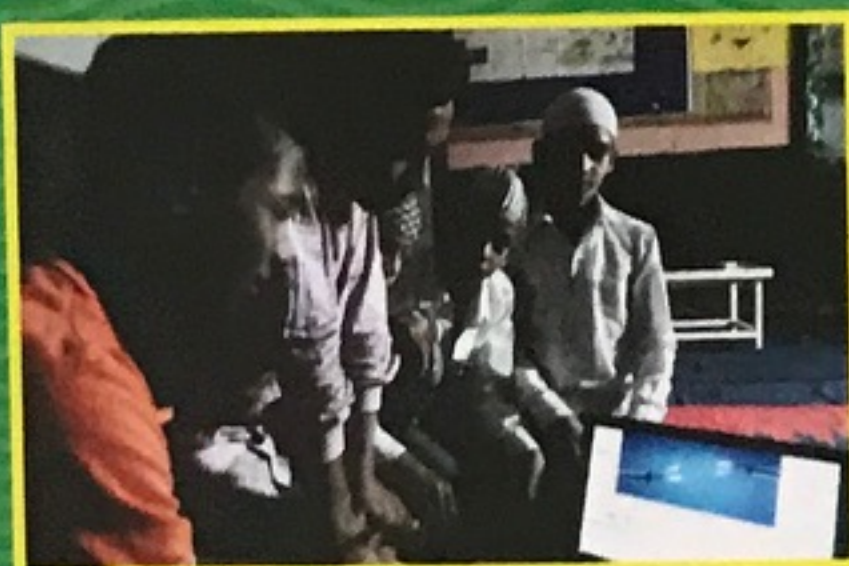
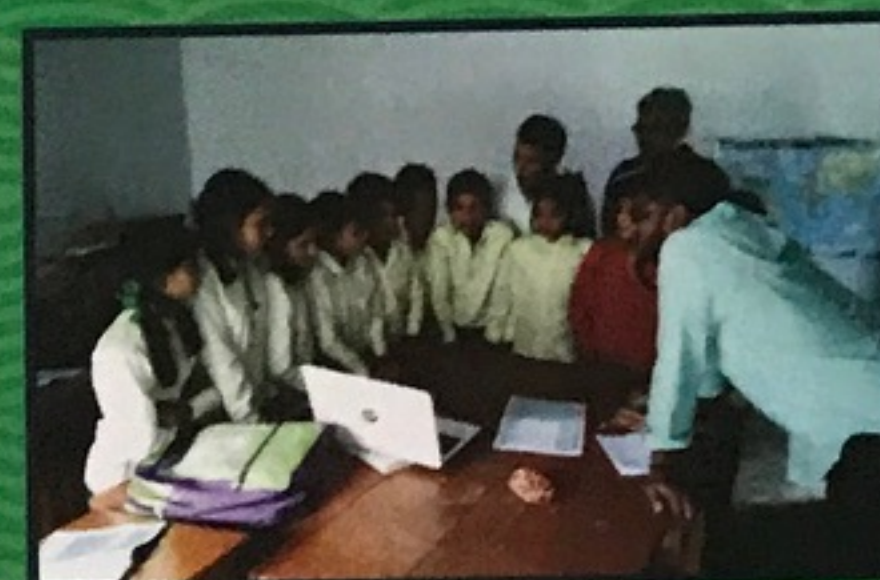
“ The students of Dunkuni Sr. Madrasah presented their project on “Measuring Force and Pressure”; they were asked why they multiplied mass with 9.8, instead they could have multiplied it with 10 which is easier. Audience were stunned when an instant reply came that the earth applies 9.8 Newton force on each 1 kg mass so we calculated it with 9.8. Further they were asked if it is calculated in moon what will happen. At once they answered that then the weight will be one sixth that of on earth.”

Babita Dutta Majumder, Academic Support Person at Vikramshila Education Resource Society, Kolkata, WB

Reaching the Unreached

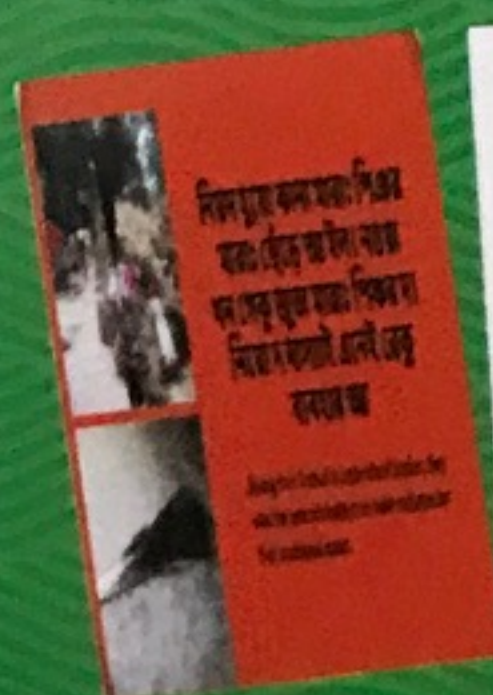


ITE beyond the boundaries



Students engrossed in ITE activities

Students sharing their work



Artefacts in own languages

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“

While doing ITE projects I am able to understand different topics more easily. I can know more and more about the topics through using internet. I am able to apply those learning in my practical life as well.

