Connected Learning at Scale:
An International Symposium
8-9 August 2018

CLI
CONNECTED LEARNING INITIATIVE

An initiative seeded by

TATA TRUSTS

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RE-IMAGINING FUTURES

TISS

Massachusetts Institute of Technology

The Connected Learning Initiative (CLIx) is a technology enabled initiative at scale for high school students. The initiative was seeded by Tata Trusts, Mumbai with Tata Institute of Social Sciences, Mumbai and Massachusetts Institute of Technology, Cambridge, U.S.A. as founding partners. It offers a scalable and sustainable model of open education and is a bold effort to bring innovation, and global best practices adapted to the Indian context, to meet the educational needs of students and teachers.

CLIx incorporates thoughtful pedagogical design and leverages contemporary technology and online capabilities. Resources for students are in the areas of Mathematics, Sciences, Communicative English and Digital Literacy, designed to be interactive, foster collaboration and integrate values and 21st century skills. These are being offered to students of government secondary schools in Chhattisgarh, Mizoram, Rajasthan and Telangana in their regional languages and also released as OERs.

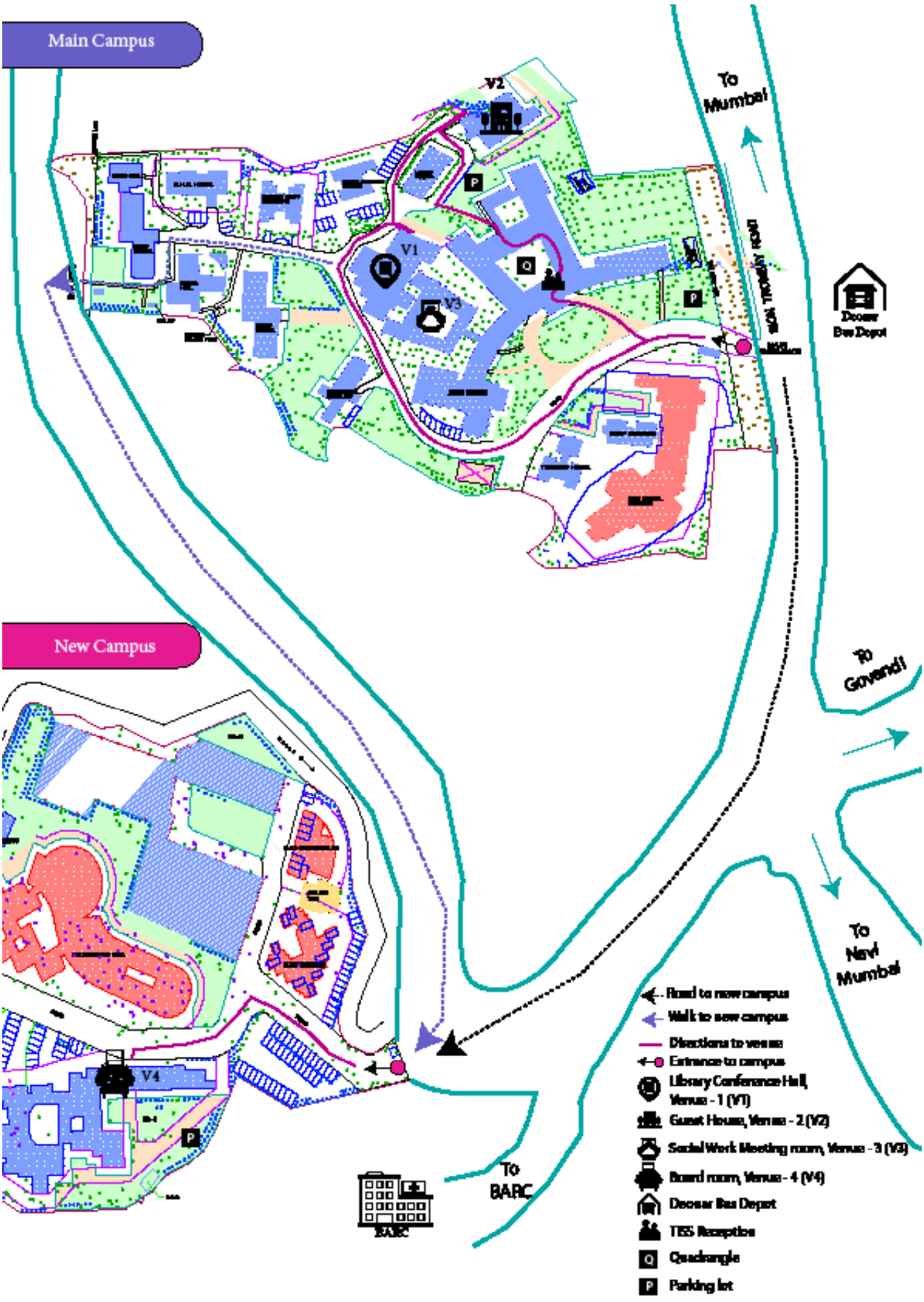
Teacher Professional Development is available through professional communities of practice and the blended Post Graduate Certificate in Reflective Teaching with ICT. Through research and collaborations, CLIx seeks to nurture a vibrant ecosystem of partnerships and innovation to improve schooling for underserved communities.

Collaborators:

Centre for Education Research & Practice – Jaipur, Department of Education, Mizoram University – Aizawl, Eklavya – Bhopal, Homi Bhabha Centre for Science Education, TIFR – Mumbai, National Institute of Advanced Studies – Bengaluru, State Council of Educational Research and Training (SCERT) of Telangana – Hyderabad, Tata Class Edge – Mumbai, Inter-University Centre for Astronomy and Astrophysics – Pune, Govt. of Chhattisgarh, Govt. of Mizoram, Govt. of Rajasthan and Govt. of Telangana.

Any questions, suggestions or queries may be sent to us at: contact@clix.tiss.edu

Centre for Education, Innovation and Action Research
Tata Institute of Social Sciences
V.N.Purav Marg, Deonar, Mumbai – 400088, India
Phone: +91 – 22- 25525002/3/4
www.clix.tiss.edu


Main Campus
New Campus
V1
V2
V3
V4
To Mumbai
Deonar Bus Depot
To Govandi
To Navi Mumbai
To BARC
BARC
Road to new campus
Walk to new campus
Directions to venue
Entrance to campus
Library Conference Hall, Venue - 1 (V1)
Guest House, Venue - 2 (V2)
Social Work Meeting room, Venue - 3 (V3)
Board room, Venue - 4 (V4)
Deonar Bus Depot
TISS Reception
Quadrangle
Parking lot

Key Contacts	
Organising Committee	Amit Dhakulkar- amit.dhakulkar@tiss.edu Meera Chandran- meera.chandran@tiss.edu Omkar Balli - omkar.balli@tiss.edu
Programme and Communications	Deepa Bhalerao- deepa.bhalerao@tiss.edu Dhwani Bafna - dhwani.bafna@tiss.edu Sunita Badrinarayan - sunita.badrinarayan@tiss.edu
Logistics	Munaf Merchant - munaf.merchant@tiss.edu Poonam Sachdev - poonam.sachdev@tiss.edu Shubhangi Wankhede- shubhangi.wankhede@tiss.edu
Technology Support	Mrunal Nachankar - mrunal.nachankar@tiss.edu Sadaqat Mulla- sadaqat.mulla@tiss.edu Satej Shende- satej.shende@tiss.edu

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01 CONCEPT NOTE

Connected Learning at Scale: An International Symposium

8 & 9 August, 2018 – Mumbai, India

The *Tata Institute of Social Sciences, Massachusetts Institute of Technology and the Tata Trusts* are pleased to announce Connected Learning at Scale: An International Symposium, to be held in Mumbai on 8 & 9 August 2018. The symposium aims to build on the Connected Learning Initiative (CLIx), a collaborative project to improve the academic and professional prospects of high school students in underserved communities in India. Since its launch in 2015, CLIx has served over 32,437 students in the states of Chhattisgarh, Mizoram, Rajasthan and Telangana, provided professional development for 2130 teachers and innovated in design and development of resources and platform (clix.tiss.edu). CLIx was awarded the UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of ICTs in Education 2017 edition in March this year.

The purpose of the symposium is to have practitioners and researchers share experiences and collaborate on design and development of innovative solutions for quality learning at scale. It is designed with panels and workshops through which participants with rich experience in educational innovation are addressing the themes of,

- Designing learning experiences
- Scaling with quality
- Partnerships
- Research directions

Principles that could guide the integration of technology in curriculum and pedagogy, teacher professional development for transformative impact, openness,

connectedness are some of the issues and considerations that are expected to frame the discussions and workshops. Sessions are structured to facilitate interaction among participants to deepen and extend shared knowledge of issues critical to quality learning at scale.

Participants are drawn from Educational Planners, Policymakers and Practitioners, Educational researchers, Foundations and Agencies involved in advancing quality education for all, and STEM education, representatives of Indian state and central governments. It is hoped that diverse partners and stakeholders will convene to create strategies, pathways and opportunities for new partnerships and further innovations in education.

02 PROGRAMME

Connected Learning at Scale: An International Symposium

8 & 9 August, 2018 – Mumbai, India

Time and Venue	Day 1- August 8
9.00-9.30 am Venue 1	**Registration**
9.30-10.30 am Venue 1	**Keynote Plenary: Perspectives and Practices in Technology-Enabled Teaching, Learning and Future Direction**s Practice based and scholarly perspectives on the future of technology enabled education, setting the agenda for the two days' engagement **Speakers:** RCM Reddy, IL&FS Education ; Victoria L. Tinio, Fit-Ed; Vijay Kumar, MIT **Chair**: Padma M Sarangapani, TISS
10.30-11.00 am	**Tea break**
11.00 am -12.30 pm Venue 1	**Plenary 01: Connected Learning Initiative (CLIx): Quality at Scale** Designing and Implementing CLIx across schools in India: What did it take? Principal Investigators and core team leads of CLIx discuss the developments of the initiative, key findings and learnings since its inception in 2015. Panelists: Padma M Sarangapani, Ajay K Singh, Amina Charania, TISS; Eric Klopfer, MIT; Tara Sabavala, Tata Trusts; Nagarjuna G., HBCSE Moderator: Amrita Patwardhan
12.30-2.00 pm Venue 1	**Poster Presentations** (will continue through lunch break)

1.00-2.00 pm	**Lunch break**
	Parallel Sessions
2.00-3.30 pm Venue 1	**Conecta Ideas: ICT supported teaching with a social motivation strategy** - Roberto Araya Schulz, University of Chile **IT Training through Spoken Tutorials to Reach the Unreached** - Kannan Moudgalya, IIT Bombay Academic experts will share insights based on their research on ICT enabled teaching and learning initiatives
Venue 2	**Education Reform: Role of Assessments and Technology to improve learning outcomes at scale** - Pranav Kothari, Educational Initiatives **Addressing student learning outcomes through progressively building teacher capacity**-Abhinav Mathur, Million Sparks **Building a world where every teacher will learn and grow anytime, anywhere at zero cost**- Vinod Karate, Teacher App Leaders from these organizations will share key insights and observations based on their work with teachers and students from K-12 schools in India
Venue 3	**Continuous Professional Development for Government School Teachers** - Amina Charania, TISS **Online Teacher Communities of Practice** - Bindu Thirumalai, TISS TISS faculty present experiences and research based findings based on two models of blended learning for practicing teachers
3.30-4.00 pm	**Tea Break**
4.00-5.30 Venue 1	**Plenary 02: Teachers' Voices: Opportunities and Challenges in Implementation of ICT Based Learning** **Panelists:** Odelu Kumar, Teacher, Telangana; Shweta Gupta, Teacher, Rajasthan; Jogen Chandra Rabongshi, Teacher, Assam; Sajid Ansari Hussain, Teacher, West Bengal; Radhakrishnan C, Principal, Nilambur, Kerala **Moderator:** Amina Charania Teachers representing national initiatives will share their reflections on their ICT based professional development and practice.
5.30-6.30	**Poster Presentations**
7.00 pm onwards Venue 1	**Special Reception: A gathering to recognize CLIx partners' and teachers' contribution to the initiative** (To be followed by Dinner)

Time and Venue	Day 2- August 9
9.00-9.30 am Venue 1	**Registration**
9.30-11.00 am Venue 1	**Plenary 03: Policy and Practice in Technology based Education** **Panelists** : B. Seshukumari, SCERT, Telangana; Nand Kumar, Govt. of Maharashtra Gurumurthy Kasinathan, ITfC; María Cristina Cárdenas Peralta, Govt. of Mexico; K. Lalthawmmawia, Govt. of Mizoram; Krishna Barua, Govt. of Assam **Moderator:** Archana Mehendale This panel brings together government representatives from India and other contexts to address policy dimensions and their implications for large-scale education initiatives
1.00-11.30 am	**Tea Break**
	Parallel Sessions
11.30-12.30 pm Venue 1	**Building Design Capacity: A Model for Developing Teams' Design Expertise** - Eric Klopfer, MIT Presenter will share his experiences, successes and challenges of using a capacity building model with design based approach and participants will participate in a mini-activity.
Venue 2	**Implementation Monitoring at Scale: The Good, the Bad, and the Difficult**- Archana Mehendale, TISS & Glenda Stump, MIT Participants will explore key considerations for implementation monitoring via case studies (examples and non-examples) from developing country contexts.
Venue 4	**Designing Educational Technologies for Collaborative and Connected Learning at Scale** - Nagarjuna G., HBCSE; Sadaqat Mulla, TISS In this workshop, with a blend of discussion, demonstration and hands-on, presenters will share the experiences of how the CLIx technologies came into being, how connected learning in disconnected spaces is being experimented, possible approaches for scaling up and tools to foster connected and collaborative learning.
12.30-1.30 pm Venue 1	**Demo Sessions** CEQUE, CLIx ,HBCSE, ITE , MIT, PARAG, PRATHAM BOOKS, SVYM, Tata Class Edge

1.00-2.00 pm	**Lunch Break**
	Parallel Sessions
2.00-3.30 pm Venue 1	**Roundtable: Contemporary approaches to developing partnerships for large scale education initiatives** AN Ramachandra, Govt. of India; Maarit Palo, IBM Finland; Upender Reddy, Govt. of Telangana; Lalbiakdiki Hnamte, Mizoram University; Nirada Devi,Govt. Of Assam, Romen Das, Govt. of Assam; Brandon Muramatsu, MIT; Omkar Balli, TISS; Manmohan Singh, KEF; Sylvia Garde, Fit-Ed; Archana Mehendale, TISS; Nagendra Nagpal, CERP; Anil Mammen, Tata Class Edge **Moderator**: Ajay K Singh
Venue 2	**Traditional Games** - Sree Ranjini, Kavade Followed by Fireside chat on **Games for Learning** **Discussants**: Amit Dhakulkar, TISS & Judith Perry, MIT
Venue 3	**Practice based Research in Educational Technology** - Pekka Neittaanmäki, University of Jyväskylä, Finland **National Repository of Open Educational Resources** - Indu Kumar, CIET, NCERT, India
3.30-4.00 pm	**Tea Break**
4.00-5.30 pm Venue 1	**Plenary 04: Looking Back & Moving Forward - Insights on building sustainable models for improving education** R. Venkataramanan, Tata Trusts; Shaheen Mistry, Teach for India; Sanjay Gupta, English Helper; Lucia Dellagnello, CIEB; Alex Menon, Govt. of Chhattisgarh; Nidhi Pundhir, HCL Foundation **Moderator**: Vijay Kumar What have we learned the last two days and how do we extend that to other contexts? How do we create opportunities to improve education and employment prospects for underserved youth?
5.30-6.00 pm	**Closing Remarks**
5.30-6.30 pm	**Demo Sessions continued**

Venue	Location
Venue 1	Conference Room , 6th Floor , Library Building (Lunch, the demos and poster presentations will run through the corridors of 5th and 6th floor of the same building)
Venue 2	602, Guest House building
Venue 3	School of Social Work Meeting Room, Second Floor, School of Social Work Building
Venue 4	Board Room, Ground Floor, TISS New Campus

03 OVERVIEW OF PLENARY SESSIONS

Keynote Plenary: Perspectives and Practices in Technology-Enabled Teaching, Learning and Future Directions

Speakers: RCM Reddy, IL&FS Education ; Victoria L. Tinio, Fit-Ed; Vijay Kumar, MIT
Chair: Padma M Sarangapani, TISS

What are the new ways of thinking about the future of education with technology opening up innovative forms of teaching and learning ?

Education technology has been in schools around the world now for about four decades or so. The journey has been a chequered one from the euphoria of ICT being the answer to educational issues to the cautious pragmatism about its pedagogic value. The keynote plenary consists of speakers that draw from their scholarly and practice based research and experience to map the successes and challenges of ICT in education. They will present to us the key issues that must be engaged with during the symposium that will mark the direction that technology in education will take in the coming years. The direction will enable us to respond to the themes of connectedness and scale.

Plenary 01: "Connected Learning Initiative (CLIx): Quality at Scale" Designing and Implementing CLIx across schools in India

Panelists: Padma M Sarangapani, Ajay K Singh, Amina Charania, TISS, Eric Klopfer, MIT; Tara Sabavala, Tata Trusts; Nagarjuna G., HBCSE.
Moderator: Amrita Patwardhan

Designing and Implementing CLIx across schools in India: What did it take? Principal Investigators and core team leads of CLIx will discuss the developments of the initiative, key findings and learnings since its inception in 2015.

Connected learning at scale was the idea that has informed the work of CLIx for the last three years. What were the building blocks of this initiative, what were the key principles and design strategies that went into the making of CLIx; its curricular interventions and ecosystemic approach to partnerships; pedagogic approaches and action research that informed implementation. The people that were instrumental in shaping the CLIx initiative take a trip down memory lane to talk about the journey, and reflect on what they feel have been the key achievements so far and what could have gone better. CLIx experience provides the backdrop and the trigger for the discussions on education innovation and scaling with quality.

Plenary 02: Teachers' Voices: Opportunities and Challenges in Implementation of ICT Based Learning

Panelists : Odelu Kumar, Teacher, Telangana; Shweta Gupta, Teacher, Rajasthan; Jogen Chandra Rabongshi, Teacher, Assam; Sajid Ansari Hussain, Teacher, West Bengal; RadhaKrishnan C, Principal, Kerala
Moderator: Amina Charania

Teachers representing national and international initiatives will share their reflections on their technology-enabled practice and professional development

Teachers' knowledge and commitment lie at the core of education innovations. It is teachers' practice, their imagination and creativity, rich knowledge of the context and domain that imbues pedagogic value to the innovation. This panel places teachers' practice and professional development at the forefront of the discourse on educational innovation and what it means for teachers to interpret these innovations within their own diverse contexts. Teachers share their experiences of being part of education innovations and lend their rich experiences and reflections that will provide new directions for design thinking and research.

Plenary 03: Policy and Practice in Technology and Education

Panelists: B. Seshukumari, SCERT, Telangana; Nand Kumar, Govt. of Maharashtra Gurumurthy Kasinathan, ITfC; María Cristina Cárdenas Peralta, Govt. of Mexico;
K. Lalthawmmawia, Govt. of Mizoram; Krishna Barua, Govt. of Assam
Moderator: Archana Mehendale

This panel will bring together government representatives from India and other contexts

to address policy dimensions

Policy is a critical lever that guides and shapes education technology, from infrastructure to curriculum, it has the potential to influence meaningful use of ICT in education. This panel seeks to bring together a diverse set of speakers who have been at the forefront of influencing, drafting, and implementing policy nationally and globally. They offer their critical perspectives on what has worked in ICT policy, how policy and practice reciprocally influence one another, where we stand today in terms of what ICT policy means for curricular change and what we can expect in the near future. The speakers bring their rich experiences from both ends of the spectrum, i.e., policy making and practice to examine the implications of ICT policy particularly for large scale education initiatives.

Plenary 04: Looking Back & Moving Forward - Sustainable and Smart Financing for Education

Panelists: R. Venkataramanan, Tata Trusts; Shaheen Mistry, Teach for India; Sanjay Gupta, English Helper; Lucia Dellagnello, CIEB; Alex Menon, Govt. of Chhattisgarh; Nidhi Pundhir, HCL Foundation
Moderator: Vijay Kumar

This panel brings together people representing foundations and organisations who will address questions and issues related to holistic development of the sector, effective ways to reach under-resourced communities preserving the principles critical to quality at scale

Educational technology is a dynamic space that draws together a multitude of actors with diverse sets of interests and passions. Over the past decade, the private sector has increasingly been recognized as a major stakeholder in financing and implementing large-scale education initiatives. The interweaving themes of connectedness, partnerships and scale of the symposium require diverse stakeholders to take on the looming question of how education technology can be leveraged to address the vexing issues of equity in education particularly with respect to STEM learning. Collaborations across private, government and non-government sectors can leverage upon mutual strengths in technical expertise, pedagogic knowledge and research, , access to networks and data to help build a strong eco system for ed-tech initiatives. How do we move beyond traditional models of engagement and look for ways to co-create sustainable solutions to common problems?

This panel brings together people representing foundations and organisations who will respond to address questions and issues related to holistic development of the sector, effective ways to reach under-resourced communities preserving and preserving the principles critical to quality at scale. Questions emerging from the two day long deliberations from practice and research will be placed before the panel inviting their pertinent responses that offer clear directions for action.

04 PARALLEL SESSIONS

1. A. i. Conecta Ideas: ICT Supported Teaching with a Social Motivation Strategy

Speaker- Roberto Araya Schulz, University of Chile

We present learning outcomes using Conecta Ideas. This is a system that supports teachers to perform whole class guided instruction using a social motivation strategy: periodic inter-class synchronized tournaments. The strategy is to activate ancestral social mechanisms of collaboration (similar to team sports) and a sense of belonging in order to motivate all students to practice math and prepare for the tournaments. We conducted a cluster randomized controlled study with 48 fourth grade classes from 24 Chilean low SES schools. In each school a class was randomly assigned to a year-long treatment. More than 1,500 sessions of 90 minutes of treatment were registered with students´ activities that include answers to multiple selection questions and written responses to open questions. In addition, reviews of the written responses by peer students were also registered. On the other hand, there were tens of thousands of interactions between student monitors who helped answer queries from their peers. Additionally, four inter-class tournaments were implemented. From the baseline, midline and final line standardized tests administered by independent specialized institutions, and the national standardized test at the end of the year, positive effect sizes statistically significant were obtained.

1. A. ii. IT Training through Spoken Tutorials to Reach the Unreached

Speaker- Kannan Moudgalya, IIT Bombay

A Spoken Tutorial (ST) is a 10 minute long audio-video tutorial, created to provide training on Information Technology (IT) topics. Spoken Tutorials are

created for self learning; Spoken part of STs are dubbed into all 22 official Indian languages; STs can be used offline. Both ST and the software it attempts to teach are available free of cost to everyone. We currently have about 1,000 original English ST and 9,000 ST, including dubbed tutorials.
Four million college students and teachers have been trained using ST during the past four years. 40,000 college lab courses have officially used ST. Many academic institutions have used STs as MOOCs for practical courses. We are about to implement a paid model of online testing to reduce the dependence on government funding and to improve the training efficacy.
This valuable resource is available for other countries, for use as it is, or after dubbing into their languages.The ST approach can be extended to other skills training also.

1. B. i. Education Reform: Role of Assessments and Technology to improve learning outcomes at scale

Speaker- Pranav Kothari, Educational Initiatives

Technology has held a lot of potential to improving learning outcomes at scale. Only a few technology based initiatives, however, have shown clear learning gains. Recently, a J-PAL RCT conducted on Mindspark - a personalized adaptive software - showed impressive gains. This session will describe the journey of Educational Initiatives from using research from large scale assessments to build Mindspark (a learning solution) and deploying it in settings ranging from rural/tribal parts in Rajasthan (using a vernacular version in Hindi/Gujarati) to elite private schools (in English). It will also share challenges faced in working with teachers and product improvements and operational techniques implemented to overcome some of them. Finally it will showcase the different data analysis and monitoring screens made to support a scale-up and describe an operating playbook that will be made public for any EdTech agency to implement in government schools.

1. B. ii. Addressing Student Learning Outcomes through Progressively Building Teacher Capacity

Speaker- Abhinav Mathur, Million Sparks

Continuous professional development of teachers is an established need to ensure continued relevance of the curriculum, knowledge, and pedagogical approaches. Every country has adopted different approaches to train their

teachers. The sheer scale of the number of teachers and their diversity in many developing countries especially India presents several challenges. Existing training methodologies rely on face to face trainings which has several bottlenecks in terms of quality of content, lack of availability of quality trainers, finances, logistics, and infrastructure. ChalkLit is a mobile centric platform developed by the Million Sparks Foundation which focuses on capacity building and relies on the effective use of technology to overcome some of the bottlenecks faced in addressing the massive scale and quality requirements. The platform is being used by over 20000 teachers by the department of education of four states of India, namely Goa, Delhi, Haryana and Uttar Pradesh to support their capacity building initiatives. The learnings from the ground are being constantly used to further improve both the product and the content available on the same.

1.B. iii. Building a World where Every Teacher will Learn and Grow Anytime, Anywhere at Zero Cost.

Speaker- Vinod Karate, Teacher App

The presentation would focus on sharing how TheTeacherApp has attempted to reimagine the MOOCs to solve one of the biggest challenges in India. We would share the hypothesis we developed to explore the possibility of creating a powerful digital learning experience for teachers by carefully looking at four key pillars - Content, Engagement, Access and Motivation- in cohesion. We will also discuss the process of developing a minimum viable product and share our learnings from a pilot study conducted with over 500 teachers across 7 states in India.

The presentation would also focus on sharing specific strategies we are adopting to unlock exemplary content for teachers by partnering with individuals, organizations and government.

1. C. i. Continuous Professional Development for Government School Teachers

Speaker - Amina Charania, TISS

This workshop will discuss opportunities, challenges and achievements of a Continuous Professional Development model for Government school teachers in India. Evidence from teachers' artefacts, CoPs, classroom

practices and student impact data will be showcased to delve in to some of the opportunities and challenges in the various teacher professional development. The discussion will seek suggestions and systematic feedback from the participants of the workshop on the processes and artefacts from the participants of the workshop to enrich the teacher professional development practices and models undertaken at CEIAR.

1. C. ii. Online Teacher Communities of Practice

Speaker- Bindu Thirumalai, TISS

The idea of online teacher communities of practice (oCoP) as scalable and sustainable ways of providing continuous teacher professional development by developing a shared language of practice has emerged as an essential feature in teacher professional development discourse. CoPs offer a safe, professional space for teachers to share and reflect on their practice, connect with peers and experts in the field to address the issue of professional isolation by making classroom practice and school contexts public. However, the management (technical and pedagogical) of oCoPs are complicated in the Indian context, where teachers are very recent entrants to the digital world.In this session, I discuss both technical and pedagogical management designs to create and sustain oCoPs based in the context of rural secondary school government teachers in India. I also present analysis from one oCoP and suggestions for restructuring and managing the oCoP for developing reflective practitioners.

2. A. Building Design Capacity: A Model for Developing Teams' Design Expertise

Speaker- Eric Klopfer, MIT

Designing effective and engaging educational tools and games requires a variety of specific, practical skills. Through an iterative design process, designers are able to thoughtfully integrate their knowledge of content, pedagogy, and technology, test their products, and adapt them to real-world constraints to produce measurable desired outcomes. To support teams in developing these necessary design skills, we developed a model for building the capacity of our project partners. Our goals included leveraging participants' existing skills (e.g., deep domain knowledge, pedagogical experience) while strengthening and adding new skills as needed. Our team

provided support via both ongoing remote collaboration as well as face-to-face intensive Design Camps. While capacity building efforts were tuned to each specific groups' needs, all integrated elements of a Design-Based Research approach (including both research methodologies and design practices). In this workshop, we will share our experiences, successes and challenges of using this capacity building model. Participants will participate in a mini-activity in which they will grow their own design skills, and will then reflect on how these types of capacity building experiences might help their own teams sharpen their skills and improve outcomes.

2. B. Implementation Monitoring at Scale: The Good, the Bad, and the Difficult

Speaker- Archana Mehendale, TISS & Glenda Stump, MIT

Implementation monitoring, with an emphasis on fidelity of implementation (FOI), provides critical information regarding how and why an intervention produces desired results. In this session, we will discuss implementation monitoring as a form of action research that is highly appropriate for educational interventions delivered at scale. We will highlight fidelity of implementation and its measurement in efficacy trials as well as in effectiveness evaluation studies. An intervention monitoring framework will be presented as a guide to the design of a monitoring strategy. We will talk about potential use of technology for implementation monitoring in diverse field settings. Participants will explore key considerations for implementation monitoring via case studies (examples and non-examples) from developing country contexts.

2. C. Designing Educational Technologies for Collaborative and Connected Learning at Scale

Speaker- Nagarjuna G., HBCSE; Sadaqat Mulla, TISS

More often than not, in the EdTech, "Tech" develops first and then gets fitted onto "Ed" - one of the reasons why, the workshop moderators think, EdTech is yet to cross its nascent stage despite spanning several decades. When it comes to resource constrained contexts such as India the amorphous EdTech becomes even more puzzling and pessimistic. However, CLIx learning technologies - an ecosystem of CLIx Platform for student, TISSx as teacher platforms, apps, bots, OER and dashboard - make a fundamental departure and experiment with technologies designed and primed for educational

objectives. There is a intriguing story to share about how a mashup model of learning technologies is being experimented in and beyond CLIx. In this workshop, with a blend of discussion, demonstration and hands-on, we share the experiences of how the CLIx technologies came into being, how connected learning in disconnected spaces is being experimented, possible approaches for scaling up and tools to foster connected and collaborative learning.

3. A. Roundtable: Contemporary Approaches to Partnership Development for Large Scale Education Initiatives

Speakers- AN Ramachandra, Govt. of India; Maarit Palo, IBM Finland; Upender Reddy, Govt. of Telangana; Lalbiakdiki Hnamte, Mizoram University; Nirada Devi,Govt. Of Assam, Romen Das, Govt. of Assam; Brandon Muramatsu, MIT, Omkar Balli, TISS; Manmohan Singh, KEF; Sylvia Garde, Fit-Ed; Archana Mehendale, TISS; Nagendra Nagpal, CERP; Anil Mammen, Tata Class Edge
Moderator: Ajay K Singh

The round table is designed to bring together experiences, challenges, questions, failures, learnings towards developing partnerships and possible models for the implementation of large scale education initiatives. Individuals and groups who have worked in the education space in different sites with a range of media and pedagogic forms will share their expertise and ideas that have guided and evolved through their work with various stakeholders. Reflections will be towards trying to articulate possibilities of how the constantly changing space of education can be shaped by innovative collaborations and the possibilities that are worth pursuing in future courses of action. As a more immediate outcome, the roundtable will come up with a set of questions and recommendations for the deliberation of the Foundations panel.

3. B. i Practice based Research in Educational Technology - University of Jyväskylä, Finland

Speaker- Pekka Neittaanmäki, University of Jyväskylä, Finland

Experts will share insights from practice based research on innovative learning solutions and open education resources.

3.B. ii Open Educational Resources

Speaker- Indu Kumar, National Repository of Open Educational Resources (NROER),CIET, NCERT, India

The National Repository of Open Educational Resources (NROER) is an initiative of Ministry of Human Resource Development (MHRD), Govt. of India and CIET-NCERT to bring together all digital and digitisable resources across all stages of school education and teacher education. This spans to all subject domains and will be available in all Indian languages. It proposes to use the digital resources to reach out and connect all members of the school community through a variety of events and interactions. The repository will provide workspace for every registered user. It will also provide platform for Massive Open Online Courses (MOOCs) and online forums for different stakeholders.

3. C. **Traditional Games: Kavade.** Followed by **Fireside chat on Games for Learning**

Speaker- Sree Ranjini
Discussants: Amit Dhakulkar, TISS & Judith Perry, MIT

Kavade is an endeavor to revive ancient board games, games that are on the verge of extinction. In an extremely disparate "games" marketplace attracting varied wallet sizes from students to socialites exposed to several varieties of games in the same lens, Kavade aspires to evoke a feeling of bonding through human interactions in the real world rather than human-machine interactions in the virtual world. It represents the cumulative consciousness of the way games are meant to be played – face-to-face, with minimum infrastructure, for the joy of playing! In this session, Sreeranjini from Kavade, will share the journey of Kavade, significance & relevance of ancient board games in today's times, as well as provide an experience of game play.

05 POSTER ABSTRACT

1) *The Communicative English Language Teaching Course Story*

Anusha Ramanathan, Surbhi Nagpal, Mayuri Kulkarni

This working paper will discuss the process of designing a practice-based blended course for in-service professional development of middle and higher secondary school English language teachers in India. The Communicative English Language Teaching course encourages teachers to reflect on their classroom practices and equips teachers with methods and principles to teach English as a second language in their classrooms. This is in tandem with the ICT-enabled CLIx (1) student modules developed to enable learners to acquire 'communicative competence'. This disquisition will outline the need and relevance of such a course for English teachers in the Indian context, and discuss the considerations kept in mind and the steps involved in designing this reflective language teaching course for teachers. It will also highlight the key findings, reflections and suggest recommendations from a year long process of development and implementation of the course.

2) *Challenges in Adopting ICT-Enabled Interventions: The Mizo Narrative*

Sahana VP, Anusha Ramanathan

This working paper gives a preview into the challenges involved in adopting ICT-enabled interventions from the perspective of the teachers of Mizoram, India, where the Connected Learning Initiative-X (CLIx) (1) works to develop an ecosystem of learning that is constructionist. In this regard, the CLIx team developed modules for high school students in the domains of English, Mathematics and Science. The emerging data from the 2016-18 cycle of implementation suggests that teachers have reservations about the module implementation. This paper attempts to throw light on the perceptions teachers have of an ICT-based intervention and

the impact of this on implementation. Another concern is the lack of confidence in digital literacy among the teachers. This paper attempts to focus on such issues in the context of CLIx and posits suggestions as to how some of these can be addressed.

3) Augury of MIS coordinators:
A Case study of CLIx Telangana Schools

Shashank Parimi, Radhika Ajit, Praveen Allamsetti, Santhosh Miryala, Nagula Ramesh, Raju Sambari, Christy Jacob Mathews, Spoorthi Nidhuram and Prem Sagar Raju

The study explores qualitative experiences of both Management Information Systems (MIS) coordinators and Field Resource Coordinator (FRCs) working at 13 districts discussing bottlenecks at different levels of implementation of CLIx (Connected Learning Initiative) project. This study explores state dependency of state PMU (Project Management Unit) related problems during implementation at district level in schools. It also brings out possible responsibilities MIS coordinators who can carry out the project implementation from experiences of FRCs at field level among CLIx) project schools in Telangana. This study brings out how ICT (Information and communication technology) related projects have a higher - level of dependencies on state and other stakeholders during project implementation stage and how these dependencies create gaps in implementation at school level.

4) MIS Coordinators as Key to CLIx Implementation
Voices from Field Experiences in Telangana

Shashank Parimi, Spoorthi Nidhuram

Current Paper are experiences of project implementation at state level.The main focus of this paper would be to understand the journey of a file or paper/ proceedings/circular in the government domain. Based on experiences working in the Project Management Unit at a government level, being a part of the state. we would critically reflect on a journey of an official paper along a strata of the bureaucratic paradigm. This paper will help us in identifying the gaps , also mapping where the objectives of good intend initiatives are lost in transition and are converted into agendas which are just being pushed to fulfil certain requirements.

5) *Measurement of Students' Perceptions Attitudes and Beliefs at Scale following Technology-enhanced Education in Government Schools in India*

Glenda Stump, Archana Mehendale

Students' perceptions, attitudes, and beliefs about themselves and their schoolwork have been shown to influence their approach to learning, their persistence, and ultimately their success as measured by achievement. As a collective, students' perceptions, attitudes, and beliefs are considered as important constructs, but also difficult to measure. Past work has included measurement in post-secondary populations in contexts easily accessible to researchers. The purpose of this paper is to describe an instrument designed to measure these critical variables at scale in 8th and 9th grade students after they engaged in curriculum containing technology-enhanced modules for Math, Science, and Communicative English.

6) *Beliefs, Concerns and Usage of ICT among Secondary Teachers in CLIx Schools*

Glenda Stump, Meera Chandran, Anusha Gajinkar, Arundhati Roy and Raja Sekhar Satyavada

Efforts to integrate ICT in education hold the implicit aim of improving quality of classroom teaching learning processes. However, research has shown that the existing pedagogic practices do not necessarily change with introduction of ICT. Teachers have a critical role in ICT integration but they are limited by their own ICT skills, beliefs and attitudes towards ICT as well as the pedagogical content knowledge required for such an integration. The current paper attempts to investigate the nature of association between teacher beliefs about technology and ICT usage in pedagogy.

7) *ICT in Education at Scale: A Midline Appraisal of CLIx Intervention*

Meera Chandran, Ananya Chatterji, Anusha Gajinkar, Renbeni Kikon, Satish Kumar, Arundhati Roy, Raja Sekhar Satyavada and Glenda Stump

Anchored in contemporary technology and online capabilities, Connected Learning Initiative (CLIx) aims at incorporating thoughtful pedagogical design in classroom practices at scale. A midline survey was conducted to gauge the difference, if any, between treatment and control schools. Based on non-randomised approach, schools where module rollout has been initiated for all

subjects were selected as treatment group. Control schools were identified based on school level characteristics establishing equivalence with treatment schools selected. Results show that, compared to control schools, English and Mathematics teachers from treatment schools were better in digital skills and ICT engagement. In case of students, those of treatment were better in most types of digital skills. Significant state specific variation was noted in domain scores. Within CLIx, boys reported better score in digital skills and Science. Significant association between domain score and digital skill was also noted.

8) From Pillars to Practice: Developing a Shared Vision of Transformative Pedagogy via the CLIx Pedagogical Pillars

Judy Perry, Scot Osterweil, Louisa Rosenheck

The Connected Learning Initiative (CLIx) seeks to impact student learning through the design and implementation of curricular modules in science, maths and English. Each curriculum team crafted modules to engage students and promote deep learning. Yet the CLIx team also sought to articulate a more universal notion of the "CLIx classroom," intentionally promoting learning experiences and classroom culture our experience has shown can lead to successful outcomes. The CLIx team identified three broad "pedagogical pillars": 1) collaboration/peer discussion, 2) creating a safe space to learn from mistakes, and 3) authenticity/ relevance. This poster explains the origins of the pedagogical pillars, providing concrete examples from CLIx modules.

9) Unplatform and Open Embedded Assessments

Kirky DeLong, Cole Shaw, Brandon Muramatsu

As student engagement via digital content becomes increasingly important in preparing youth for potential life skills and employment skills, schools with limited or no internet connectivity face steep challenges in fostering digital literacy and delivering interactive curricular content. This poster session will look at two potential solutions, Unplatform and Open Embedded Assessments, that can be used in under-resourced schools with limited or no Internet connectivity to deliver curricular content is prepackaged and available on local computers. The Unplatform application is a modified, browser-based ePub2 reader that can also support embedded assessments and interactive tools. The Open Embedded

Assessment (OEA) player presents the student with one or more questions, tracks their responses, offers feedback, if needed, and saves student data.

10) *Designing an Interactive and Collaborative Environment for Learning Linear Equations*

Amit Dhakulkar, Sumegh Paltiwale

In this paper, we describe the design of an interactive and collaborative environment for learning linear equations. The context of learning to create and solve linear equations is set in the construction of puzzles by the students. The student groups post their puzzles on a specially designed online platform for other groups to solve, and they, in turn, solve puzzles posed by other groups. Collaboration can happen between members of the small group of students who are working together at each terminal (intra-group), and it can happen between the small groups of students in a class (inter-group). The platform provides a digital space for interaction amongst students. We are in the process of implementing this with large scale sample of students, data from the field would tell us more about the efficacy. Keywords: Computer Supported Collaborative Learning, Linear Equations, Mathematics Education

11) *Teachers' Engagement in Blended Online Course-*
Interactions between beliefs, knowledge and practice

Ruchi S. Kumar and Arati Bapat

The paper presents the preliminary findings from a large scale design based research studying teachers' participation in a postgraduate certificate course in blended mode to meaningfully integrate ICT in their teaching. The extent and nature of teachers' participation in the face to face workshops, online course engagement and engagement in the mobile based chat groups has been presented. The challenges faced by designers and teachers in sustaining the interactions in the distance mode through Telegram chat and course engagement as well as the challenges faced in using the student modules in schools are discussed. Implications for the macro level structures and processes that needs to be incorporated in the design to support successful ICT integration have been suggested.

12) *Professional Development of Secondary Level Science Teachers - Connected Learning through a Blended Course*

Latha K, Arunachal Kumar, Punam Medh, Shamin Padalkar, Rafikh Shaikh, Honey Singh, Glenda Stump, Prayas Sutar

In this poster we will present the Teacher Professional Development efforts undertaken by CLIx for high-school science teachers and some reflections about its impact based on the preliminary data. The data comes primarily from five sources: Workshop evaluation forms filled by teachers, Backend data from the online course (pre-test, MCQs, assignments), Telegram posts on 5 groups, Telephonic interviews (taken towards the end of the course), Observations of module implementation. The findings suggest that 1. overall, teachers found the face to face workshop useful, 2. 40% teachers scored around 50% on the pre-test, 3. Only 11% teachers attempted MCQs in Unit 1, 4. Teachers appreciated modules and most of the posts were regarding module implementation, 5. Teachers liked and asked for more videos and MCQs. The course was revised based on these observations and being run for the second time.

13) *Virtual Space of Learning: Community of Practice*

Saurav Mohanty, Tushar Goel

This paper tries to build a narrative of community of practice groups existing in the domain of education and how it builds an ecosystem of learning and sharing among the members in an egalitarian manner. It has been understood that learning cannot take place in isolation therefore such medium of learning was thought of to increase the accessibility of individuals through a virtual network, thereby adding another dimension in the modalities of community of practice. It is a framework based on the situated learning theory to understand the effectiveness of virtual networks (Lave and Wenger 1991). Through this paper, we have tried to map out some groups in understanding the process and the factors promulgating the efficacy of Community of Practice.

14) *Continuous Professional Development for Teachers- Technology Integration, Beliefs and Challenges*

Amina Charania and Rukmini Avadhanam

Teacher factors like absenteeism, lack of motivation and professional development

are some reasons for the poor quality of education in Indian government schools. The minimal professional development that many government school teachers receive in India is not enough to improve the knowledge, skills and practices to facilitate student authentic learning. In this poster, we showcase how a blended teacher certificate course in "ICT in Education", embedded within the "Integrated approach to Technology in Education" initiative, facilitated teachers of government schools in rural Assam towards CPD. The course facilitated the teachers to understand and practice integrating ICT in teaching and learning processes. Paired sample t-tests and teacher interviews revealed how the teachers' digital literacy, digital citizenship, beliefs, values and challenges in ICT integration changed during their certificate course.

15) ***Not a Walled Garden but a Lego Board! Designing and Developing an Open-source, Interoperable, Next Generation Digital Learning Environment (NGDLE) -*** *Experiments, innovations and experiences of CLIxPlatform*

Sadaqat Mulla, Kedar Aitawdekar, Keerthi KRD, Nagarjuna G

With increase in discourse (and practice) of ICTs in Education, humongous digital learning platform have been, and are being, developed world-wide with specific design requirements.In doing so, a large number of platforms are developed with "walled garden" (M. Brown, Dehoney, & Millichap, 2015) design where no external learning component can be integrated because of incompatibility of architecture design and lot of efforts being spent on reinventing the wheel which results in tight design for Educational technologies (EdTech) being undesirable and can be avoided.Aproposing the argument we share the lessons learned from design and development of gStudio based CLIx Platform – a Next Generation Digital Learning Environment (NGDLE). We demonstrate that the problem of walled garden can be addressed through a two pronged approach of creating an open standards compliant digital learning system architecture that employs a mash-up model of EdTech applications and adequately incorporating design considerations using DBR framework.

16) ***Creating a FOSSified Ecosystem for Large Scale Educational Interventions***

Sadaqat Mulla,Satej Shende, Mrunal Nachankar

Creating open source solutions is essential in the endeavor of opening up

Education. Never before were free and open source softwares (FOSS) in such a competitive edge vis-a-vis proprietary ones than today. The open source solutions comes with their own affordances. How to leverage the true freedom of open source? Can an entire software ecosystem be built with/around FOSS? What are the open source softwares that may help create such a FOSSified ecosystem? Addressing these questions, in this presentation, we demonstrate viability as well as working models of using FOSS for a large scale Educational intervention.

17) *Preparing for Open Educational Pedagogy: Invitation to CLIx (i2C)*

Amit Dhakulkar, Nagarjuna G

In this paper we describe design principles of Invitation to CLIx (i2C) one of the first offerings of the CLIx project being offered to the students. i2C provides the learners with innovatively designed digital literacy course. We also describe the main objectives and learning outcomes, assessments of the i2C course.

18) ***Implementation of CLIx in Mizoram:*** *Issues and Challenges*

Fela , Prasanna, RF & Dr. Diki , Sahana V.P

This paper gives a preview about the implementation of Connected Learning Initiative (CLIx) in Mizoram through 2016-17 and 2017-18 cycles of implementation. Despite having ideal conditions for successful implementation, with the experience of nearly 2 cycles of implementation, there are a lot of challenges the state still faces with respect to implementation of CLIx . This paper talks about the evolution of Teacher Professional Development and Student Roll-out in Mizoram. It throws light upon some of the major challenges the schools still face with respect to the implementation and adoption of CLIx and ICT based interventions at large.

19) *Revisiting Proportional Reasoning Trajectory Using a Blend of Technology and Discursive Practice*

CLIx Mathematics Team

Position of proportional reasoning in school mathematics curriculum is well acknowledged because of its wide applicability within different subject domains. Development of proportional reasoning among students requires them to move from additive to multiplicative thinking. Researchers have attempted using various

tools and visual interventions to facilitate this shift but still it remains a hardspot for the students. This poster will discuss affordances created by technology enabled tools to handle this shift and report observations made during the implementation of an ICT enabled module aimed at facilitating proportional reasoning among eighth and ninth graders. A blend of digital tool and discursive practice led students to see and justify their answers but they kept moving between additive and multiplicative reasoning.

20) Impact of CALL on High School ESL learners: Reflections from India

Jennifer Thomas, Sujata Bhonsale, Lavanya Murali, Surbhi Nagpal, Nishevita Jayendran

CLIx English leveraged technology in creative ways to to improve learning outcomes in communicative English, by focusing on the neglected curricular areas of listening and speaking in ways that would be meaningful and engaging for high school learners across India. This poster will briefly show how the CLIx lab and curriculum was envisioned as a blended learning space that would promote collaboration and provide students in resource-constrained locations with opportunities to use language purposefully. We share preliminary findings from a small research study designed to assess the impact of Computer Assisted Language Learning (CALL) on second language learners in two states, Mizoram and Rajasthan. Outlining the changes we observed in language skills and language learning processes on using CLIx, we also discuss some future directions for research.

21) Learning Interconnectedness and Interdependence – The Ecosystem Module

V. V. Binoy

Elevation of the quality of environmental education in India could be catalysed if classical pedagogies of science education is integrated with the modern tools Information Communication Technology (ICT). We developed an Ecosystem module on three major pillars of pedagogy, collaborative learning, learning from mistakes and relevance, converging various vital elements of science education, observation, categorization, experimentation, constructionism, collaborative learning, trail error, system thinking and computer assisted learning. The present paper describes various dimensions of the Ecosystem modules and how it could

help students to connect the science of environment with real-life experiences and develop environmental awareness and scientific temper.

22) *Designing Science Modules that Enhance Collaborative Learning and Exploration Using Digital Interactives*

Deepak Verma

CLIx Science Module uses guided inquiry, collaborative and peer learning, contextualization and reflective thinking as the main design element for deeper understanding. These modules are blended in design which means hands-on work interspersed with digital interactives. The digital interactives help children and teachers in visualization and exploration of abstract concepts, quantitative and graphical analysis, visual analogies to connect with larger phenomena etc. The process-assessment helps children acquire scientific terms and opportunities to use them. There is always a connection between the classroom and outside world in the modules. The poster illustrates the design process of science modules and what they attempt to achieve.

06

LIVE DEMONSTRATION OF EDUCATIONAL TECHNOLOGY RESOURCES

Tata Class Edge Teaching Resources -Tata Class Edge

Tata ClassEdge is a technology-enabled curriculum support solution based on its proprietary instructional framework, the Multiple Learning Experiences (MLEx) model. At the centre of the solution is the concept of teaching and learning through multiple representations (hands-on, print, visualisation, modelling, simulation, and so on) and activities to enable teachers to equip students with experimentation and reasoning skills, peer interaction and creative thinking in addition to helping them understand curricular concepts.

Tata ClassEdge offers digital assets and lesson plans that form a cohesive solution for teachers. The digital assets that teachers can make use of the in the classrooms include videos, animations, games, quizzes, virtual labs, simulations and interactive tools. Teachers are free to create and add their plans and resources to the platform.

Tata ClassEdge curriculum can be mapped to CBSE, ICSE, and all major Indian state boards from classes 1 to 12. There is a generic curriculum available for early childhood education as well.

Teacher Pages Social Learning Platform by the Teachers; for the Teachers- CEQUE

Center for Quality and Equity for Universal Education works to skill motivated teachers from schools serving underprivileged students, to improve their teaching methods

and scale their impact. To do this it runs the TeacherPages Innovator Fellowship. The videos that are co-authored by teachers as part of the fellowship, form a central part of the digital repository of videos housed on the Teacherpages social learning platform. The platform aims to build a vibrant professional learning community of teachers and educators who learn, discuss, comment, share and talk about the best classroom instructional practices.
The demo will showcase the Teacherpages social learning platform:
teacherpages.ceque.org. In the demo participants will:

Understand what the Teacher pages platform can be used for. Learn how to register on the platform, view videos of instructional practice, using different search filters, like, comment and share the videos, ask questions to an expert (pedagogy specialist), download additional print resources linked to different video, understand the additional functions offered by the platform to a registered user who joins the fellowship

Come, Befriend Stories With Kitablet! - Parag

Kitablet is a digital library of best of storybooks for children from select Indian publishers. Some books also have animations, read-aloud with voice-overs by professional storytellers and word highlights, and meaningful book extension exercises. The library is personalized to each child showing her usage data, books read and tagged to be read later. Children's ratings of the books is an important feature of the digital library guiding even the ordering of the books. Stakeholders like teachers, schools and publishers get usage data too to take corrective actions to promote reading. Come, experience the digital library and tell us what you think.

Learning with Stories- Pratham Books

Pratham Books is a not-for-profit children's book publisher with a mission to 'put a book in every child's hands'.

StoryWeaver (http://www.storyweaver.org.in/), from Pratham Books, is an open source, digital repository of multilingual children's stories. Users can read and download over 8500 books in about 113 languages, create new storybooks and also translate and re-adapt the books – all in multiple languages.

The platform offers a diverse range of books that can be used with children - Flashcards that serve as excellent tools for visual to word connection, STEM books that help introduce concepts to children in a fun and engaging way, Spotting books that help

young children build observation skills and keep them engaged for long period of time, Wordless stories that are great to encourage speaking and comprehension, and many more.

Since the resources on StoryWeaver are free, educators can choose to use them in a variety of ways. The stories can be read on computers, tablets or mobile phones or they can be printed and used.

Makers Space (Gnowledge Lab) - HBCSE-TIFR

Maker Space at HBCSE basically focuses on the development of Do-it-Yourself (DIY) open source scientific hardware or anything which involves making, tinkering and engineering for research and educational purposes. These kind of activities will help students and teachers to develop Ideation, Design Thinking, Computational Thinking and Physical Computing. STEAM education and Open Source platform such as Arduino, 3D printing, Thingsboard, etc and specially the community across the globe has revolutionized the movement for the development and implementation of the idea. The objective of our Makers lab is to provide the training, workshop and short courses to both teachers and students across India to generate the tinkering skill and make their ideas happen.
Currently we are working on two projects, one is Instruino (An IOT based Common Sensor Platform) and other is IOT based Micro Weather Station.
Instruino is a cost effective DIY Open Source Portable Lab Device developed using the Arduino Mega to measure the parameters such as Humidity, Temperature, pH Value, Turbidity, Light Intensity and Liquid Temperature. It is developed for the Biology lab where it has important role in conducting experiment, research and study. The device features the data visualization (on graphs and other widgets) over the internet, connected via its WiFi. It also allows the data to get logged into the SD card along with timestamp and also sends the data to be viewed on smartphones via bluetooth.
IoT based Micro Weather Station is again a cost effective DIY Open Source weather station developed using the Arduino Mega to provide the Weather parameters such as Wind Speed, Wind Direction, Atmospheric Pressure, Altitude, Temperature,Humidity and Light Intensity. All these parameters measurement readings are visualized on the web UI powered by an open source IOT platform ThingsBoard hosted on our server. Developing their own weather station will help students and teachers to understand different sensors, Interfacing, Structures, Mechanisms, Computation, Electronics, Coding and deployment. And after development and deployment there is lots of data to study and visualize for understanding the weather and climate concepts.

CLIx Science - TISS

CLIx has developed 6 modules on topics related to science: Atomic Structure, Basic Astronomy, Ecosystem, Health and Disease, Sound and Understanding Motion. The modules are designed based on findings from research in science education and extensive trials in the field. Three pedagogic pillars guide the design of the module: Collaboration, Learning from mistakes and Authentic learning. The modules are aimed not only to improve students' conceptual understanding but also gives them opportunities to inculcate skills such as estimation, observation, data analysis, mathematization, visualization and representational competence. They also expose students to nature of science through stories from history of science and through activities arranged in certain order. In addition to experiments and hands-on activities which play a crucial role in science, the modules includes digital activities such as Star Logo simulations, Phet simulations, photos, videos and games. Participants will have opportunity to play these two games (produced in house) during the demo sessions. In Run-Kitty-Run players use their knowledge about motion to help a kitty catch a mouse. In AstRomer, players visit several places on the earth as well as in the space to find certain elements and compounds using the clues given.

CLIx English - TISS

The English modules in CLIx leverage the advantages of connected learning to offer lessons in Communicative English, with a focus on listening and speaking skills.

The four tools that are being demonstrated:
Story Time is a video player that is used for stories set in familiar contexts and recorded in Indian accents to enable learning the language themes and functions of the respective lessons.
Picture Play is an interactive tool that allows learners to listen to a set of instructions and complete a task through a drag-and-drop functionality. The tool is used to gauge comprehension, grammar, vocabulary skills and the ability to follow and understand instructions.

CLIx Time is modeled on a multiple choice format and offers 4 options of which one is correct. Each incorrect answer is accompanied by a positive-reinforcement scaffold (accompanied by transcripts) that encourages learners to try again and, through hints, guides them towards the correct answer.

Let's Talk allows learners to work collaboratively with their partners, speak into a mic

and record their responses to the tasks set for them. In this activity, there are a variety of tasks like role play, discussions, narratives and descriptions.

A Walk Through the CLIx Implementation Process- CLIx Implementation - TISS

This demonstration will walk the audience through the journey of CLIx Implementation. It will talk about the processes that are going into enabling the schools and the state to not only adopt CLIx but also understand the world of OER and the idea of using technology as a tool for teaching. This digital demo will lay out the the CLIx implementation processes at each step (right from the state engagement to teacher/ TE training and adoption to monitoring and reporting to transfer of ownership) with the help of visuals, interactives and videos . It will also highlight the challenges that are being faced at each step and way forward as we speak of transfer of ownership to the state. This demo as mentioned will broadly help the audience to understand what it takes to implement CLIx in a school.

Invitation to CLIx (i2C) - TISS

The Invitation to CLIx Course is a primer on digital literacy based on the principles of the constructionist framework for learning. In this course, we provide authentic learning opportunities for the learners to engage with the new media in the form of creation of concrete digital artefacts, which they share with their peers for getting and giving feedback on the student platform. The i2C course has five modules each providing the learners with unique skills in handling the computer. In the first module, the students learn to type in their preferred language and learn to communicate in varied contexts. The next module introduces the learners to the utility of spreadsheets by engaging them in data collection and analysis. In the third module, the learners design a variety of graphics using a vector drawing tool. In the fourth module, the learners create mind-maps on a variety of topics. Finally, the learners operate the dynamic mathematics software to create a variety of mathematical based graphics and animations. All these creations are shared on the student platform, which also has help material for each of the modules. Both self and peer assessments are integral to the course. The analytics on the platform help students to look at their progress in the course.

Techno Wheels - CLIx rides on- CLIx Platform/ DOER/ TISSx - TISS

CLIx uses cutting edge open source technologies for taking it to the field with diverse conditions and constraints. The CLIx student platform which was built in-house

has interactive and aesthetically developed features which will enable students and teachers to create and share content. Collaborative features that support rich pedagogic content which includes courses, games, assessments for the students which will enhance their understanding of basic concepts. CLIx platform also collects and provides the reports of student artifacts and analytical data as a immediate and ongoing feedback.

Decentralised Distributed Disk of Offline Open Education Resources (DOER) is integrated into the CLIx platform for offline availability of OER. Data is one of the major asset being a research project, and Syncthing tool provides the mechanism to collect the data from schools with opportunistic availability of internet. TISSx (OpenEdx based instance), both web and app, used to deliver RTICT courses for teacher professional development. MiTiBot as a chatbot and CoP on Telegram for teachers. Open Data Kit (ODK) used for regular updates in the field for rollout progress, and issue tracker for field technical issues and support.

Integrated Approach to Technology in Education (ITE) - TISS

Integrated approach to Technology in Education (ITE) is an initiative of Tata Trusts, it is a pedagogic framework for integrating technology in teaching and learning. At ITE exhibit, team members will be present to discuss and explain about various ITE initiatives. One can explore the following

- An overview of ITE programme through presentations, posters and video.
- Presentation of teachers' portfolios- lesson plans prepared by teachers using ICT. Two ITE teachers from Assam will also be present to share about professional development training in ICT and Education conducted by ITE, and their experiences of implementing ITE in classrooms.
- Presentation of students' projects- projects made by students in ITE classrooms using various ICT applications (movie-maker, audacity, spreadsheet, powerpoint etc) many of them being first-generational learners!
- Hands-on activities and workshop on robotics- activities that ITE team does with teachers and students.
- Impact of ITE- testimonies from teachers and students.

Let's Do Math by Clicking, Playing and Talking - CLIx Maths - TISS

CLIx Math has three modules covering three different topics in mathematics. These are Geometric reasoning, Proportional reasoning module, and Linear Equation module.

Geometric reasoning module is aimed at moving students to higher levels of geometric reasoning that is from a level of visually identifying shapes to a level where they can use sophisticated mathematical reasons to identify, distinguish, characterise, define shapes and even appreciate the need of mathematical proof in geometry. The main highlight of the module is the Police Quad game, a digital game which has 4 missions having different game play covering different levels of reasoning.
Proportional reasoning module allows students to move from additive reasoning to multiplicative reasoning.

Food sharing tool allows students to explore the act of sharing food equally among given number of individuals as well as groups of individuals by building on the concept of fractions. Pattern tool allows students to scale up or scale down given patterns and learn about the scaling factor. Ice cubes in Lemonade introduces students to the idea of inverse proportions by letting them explore the relationship between the size and the number of the ice cubes.
Linear Equation module allows us to use multiple visual representation to depict various real life situations. These representations can be in various forms like tabular, algebraic and graphical using tools like Coin tool, Age tool and Factorization tool.

Unplatform and Open Embedded Assessments- MIT

As student engagement via digital content becomes increasingly important in preparing youth for potential life skills and employment skills, schools with limited or no internet connectivity face steep challenges in fostering digital literacy and delivering interactive curricular content. This session will look at two potential solutions, Unplatform and Open Embedded Assessments, that can be used in under-resourced schools with limited or no Internet connectivity to deliver curricular content is prepackaged and available on local computers. The Unplatform application is a modified, browser-based ePub2 reader that can also support embedded assessments and interactive tools. UnPlatform supports HTML-based content and embedded JavaScript components, like the Open Embedded Assessment (OEA) player, for student interaction and performance tracking. Using Unplatform, students work in groups to access curricular modules using a basic web browser. The curricular content can be text, images, videos, or interactive tools. The Open Embedded Assessment (OEA) player presents the student with one or more questions, tracks their responses, offers feedback, if needed, and saves student data. The OEA player can be embedded in webpages, ePubs and other applications.

07 PARTICIPANTS

Abhinav Mathur is the Founder of Million Sparks Foundation (MSF)

Ajay K Singh is Professor at Centre for Education, Innovation & Action Research, Tata Institute of Social Sciences and Co-Principal Investigator, Connected Learning Initiative

Alex Menon is CEO of Chhattisgarh Infotech Promotion Society,Govt. of Chhattisgarh

Amina Charania is Associate Professor at Centre for Education Innovations and Action Research at Tata Institute of Social Sciences, Mumbai

Amit Dhakulkar is the Team Lead, I2C, CLIx & Assistant Professor, Centre for Education, TISS.

Amrita Patwardhan is Head,Education at the Tata Trusts

A. N. Ramachandra is Joint Commissioner [Academic], Navodaya Vidyalaya Samiti, Ministry of Human Resource Development, Govt.of India

Anil Mammen is Chief-Learning Design & Social Impact, Tata Class Edge, India

Archana Mehendale is an Adjunct Honorary Professor at Centre for Education Innovation and Action Research, Tata Institute of Social Sciences, Mumbai

B. Seshukumari, is Director, State Council of Educational Research and Training, Telangana

Bindu Thirumalai, TISS is assistant professor at Centre for Education Innovation and Action Research (CEIAR), Tata Institute of Social Sciences(TISS), Mumbai

Brandon Muramatsu leads the design and implementation of local, national and international strategic education initiatives at MIT for MIT Open Learning

Cristina Cardenas is in charge of the General Coordination @prende.mx, an agency of the Ministry of Education,Govt. Of Mexico, in charge of integrating digital education into the Mexican basic education system

Eric Klopfer is Professor and Director of the Scheller Teacher Education Program and The Education Arcade at MIT

Glenda Stump is an Associate Director for Assessment and Evaluation at MIT

Gurumurthy Kasinathan is founder and director of IT for Change. Guru leads projects in the area of education, including in research, demonstration projects, systemic teacher education reform and policy advocacy

Indu Kumar is currently heading department of ICT and Training Division at CIET, NCERT

Jogen Chandra Rabongshi is a Government School Teacher in Assam, India and involved with ITE, TISS

Judith Perry is Researcher, Project Manager, Game & Curriculum Designer at the STEP Lab / The Education Arcade, MIT, USA

K. Lalthawmmawia, is Director, Directorate of School Education, Govt. of Mizoram

Kannan M. Moudgalya is a professor of Chemical Engineering, Systems and Control, and Educational Technology at IIT Bombay

Krishna Barua is Officer on Special Duty, SSA , Govt.of Assam

Lalbiakdiki Hnamte is a Professor at Mizoram University and State In-charge, Mizoram at CLIx

Lucia Dellagnello is Chairman at The Innovation Center for Brazilian Education (CIEB), Brazil

M. S. Vijay Kumar is Associate Dean, Digital Learning & Executive Director of the Jameel World Education Lab (J-WEL), Massachusetts Institute of Technology

Maarit Palo is Executive, Governmental Affairs, IBM Finland, University Relations IBM Nordic Helsinki Area Finland

Manmohan Singh is Program Director, Government, Mumbai Operations, and Public Relations at Kaivalya Education Foundation, India

N Upender Reddy is Consultant on Educational Reforms to the Dept. of School Education. He has over thirty years' experience both as an educator and in the field of education policy

N. Ramkumar is Team Lead- Tribal Education, Teacher Education, Training and Research at Swami Vivekananda Youth Movement(SVYM), India

Nagarjuna G is Associate Professor at Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research in Mumbai, India and Chairperson, Free Software Foundation of India

Nagendra Nagpal is Director, Centre for Education Research and Practice, Rajasthan

Nandkumar is Principal Secretary, Chief Protocol Officer-General Administration Department, Govt. of Maharashtra

Nidhi Pundhir is the Global Head of CSR for HCL. She leads the HCL Foundation, as Director CSR which is the CSR arm of HCL Technologies.

Odelu Kumar, works as a School Assistant (Physical Science) in Zilla Parishad High School Pacchnur,Telangana state, India and is involved with CLIx, TISS

Omkar Balli is Co-Principal Investigator and Team Lead, Implementation at CLIx,Centre for Education, Innovation & Action Research, TISS

Padma M Sarangapani, is Professor and Chairperson, Centre for Education, Innovation & Action Research, TISS & Project Director, CLIx.

Parul Bajaj is Program Manager, Kitablet, Education, Tata Trusts

Payoshini Saraf is Senior Manager- Partnerships, Pratham Books, India

Pekka Neittaanmäki is Professor in Information Technology, Numerical Analysis and Its Applications at University of Jyväskylä, Finland

Pranav Kothari is the Domain Architect of Mindspark and Vice President of the Large Scale Education Programs at Educational Initiatives (EI)

RCM Reddy is the Managing Director & CEO of IL&FS Education & Technology Services Limited (IL&FS Education) – the social infrastructure group of IL&FS – in charge of the delivery of Education, Employability, and Employment initiatives

R. Venkataramanan is the Managing Trustee of the Sir Dorabji Tata Trust and is responsible for management and oversight of all the Tata Trusts

Roberto Araya is an associate researcher at CIAE, University of Chile. He has developed and implemented Conecta Ideas

Romen Das is Planning Coordinator & I/C of ITE Project, RMSA, Assam

Sadaqat Mulla is Project Manager (Platform and Tools) Center for Education, Innovation and Action Research, TISS.

Sajid Ansari Hussain is a Government School Teacher in West bengal, India and involved with ITE, TISS

Sanjay Gupta, is the Chief Executive Officer at English Helper Inc, USA

Shaheen Mistry is CEO and Founder of Teach For India. She has also founded Akansha

Shweta Gupta, is a Government school teacher in Rajasthan state, India and is involved with CLIx, TISS

Sree Ranjini runs, Kavade, Bangalore, India and is best known for making available traditional games and puzzles, which are fast getting extinct in a society that is being consumed by digital media and gadgets

Sylvia Garde is Senior Program Manager at Foundation For Information Technology Education and Development (FIT-ED), Philippines

T. Radhakrishnan C. is the principal of Peevees Public School, Nilambur, Kerala and CBSE Coordinator for Malappuram district, Kerala and is involved with Tata Class Edge

Tara Sabavala is Director, Program Design at Tata Trusts

Uma Kogekar is CEO, Center for Quality and Equity in Universal Education, India

Victoria Tinio is the Executive Director of the Foundation For Information Technology Education and Development (FIT-ED), Philippines

Vinod Karate is Founder and CEO, Teacher App, India

Centre for Education, Innovation and Action Research
Tata Institute of Social Sciences
V.N.Purav Marg, Deonar, Mumbai – 400088, India
Phone: +91 – 22- 25525002/3/4
www.clix.tiss.edu

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