Student, Paschim Tamulpur Uchho
Madhyamik Vidyalaya, Baksa, Assam.
(As translated from Assamese)

It's my first time seeing a laptop and it's nice. I am very happy because I can work on a laptop and learn from it.

Student, Ashramshala, Pali, Palghar.
(As translated from Marathi)

”

About **7500**
students made
ITE projects under
Madrasahs.

Providing unique opportunity to experience learning in ways that are markedly distinct from traditional process both in private and government Madrasahs, ITE is allowing co-creation of knowledge in the classrooms. The students make projects with components of IDD (Dinni and Dunyavi talim) also.

Hooghly, West Bengal
Jaunpur, Uttar Pradesh
Varanasi, Sitapur, Barabanki
and Bahraich, Uttar Pradesh

About **7050**
students are making
projects in tribal
and adverse areas.

In tribal and other adverse areas lacking basic amenities, communication facilities and at remote geographical location, ITE is trying to reach the deprived and backward realm of the society, with special emphasis on multi-lingual approach allowing students to use technology to conceptualize and create project in their own languages. It is also fostering digital citizenship and improving the teaching learning process.

Birbhum, West Bengal
Baksa, Assam
South Odisha, Odisha
Dhadgaon and Palgarh,
Maharashtra
Torpa, Rania, Jharkhand
Bilangana, Tehri Garhwal,
Uttarakhand

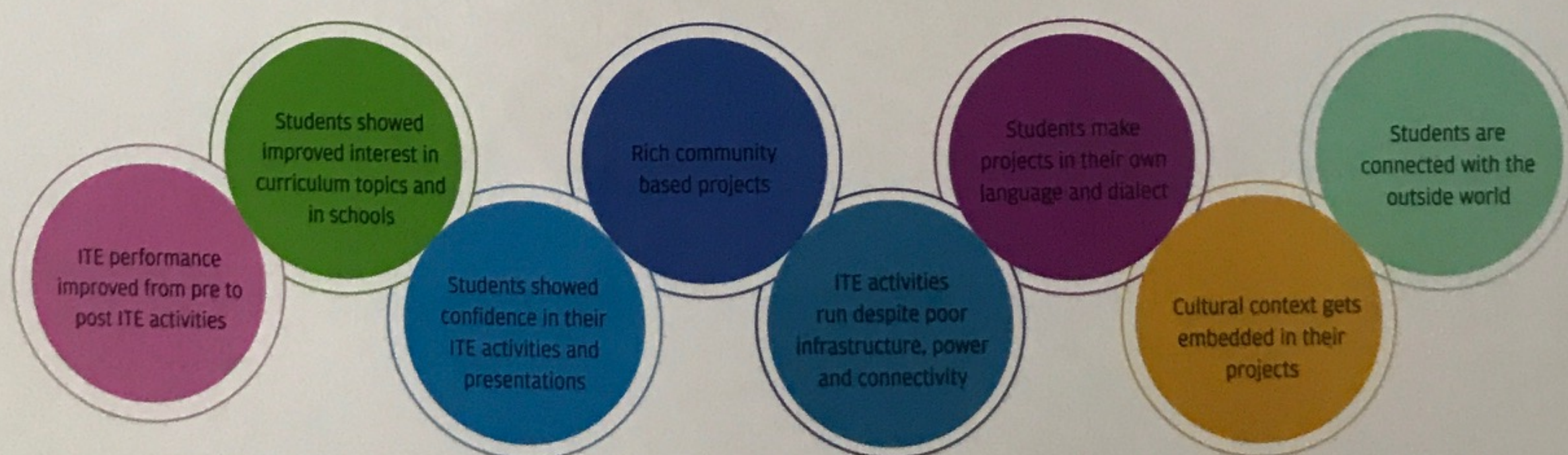


Madrasah
Learning centres
Government schools



Tribal and adverse areas
Learning centres
Government schools

Impact of ITE on students learning in these contexts



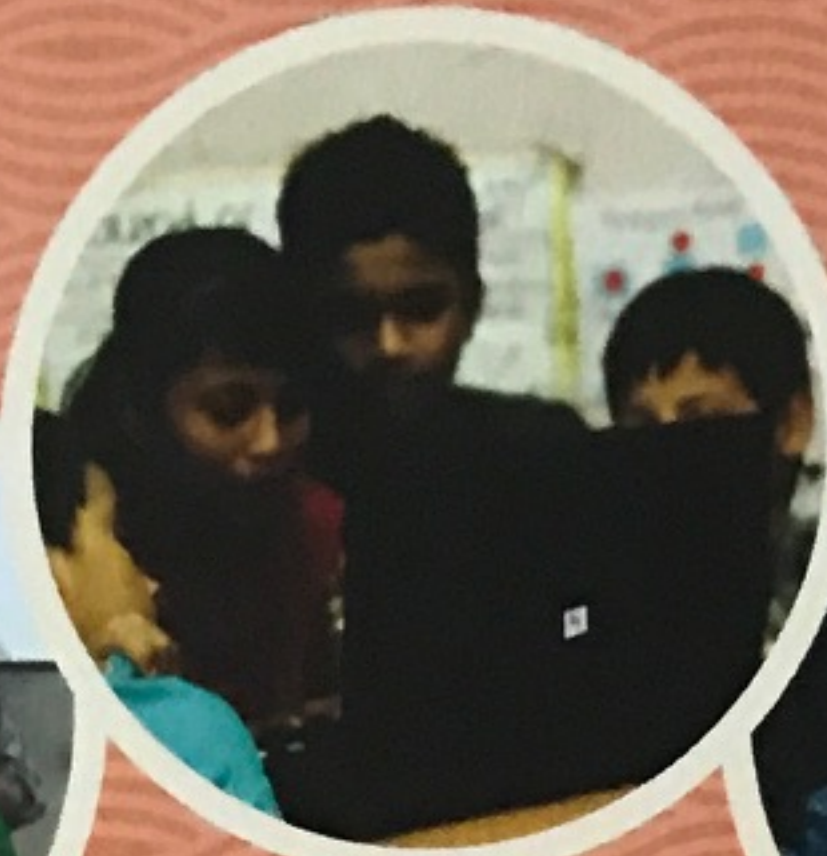
Scaling and systemic
integration of ITE in
different geographies

Research and
impact documentation

ITE Camp and
Mela for students

ICT infrastructure
for students and
teachers

Teacher
Professional
Development
through
Certificate Course



Way forward for Partnership

ITE partners across states

- State Ministry of Education, Assam
- Assam Ministry of Secondary Education (RMSA) Assam (Now merged with SSA, Assam)
- State and District Ministry of Education, West Bengal
- Suchana- West Bengal
- Vikramshila Education Resource Society - West Bengal
- Child in Need Institute (CINI) - West Bengal
- Samaritan Help Mission - West Bengal
- Gramya Vikash Mancha (GVM) - Assam
- Digital Empowerment Foundation (DEF) - Assam
- Nalanda Resource Centre for Educational Innovation and Training - Uttar Pradesh
- People's Vigilance Committee on Human Rights (PVCHR) - Uttar Pradesh
- Azad Shiksha Kendra - Uttar Pradesh
- Himmatthan (Mount Valley Development Association (MVDA)) - Uttarakhand
- ML Dhavle Memorial Trust- Maharashtra
- Collective for Integrated Livelihood Initiative (CINI) - Maharashtra
- Torpa Rural Development Society for Women- Jharkhand
- South Odisha initiative and its partner

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Sustainable education development thrives on collaboration among governments, non-governmental organizations, businesses and foundations and civil society. Such collaboration will provide an opportunity for adolescents to interact, explore and authenticate their learning at school, using technology.

Way forward for partnerships

Government Institutions support

- Infrastructure to schools
- Systemic integration of ITE through assessment
- Teacher Fellowships in the LeaP approach
- Strengthening the cadres of teacher educators through Certificate Courses
- Scale through Teacher Professional Development in existing geographies

Businesses and Organization support

- Student camps
- Scaling up in current geographies
- Use ITE and LeaP in designated new geographies
- Fund Teacher Professional Development including Certificate Courses
- Knowledge Construction and dissemination at national and international forums
- Infrastructure support for teachers and schools

Yes, I am interested in supporting the LeaP concept through:

- ☐ Teacher Professional Development
- ☐ Scale up in the current geographies
- ☐ Start similar project in a new geography
- ☐ Support student Young producers camps
- ☐ Reaching the Unreached through implementing partners
- ☐ Infrastructure development in schools

Name:

Organisation:

Contact:
