# Report of National Conference on ICT in School Education (NCICTSE 2017)

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CONFERENCE REPORT :

BASIC ROLE OF ICT IN SCHOOL EDUCATION

A national Conference on Information and Communication Technologies (ICT) in School Education was held at the Regional Institute of Education, NCERT, Ajmer (India) from 27th – 29th November, 2017. Information is processed data. Most of the decisions taken in and around the world by and large are based on the data and information. Information is the key guiding force of the world today. For a wider use of the information, the information must be communicated to people. It is only when the information reaches the intended audience, the purpose of creation of information as well as its communication would be served.
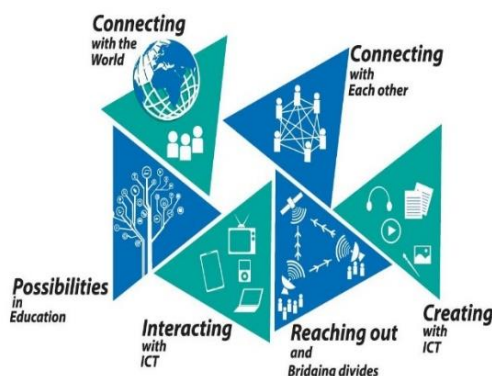
The information may be created, stored, processed, transmitted, displayed and shared in digital form and through electronic media. The technologies used in these processes are Information and Communication Technologies. Thus, Information and Communication Technologies are defined as all devices, tools, content, resources, forums, and services, digital and those that can be converted into or delivered through digital forms, which can be deployed for realizing the goals of teaching learning, enhancing access to and reach of resources, building of capacities, as well as management of the educational system. These will not only include hardware devices connected to computers, and software applications, but also interactive digital content, internet and other satellite communication devices, radio and television services, web based content repositories, interactive forums, learning management systems, and management information systems.

BACKGROUND

There are various challenges and problems in ICT integration in school education and many conferences and seminars have already elaborated up on it at length. This conference may not be a mere repetition of the same exercise of identifying old and new challenges alone. The Government is aware of most of these challenges and have already initiated many schemes in overcoming these challenges. The focus of conference should be on how the school and teacher education system can harness the true potential of these initiatives and need to provide policy perspectives and recommendations in terms of using current and emerging ICT tools and technologies in improving learning among children and adults of our nation.

One of the major objectives towards the education community is, how ICT can create new, open learning environments? Also, the National Curriculum Framework- 2005, which guides the teaching-learning effort in schools, cautions that technology used as a mere medium to disseminate information tends to bypass the teacher. It expresses a firm belief that teachers and children must be treated not merely as consumers but also as active producers. It is the two-way interactivity rather than one-way reception that would make the technology educational. More than any other previous technology, ICT are providing learners access to vast stores of knowledge beyond the school, as well as with multimedia tools to add to this store of knowledge. ICT are largely instrumental, too, in shifting the emphasis in learning environments from teacher-centered to learner-centered; where teachers move from being the key source of information and transmitter of knowledge to becoming guides for student learning; and where the role of students changes from one of passively receiving information to being actively involved in their own learning. To this end there were several efforts consisting of developing training resources, creating e-content, designing e-learning platforms, creating IT infrastructure and organizing training which have been made by Government as well as NGOs.

What follows is a brief discussion about the major Government initiatives to help school integrate ICT in education and reap its benefits for improving learning.

Digital India Programme

The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy.

The Digital India programme is centred on three key vision areas:

- Digital Infrastructure as a Utility to Every Citizen
  - Availability of high speed internet as a core utility for delivery of services to citizens
  - Cradle to grave digital identity that is unique, lifelong, online and authenticable to every citizen
  - Mobile phone & bank account enabling citizen participation in digital & financial space
  - Easy access to a Common Service Centre
  - Shareable private space on a public cloud
  - Safe and secure cyber-space
- Governance & Services on Demand
  - Seamlessly integrated services across departments or jurisdictions
  - Availability of services in real time from online & mobile platforms
  - All citizen entitlements to be portable and available on the cloud
  - Digitally transformed services for improving ease of doing business

- o Making financial transactions electronic & cashless
- o Leveraging Geospatial Information Systems (GIS) for decision support systems & development
- Digital Empowerment of Citizens
  - o Universal digital literacy
  - o Universally accessible digital resources
  - o Availability of digital resources / services in Indian languages
  - o Collaborative digital platforms for participative governance
  - o Citizens not required to physically submit Govt. documents / certificates

The assumption of the Government is that a well-connected nation is a prerequisite to a well-served nation. Once the remotest of the Indian villagers are digitally connected through broadband and high speed Internet, then delivery of electronic government services to every citizen, targeted social benefits, and financial inclusion can be achieved in reality.

To this end the Government will ensure that all panchayats in the country have high-speed connectivity, the Department of Telecom (DoT) has established Bharat Broadband Network Ltd. (BBNL) to roll out the National Optical Fiber Network (NOFN). BBNL will lay out the optic fiber cable terminating in each of the 2,50,000 gram panchayats in the country, providing 100 Mbps link to be used as information highway by all the stakeholders to ensure that digital inclusion reaches all villages across the country. This will ensure digitization and connectivity of the local institutions, such as panchayat office, **schools**, health centres, libraries, etc. The industry has also come forward to support the e-literacy goal through the National Digital Literacy Mission.

Digital resources are truly universally accessible when they are easily available and navigable everywhere and by everyone. Open resources have the advantage of being widely and inexpensively available and also being widely usable and customizable. Digital resources created or implemented along these lines can be accessed everywhere compared to resources developed from proprietary systems. Owner departments and agencies have the responsibility of ensuring that their digital resources are of high quality so that access and customization are not problematic.

India has a remarkable diversity in terms of languages written and spoken in different parts of the country. There are 22 official languages and 12 scripts. Knowledge of English is limited to a very small section of the population in the country. The rest often cannot access or comprehend digital resources that are available mainly in English. To overcome this barrier, the Government is formulating a new mission mode project named as e-Bhasha to help develop and disseminate digital content in local languages to India's largely non-English speaking population. The disabled friendly content and systems are being developed as per accessibility standards.

Under the Digital India programme, the government is also committed to providing access to digital resources for citizens with special needs, such as those with visual or hearing impairments (which may be partial or complete), learning or cognitive disabilities, physical disabilities which hinder operation of ubiquitous access devices such as phones, tablets and computers (the information under this section "Digital India Programme" is adapted from the "vision areas of digital India" retrieved from http://digitalindia.gov.in/content/vision-and-vision-areas)

Other Government ICT Based Initiatives:

National knowledge network: National Knowledge Network (NKN) project is aimed at establishing a strong and robust Indian network which will be capable of providing secure and reliable connectivity. Globally, frontier research and innovation are shifting towards multidisciplinary and collaborative paradigm and require substantial communication and computational power. In India, NKN with its multi-gigabit capability aims to connect all universities, research institutions, libraries, laboratories, healthcare and agricultural institutions across the country to address such paradigm shift.
Website: http://nkn.gov.in/home

Swayam: (Study Webs of Active-Learning for Young Aspiring Minds) Platform is indigenously developed by Ministry of Human Resource Development (MHRD) and All India Council for Technical Education (AICTE) with the help of Microsoft and would be ultimately capable of hosting 2000 courses and 80000 hours of learning: covering school, under-graduate, post-graduate, engineering, law and other professional courses.
The courses hosted on SWAYAM will be in four quadrants, video lecture, specially prepared reading material that can be downloaded/printed, self-assessment tests through tests and quizzes and an online discussion forum for clearing the doubts. Steps have been taken to enrich the learning experience by using audio-video and multi-media and state of the art pedagogy / technology. In order to ensure best quality content are produced and delivered, seven National Coordinators have been appointed: They are NPTEL for engineering, UGC for post-graduation education, CEC for under-graduate education, NCERT & NIOS for school education, IGNOU for out of the school students and IIMB for management studies.
Website: https://swayam.gov.in

NMEICT: The National Mission on Education through Information and Communication Technology (NMEICT) has been envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in any time any where mode. It is a landmark initiative of the Ministry of Human Resource Development to address all the education and learning related needs of students, teachers and lifelong learners.
Website: http://www.nmeict.ac.in/#

National Digital Library of India: **Ministry of Human Resource Development under its National Mission on Education through Information and Communication Technology has initiated the National Digital Library (NDL) pilot project to develop a framework of virtual repository of learning resources with a single-window search facility. Filtered and federated searching is employed to facilitate focused searching so that learners can find out the right resource with least effort and in minimum time. NDL is designed to hold content of any language and provides interface support for leading vernacular languages (currently Hindi and Bengali). Learning resources books, article, thesis, manuscripts and AV lectures.**
Website: https://ndl.iitkgp.ac.in/

NROER: National Repository of Open Educational Resources (NROER) is a collaborative platform, which brings together everyone interested in school and teacher education.
Initiated by the Department of School Education and Literacy, MHRD and managed by CIET, NCERT, offers digital and digitisable resources (audio, video, interactive images and documents) in different languages along with online activities.
Website: http://nroer.gov.in

Shala Darpan: KV Shaala Darpan is an e-Governance platform for all Kendriya Vidyalayas in the country. It aims to

improve quality of learning, efficiency of school administration, governance of schools & service delivery to key stakeholders namely, students, parents, teachers, community and schools. Parents will get entire information at a united platform about their children in respect of attendance status, performance, health challenges and entire academic record from 1st to XIIth standards. Students will have facilities of e-tutorials and learning aids to enrich their knowledge.

Website:
https://darpan.kvs.gov.in/shaaladarpan/

Shala Siddhi: The need for effective schools and improving school performance is increasingly felt in the Indian education system to provide quality education for all children. It work on Enabling Resources of School: Availability, Adequacy and Usability, Teaching-learning and Assessment etc. The National Programme on School Standards and Evaluation (NPSSE), known as Shaala Sidhdhi is a comprehensive instrument for school evaluation leading to school improvement. Developed by the National University of Educational Planning and Administration (NUEPA), it aims to enable schools to evaluate their performance in a more focused and strategic manner and facilitate them to make professional judgments for improvement.

Website: http://shaalasiddhi.nuepa.org/

Saransh Portal: A CBSE Initiative, Saransh is a tool for comprehensive self-review and analysis for CBSE affiliated schools and parents. It enables them to analyze students' performance in order to take remedial measures. Saransh brings schools, teachers and parents closer, so that they can monitor the progress of students and help them improve their performance.

Website:
http://saransh.nic.in/?language=en

E-Pathshala: E-Pathshala has been developed by NCERT for showcasing and disseminating all educational e-resources including textbooks, audio, video, periodicals and a variety of other print and non-print materials through website and mobile app. The platform addresses the dual challenge of reaching out to a diverse clientele and bridging the digital divide (geographical, socio-cultural and linguistic), offering comparable quality of e-contents and ensuring its free access at every time and every place.
Website: http://epathshala.nic.in/

e-PG Pathshala: High quality, curriculum-based, interactive content in different subjects across all disciplines of social sciences, arts, fine arts & humanities, natural & mathematical sciences, linguistics and languages at PG level is being developed under this initiative named e-PG Pathshala.
Website: http://epgp.inflibnet.ac.in/

ONLINE LABS (OLABS): Online Labs (OLabs) for school lab experiments provides students with the ease and convenience of conducting experiments over the internet. It has been developed to supplement the traditional physical labs and bridge the constraints of time and geographical distances. This not only reduces the costs incurred for conducting experiments in real time but gives a student the flexibility to explore and repeat experiments till they are thorough.
Website: http://www.olabs.edu.in/

e-BASTA: In line with the Government's Digital India initiative, C-DAC has created a framework to make school books accessible in digital form as e-books to be read and used on tablets and laptops. The main idea is to bring various publishers (free as well as commercial) and schools together on one platform. In addition to the portal, a back-end framework to facilitate the organization and easy management of such resources has been developed, along with the web-based applications that can be installed on tablets for navigating the framework.
Website: https://www.ebasta.in/

GIS In School: A geographic information system (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data. This is a Web GIS application to enable planning for the access, enrolment, retention, quality and monitoring aspects, integration of school infrastructure, facilities, budget & expenditure, child & teacher information, attendance, mid-day-meal program, results, school complexes along with required visuals, integrating. A proximity analysis helps to meet the norms of the government in establishing the new schools and upgrading the existing schools wherever required.
Website: http://schoolgis.nic.in/

Swayam Prabha: Educational Contents through for operationalising 32 Direct to Home (DTH) Television Channels for providing high quality educational content to all teachers, students and citizens across the country interested in lifelong learning. There will be new content of four hours every day, which would be telecast six times a day allowing the student to choose the time of his/her convenience.
Website:
http://www.swayamprabha.gov.in/

National Policy on ICT In School Education: To devise, catalyse, support and sustain ICT and ICT enabled activities and processes in order to improve access, quality and efficiency in the school system. It aims at preparing youth to participate creatively in the establishment, sustenance and growth of a knowledge society leading to all round socioeconomic development of the nation and global competitiveness.
Website:
http://ictschools.gov.in/Policy/national-policy-ict-school-education-2012

National ICT Curriculum: National ICT Curriculum aims at realising the goals of the National Policy of ICT in Schools Education and the National Curriculum Framework. Given the dynamic nature of ICT, the curricula, emphasising the core educational purposes, is generic in design

and focuses on a broad exposure to technologies, together aimed at enhancing creativity and imagination of the learners.
Website: http://ictcurriculum.gov.in/

National Award For Teachers Using ICT For Innovation In Education: Under the ICT in Schools, to promote computer enabled learning and usage of ICT in teaching in Government and Government aided Secondary and Higher Secondary Schools has provision for instituting the National Award for innovative use of ICT to motivate the Teachers and Teacher Educators for innovative use of ICT in teaching-learning.
Website: http://mhrd.gov.in/ict_awards

About The Conference:
As we know, the Information and Communication Technologies (ICTs) play an increasingly important role in the way we communicate, learn and live. The convergence of recent technologies, web and mobile technologies, provides unique opportunities and an infrastructure for both face to face and online learning environments. All the above said programmes/schemes are aimed at bringing a synergy among all the ICT integration efforts and systematic scaling-up of projects and its sustainability. In this background it is important that the education system needs to harness the potential of these schemes and initiatives in improving the learning and assessment practices in our schools and classrooms.
Therefore, this conference is planned to provide an opportunity for exchanges of national and international initiatives and experience on ICT in school education, spreading information, and making suitable recommendations for policy planners, academic and administrative staff. The conference is expected to focus on a) Exploring innovative use of ICT is teaching-learning-assessment process, b) Use of FOSS tools and OER practices in subject teaching & learning, c) Discuss the use of sophisticated access devices/Ubiquitous Technologies and everywhere learning, d) Exploring efficient management strategies for technology integration initiatives, e)

Discuss on more self-directed human resource development approaches using emerging technological possibilities, f) Use of sophisticated assistive technology tools and solutions for Disabled Learners and making classrooms more inclusive based on the principles of universal design for learning, g) Implementing design based research, action research and other applied research in technology integration in education to develop better insight, and h) Exploring means to rewarding and recognizing the performers and showcasing best practices.

The Objectives, themes and subthemes are mentioned below:

Objectives of the Conference
1) To showcase the innovative practices of ICT integration in School education.
2) To provide a discussion forum for improving the quality of the teaching-learning process with ICT based support to school education.
3) To explore various current and emerging ICT tools, services, culture of learning (development of learning skills, expansion of optional Education, open source of education, etc.) and discuss the implications of these on school education.
4) To explore the ICT based tools for the learners with special needs to integrate themselves within school and society by increasing their independence and by developing their abilities and interests.
5) To provide platform for sharing innovative experiments for enhancing efficiency of assessment and administrative

practices through ICT integration for School Education.
6) To explore various professional development alternatives in enhancing ICT integration competencies.
7) To explore the ICT trends in instructional designing and pedagogical practices for school education.
8) To discuss the challenges in integrating ICTs in school education and measures to overcome these Challenges.
9) To provide an opportunity to share research studies on ICT integration in school education today.

Themes and Sub Themes

Theme 1: Policies and issues related to ICTs in School Education
1. Planning and Analysis of policies on ICT, OER in school education.
2. Universal access to quality content.
3. Technological issues in education (E-Learning, Apps for learning, Mobile learning, phones, tablets)

Theme 2: ICT is Teaching-Learning-Assessment process
4. OER practices in subject teaching & learning.
5. Mathematical fundamentals of ICT and educational change.
6. ICT in assessment and learning
7. ICT and issues in science and other fields of human culture related to ICT education.
8. ICT enhanced language teaching and learning.

Theme 3: Research related to ICT in Schools

9. Research on effective practices of ICT in school education.

Theme 4: ICT in Teacher Professional Development

10. Teacher's professional development of promoting ICT in school education.
11. Technological innovations for teaching in Schools
12. ICT skills and competencies among teachers.
13.

Theme 5: ICT in Innovative Schools, School Governance

14. ICT in Innovative Schools, Impacts and Effective use of ICT for quality learning.
15. Monitoring and evaluation of the impact of ICT on school Education.
16. Beneficial Effects of E-Governance in Schools.
17. ICT for inclusive education.

Expectations of the National Conference

Following presentations on areas is followed with some leading questions, which need to be addressed in the papers and various sessions and discussions to arrive at valid conference recommendations.

ICT is Teaching-Learning-Assessment process

➢ There is a need for initiatives design to promote integration of ICT with best pedagogical practices so that the teachers would be able to bring new knowledge into schools and can create an impact from the onset. Accordingly, ICT tools should be leveraged to help teachers shift from transferring information to facilitate learners to create knowledge and help them to shift from an acquisition mode of learning to one that engages in higher order thinking, innovation, creativity and collaboration. There

are many innovative pedagogical practices like flipped learning, MOOC, PBL, Makerspace, game based learning, and mobile applications. Technology tools like e-portfolio and rubrics can be used productively for authentic assessments. Learning analytics and other developments are promising developments in individualising assessment and providing feedbacks.

➢ **Questions:** Groups need to work on framework of thinking what? How? and Why? What are the initiatives to shift the pedagogical practices that are predominantly teacher-centric to include more student centric pedagogy practices with the help of ICT tools? How to facilitate self directed learning among students? How to leverage ICT for formative assessment and summative assessment? How to use ICT for providing and engaging students in meaningful and authentic learning experiences? How to plan and implement alternative authentic assessment with the help of technology, which focuses on real world problems? What is preventing our teachers to use innovative pedagogical approaches mentioned above, in the classrooms?

OER practices in subject teaching & learning

➢ Open Educational Resources (OER) and Creative Common Licenses have been gaining wider acceptability among the educational community. Having realised its potential for improving the educational practice, it is high on the national agenda of many countries and India is not an exception. Many of the Government initiatives including NROER as mentioned in the previous section is developing web-based resources to meet the increasing demand of ICT-enriched teaching and learning

environments. The extent of OER creation, use, reuse and adaption is still in its primitive stage in many countries including India. Lack of good quality educational resources in regional languages is another problem in integrating technology in school education. There is a necessity of developing repositories of open educational resources for school education in all subjects in Indian languages.

➢ **Questions:** The conference could focus on how these resources could be used to enhance learning, what pedagogical practices using these resources can maximize learning and thinking? How can repositories to be used as practice field for teachers in creating content and transfer these content to national repositories after validation?

➢ Still, there is huge of end users who are not even aware of what is OER let alone where to find it, how to find it, how to use it, and how to create and modify it. How to create this awareness and required skills in using it? Creating a support system which facilitates the creation, use and management of OER is the first stage in harnessing the full potential of OER and the conference need to discuss the possibilities. Creating such support system necessitates a strong national policy guidelines, accessible tools and technologies for creating and adapting OER, technologies to host and deliver the OER resources, mechanisms to popularise its use and adaption and an institutional culture in which such practices are accounted and rewarded. Deliberations on these issues are of utmost importance.

Free and Open Source Software (FOSS)

➢ The ICT curriculum states that the use of proprietary software would become very expensive and make the curriculum implementation unviable. Therefore, Free and Open Source software have been suggested throughout the curricula. The use of FOSS applications will also obviate software piracy and enable customisation. There is a necessity of making nationwide effort by central and state Governments in popularizing FOSS among all users. To this end proper policy guideline, training programs needs to be developed and deployed.

➢ **Questions:** Why people are not shifting towards use FOSS tools? How to popularise use of FOSS tools among teachers and teacher educators? What are the FOSS tools available for school education? Could there be a centralised platform for all FOSS tools which permits downloading, installation trial, feature reviews, tutorials and sharing ideas for effective use in education?

Flipped Learning in School Education:

➢ Flipped learning is a pedagogical approach in which the conventional notion of classroom-based learning is inverted, so that students are introduced to the learning material before class, with classroom time then being used to deepen understanding through discussion with peers and problem-solving activities facilitated by teachers.

M –Learning or Mobile Learning:

➢ Education is the procedure by which the understanding, knowledge and skills of one generation are passed on to the next. Today there are two forms of School education: conventional education and distance education. Mobile learning, or "M-Learning", offers modern ways to support learning procedure through mobile devices, such as handheld and

tablet computers, MP3 players, smart phones and mobile phones.

MOOC (Massive Open Online Course):

➢ A massive open online course (MOOC) is a model for delivering learning content online to any person who wants to take a course, with no limit on attendance. the project 'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM) has been started. SWAYAM provides an integrated MOOC platform and portal for online courses, using information and communication technology (ICT) and covering High School till all higher education subjects and skill sector courses to ensure that every student benefits from learning material through ICT.

➢ **Questions**: The conference focuses on exploring various issues associated with Flipped learning, M-learning and developing and delivering MOOCS in school subjects etc. How to integrate learning from such initiatives in to the existing context? Could it be used for enrichment or remediation? How to account for the learning from these courses in to the existing assessment contexts? Who will develop and how will it be delivered?

Access Devices

➢ Teachers and students should be provided with adequate access to hardware and software. Providing adequate infrastructure in terms of computer laboratories, multimedia enabled smart classrooms need to be taken up with priority. Financial support could be made available to students and teachers to bring their own devices and this will help in overcoming one of the major concern of upgrading and maintenance of both hardware and software. The onus of maintenance and up gradation is passed on to the individual users. Also most of the time availability power supply is the major concerns in effective integration of technology.

➢ **Questions**: The conference can focus on the issues related to allowing students, may be from primary stage onwards their own mobile devices as a part of bring your own device (BYOD). What structural and pedagogical innovations are possible in such a scenario?

➢ Measures to funding the creation of computer laboratories and smart classrooms and its up gradation and maintenance could be explored. Who should fund this and how the funding should be provided? Can someone from outside should decide what is needed in the school then purchase and dump that in the school or should the school be given more autonomy in deciding their technology requirements? Could they be provided with ICT funds to purchase equipment and develop infrastructure to support customized ICT programmes in their own schools? Could such autonomy bring ownership and accountability? Could they be asked to evaluate and benchmark their ICT practices and institutional arrangements against the established standards? Can we use solar panels and batteries to power the digital devices?

Internet Connectivity for Access Devices:

➢ As part of the Digital India Initiatives, the Bharat Broadband Network Ltd. (BBNL) will provide 2, 50,000 gram Panchayats with high speed internet connectivity of 100 Mbps to be used as information highway by all the stakeholders to ensure that digital inclusion reaches all villages across the country. This

will ensure digitization and connectivity of the local institutions, such as panchayat office, schools, health centres, libraries, etc. In addition with the wide spread access and use of 3G and now popular fourth generation (4G) of mobile communication technology standards will ensure high speed wireless internet access a reality. Under the Digital India programme the Government will ensure universal access to mobile connectivity by providing mobile coverage to around 55,619 villages in the country that do not have mobile coverage.

➢ **Questions**: The conference should explore in such a scenario, what should be the policy directions in effective utilisation of this internet connectivity to transform the teaching, learning, assessment, and management practices in the schools.

Ubiquitous Technologies and everywhere learning

➢ Coupled with high speed broad band internet and Wi-Fi access, development of more powerful mobile tablet devices with 3g and 4g features which is affordable to all children of this nation is necessary pre conditions for reaping the full potential of technology for learning. Added to this making free 3g/4g access to their mobile devices will extend learning beyond the physical confines of classroom and rigidly structured school time.

➢ **Questions**: The discussion could focus on the policy directives in relation to what pedagogical approaches will facilitate this mobile learning? Could teacher use flipped classroom approaches to harness the potential of this ubiquitous computing? Can we develop android mobile educational applications in Indian languages which could be downloaded from Google play store? Should we provide

unmonitored access to internet? How to provide free access to 3g/4g access to students? What are the security concerns and how to address these concerns?

Managing Technology Integration Initiatives

➢ There are many agencies involved in technology integration initiatives in the country. Central Government, State Governments, Business organisation like Google, Microsoft, Oracle, Intel, Azim Premji Foundation, excel soft, etc. and many NGOs. Many of these IT companies have developed e-content of various formats, e-learning solutions, and MIS and ERP solutions in addition to training teachers. They can play a vital role in supporting schools. There is a necessity to bring together the effort all these organizations to reach out to the nook and corners of this nation and avoid wastage of time and resources to reach out to all.

➢ Secondly, at the school level itself there is a necessity of efficient ICT management structure to provide the necessary digital leadership to create digital culture where everyone collaborate make things happen. Participation from all stake holders for creating, maintaining, and upgrading ICT infrastructure is needed. Involvement of Panchayat, SMC, PTA, alumni and other stake holders in the implementation of ICT integration should be considered. Every school could use open source comprehensive educational management and enterprise resource planning (ERP) software/MIS for managing all their affairs effectively. Creating a digital culture through technology leadership is needed to transform the educational organisations.

➢ **Questions:** How to bring together the efforts of all stakeholders to have unified approach? What are

the potential industry partnerships? How to develop the technology leadership practices among administrators? How to maintain the ICT infrastructure? Could the school appoint a technical person to upgrade and maintain the system? Should this be given as AMC? Could we involve the linux user groups and other experts from the community? Is there a necessity for separate ICT in education policy and curriculum for each state? If so why? Do we have a technology integration plan for each school? How to develop and implement a workable school specific technology plan for each school?

Human resource development
➢ There is a necessity to equip all teachers with the necessary ICT skills and knowledge on the appropriate pedagogical use of ICT in teaching and learning. To this end the national ICT curriculum has specified the syllabus and also developed the training modules.
➢ **Questions:** The conference need to deliberate up on the methodology to reach out to all the teachers in the country. How this can be integrated with the existing training programmes and activities organised by various entities? Could there be MOOCs on professional development in the area of technology integration in school and adult education? How to give more need based and school based training rather than one size fit all approach? Is training by a trainer/master trainers is always effective? Are there possibilities of developing communities of practices among teachers to share and learn together? How to encourage the teachers to get involved in self directed professional development in ICT integration? Is social networking an educational tool?

How can we leverage social media for professional development?

ICT and Disabled Learners
➢ Under the Digital India programme, the government is also committed to providing access to digital resources for citizens with special needs, such as those with visual or hearing impairments (which may be partial or complete), learning or cognitive disabilities, physical disabilities which hinder operation of ubiquitous access devices such as phones, tablets and computers. The disabled friendly content and systems are being developed as per accessibility standards. We need to take special efforts to help the disabled by equipping our teachers and educational institutions to adopt innovative, cost effective assistive technologies to enable access to education for disabled children.
➢ **Questions**: What are the assistive technologies available for children with disabilities? How to help teachers develop awareness and the skill in using this? How to make these technologies available in every school to create an inclusive classroom? How to integrate training use of digital assistive technologies in pre-service training programmes? How to develop ICT based educational resources for learning and assessment of children with special needs? How to make the existing digital resources accessible to disabled learners? What is Universal Design for Learning? How to implement UDL in our classrooms?

Research in Technology Integration
➢ There is a necessity of applied and action research in the area of ICT integration that could inform pedagogical and assessment practices in schools. It is only research which will tell us whether the use technology engaged the

students in learning effectively. Research is needed to implement innovative practices of using ICT and to investigate how these practices lead to change in learning and achievement. Such research will help us sustain the good practices and make it scalable.

➢ **Questions:** The conference could discuss on the issues raised here to reflect this in the recommendations. Are there sufficient amount of applied research to take an informed decision in our own diverse context to know what works and what doesn't? Do our teachers and teacher educators involve in innovative practices, if so do they conduct an action research on these innovations and report/disseminate it? Do we have a database of all the researches in this area? Is there a Meta analysis of these studies to find the major recommendations? Could there be a R&D unit which focus on taking up applied research in this area to inform policy makers, planners, administrators, and teachers what works? What is the role of design based research in technology integration? Could there be evaluation studies? How and who will take up programme evaluation studies? Who and how will the result of such evaluation studies be used? What is Game based learning? What are the steps in developing and popularising game based learning?

ICT and Teacher Education

➢ In the National Curriculum Framework for Teacher Education (NCFTE, 2009) considered among other things the Issues related to ICT in schooling as well as e-learning is in the centre-stage. The report states that ICT in spite of its potential to make learning liberating, its implementation is often not more than cosmetic. The

curriculum recommends inclusion of ICT as an important curricular resource, according primacy to the role of the teacher, ensuring public ownership of digital resources, and promoting constructivist approaches that privilege anticipation and co-creation over mere access to ICTs.

➢ **Questions:** How to transact ICT curriculum in teacher training courses more effectively than covering it as theoretical inputs? What are the problems associated with implementing technology pedagogy integration in teacher training institutions? How to develop the competencies in e-content development and providing e-learning among teacher trainees? How to develop the competencies among teacher trainees to use ICT as an enabler for collaborative and self directed learning?

Rewarding and recognising the performers

➢ National ICT award was initiated by the Government to encourage and motivate teachers in technology integration. Additionally there are also many state and private initiatives in rewarding teachers for innovations in this area.

➢ **Questions**: Is there a necessity to motivate the teachers in technology integration, if they themselves are convinced about the strength of it in facilitating learning? If there is a necessity then how to strengthen the existing practices? Do they need to be provided with additional incentives, if so how? Can they be funded and encouraged to attend and present their innovations in regional, national and international conferences, seminars and workshops? Could there be financial support for teachers to take up technology

integration projects? Can study tours and teacher exchange help in professional development? If so, how to implement the same?

Conclusion :

We have discuss idea and concern issues for successful integration of technology in school education for teachers and students. Conference aims to grow using ICT into schools and help teachers and children make best use of the opportunities that ICTs provide. Based on National Curriculum Framework-2005, the ICT Curriculum for teachers and students intends to introduce ICT in school education. The National Repository is a collaborative platform, which proposes to bring together the best of digital resources for different subject's domains, across different stages of the school system and in different languages. Some of the issues to be taken by the Conference are ICT for school education. Exploring the potential; Implementing the national policy on ICT for school education in India, Challenges and Issues; Showcasing ICT practices, Going Beyond Computer Literacy, learning from state/ BOOT partners/NGO Experience, e-Governance Mission Mode programme in school education. The ministry of education, CIET/NCERT, State education ministry/SCERT/SIET and school leaders need to work together to create a system of responsibility and accountability in implementing policy guidelines, monitoring its progress, conducting evaluation studies through programme evaluation, generating feedback and revising the guidelines in the light of these evaluation studies. ICT changes rapidly and affects both discipline knowledge and pedagogical possibilities in ways that influence teachers' perspectives for employing ICT as a constant part of the learning process. It is hoped that by ICT in school education indicators on teachers that a more comprehensive view of the role of the teacher in influencing learner outcomes, including achievement and school completion can be completed.

EXECUTIVE SUMMARY

The National Conference on ICT in School Education' organized from 27th November, 2017 to 29th November, 2017 at Regional Institute of Education, NCERT, Ajmer to provide a common platform to all stakeholders working in the field of ICT in School Education to share their experiences, researches, innovative practices and their impact in improving the quality of school education. In this Conference 200 abstracts pertaining to theme and sub themes were received from School Teachers, ICT Education Researchers and Faculty of DIETs, CTEs, SCERTs, SIERTs, SIEs, IASEs, NCERT, IISERs, NISER, Teacher Training Institutions, Colleges, Universities and NGOs etc. for oral presentation. Review committee selected and recommended 107 abstracts of researchers for making their presentations in different parallel technical sessions. Out of 73 presentations, 73 presenters made their presentations in technical sessions of the Conference. In addition to these presentations, 1 Pannel discussion and 13 keynote addresses were also delivered by the invited speakers of the repute. Review/Editing committee recommended 60 full length papers including the messages from VIPs for publication in the proceedings. Full length papers included in this book (in form of the proceedings) are based on theme and sub themes viz. Policies and issues related to ICTs in School Education,Planning and Analysis of policies on ICT, OER in school education, Universal access to quality content, Technological issues in education (E-Learning, Apps for learning, Mobile learning, phones, tablets), ICT in Teaching-Learning-Assessment process, OER practices in subject teaching & learning, Mathematical fundamentals of ICT and educational change, ICT in assessment and learning, ICT and issues in science and other fields of human culture related to ICT education, ICT enhanced language teaching and learning, Research related to ICT in Schools, Research on effective practices of ICT in school education, ICT in Teacher Professional Development, Teacher's professional development of promoting ICT in school

education, Technological innovations for teaching in Schools, ICT skills and competencies among teachers, ICT in Innovative Schools, School Governance, ICT in Innovative Schools, Impacts and Effective use of ICT for quality learning, Monitoring and evaluation of the impact of ICT on school Education, Beneficial Effects of E-Governance in Schools and ICT for inclusive education.

Keynote briefs

EDUCATION IN NEW WORLD

Sri. Anshul Sonak
Regional Director (Education & Innovation, Asia),
Corporate Affairs Director - ASEAN
Intel Corporation

Fourth Industrial Revolution is creating fundamental disruptions in the way we live, work, connect & grow. The presentation will help audience synthesize the implications & impact of this revolution on future of learning & work, due to dynamic landscape opening up for next generation. As the speed, scale, scope and complexity of transformation is unlike anything that humankind has experienced before, the presentation also aims to trigger the dialogue to co create a new education vision & roadmap that is required to collectively address the big opportunities and challenges in front of us with an aim to make all learners become innovators, makers and creators.

ICT IN SCHOOL EDUCATION

Marmar Mukhopadhyay
Former Head of NIEPA and NOS (New Delhi)
and RMV (Kolkata), Chairman,
Educational Technology and Management Academy,
Gurugram

Discourse on ICT in school education in India can be traced back to late 1980's. It picked up the momentum, especially after NPE1986 and introduction of centrally sponsored schemes like CLASS and Educational Technology. Why are we talking today of the same theme after more than three decades? Is the issue ICT or Education? What are the issues of ICT? What are the issues in Education? ICT is issue for technology vendors; education is the issue of educators, students and parents. How do we build a bridge between vendor driven ICT agenda and educator driven education agenda to benefit students, teachers and parents alike; and the nation in the long run.

We still await conclusive proof of impact of ICT in education on learning outcome. However, there is enough evidence that ICT energizes the learning environment. Can we convert energized learning environment into learning outcome? That's the challenge.

Several learning designs have created evidence in enhancing learning outcome, for example, Flipped Learning, Blended Learning, Brain Based Learning, even programmed learning. Can ICT be integrated into those learning designs to make learning smarter?

Research on ICT in School education indicates sharp rise in awareness and appreciation for role of ICT in education in Asian Countries, combined with low ICT infrastructure and lower utilization and impact of ICT on education. This includes India. Do we have a solution?

States have moved on empowering students with technology (laptops to students) without corresponding, or preceding, empowerment of teachers with regard to personal access to technology. 'India's mobile phone subscriber base has reached the one billion users' mark, according to data released recently by the Telecom Regulatory Authority of India (TRAI)'. Estimated internet penetration is

27% (2016) - an increase of 5% on 2015 baseline. This is steadily increasing. How do we use this mobile-internet penetration to enrich education is a major challenge.

There are massive initiatives in engaging with ICT in education, e.g. National Repository of OER, Mobile Learning for Teacher Education, SWAYAM, DTH, MOOCs, etc. exploiting the developments in mobile telephony, internet penetration, and such other developments. Artificial Intelligence, Big Data, Learning Analytics and such other latest developments are still knocking at the doors of education. Beneficiaries are largely urban Indians leaving 70% Indians living in villages far away from these developments. In this context, I'll share a few micro experiments with ICT in school education with rural teachers and students.

ICT INTEGRATION IN EDUCATION: EASY WAYS TO FAIL AND THE POSSIBLE REMEDIES
Prof. M.U. Paily

Regional Institute of Education (NCERT), Mysore

Its more than 11 years after the nation came up with the National Curriculum Framework with an emphasis on constructivist paradigm in curriculum, pedagogy, and assessment. This document and the resulting curriculum and the textbooks brought about greater awareness among various stake holders about the much needed paradigm shift in the educational processes to meet the challenges of the information society.

Though the goal was not only to help students create knowledge that is new to them but also to master the learning process, the teaching continues to be largely didactic in nature leading to surface learning and reproducing the existing knowledge. As a result the emphasis on metacognition and self-regulation, reflective learning and learning to learn, authentic learning task and assessment for learning, collaboration and knowledge creation, and linking learning to the real life context remains an unattained goal.

Similarly, the Information and Communication Technologies (ICTs) have been making tremendous progress in this century shaping the knowledge society. These developments specifically in the last few years are demanding that the educational system updates its practices and contents to match the new knowledge society. Having realised the importance of ICT, successive governments both at state and national level have been making considerable investments in acquiring hardware and software for schools, providing internet access, and training the teachers in integrating technology. However this is yet to bring about the desired changes in the way in which teachers teach and the learners learn. Though technology has great potential in transforming learning process, its potential is underutilised in our educational practices largely due to lack of fundamental changes in our pedagogical and assessment practices. Therefore just making the content delivery interactive by using multimedia element, without effective pedagogical integration continue to result in reproduction of existing knowledge.

In this background, this presentation analyse the problems that have been recurring in our effort to effectively integrate technology and pedagogy in improving the educational process and suggest some measures for the successful integration of ICT in education. This is done through restructuring of a unit in science to make it engaging through collaboration and provides experience in creating and using new knowledge in real world beyond classroom using digital tools

and resources. The goal is also to illustrate how metacognition, creativity, critical thinking, citizenship, communication, problem solving could be focused upon with a belief that every learner can be a teacher and every teacher is a learner.

TECHNOLOGY WITH A HUMAN HEART- ICT FOR SPECIAL LEARNERS

Dr. M. Rajesh
Regional Director, IGNOU Regional Centre
P.O. Vatakara Kozhikode, Kerala

The word "technology" is often associated with mechanical and prosaic endeavours. In the field of education, Information and Communication Technology (ICT) is seen mostly from the perspective of backend support. However, technology changes its texture, scope and orientation when it is applied for the benefit of "Special Learners". Applying ICT for Special Learners is fraught with inherent risks unless the applicant feels the challenges and needs of his target group with his heart (an empathetic mind). He has to understand that Special

Care has to be taken to assess the support needed for such learners. The current talk shall focus these aspects by highlighting two efforts made by our research team at Cochin to reach out to "Special Students" using ICT. The first effort was to create a Digital Platform for "Brittle Bone" Learners and the second one was to reach out to mentally challenged learners through digital games. The talk shall highlight the importance of the human element in these efforts. An attempt shall be made to exhibit how an empathetic mind can utilize ICT for the benefit of "Special Learners".

ICT FOR METACOGNITION

Dr. Jayashree Shinde
Head,
Department of Educational Technology
SNDT Women's University, Mumbai

There is significant amount of research supporting the use of ICT in school education, teacher education as well as higher education. Though the use of ICT is accepted, 'integrating' ICTs in its best possible manner remains a question of exploration and research. Development of Open Educational Resources (OER) and Massive open Online Courses (MOOCs) is an indicator of progress of education in India and abroad. Huge OER repositories are being created across the country and the globe. Which pedagogy will be accepted and applied to integrate these and other available resources remains an issue of concern.

More studies in the area of pedagogy approaches for integrating ICTs, flipped learning, blended learning are needed. Mere use of ICT without an appropriate instructional strategy may lead to information transmission. Enabling learners to achieve higher level objectives should be a goal of education at school as well as higher education level. In the revised taxonomy of objectives, Anderson and Krathwohl (2001) have categorized knowledge dimension into four areas, viz. factual, conceptual, procedural and metacognitive. Metacognitive knowledge is the highest level of knowledge dimension. Metacognition implies 'cognition about cognition'.

'Metacognition' is knowing, understanding about one's own thinking, way of acquiring knowledge or e-

assimilation of knowledge. Re-iterating or synthesizing thoughts, verbalizing knowledge acquisition process, reflecting on learning experiences help learners reach at 'metacognition' level of knowledge. Integrating social media, collaborative tools can help learner search metacognition. ICT tools such as concept-mapping, mind-mapping, infographic, ePortfolio, process-folio, etc. empower learners to reach at Metacognition level. Many-a-times, use of simple ICT tools such as Google docs, blogs for writing reflections on collaborative tasks, verbalizing process of problem-solving help develop metacognition skills. A few case-studies of collaborative activities of students of Department of Educational Technology, SNDT Women's University illustrate how learners can use ICT for achieving metacognitive knowledge.

ISSUES IN E-LEARNING: CYBER SECURITY

Dr. Sharad Sinha
Professor & Head
RMSA Project Cell, NCERT, New Delhi

The education system in India, and across the nations, has evolved from community sessions in open spaces and Gurukuls, to teacher centered classrooms and ultimately giving way to learner-centered, technology driven education, off- line, on-line and on demand. The implementation of the Right to Education Act to provide access to quality education to all children in the country irrespective of gender, caste, creed, religion and geographies has enhanced the demand integration of technology for governance and better delivery mechanism.

As an academician, I see a tremendous paradigm shift and emerging challenges in the future education scenario. Two decades back it was a matter of pride for a

school to own a computer, today computer has become an inseparable part of student life and a necessity. Teachers are not 'digital immigrants', a term first coined by Marc Prensky in 2001.

The evident shift from teaching computers as a separate subject in schools to a revised ICT curriculum for school across India focusing on integrating ICT tools as part of pedagogy has made the classroom a different place altogether.

As technology is changing at a rapid pace, so much so that it's challenging to grasp and integrate it in education system. The proliferation of gadgets and access to internet is further democratizing education. As per a recent Google- KPMG report, the Indian on-line education sector is expected to grow to a USD 1.96 billion industry by 2021, owing to increased Smartphone's penetration and increased data speed. The development of MOOCs and other e-learning platforms will further provide plurality of resources for teaching–learning process and skills development. As futurist Thomas Frey predicts, in 15 years from now learning will be through robots teachers over the internet.

Moreover, with the growth of the Internet based technology, we can see the creation of tremendous opportunities for enterprises to develop new services and products for education system that will offer increased convenience and satisfaction to their end users. The rise of objects that connect themselves to the Internet is releasing an outpouring of new opportunities for data gathering, predictive analytics and IT automation for producing better learning outcome among students.

What happens to technology in the next few years may not simply impact learning in a typical cause-effect relationship. Rather, it might be the case that one absorbs the other, where information access, socializing ideas, and creative collaboration may be organic and

completely invisible, this will require shifts the focus from developing and operations as it is done now to developing, security and operations together. I predict assessing learning out-comes of education system will be based on the feedback of biological responses of students including sweat gland

stimulation, heart rate, eye position, and other data rather than the traditional ways and serve not only the educators, but-profit organizations for the purpose of analytics, market research, and ultimately consumerism. Learning simulations are on way to replace teachers very soon.

Schools as we know them will be outnumbered, no longer just supplemented by eLearning, blended learning, and self-directed learning platforms, but incredible learning simulations and full-on virtual worlds. E- Books will replace the existing books with other plurality of resources available online.

As futurist predict, the largest companies will be education based that have not been thought of. As cyber security evolves, so does the thought that everything cannot be protected equally rather we need to find ways and collect only what that matters.

Artificial intelligence is gaining momentum, IBM on way to develop Watson powered Robots, Google developing Deep Mind and Amazon developing Drone delivery

The rapid uptake of Bring Your Own Device (BYOD), and the introduction of wearable devices in the workplace, will increase an already high demand for mobile applications for both school and home. To meet this increased demand, developers working under intense pressure, and on paper-thin profit margins, will sacrifice security and thorough testing in favor of speed of delivery and the lowest cost. This may result in poor quality products that could be easily hacked by criminals or hacktivists.

The threat of theft of sensitive information by unauthorized users and siphoning information from smart- phones via insecure mobile applications. The level of hyper -connectivity means that access to one application on the Smartphone can mean access to all of a user's connected devices.

In this scenario, the important stakeholders of our education system, learner, irrespective of his age and people associated with him will be prone to cyber threats, cyber bullying or cyber-attacks. Cyber security-attacks /boot attacks will continue to become more innovative and sophisticated with each passing day. Unfortunately, while businesses are developing new security mechanisms, cybercriminals are developing new techniques to evade them at a faster pace. The increase in the sophistication of cyber-attacks is much higher than increase in our dependence on the Internet and technology. It is not heard to believe that cyber security is an area with zero percent unemployment rates.

After many years of trying and billions of dollars in investment, why are organizations are still struggling with cyber -security? Answering this question requires moving beyond a purely technical examination of cyber-security. But if looked at the challenge more broadly, even if the technical issues resolved, cyber-security would remain a tough challenge for three reasons as mentioned below

- It's not just a technical problem

- The rules of cyberspace are different from the physical world's

- Cyber-security law, policy, and practice are not yet fully developed

ROLE OF TECHNOLOGY IN DEVELOPING MATHEMATICAL THINKING

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One of the most fundamental impacts of technology over the last few decades has been its contribution in pushing the boundaries of knowledge in almost every field. Considering its omnipresence it is no wonder that technology should form an integral part of education in our society. We may argue that if properly used, technology can significantly impact teaching and learning of most school subjects. If we all agree that learning means freedom, that is, freedom to explore, experiment, question and visualise, then for all these modes of learning technology can be a great enabler. This brings us to some very important questions which educators and education systems world over have been faced with – what should technology be used for as far as teaching and learning is concerned? How can integration of technology be made most effective? The answers to these questions are certainly not straightforward. A very limiting view of the use of technology is to do the same things that we are doing today with greater speed and to streamline and replace routine procedures. However in order to reap the benefits of the full potential of technology we must use it to develop students' thinking and to introduce them to processes which cannot be done in the absence of technology. The terms 'amplifier' and 'reorganiser' have been used by researchers to describe how this can be made possible. In this presentation we shall reflect on the opportunities provided by various technology tools such as Graphics calculators and Dynamic Geometry Software for developing mathematical thinking. Some examples of studies conducted in the mathematics classroom (in the Indian context) will be used to highlight the benefits of the use of technology. In some of these studies students of secondary school used technology to engage in processes such as exploring mathematical concepts, making and testing conjectures, looking for patterns, finding counter examples and dealing with multiple representations. The encouraging

Feedback and increased motivation level of students in these studies suggest that this approach is especially rewarding from the point of view of meaningful integration of technology in the teaching - learning process.

PLANNING AND ANALYSIS OF POLICIES ON ICT, OER IN SCHOOL EDUCATION

Dr. Ramesh Sharma
Wawasan Open University
Penag, Malaysia

Over the past few decades, the education sector in India has undergone a substantial transformation. Recent advances in technology have provided access to high quality educational resources and information on the Internet. This presentation we will examine the role of open educational resources (OER) in addressing the challenges of School Education in India, which range from geographical disparities in access to education, to shortages of trained and qualified faculty. Many Governments have adopted OER policies for their educational system and thus it will be worthwhile to examine and discuss several OER initiatives that are currently advancing

India's efforts to create strong institutional mechanisms to overcome the country's educational challenges through a national strategic framework designed to improve access to quality school education. An analysis of these policies may focus light on initiatives designed to increase access to education through OER, as well as those designed to develop OER-related skills for educators.

KHAN ACADEMY: LEVERAGING TECHNOLOGY TO PERSONALISE EDUCATION

In today's digital age, technology enables multiple aspects of life - which allows us to achieve things we could not have thought of before. Increasingly, technology is now percolating across the education ecosystem as well, from strengthening hardware in the classroom to student performance analytics. There are a number of issues in the education system that technology can potentially solve for quicker and at a larger scale than one would be able to with only human intervention.

Khan Academy is a not for profit, open education resource that was established with a mission to provide a free, world-class education for anyone, anywhere. It allows one to learn online using a wide repository of videos, practise exercises, articles and unit tests, all at one's own pace. What started off as a platform for learning Math has now evolved to include a variety of subjects, some of them being Science, English, History, Economics and even Animation! We also have built a variety of tools for teachers that would help them teach and manage their classrooms more effectively, allowing them to personalise student instruction and learning. All of these tools and content is available for free for anyone to use. In India, we have over 14 lakh users every month across 80+ cities and have aligned our content to the NCERT curriculum.

At the National ICT Conference at Ajmer, we would like to share from our own experience as to how technology can be leveraged to personalise learning at scale. And why is it important to do so.

DAY WISE REPORT OF THE CONFERENCE
Day 1 (27-11- 2017)

Sri. Anshul Sonak, Regional Director (Education & Innovation, Asia), Corporate Affairs Director – ASEAN inaugurated the Conference as Chief Guest on 27st November, 2017. Marmar Mukhopadhyay, Former Head of NIEPA and NOS (New Delhi), and RMV (Kolkata), Chairman, Educational Technology and Management Academy, Gurugram and Prof. Amrendra Behra, Joint Director CIET, NCERT were the Guest of Honour during the inaugural session of the Conference. Prof. G. Viswanathappa, Principal, RIE, Ajmer welcomed and introduced the Chief Guest and Guest of Honour. Prof. P.K. Chaurasia, organizing secretary, NCICTSE-2017 stated the objectives the Conference. Sri. Anshul Sonak highlighted the practical aspects of ICT education, the implications & impact of this revolution on future of learning & work, due to dynamic landscape opening up for next generation. Marmar Mukhopadhyay Discourse on ICT in school education in India can be traced back to late 1980's. It picked up the momentum, especially after NPE1986 and introduction of centrally sponsored schemes like CLASS and Educational Technology. Prof. S.V. Sharma Head DESM proposed a vote of thanks to all the Guests, delegates and participants of the Conference.

First keynote on ICT in School Education was delivered by Prof. Marmar Mukhopadhyay. After lunch, one keynote given by Khan Academy on Leveraging Technology to Personalize Education and panel discussion on Planning and analysis of policies on ICT OER in School Education than one keynote on ICT & Maths Education in Google age was

delivered by Prof. I.K. Rana. parallel technical sessions commenced at Assembly Hall, Conference Room (102) and E-Learning Center. On the first day i.e. on Nov 27, 2017, Six technical sessions were conducted in which a total 22 papers were presented. Prof. M.U. Paily, Prof. K.B.Rath, Prof. Amrendra Behra, Prof. I.K. Rana , Dr. N.C. Ojha and Prof. V.P. Singh chaired the sessions. Details are given below:

Technical Session

Anand Kumar Arya made presentation on GMENTING STUDENTS' LEARNING TO LEARN STEREOCHEMISTRY CONCEPTS USING MOODLE: STUDENTS' PERCEPTIONS AND USE PATTERNS and abstract of his presentation is given below:
He was discussed on ICT and to assess the effectiveness of the online course portal students' oral and written feedback, assignments performance, and analyzing user data were examined. The results indicate a high degree of acceptance by students of the use of this combined approach, promoting an increase of self-awareness on their learning process. ICT has enhanced, even revolutionized to serve as an effective learning aid. The paper presents the effectiveness of online course on Module platform in combination with the regular classroom teaching to augment the development of skills for learning to learn for students in an undergraduate organic chemistry course on stereochemistry. For this, an online course on the Moodle platform was designed, essentially aiming for strengthening students' 3-dimesional visualization and augmenting stereo chemical concepts to enhance self-assessment of their study skills. The 87 students of undergraduate B.Sc.-B.Ed. (chemistry) course was registered and enrolled in online course on Moodle along with regular classroom teaching. The course content of the e-course portal was organized in a systematic manner representing 8 sessions involving presentations of multimedia enriched e-content and animations, learning resources, suggested readings and reading material in form of handouts. The assessment of learning was made through assignments, student surveys, discussion forums, and anecdotal observation by the instructors after each session.

Ms. Kavita Ajmera made presentation on MATHEMATICAL FUNDAMENTALS OF ICT AND EDUCATIONAL CHANGE and abstract of her presentation is given below:
She was addressed by a team of eight people who met for three full day meetings between February and May, 2006. They were Nick Doran, Sheila Messer, John Monaghan, Roger Porkers, Ian Stevenson, Ron Taylor, Geoff Wake, Einir Wyn Davies, a separate report on the work of this group is forthcoming from QCA, so this section merely raises issues addressed by this group. Raising these issues is useful for the purposes of this report as it serves to illustrate different perspectives differences which are likely to be reflected in the mathematics education community in the UK. The group discussed whether the recommendations should be made with regard to the use of specific hardware and software. Value was seen in a wide range of software and micro worlds but three generic software systems were seen as particularly relevant: spreadsheets, dynamic geometry and function graphing packages were views positively but it was recognized that computer algebra systems were viewed with great suspicion by a significant body of people who were concerned that they might undermine student's algebraic skills; the current debate on the place of data handling in GCSE. Mathematics and the expectation that data handling in the curriculum will be reduced in scope appeared to discourage concrete recommendation for the use of statistical packages. Graphic calculators (GC) have been available for 20 years but they now commonly include a range of computing tools: Cartesian parametric and polar graphing capabilities; scientific calculator with built in numeric routines and functions; programming language; tabular function akin claim a spreadsheet; and sophisticated data handling functionalities. The intension was

to set questions to test the students understanding as opposed to their ability to use algorithms to find solutions. Writing questions for examinations where the use of graphic calculator is required is a skill that needs to be learnt, therefore training needs to be provided for examiners in the same way as for teachers from a software perspective algebra is a powerful tool which allows complex relationships to be expressed in spreadsheets, graphic packages computer algebra systems and statistical packages. There are many ways of viewing the mathematics curriculum from a formal document listing, content and processes to the activities that students experience in Mathematics classrooms. It begins with a consideration of curriculum documentation and leads to activities that students may experience in their mathematics education.

Dr. Farah Deeba Bazmi made presentation on USE OF ICTS DURING TEACHING PRACTICE -- A BOON OR A LIABILITY and abstract of her presentation is given below:
Researches Worldwide have shown that how ICT can play a leading role in improving the process of teaching and learning. Teachers by making use of different types of software that can imply more "constructivist" approach in their pedagogies. ICT helps teachers to create more 'learner-oriented' learning environments as it makes the entire process motivating and develop confidence among teachers and students. Keeping in view these advantages of ICT in mind the present paper is an attempt to find out the attitude of teacher trainees of MANUU towards the use of ICT in the process of teaching and learning. The main objective of the study was to find out the attitudes of B.Ed. students towards using ICT in teaching. Another objective was to find out the difference between the use of ICT by the B.Ed. and D.El.Ed aspirants during their practice teaching. The research question for the study was Does the teacher trainees make use of ICT in delivering their lessons during teaching practice? A sample of 200 teacher trainees enrolled in the B.Ed. (120) and D.El.Ed (80) course were randomly selected from

MANUU School of education and data was collected through an attitude scale towards ICT comprised of 45 questions. A checklist was also used to find out what ICT tools were used by these teacher trainees. The results showed that around 79% aspirant teachers were having a positive attitude towards using ICT, whereas 13% were of the view that using ICT during teaching practice is a tedious task, and the rest 8% were undecided as for them using ICT means something very difficult as they don't have an exact idea of using ICT in their lessons, there was a significant difference found between the students of B.Ed. and D.El.Ed towards the use of ICT in their classrooms during teaching practice. Thus it can be concluded that today teachers require extensive, on-going exposure to ICTs to evaluate and select the most appropriate resources to enrich their teaching and learning process.

Ms. Asia made presentation on AWARENESS OF SECONDARY SCHOOL TEACHERS ON E-LEARNING SERVICE and made presentation on abstract of her presentation is given below:
In this paper the secondary School teachers on e-learning services. A total of hundred (100) respondents were selected from two secondary schools in Tenali Municipality. A self-developed questionnaire consists of 34 items with two alternatives i.e. Yes, and No was used to obtain response from the respondents. The reliability coefficient of the tool was found by Chronbach α method by using the following formula and it was found to be 0.78. The survey method is considered to be the best method for the present study. Mean, SD, % of mean, and 't'-test calculations were done.The result of the study showed that a number of the teachers are not computer literate and are not aware of e-learning resources. The few who are aware and could access e-learning resources are confronted with problems such as lack of internet facilities, poor network, and high cost of e-learning facilities. The study recommended the installation of internet facilities in secondary schools, provision of e-libraries

and creation of awareness about e-learning resources and compulsory training of teachers in computer literacy.

Ms Zainab Musheer made presentation on SOCIAL NETWORKING: ENHANCING TEACHING AND LEARNING SKILLS and abstract of his presentation is given below:
This paper how at present social networking has influenced teaching and learning process and how it has become one of the biggest and most comfortable communication zone for both teachers and students. In the contemporary era, social networking seems to have a deep impact on our social structure and intrasocial interaction. Social Networking is defined as an online platform where social relation can be established and information can be gathered and shared. Nowadays students are digital technology natives with great deal of sophistication in the potential and usage of social networking. They have been raised in a techno-centric world where omnipresent technologies play an integral role in human life and where new innovations are quickly absorbed and assimilated. This global phenomena has led a huge paradigm shift in the digital era classroom. In order to promote learning communities with increased student engagement, educators are increasingly adopting the social networking to supplement the process of teaching and learning in both online as well as traditional classroom environment. Teachers and students have a vast opportunity and variety of social networking sites and tools—from Ning to Voice Thread and Second Life to draw on for such serious uses as professional development and project collaboration. The task of knowledge construction is thus being shared among the instructor, students, and other individuals who share an interest for the subject. Social Networking addiction among students is a huge concern for both the teachers and parents, but there could be ways through which these addiction could be transformed into useful and beneficial source for information extraction. The present paper is an attempt to inform the teachers, administrators and policy makers on how proper use of social networking sites could enhance the teaching and learning skills. It will also provide information about various social networking sites which are especially designed for academic and educational purposes.

Waseema Bano made presentation on CONFIDENCE IN ASSESSMENT DECISIONS WHEN USING ICTand abstract of her presentation is given below:
The central question addressed in this paper is: How can teachers and schools have confidence in their assessment decisions when using information communication technologies (ICT)? The answer centers on what makes quality assessment. Assessing and evaluating children's achievement and progress is critical to development of sound curriculum programmes that focus on student outcomes. With the increasing use of ICT in schools and classrooms for a range of assessment purposes such as recording, data analysis and online activities, teachers and school leaders must be assessment capable in order to make informed decisions about assessment design, selection and modification that utilises ICT Based on examining assessment purpose and the three principles of quality assessment (validity, reliability and manageability), this paper offers guidelines for classroom teachers, those with responsibility for student achievement and those who lead ICT policy and practice in schools to be critical consumers of ICT-based assessment tools, strategies and evidence. Vignettes of assessment practice using ICT are used to illustrate sound school and classroom practices in relation to validity, reliability, and manageability. Drawing from the work of assessment writers such as Crooks, Sutton, and Darr, the guidelines will assist teachers in the effective use of ICT for both formal and informal information gathering as well as for analysis and interpretation of information for summative and formative purposes. This knowledge is needed to underpin teacher confidence in their assessment

decisions when using ICT towards 'best fit' for purpose.

Pankaj Ashok Narke made presentation on USING ONLINE COLLABORATIVE WRITING AS A PRE-SPEAKING TASK: INTEGRATION OF ICT IN THE ESL CLASSROOM and abstract of his presentation is given below:

Integration of ICT in language education has led to many successful experiments and researches. By comparing the efficacy of face-to-face tasks verses online tasks, researchers have recommended the inclusion of ICT in regular classroom practice and encouraged teachers to replace traditional tasks with digital tasks. However, from language testing perspective, both these task modes have different features: the testing framework for face-to-face tasks does not fit the digital tasks, and vice versa. This article is an attempt to distinguish between these two task modes by describing their different natures and suitability in testing conditions. Ten tertiary level ESL learners were exposed to online collaborative writing discussions as a pre-speaking task followed by face-to-face discussion task for 10 weeks. The face-to-face discussions were recorded and then transcribed for qualitative analysis along with the online discussion transcripts. The participants were interviewed to know their experience during the intervention process and their views on the online discussion tasks. The analysis of the features of both the tasks suggested that online collaborative writing tasks prepare learners to participate in the actual speaking tasks. The results showed positive influence of online pre-speaking tasks on the actual speaking tasks in terms of decreasing learners' anxiety to participate in the face to face discussions and increasing the task familiarity.

Vineeta Garg made presentation on LEVERAGING THE POWER OF MOBILE LEARNING APPLICATION and abstract of her presentation is given below:

Mobile phones are essential communication and information tools for today's young generation. For them, it is not an extension, but a vital part of their lives. Although mobile phones were earlier considered only as a communication tool, now they are also considered as a vital educational tool for teaching/learning purpose. This research aims to study the relationships of behavioral factors and perceived usefulness of using the mobile application "Informatics Practices" for learning the subject Informatics Practices, on students' perceived performance, satisfaction and behavior. An Informatics Practices application was developed by the author in 2015-16. In this research a group of 60 students of grade XI and XII who have opted Informatics Practices as a subject under CBSE curriculum had been asked to use the application to help them in the subject. After that a survey had been distributed to the students and the data collected is analyzed. The results from this study provided evidence that there is a positive relationship between mobile application "Informatics Practices" and students' perceived performance, satisfaction and behavior.

Momin Sumaiya made presentation on A STUDY OF E-CONTENT AWARENESS & USABILITY IN SCHOOL EDUCATION and abstract of his presentation is given below:

The era, in which we are breathing, is the era of ICT. ICT is used largely to increase access to and improve the relevance and quality of education. The significant role of ICT in school education has been highlighted by many national committees and commissions. India is one of the race runner in the race of expertization and digitalization in education field. Digitalization of India is a boon of ICT. With a view to realize and to fulfill the goals of Digital India in school education, the NCERT took the initiative of providing its resources on the web and mobile platform in the form of e-Books/ e-Content (digital contents). This paper is an attempt to study about e-Content awareness & usability among school teachers. In this study only e-Basta & e-Pathshala are included as e-content resources for study. The descriptive survey

method was adopted, by using purposive & convenient sampling. 50 teachers from CBSE schools were selected in an equal ratio of male & female. Data was collected through a self-constructed questionnaire and was analyzed by using Frequency, Percentage & Chi-Square test. The researcher found that there is no significant association of e-content awareness among male & female teachers but there is significant association of e-content usability.

Dr Priyanka Chaturvedi made presentation on BARRIERS IN INTEGRATING THE ICT IN TEACHING LEARNING PROCESS IN SCHOOL EDUCATION and abstract of her presentation is given below:
To make the teaching effective and interesting, teachers are using different teaching aids but with the emergence of technology and digitalization of the world, it is required to integrate technology in teaching learning process. Information and communication technology provides innovative and effective teaching educational tools. By integrating ICT in traditional teaching methods teaching could be more effective, enhances the interest of the learner, saves time of the teacher in the context of the syllabus and workload if used judiciously, absolute things can be visualized as concrete. Our study is based on the field research on the challenges and barriers in integrating the ICT in teaching learning process in school education. The research was carried out on teachers and students of central board, Rajasthan state secondary schools. The data was collected using a questionnaire to study on awareness, number of users of ICT, barriers in integrating ICT and possible resolutions of it. Findings of the study illuminates that there are less number of users due to less awareness, barriers in integrating ICT in teaching learning process such as ICT equipment are not available, lack of confidence and technical skills in using them, which can be overcome by the certain strategy and planning. Regular professional development programs of ICT should be conducted for teachers in which teacher should be apprised the need of ICT, increasing interest of students towards technology, how their teaching will be improved and to develop technological skills of using ICT tools.

Dr.Priya Khimnani made presentation on A STUDY OF ATTITUDE TOWARDS ICT OF PROSPECTIVE SECONDARY LEVEL TEACHERS IN RELATION TO THEIR GENDER AND ACADEMIC STREAMS and abstract of her presentation is given below:
Use of ICT for teaching and learning has received a lot of attention in the last two decades. Innovation of computer technology as a learning tool can change dramatically the traditional concept of teaching. NCF 2005 emphasized on the use of ICT in the classroom. NCFTE 2009 also emphasized on introducing ICT training at both pre-service and in-service level. However the teacher's attitude is an important issue for integration of ICT in modern classroom teaching and learning process. The purpose of the present study is to find out attitude towards ICT among prospective secondary level teachers with respect to their Gender and Academic Streams (Arts, Science and Commerce). Attitude scale towards information technology for teachers developed by Nasrin and Fatima Islahi was used to collect data from prospective secondary level teachers of Jodhpur. The scale measures four areas- Impact of IT, usefulness for students, productivity for teachers and teachers interest an acceptance. Results of the study will give us the direction in which our efforts are needed so as to effectively integrate ICT in schools education as well as in higher education.

Shaista Parveen made presentation on UTILIZATION OF ICTS IN SOCIAL STUDIES TEACHING IN INCLUSIVE CLASSES AT SECONDARY LEVEL and abstract of her presentation is given below:
Now days we are all surrounded by gadgets. These are present everywhere i.e. in shops, homes, office etc. in short in every field of human life technological

tools as mobile, laptop, computer and kindle etc. have made their approach. Without them no one takes a single step in life. Hence a proper understanding and application of this facility has become a necessary tool for all. Many technical tools and websites have developed under different educational schemes to spread out the light of education to every nook and cranny of our country. Yasemin Gulbahar and Ismail Guven (2008) in their study entitled "A Survey on ICT Usage and the Perceptions of Social Studies Teachers in Turkey." Have given many suggestions but here raise few questions (1) How the ICT should approach to an inclusive classroom? (2) What will be the process of ICT integration in an inclusive classroom? (3) In social sciences teaching learning process how the ICT can be utilize more effectively. This study is an effort to give the answer of above mentioned questions. Thus, different ways of ICT utilization and selection of appropriate ICT tools in the classroom will be discussed especially in inclusive classroom where different types of students with physical and mental problems come to study.

Swarna Chandrika Mahapatra made presentation on ICT BASED INTERVENTION FOR ADDRESSING SPELLING ERRORS: AN ACTION RESEARCH STUDY and abstract of her presentation is given below:
This study examined the effectiveness of ICT (Information and Communication Technologies) based intervention on spelling errors of class 5 students in an English medium school. The The investigator used class 5 (number of students 40) as the sample for this study. Descriptive statistics, pre-intervention test results, and post-intervention test results based on class 5 textbooks were used as data**.** This study highlighted the importance of action research and ICT based intervention in addressing the spelling error problem. The findings revealed that interventions contributed in minimizing spelling errors among the students. It is therefore recommended that teachers should undertake the theory driven action research to solve problems

and improve the quality of education in general, and use appropriate ICT based interventions to address class 5 students' spelling errors in particular.

Sushrita Sachdeva made presentation on ICT IN TEACHING-LEARNING-ASSESSMENT PROCESS and abstract of her presentation is given below:
Her My contribution to the school with respect to ICT Integration and Assessment Math has always been a phobia for students so with the help of Computer Aided Learning I have tried to evade the phobia of math's by making it fun and enjoyable. I have also developed a Facebook page(Link:- http://m.facebook.com/I-LOVE-MATHS-343743966423) 'I LOVE MATHS' where children are given math questions, tricks for easy calculations and quotations on math's GeoGebra and Autograph are interactive mathematics software's which are used to explain the concepts of various types of graphs and trigonometry. PBL/Flip with ICT- In project-based learning, a learner-centered approach, the teacher's role is to guide and ZUNAL is a website that aids in creation of Web Quests, and it allows the students to discover information on their own. ICT empowers teachers and learners, transforming teaching and learning processes from being highly teacher-oriented to student-centered, and that this transformation will result in increased learning gains for students, creating and allowing for opportunities for learners to develop their creativity, problem-solving abilities, informational reasoning skills, communication skills, and other higher-order thinking skills. Students are able to assess themselves by conducting tests, brain storming sessions on the computer. They are able to make notes, self-study using information available on the computer. Use of Kyans seamlessly integrates along with the traditional chalk-and-talk method of teaching in the classroom. It enables the teachers to use digital resources such as animations, videos, diagrams and 3D graphics with audio to bring interactivity right inside the classroom, creating a multi-sensory learning for students, which enhances

students' academic performance. The technology helps teachers explain concepts better, increase level of understanding of students and help children improve their performance. By using the Smart Board content, the teacher can show the student a three-dimensional working model of the same, which will definitely help an average-learner or even a slow-learner to improve their performance. Use of Technology in teaching 'English' has raised the quality of class discussion and involved students much more deeply in their own education. The use of computer based instructions make students feel in control of what they learn. Teachers publish educational instructions on classroom blogs or they assign research work via email, and this gives a student time to study on their own and have no fear of making mistakes during the process of learning.

Sushmita Bohara made presentation on MODES OF REPRESENTATION OF E-CONTENT: ICT IN LANGUAGE TEACHING and abstract of her presentation is given below:
learning is the most dynamic, flexible and advantageous way of learning in today's world. Information and communication technology (ICT) is an integral part of the e-learning framework. Similar to other fields of study, language teaching and learning has also seen an increased application of ICT in recent time. Language learning has two important aspects in the education system. First, effective language skills are required to present and communicate knowledge in every field of study such as Science, Engineering and Management. Second, language is an area of study and research itself, closely tied to literature. This paper explores various modes and methods of conceiving, creating and presenting content for language teaching and learning through ICT. The field of e-learning is studied in two different categories: (i) use of ICT to improve and augment traditional classrooms and (ii) use of ICT to enable remote and online teaching-learning. Based on a broad study of e-learning systems that are widely used in India and the other parts of the world, the paper

primarily suggests the following: (i) continuous updating and renovating the existing material, (ii) adaption of teaching manners and presentation techniques that are feasible for remote learners and (iii) encouraging the adoption of novel classroom structures such as flipped classrooms and novel teaching techniques.

Smriti Rekha made presentation on ENHANCEMENT OF SOCIAL SKILLS AND LANGUAGE OF PRESCHOOLERS THROUGH ICT SMRITIREKHA and abstract of her presentation is given below:
ICT is not only about using computers, but more than that. ICT is embedded in our day to day experiences. Interactive television programmes, video/DVD players and traffic lights at pedestrian crossings are a few such examples. It should be reflected in the early years' environment. It will help preschoolers to make sense of their world. Being highly motivational, inclusive and encouraging, these ICT resources often help in the development of language and social skills in preschool children. ICT is not a subject, it's a tool. There are some skills which are related to ICT equipment only. The present paper highlights the importance of ICT in early childhood education and how it helps in the development of language and social skills in preschool children. The concerned article suggests at least three reasons for using ICT in early childhood education. First, there is an effect of ICT on the people and environment that surround young children's learning. Second, new opportunities are provided by these technologies in order to strengthen many aspects of early childhood education practice. Third, the whole education sector is providing support and interest in the development and integration of ICT into education policy, curriculum, and practice. These three themes are explored in previously descriptive studies and evidences. The paper will also discuss about the current extent of research evidences to support claims about the potential of ICT which can strengthen various aspects of high-quality practice in early childhood education.

Prof. Siddiqui Mohammad Mahmood made presentation on A STUDY OF EFFECT OF ICT IN TEACHING-LEARNING OF ISLAMIC STUDIES IN MADARSA EDUCATION and abstract of his presentation is given below:

Education is considered to be the best means of revolution. It aims at multifaceted development of individuals and society. Muslim community in India with about 14% population is the largest minority in India. Due to many reasons, this community has been lagging behind in almost all fields. Educational backwardness is supposed to the key reason for overall backwardness. As per the Sachchar Committee report, about 4% of Muslim children in the age group of 6-14 years' study in various Madarsas which are generally considered to be the centre of religious education, with traditional methods and approaches of teaching learning and evaluation. Modernization of Madarsa Education therefore is emphasized a lot.Through this paper the investigator wanted to know whether use of ICT in teaching learning of Islamic Studies, the core subject of Madarsa education affect positively. He used Tajweed-o-Qirat course under Islamic education course available on the internet and conducted lessons through this resources to the experimental group of students of Madarsa. Surprisingly, the finding suggests that as such there is no significant effect on student's achievement. However, the discussions with the Madarsa students & teachers enable us to conclude that use of such modern online resources definitely helps in enhancing student's interest and keeping theme motivated and enthusiastic. The finding suggests that even traditional methods and techniques used in Madarsas should not be under estimated and they are potent enough to be considered at par with the so called modern methods and techniques. In fact, only emphasizing on 'Modernization of Madarsa Education' and neglecting many of its merits will keeps us deprived of benefiting ourselves with this rich tradition. The overwhelming response of Madarsa students and teachers in regard to use of computer and internet resources suggest that so called reluctance of the stakeholders of Madarsa education towards its modernization is totally false.

Dr. P.S Sreedevi made presentation on WHATSAPP - A NEW DIMENSION FOR COLLABORATIVE LEARNING APPROACH and abstract of her presentation is given below:

It is a little hard to believe, but WhatsApp can be used as a learning tool. Some of the popular messaging app's attributes make it an ideal solution for teachers and students. The purpose of WhatsApp is to facilitate communication, and at its most basic level, education is nothing but communication. WhatsApp can provide a channel through which teachers can achieve faster and more seamless communication with their students. It can also increase the level of communication between students and create another venue for learning. Obviously, a messaging app is not a teaching tool on its own. Instead, WhatsApp is best viewed as a facilitator of communication and a means of dispersing educational resources and information to students. Therefore, WhatsApp should be regarded as a means to an end rather than an end in itself. Fortunately, there are a few strategies that educators can use to leverage WhatsApp to enhance the education experience.

Manju Tomar made presentation on STUDY OF TEACHER'S ATTITUDE AND
THE IMPACT OF ICT ON THE TEACHING PROFESSION and abstract of her presentation is given below:

Information and communication technology (ICT) can possibly change educating and learning forms. Notwithstanding, most nations face challenges in measuring the effect of interests in framework, monstrous move outs of educator preparing activities, and use in the classroom. The absence of a thorough arrangement of pointers can halfway clarify current difficulties. The traditional view of the learning process is typically teacher entered, with teachers doing most of the talking and intellectual

work, while students are passive receptacles of the information provided. Psychologists and social scientists could understand essentially, that identification and utilization of favourable and positive attitude of teachers will pave the way for realization of desirable national goals in respect to education. This paper discusses the Attitude of Teachers towards Teaching Profession and the impact of ICT on the teaching profession. The paper is structured around a consideration of what is meant by teachers' attitude of academic, psychological area of teaching profession. Data are draw from attitude scale of Umme Kulsum and questionnaire for impact of ICT. The technique employed to develop the attitude scale was Linkert's (1932) four point of Summated Rating Scale. The findings suggest that Attitude and Impact of ICT of both male and female teachers to be equal. There is no marked difference between the two groups. Male and female teachers do not differ in the attitude of academic aspect and Impact of ICT of teaching profession. Attitude seems to be equal in male and female groups in psychological aspect of teaching profession.

Dr. Meenakshi Thakur made presentation on HITCHES ENCOUNTERED BY TEACHERS IN USING ICT IN TEACHING-LEARNING AT THE SECONDARY LEVEL SCHOOLS OF JAIPUR CITY and abstract of her presentation is given below:
Information and communication technology (ICT) has become an indispensible part of most organizations and business these days (Zhang & Aikman, 2007). Technically ICT is a general term referring to technologies which are being used for collecting, storing, editing and transmitting information in various forms (SER, 1997). The relatively recent introduction of new technology into mainstream schooling was widely expected to penetrate and transform teaching and learning across the curriculum. The use of Information and Communication Technology (ICT) in Indian education is lagging behind expectation and desire. It is believed that

teachers are the key in learning processes. The nature and extent to which ICT is being used in education is considered to be a result of synergy between 'top-down' and 'bottom up' processes. In the latter especially, a contribution of the teacher training institutes can be expected. If we want to improve the quality of teaching and learning the dire need is to identify the possible obstacles to the integration of these technologies in schools. A study aimed at finding out the difficulties faced by teachers in using Information and Communication Technology (ICT) in classroom teaching-learning at secondary level educational institutions in Jaipur city. The use of ICT in he classroom is very important in providing opportunities for students to learn to operate in an information age. Studying the obstacles to the use of ICT in educational institutions may assist educators to overcome these barriers and become successful technology adopters in the future. This discussion centers on the main factors influencing integration of ICT. The focus group methodology employed in the study is outlined and background information about the six participating schools is presented. The main body of the paper is concerned with the results of the thematic analysis carried out on the interview transcripts an self-prepared questionnaire.

Day 2 (28-11-2017)

On the second day, Five Keynote were delivered by Prof. Amrendra Behra, Joint Director CIET, NCERT on 'ICT in Education' Digital Learning in School. He disused on various problems and challenges for implementation the ICT in School Education, by Dr. Jonaki B Ghosh, Department of Elementary Education, Lady Shri Ram College for Women University of Delhi on Role Of Technology In Developing Mathematical Thinking, Prof. Sugata Mitra Newcastle, Uk on Internet of Think, by Dr. M. Rajesh on Technology With A Human Heart- ICT For Special Learners and by Dr. Jayashree Shinde on ICT For Metacognition. Microsoft India Persons was delivered

lecture and training on 21ˢᵗ Century Skills and Transformational Learning through Technology. In this day total numbers 46 papers were presented in parallel nine technical sessions conducted at Assembly Hall, Conference Room (102) and E-Learning Center, Prof. Amrendra Behra, Prof.S.V. Sharma, Dr. M. Rajesh, Dr. Jayashree Shinde, Dr. Sharad Sinha and Prof. Rusell D'souza chaired the sessions. Details of presentation made on second day of the Conference are given below:

Zareena J M made presentation on ENHANCING SELF AND PEER ASSESSMENT THROUGH THE USE OF ICTS IN ENGLISH LANGUAGE CLASSROOMS and abstract of his presentation is given below:
The present study proposes to explores the ways in which the Social networking ICTs (Facebook and WhatsApp) enable a better and more feasible self and peer assessment of learners writing skills, as such self and peer assessment may not be feasible in the normal classroom situation on a regular basis. The study seeks explore how far the online self and peer assessment is successful in promoting collaborative learning among the target learners. The present study is an attempt to explore the possibilities of online knowledge co-creation through negotiation, collaboration that online self and peer assessment offer. The findings of the study will enhance our understanding of the potential of social networking and online tools for collaborative learning in a writing classroom.

Vikas Kadam made presentation on USE OF ICT FOR ENHANCING SPEAKING AND PRONUNCIATION SKILLS IN AN ENGLISH LANGUAGE CLASSROOM and abstract of his presentation is given below:
In the present era of information and technology where technological tools like mobiles, computers, multimedia devices and internet have become a part of our lives, it is impossible to imagine a world without them. In India, there are several initiatives to digitalize the services and processes from getting Adhaar card, bank transactions, college admissions to public elections and retail transactions. However, the use of such effective and efficient technological tools is not yet very common in mainstream education specifically in the classroom teaching-learning contexts. Because, most of our teachers tend to believe that the use of such digital and technological tools distracts the learners and disturbs the learning process. Our learners, even the school learners, use these tools of information and communication technology (ICT) every day in their real life. Use of ICTs like Facebook, Twitter, WatsApp, Gmail and YouTube is very much common in our society today. Most of our teachers and other stakeholders need to realize that the use of such ICT tools enhances and takes our learners levels of thinking, curiosity and creativity to the optimum level. These are the qualities of human brain on which the whole process and purpose of learning and education is based. The present study attempts to explore the various ways in which ICT can provide our learners a rich learning experience in an English language proficiency classroom. The study explores the possibilities of using YouTube, Facebook, Gmail, WhatsApp, mobile dictionaries and language laboratories to enhance the quality of learning, teaching and assessment of the speaking and pronunciation skills of the learners of four month English language proficiency course. The target group of learners is usually asked to watch YouTube videos related to the language function in focus, and they are given practice with useful language expressions through the oral drill activities in the classroom and in the language lab. Learners are always allowed to use Smartphones in the speaking and pronunciation classes.

B.Senthamizhselvan made presentation on EFFECT OF O-LABS OVER REAL LABS IN TEACHING AND LEARNING CHEMISTRY ON ACADEMIC ACHEIVEMENT FOR THE ELEVENTH GRADE STUDENTS OF JAWAHAR NAVODAYA VIDHYALAYA AND DEMONSTRATION MUTIPURPOSE

SCHOOL IN MYSURU and abstract of his presentation is given below:

It is assumed that if the teaching and learning Chemistry through Online labs becomes successful, then it will definitely enhance the level of self-confidence and create improvement in academic achievement among the children. Traditional teaching does not often allow very active involvement of pupils in class. In chemistry, experimental work can also be exercised using online labs. Understanding chemistry involves the ability of cognitive comprehension on three levels: the macroscopic, microscopic and the symbolic level. Online laboratory can be an effective tool for attaining all the three . On this basis , a didactic experiment was performed in order to verify the effectiveness of online laboratory from student knowledge point of view. It is well known that laboratory applications are of significant importance in chemistry education. However, laboratory applications have generally been neglected in recent educational environments for a variety of

reasons. In order to address this gap, this study examined the effect of online laboratory on academic achievement among two CBSE schools located in Mysore district. The study involved two different groups, Control and Experimental groups, selected from Jawahar Navodaya Vidyalaya & Demonstration Multipurpose School. In this study, Experimental group children studied the topics, using Olabs: Redox titration, Acid-Base titration, Crystallization of benzoic acid, Detection of Elements using Lassaigne's test, Paper chromatography and Chemical Equilibrium.

Ms. Sarita Bobade made presentation on MIND MAPPING AS AN INNOVATIVE ICT BASED TOOL IN TEACHING LEARNING PROCESS and abstract of her presentation is given below:

In education system teaching and learning are two major activities. But in present time quality and innovations is more important because high growth in education is increasing the demand for flexible and innovative approaches for teaching and learning. Information Communication technology has played an important role, in that the mind mapping an innovative ICT based tool for teacher and students, it helps in effectively teach and learn. In recently Information Communication technology has steered in the arrival of the electronic computer system among the other modern tools. there are different types of mind mapping tools and software available. It is ICT based innovative teaching and learning tool it helps to teacher and student to learn effectively. Mind mapping is a creativity and productivity-enhancing technique that can improve the learning and efficiency of individuals and organizations. In this paper our focus is how ICT based innovative mind mapping tools (imind map, mindview, mindmeister) helps in teaching and learning and identifying the challenges prevailing in our educational system and proposing the role of ICT practices in its successful implementation. In this paper will discuss about advantages or uses for teachers and learners to understand concepts in deeply. Mind mapping techniques makes students more productive by harnessing the full range of our mental and creative skills. ICT is becoming increasingly important in our daily lives as well as in educational systems. Therefore, there is a growing demand on educational institutions to use ICT to teach the skills and knowledge that students need for the 21st century.

Sarika made presentation on INFORMATION COMMUNICATION TECHNOLOGY IN ASSESSMENT AND LEARNING and abstract of her presentation is given below:

Information and communication technologies (ICT) have become common place entities in all aspects of life, across the past twenty years the use of ICT has fundamentally changed the practices and procedures of nearly all forms of endeavor within the business and governance. In education, ICT has begun to have a presence but the impact has not been as extensive as in other fields. Education is a

very socially oriented activity and quality education has traditionally been associated with strong teachers having high degrees of personal contact with learners but in present days ICT can provide more flexible and effective ways for learning and assessment. A variety of ICT can not only giving the instruction but also learning process itself. Modern technology offers educators a variety of new tools that can be used in the classroom. Technology can help teachers assess their students' learning as well as their performance in the classroom. Use of ICT in assessment involves the use of digital devices to assist in the construction, delivery, storage or reporting of student assessment tasks, responses, grades or feedback. This paper analysis the
importance of ICT in assessment and learning and it discusses new possibilities and challenges that ICT has brought in teaching learning process so the paper has sought to explore the role of ICT in education as we progress into the 21st century.

Dr. Rucha Desai made presentation on INTEGRATION OF ICT AT SHANTI ASIATIC SCHOOL, SURAT, GUJARAT and abstract of her presentation is given below:
Information and communication technology (ICT) is a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information. These technologies include computers, the Internet, broad casting technologies (radio and television), and telephony. ICT has become part of everyday life and all sectors from banking to tourism now depend heavily on ICT for carrying out their transactions. The National curriculum framework 2005 (NCF 2005) has highlighted the importance of ICT in school education. ICTs are a potentially powerful tool for extending educational opportunities, both formal and non-for mal education.
At Shanti Asiatic School, Surat, ICT is interwoven in day to day transactions of teaching and administrations. Learning has made more effective, meaningful and intelligible by making classroom smart-

classroom from KG to Higher section. Each teacher is given tablet loaded with the content of their respective subject. Each classroom is equipped with projector and white-board. So classrooms are infrastructural suitable for effective use of technology. Help of professional technology service provider are taken like, Educomp, Extramarks. Contents are designed by them. It is inclusive of textual description along with pictorial and auditory representation of topic. Apart from teaching learning, ICT is also used for sending home-work everyday to parents of children so that they can keep an account of it. CCTV cameras are also fixed in each class for sincerity of student and teacher both.

Dr. M. Pratibha made presentation on INNOVATIVE TECHNOLOGICAL APPLICATIONS IN LANGUAGE LEARNING AND TEACHING and abstract of her presentation is given below:
How the new technologies can be used to assist the language learning and which innovative applications are helpful to meet the continuous increasing demands of learners is the focus of this study. New technologies including overhead projectors, interactive whiteboards, computers and wireless internet have opened up the classroom to the outside world. The teaching-learning process has to adapt to the changing learning contexts. Technology provides a learner independent in language learning. Thus, technology enables a learner's efforts easier and faster. At present there are several online services and some of them are free. It is possible that many more services will be available in future.

Manoj Praveen G made presentation on AN ONLINE MOODLE EXPERIENCE IN PHYSICS PROBLEM SOLVING IN HIGHER SECONDARY SCHOOL and abstract of his presentation is given below:
The researcher reports the use of a MOODLE platform for designing a Problem-Solving Learning Environment to teach solving of problems in Physics. The sample consisted of 113 higher secondary

students of XI standard who were taught solving of problems using an instructional module with the schema based problem solving method on MOODLE. The instructional module addresses all the problem types for the topic "One Dimensional Motion" as prescribed in the NCERT text book of standard XI. A feedback of the learners regarding the user friendliness, effectiveness and drawbacks of the course was analyzed. This was compared with the feedback of another group taught with the same frame work of problem solving learning environment without MOODLE support. The effect of using MOODLE as a course ware on Problem Solving Ability was studied. For this a quasi-experimental study was designed with two experimental groups and a control group. The first group was taught with schema based instruction with MOODLE, the second group was taught schema based instruction without MOODLE and the third group was taught using expository method. A one way ANCOVA was performed to determine if a statistically different significance existed between the methods of instruction on the Problem Solving Ability controlling for Nonverbal Intelligence and Logical-Mathematical Intelligence. The ANCOVA results reveal that Schema based instruction using Moodle significantly increases the gain in Problem Solving Ability compared to Schema based Instruction without Moodle and the expository method of teaching problem solving.

Manisha Singh made presentation on USE OF ICT IN TEACHING-LEARNING-ASSESSMENT PROCESS and abstract of her presentation is given below:
The developments in the use of the electronic media have influenced all walks of life. Education is no exception to this. The use of computers and the internet for enhancing the quality of education by making learning more relevant to life has been seen as an ideal by educational institutions. The citizens of tomorrow who are our students now are going to live in the age of the electronic media. How are we preparing them for the same? Are we

giving them technology based Education? Are we giving them exposure to the use of computers and the internet? Have we integrated the ICT into classroom processes? What are the efforts made by the department in this direction? What does policy say about ICT in Education? There are several such questions which we need to probe into. An understanding of these issues will enable us to use the ICT more meaningfully in Education.This paper discusses about the basics of assessment practices and explores how various technology tools can be integrated effectively for assessing student learning. The concept map below gives an overview of how ICT can be used for assessment. This paper is based on secondary source of Data such as books, Journals, News Paper etc.

S. Lavanya made presentation on DEVELOP STORY TELLING IN ENGLISH FOR PRIMARY SCHOOL CHILDREN USING SUBSTITUTION METHOD THROUGH AUDIO VISUAL AIDS and abstract of his presentation is given below:
Story Telling is an art which has to be acquired by the students at the primary level. Story telling increases kids' willingness to communicate their thoughts and feelings. It increases the verbal proficiency in English. It also increases the vocabulary of the students, creativity and imagination.
The research consists of two stages. In the first stage, students are shown the videos of short stories with the subtitles. The short stories consist of simple sentences. They are asked to watch the stories and to read the subtitles as well. The subtitles of the stories are designed such that the sentences are formed using substitution method. Students understand that new sentences can be formed using substitution method when they are going on watching the stories. In the second stage, the videos without voice and subtitle are shown and the students have to narrate the story in English. The stories shown in the first stage are not the same in the second stage. The methodology is continued for 20 days. Quantitative data will be collected by

calculating the number of sentences framed by
the children. Descriptive results (percentages, frequency, and mean) will be analyzed through T Test.

Lata Pandey made presentation on MOODLE: AN EFFECTIVE MEANS OF ICT IN EDUCATIONAL MANAGEMENT and abstract of her presentation is given below:
The use of Information and Communication Technologies (ICT) and therefore E-learning and Learning Management Systems (LMSs) is becoming widely accepted as an effective teaching and learning technique across all levels of education as it delivers more training to students in a fast, convenient and consistent manner. Various current and emerging ICT tools, services, etc. are vying for space in the field of education to emerge as effective tools to supplement traditional teaching/learning methods on a wide scale. ICT is also being utilized to make teaching/learning more effective by leveraging its inherent strengths of being cost effective and widely implementable with minimum infrastructure. A Learning Management System, as a software for delivering, tracking and managing learning instruction plays a vital role in such leveraging. MOODLE (acronym for Modular Object Oriented Distributed Learning Environment) has quickly gained prominence as the most popular open source LMS not only in India but throughout the world. The flexibility afforded by Moodle platform and the richer resources that it provides overcomes the imitations of time and space which are present in traditional teaching. Today Moodle is being utilized in 230 countries and has more than 1700 registered sites in India. However, since it's a new paradigm of teaching-learning, students and teachers are unaware of its technology and its implementation. This paper traces the origins and growth of Moodle, explains the Social Constructionist Pedagogy on which it is based, lists the innovative features that have established it as the most widely preferred LMS platform for learning and assessment and discusses how can it help to facilitate self-directed learning among students, how can it be used to provide and engage students in meaningful and authentic learning experiences, and what is preventing our teachers to use it. The paper concludes that the concept of Moodle is an important development in education.

Dr V T Jalajakumari made presentation on ICT INTERVENTIONS IN INCLUSIVE EDUCATION and abstract of her presentation is given below:
The emergence of information communication technology in educational institutions made a fast change of pace in teaching learning process as well as in the communication strategies among teachers, learners, parents, and other stakeholders in the society. It is a proved fact that the innovative initiatives in ICT by industrialists and educationists ensure a paradigm shift from traditional monotonous way of educational transactions for special learners too to interesting and sustainably motivating learning habits. Most of the special learners today have been using smart phones, tablets and other digital game devices to play and learn since they could hold it. So it is justifiable and logical to align their learning process with their interesting digital play devices. Hence along with the formal class room learning digital devices can also be supplemented with in –built provisions for guided and unguided practices particularly among the differently abled learners. If paid more attention and policy support to develop e-contents, inclusive education can be imparted more effectively than ever. In the present paper the author analyses and describes provisions in ICT to provide more effective educational supports for inclusive learners. A questionnaire was administered to the teachers of differently abled learners to identify the ICT provisions available and allotted for them and their impact on the education of differently abled learners. On the basis of the analysis of the questionnaire and the review done on the available provisions of ICT for special learners the author tries to contribute some specific policy

suggestions to improve the teaching learning status of differently abled learners and at the same time suggests some innovative digital provisions of ICT for inclusive learners.

Singh Gurpreet made presentation on FORMATIVE ASSESSMENT: USING KAHOOT QUIZ CREATORS TO ENHANCE THE 4C sand abstract of his presentation is given below:

Students now a day are very much active into gadgets and technology. This should be taken into consideration when thinking about how to attract students' attention in learning. Assessment is vital to the education process. In schools, the most visible assessments are summative. Summative assessments are used to measure what students have learned at the end, to ensure that they have met required standards on the way to earning certification, or as a method for selecting students for continuation into further education. But assessment may also serve a formative function. In classrooms, formative assessment refers to frequent, interactive assessments of student progress and understanding to identify learning needs and adjust teaching appropriately. This paper seeks to impart knowledge on the use of Kahoot quiz creators in formative assessment, a departure from the traditional paper-based technique. It also aims at fostering the 4 Cs (Creativity, Critical Thinking, Collaboration and Communication) in an interactive classroom while engaging students and motivating them in the process of teaching and assessing their understanding. A demonstration of Kahoot was given to the group of teachers each and they were asked to follow the Kahoot quiz in their classroom. And survey was made from the groups of above teachers to rate the 4Cs. And it was found 53 percent of teachers consider that Kahoot would strongly enhance the creativity and communication, 60 percent teachers consider that Kahoot would strongly enhances the critical thinking and 40 percent teachers consider that Kahoot would strongly enhance the collaboration in interactive classroom.

V. Sowmia made presentation on DEVELOPING READING SKILLS FOR CLASS 4 CHILDREN THROUGH E-READING MODULE and abstract of his presentation is given below:

Reading is a cognitive process which requires continuous practice, development, and refinement. When it comes to primary level, Children hate to read English textbook since it's not their mother tongue. They also find difficulty in pronouncing the words. To overcome this issue, a study is to be conducted for class 4 kids to develop reading skills using E-Reading Module. The E-Reading module contains digitalised lesson text from class 4 Marigold English Textbook. Each word in that lesson gets highlighted automatically according to voice read by the computer with British Accent. The students can listen and repeat to it. Every 3 – 4 words get highlighted with voice, after that the same words again get highlighted without voice and the students can repeat and read the text accordingly. The study is to be conducted for 30 students of class 4 from Govt. Primary School, Kalitheerthalkuppam. The age group is between 9 and 10. The school is located in rural area Mannadipet Commune, Puducherry State. The medium of instruction is English. The students are divided into 2 groups. The Group 1 followed traditional method of reading practice given by the teacher. The group 2 followed reading practice through E-Reading Module. The process conducted for 10 days. Each day, the students listen and repeat after it. Since it is machine reading, it can be used as continuous and continual reading. Each day, the output of the students' video recorded. Quantitative data collected by the reading performance, time consumed and pronunciation. Descriptive results (percentages, frequency, and mean) will be analyzed through T Test. The performance of the students developed since they get continual exposure of the recorded material. The pronunciation of the experimental group was better than controlled group. The reading speed of experimental group increased significantly.

Diksha Kukreja made presentation on ICT-INTEGRATED CLASSROOMS: AN IMPETUS FOR CHANGE and abstract of her presentation is given below:

Educational effects are greatly dependent upon the perception about teaching, the methods a teacher has and the use s/he makes of equipment (NCERT, 2005). Recent developments in information and communication technologies (ICT) have changed the way people live, communicate and play. These developments have also affected the lives of our students, both at home and at school (NCERT, 2005). As we enter into the era of globalization, there is universal recognition of the need and importance of integrating ICT in education for preparing the future generations, enabling them to develop competence based skills as per global standards (Aduwa-Ogiegbaen & Iyamu, 2005; MHRD, 2012). The current study aims to identify the status of ICT integration in the school context and also explore some of the innovative practices used by these schools for integrating ICT in their teaching, learning and assessment practices. For this, a sample of four schools (government, private-public, international and government aided, one each) of Delhi were selected using stratified random sampling technique. The study adopted a qualitative case study approach to examine the extent and nature of ICT integration for teaching, learning and assessment processes at the sample schools. An item checklist and non-participant classroom observations were conducted to understand the ICT availability and usage patterns and purposes by the teachers. The results present stark differences in teachers' patterns and purposes of ICT usage among the four types of schools. Three types of ICT-integration strategies, a) teaching only strategy; b) teaching-learning, but not assessment strategy and; c) the balanced strategy, also emerged from the study. Finally, the results also highlight simple yet innovative ways for integrating ICT-based technologies in school's everyday functioning. The current paper further encourages present teachers, school administrators and prospective teachers to adopt, test and validate these practices into their own respective school contexts, hence furthering/contributing towards the national vision, as seen by MHRD (2012), of improving access, quality and efficiency in school system through ICT-enabled activities and processes.

Aquil Ahmad Khan made presentation on ROLE OF MEDIA CONTENT AS ICT TOOLS IN TEACHING SOCIAL SCIENCES TO SCHOOL CHILDREN and abstract of her presentation is given below:

Governments and teachers are adopting different tools and methods for creating interest and motivation among students about education. But many teachers still struggle in motivating students to learn and it's more prevalent in the case of social studies classrooms which students perceive as boring (Schug, Todd, & Berry, 1984). Many students are not able to properly concentrate on the subjects of social sciences and it turns into a burden for them. In the recent time use of information and communication technologies (ICT) in school education is trying hard to improve the quality and make education interactive. The use of technology always motivate students by engaging students in the learning process with the use of a familiar instructional tool that improves students' self-efficacy and self-worth. This research focuses on the need to develop appropriate strategies to use the media content produced by different channels in teaching practices. TV programme like Samvidhaan by Rajya Sabha TV, Pradhanmantri by ABP News, Vande Mataram by Aaj Tak are produced for the wider use of the information and it was appreciated by most of the people. These serials could have been widely used in educational institution for educating younger generation in interactive manner. These episodes do not have time bound and it should be used by school teachers under ICT methods in their classrooms to teach subjects like History, Political Science, and Civics in interactive manner. This study explores student's views about teaching methods used

for social sciences and difficulties faced by them. How the use of information and communication technology can make these subjects interesting. Qualitative methods will be used to conduct this study in which data will be collected from school passed out students who are pursuing higher education. In-depth interview will be conducted with selected respondents and then it will be analysed.

G. Chandiraleka made presentation on DEVELOPING ENGLISH SPEAKING SKILL FOR PRIMARY SCHOOL KIDS THROUGH PHONE CONVERSATION and abstract of her presentation is given below:
Speaking is an interactive process of constructing meaning that involves producing and receiving and processing information. In primary school's children love to speak, interact and share their ideas in their mother tongue. But they are not interested to speak in English due to shyness, lack of vocabulary /opportunities / environment. It is the teachers' duty to motivate and initiate the children to converse in English in different situation. So the researcher planned to conduct a study to enrich English speaking skill. The study is to be conducted for 30 students of class V from Government Primary School, Kalitheerthal kuppam. The students are divided into two groups. The group 1 (15 students) will follow the normal classroom teaching for speaking practice. The group 2 (15 students) will have the speaking practice through phone call. Each student in group 2 will be paired with the volunteers (who speak English fluently). They will have conversation in English daily through mobile phone. The methodology is planned by the following way. First, the parents of the experimental group will be invited to school. They will be informed about the plan of the methodology and also the steps they have to follow during the process. The mobile number of the parents will be collected. The free time / availability of the parents during evening in their home will be noted. They are instructed to give their mobile to their children whenever they get call from volunteers. 15 students will be paired with 15 volunteers. The pairing will

be done on the availability of the volunteers and also the availability of the parents in home. The students and the volunteers will share their daily activities done in the school/workplace through phone call. The duration of the call will be approximately 15 – 20 Mins per day. The process will be continued for 20 days.

Mr. G. Thulasi made presentation on Exploring Technological innovations for teaching +2 course of Tamil Nadu State Board and abstract of his presentation is given below:
Our current world and the changes coming in the future require education to prepare children for a world of rapid change in technology. The National Curriculum Framework (NCF-2005) has highlighted the importance of ICT in School Education. Besides Indian National policy on ICT Education in schools have also been subsumed in the Rashtriya Madhyamik Shiksha Abhiyan (RMSA). The Scheme is a major catalyst to bridge the digital divide amongst students of various socio economic and other geographical barriers. Also the Govt. of India launched ICT in schools in December 2004 and revised in 2012 to provide opportunities to secondary stage students, to mainly build their capacity on ICT skills. This paper aims at how technological innovations can be used for teaching in School Education especially in the +2 course of Tamil Nadu State Board.
In this paper a chapter "Analytical Geometry" in +2 Mathematics of Tamil Nadu State Board was taken into consideration. It suggests effective ways of teaching different types of parabola, ellipse, hyperbola and rectangular hyperbola and its properties using the dynamic free online software Graphing - Desmos. This paper also focuses on illustrations of how Graphing-Desmos can be used for visualization of the above concepts. Besides, this it gives students instant solutions and hands on experiences for students to understand the mathematical concepts easily. The ideas introduced in this paper can be further extended to study of "Limit and Functions" in the +2 Course of Tamil Nadu State Board.

Dr. Tara Sabapathy made presentation on ATTITUDE OF B.Ed. TRAINEES TOWARDS USING CYBER RESOURCES IN RELATION TO THEIR E-LEARNING ORIENTATION and abstract of her presentation is given below:

Pre-service teacher training has undergone a periodic change in terms of the course content. The curriculum has been revised and updated from time to time incorporating new subjects to suit the need to equip teacher trainees with new knowledge, skills and attitudes. The NCTE has introduced the new 2 year B.Ed. Course focusing on Information Communication Technology (ICT) as a relevant subject to be studied. The reason being we are in the digital era and knowledge of ICT is essential for trainee teachers to face the challenges of classroom teaching. The present study intended to investigate the attitude of B.Ed. trainees towards using cyber resources in relation to their e-learning orientation. The study was conducted on a sample of 165 B.Ed trainees selected by random sampling technique. Two tools were used to collect the data namely Attitude towards using Cyber Resources Scale (ATUCRS) by Rajasekar and e-learning Orientation Scale (E-LOS) by Chaturvedi and Dhar adapted and standardized by the investigator. The data was analyzed by computing coefficient of correlation and t-test. The results revealed that there was a significant positive correlation between attitude of B.Ed trainees towards using cyber resources and their e-learning orientation. The t-test analysis revealed that the B.Ed. trainees with high level of e-learning orientation had better attitude towards using cyber resources than trainees with moderate and low level orientation. This paper focuses on the need for teacher training colleges to help trainees develop a positive attitude towards using cyber resources by providing well equipped computer labs, qualified computer teachers, sufficient time for trainees to work with computers and counseling them as to the importance of using cyber resources in classroom teaching and learning.

Dr Rakesh Tomar made presentation on THE ROLE OF ICT IN GUIDANCE &COUNSELLING: SKILLS BASED DEVELOPMENT FOR TEACHERS and abstract of his presentation is given below:

The purpose of this paper is to provide an overview of the use of ICT in guidance and counselling on the provision of training and development in ICT skills for guidance and counselor. Information communication technology (ICT) has brought necessity change in the effectiveness learning. It has provided unparalleled access to assessments, information, and instruction for individuals seeking to make career decisions with a global network the ICT exposure and technology adoption amongst students is higher and learning is no longer confined to the classrooms. For the students to take effective advantage of technology, the counsellor have to play a key role not just as imparters of knowledge but also as facilitators who will guide the students in using technology for their benefit. The counsellors need comprehensive and sustained professional development opportunities that cultivate multiple skills such as knowledge managers, developers of learning strategies and facilitators of technological and innovative methods of learning. Countries all over, including India are recognizing the fact that the traditional forms of professional development such as workshops, and one-time training sessions on Information Communication Technology (ICT) skills are proving to be inadequate. Teachers must learn to add to their individual development by drawing experiences from others through online networks and information exchange systems thus forming their own personalized learning networks.Thus, trends include its increased accessibility, its increased interactivity, and the more diffused origination of ICT-based resources.

Keywords: Information and Communication Technology (ICT), Guidance & counselling and skill Development.

Radha Narve made presentation on A "COMMUNITY OF LEARNING" APPROACH TO TEACHER and abstract of her presentation is given below:

The paper is based on the experiences and insights of the first author, from her personal learning journey in her teaching and her interactions with peers at school, block, state and national levels, as a Government high school teacher of Mathematics and Science for 8, 9 and 10 grades. The second author, working in an NGO, on programs for integrating ICT in teacher education and school education, has collaborated with first author to explore generic insights and learning from these experiences. The focus of the paper is on the 'block-level community of learning', in which both are members and participants. Word count (excluding preface, references and title information - 297 words)

In the Information and Communication technologies (ICT) era, Communities of Learning (COL) is acknowledged as an important Teacher Professional Development (TPD) method. While ICT supports COL at different geographical levels – school, cluster, block, district, state and nation, this paper explores a 'block-level COL' and its impact on TPD. The block-level teacher community has advantages of being compact and working in similar contexts and demographics.

Science and mathematics teacher-members of the 'Bengaluru South-3 block COL' meet few times annually (in official and non-official programs), where they present their school work and students' models, activities and drawings. Meetings are complemented by sharing of ideas, experiences and learnings through WhatsApp and mailing groups, phone and video calls.

Students socio-economic background is largely similar here - urban poor and marginalized, working parents, difficult family situations, offering little home support to schooling.

Dr. Pallavi Kaul made presentation on INTEGRATING LEARNING MANAGEMENT SYSTEM IN B.ED PROGRAMME: PERCEPTIONS OF PRE-SERVICE TEACHERS and abstract of her presentation is given below:

The quality of how technology is addressed in teacher education programmes is conditional for how student teachers apply technology in secondary schools after their graduation. The pre service teachers of a private university were exposed to learning management system (LMS) environment named Amizone. The purpose of this study was to find out the perceptions of pre service teacher in using the learning management system in their course of study. Two hundred pre service teachers studying in B. Ed and B. El. Ed programme voluntarily participated in this qualitative study. The data was gathered through web based survey using rating scale. The analyses included descriptive statistics. The findings indicated that pre service teachers who used the Amizone LMS found it usable and desirable application. The results indicated that accessibility, navigation, visual design, interactivity, content availability were the facilitating features of Amizone LMS for student teachers. While as, the factors, limiting the use of the LMS platforms were mainly concerned with technical features such as slow access, limitations in space available for uploading files, difficulties in systems administration and difficulties in managing the platform and courses editing, flaws/instability of servers.

Omprakash Meena made presentation on EFFECTIVE TEACHING LEARNING OF SCIENCE THROUGH ICT and abstract of his presentation is given below:

Science education is the study of chemistry, biology and physics as composite discipline in conjunction with pedagogical aspects of education .Todays, teaching –learning of science education has been upgrading through information and communication technologies. Now days teaching learning is being conducted through e- book learning, e- mobile learning, and web –based learning, multimedia or electronic media based learning.

Through these technologies we can inculcate required knowledge, critical thinking, tolerance, commitment and values in both teachers as well in students which are more essential for surviving in present world. This paper reports is the study of effectiveness of ICT based approach for teaching learning of science. The sample of the study consisted of 30 in-service teachers who attended the training programme on the Promotion of ICT in teaching of science at secondary level organised by Regional institute of Education, Ajmer. The participants were invited from Northern states of the country who are working as science teacher in different schools located in rural areas. Most of sessions during the programme were delivered through different forms of ICT.The programme was evaluated by conducted achievement (post-test) test containing 30 test items based on science contents at secondary level as well as on pedagogical aspects of science education. The analysis of the post-test indicated that the programme was found useful and effective by most of the teachers. At end of programme, feedback was also taken from the trainees and it was found that ICT based approach for teaching learning of science is much effective than the traditional methods which are using in rural areas of the country.

Hasan made presentation on AWARENESS OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) AMONG ELEMENTARY SCHOOL TEACHERS AND ITS IMPACT ON THEIR PROFESSIONAL DEVELOPMENT and abstract of his presentation is given below:
Information and communication technology (ICT) is one of the important tool in promoting education at all level. ICT has changed society into information society & facilitating every sphere of social and economic life. Impact of ICT has been evident in all socio & economic sectors such as banking and insurance, administrative setup, postal services, biomedical, health care sector, media, teaching and learning, library and information services, e-resources,

commerce & trade etc. It has spreaded all walks of life & made life easy and comfortable. Education is one of the important area which has been greatly influenced by the application of ICT in a very impressive & successful manner. ICT has entirely changed the working style of teachers & of the school. Teachers are expected to teach in an inclusive manner. Keeping in view the educational needs of special children with the appropriate use of ICT. This paper is an attempt to explore the perceived role of ICT in the effective professional development of elementary school teachers and their awareness towards the use of ICT in imparting quality education. Further the paper highlights the important surveys, findings in respect of ICT. The paper has critically analyzed the challenges being faced by the elementary school teachers in their professional development.

Dr. Mrinal Mukherjee made presentation on IMPACT OF TRAINING ON IN-SERVICE TEACHERS' ATTITUDE TOWARDS USE OF ICT AND COMPUTER RESOURCES IN CLASS ROOM: AN EMPIRICAL ANALYSIS and abstract of her presentation is given below:
ICT can make an enormous difference in the way lessons are presented (Khurshid et. al., 2014). Significant positive correlation was found between teachers' level of ICT use and their attitudes towards ICT (Al-Zaidiyeen et.al., 2010). Despite the increased availability and support for ICT integration, relatively few teachers intend to integrate ICT into their teaching activities (Ertmer, 2005). As most of the research on teachers' perception was set up in western settings, here an endeavor has been made to conduct a survey with one study group (n=65) of teachers teaching in the upper primary and secondary section of Govt. aided schools in West Bengal, using a pre-and post-test design with the purpose of searching the differences of attitude of in service teachers' towards use of ICT and computer resources in class room, before and after the short term training, provided under CSSTE. A standardized Likert scale

(Ana-Belen Sanchez et. al., 2012) was employed to collect data. Study revealed that the teachers have moderately positive attitude towards use of ICT and other computer resources in the class room as pedagogical tools but there is no statistically significant difference of attitude was found after exposure to the training. The impact of training is not consistence in all the relevant dimensions of teachers' attitude. From pair t-test, it is revealed that, though not statistically significant, but the training have positive impact on teachers group belong to Under Graduate, Rural and Arts Stream, while the training showed negative impact on their counterpart. The impact was positive in both the gender category. The study has thrown a light to the fact that use of ICT and computer resources with in class room should be given greater priority than it currently enjoying with an emphasis of necessity of more intensive Teachers' Training with the focus of ICT pedagogy.

Ms. Monalisa Dash made presentation on THE WHY AND HOW OF ICT INTEGRATION IN TEACHING MATHEMATICS: A CASE STUDY and abstract of her presentation is given below:
Information and Communication Technology (ICT) into education is recognized as providing opportunities for developing skills for 21st century, having the potential to transform pedagogical practices and playing a role in reforming curricula. Additionally it is considered an essential tool for developing higher order thinking skills in students by providing a grave clarity in understanding of the concepts. ICT also plays a key role in constructivist approach of teaching. In spite of such mammoth of benefits provided by it, ICT is still struggling to get into the blood of education. The massive challenge faced by teachers here is the best ways to integrate the ICT in their subjects for a fruitful result.

Dr Madhavi Dharankar made presentation on RESEARCH GUIDANCE USING M-LEARNING FOR NOVICE RESEARCHERS and

abstract of her presentation is given below:
Most of the researchers at M Ed level are the novice researchers. Their struggle therefore goes on on many fronts right from the psychological, administrative to hard-core research methodology aspect. Thus they need continuous human support. When it comes to perusing M Ed through distance mode, the need of such human support is felt all the more. As the distance education system becomes more and more mature, more and more technological facilities are getting available for providing such a human support to the learners. The latest ICT tools add to a new dimension to the mass personalization of the student support services. One such latest technology is mobile technology. It has gone way ahead in personalizing the support to distance learner. It has special role to play in operationalising WWW (When, Where, What). A simple utility like SMS comes very handy for those distance learners who are on have-not side of the digital divide. Even if they are not having smart phones they can be easily reached through SMS. The content suitable to the stage of the M Ed research. It also concludes that the major achievement of the endeavor was the personal support and the direction for the future.

Jitendra Kumar made presentation on ICT TOOLS TO MAKE EFFECTIVE TEACHING IN SCHOOL EDUCATION and abstract of his presentation is given below:
This paper focuses on the ICT tools of Effective Teaching in School education. There are many techniques, skills, and practices that can make a teacher effective. In my opinion, being an effective teacher means allowing an environment that enables students to learn in the classroom to their best abilities. Information and communication technologies (ICT) have become commonplace entities in all aspects of life. Education is a very socially oriented activity and quality education has traditionally been associated with strong teachers having high degrees of personal contact with learners. The use of ICT in education lends itself to more student-

centred learning settings. But with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in the 21st century. ICT tools help an easy way of learning and teaching the subject concerned. A teacher should acquire the knowledge to use the ICT tools for collection of information of relevant subject from all the parts of the world. A teacher by updating his/ her knowledge can give new examples and then improve the quality of teaching. There by the students can grasp the subject easily and clearly with the help of ICT Tools. Information and Communication Technology is a way of using knowledge. A teacher must learn and use the ICT tools to provide unique methodology and global collection of subject knowledge to his / her students. Teacher can change, improve, update and add a new element to teaching, and increase the quality of activities assigned to students with the help of ICT tools. It is a source for empowerment of the related stream subjects in Higher Education. The Technology enhances the fast communication across Geographical barriers, and therefore gives students an opportunity to communicate early in life with a broad range of people. Information and communication technology usually abbreviated as ICT, is often used as an extended synonym for information technology (IT), Information and Communication Technology (ICT) can be utilized for the education sectors both in School Level Education and College Level Education, for all round improvement of the student.

Gurpreet Kaur made presentation on TOWARDS BRIDGING THE GAP: INNOVATION AND APPLICATION and abstract of her presentation is given below:
Teacher, who is considered as a reform agent or in short, an architect of nation, has the responsibility to meet the growing demands of the society ,which requires them to remain updated and upgraded as an enduring necessity . The rise of ICT and its integration in education is considered as a broader reform ,embracing a shift in teaching-learning ,from curricula to pedagogic practices .This ICT integration is impossible without the professional development of teachers for the trend requires the teacher's to be well informed by the pedagogical application of certain skills ,that can be imparted to teacher's as part of their continuous professional development .Also, ICT can be well utilized in an inclusive set up with the effective organization and implementation of UDL lesson plans. Expectations can be met by including need-based and goal-oriented and meaningful programmes , discussions, workshops ,orientation courses ,refresher courses ,as a collaborative attempt of both pre-service as well as in-service programmes .According to British Council Report on Professional Development of teachers ,there are four stages of teacher development-Awareness ,Understanding, Engagement and Integration. This requires systematic and holistic approach towards CPD. There are various programmes and courses offered by NCERT
in this regard for teachers, such as SWAYAM,NROER etc and various applications for students too, such as e-pathshala , digital library. But the problem resides in the access and application of these resources offered to them. This paper aims to synthesis some key issues and challenges faced by teachers to perform their role efficiently ,catering to the needs of their individual self and system as promoter of ICT in school education.

Sri Gurumurthi Kasinathan made presentation on COLLABORATIVE OER ADOPTION BY A PROFESSIONAL LEARNING COMMUNITY, A MODEL OF TEACHER PROFESSIONAL DEVELOPMENT and abstract of his presentation is given below:
IT for Change (ITfC) worked with Karnataka Education Department (2011-16) on the 'Subject Teacher Forum program' (STF), to build a model of in-service teacher education (INSET) that integrated Information and Communication Technologies (ICT) for creating subject-wise professional learning

communities (PLCs) of government high school teachers.

The STF trained around 20,000 teachers in accessing web resources and using Free and Open Source educational applications (like Geogebra, Phet, Marble); text, image, audio and video authoring tools; web tools (search, translation) and web resources (encyclopedias, dictionaries) for Teacher Professional Development (TPD). The virtual STF forums, comprising mailing-lists, were spaces for teachers to share ideas and experiences.

The paper explores how a PLC-COA model can support TPD. The PLC has provided a rationale for the COA group, by serving as space for adopting the OER developed. While discussions on OER created and shared by COA and other teachers has provided an important basis for the PLCs.

The paper suggest specific TPD facilitation processes for education systems, which would help PLCs thrive. Such a PLC- COA model could reform INSET, and facilitate OER development in Indic languages.

Sonal Sharma made presentation on ROLE OF ICT IN DIRECTING SRL AND METACOGNITION IN TEACHING-LEARNING PROCESS and abstract of her presentation is given below:

The present paper focuses on the role of ICT in directing self-regulated learning (SRL) and metacognition in teaching-learning process. Information and Communication Technology (ICT) is an integrated part of education system as it plays a central role in teaching-learning process. Technological advancements in ICT make teaching-learning more interesting, engaging, relevant,
and lucid and resulting it in student-centered activity. It helps in increasing students' retention, arousing curiosity and generation of a high level of thinking. Use of ICT in the form of smart classes, programmed learning, interactive CDs and videos help teachers in imparting knowledge very effectively and efficiently in present scenario where the learners'

requirements are different from the traditional system of education. The various web based resources like virtual labs, e-learning and digital libraries help learners to find solutions of their problems and explore the world of knowledge as per their own pace and place. ICT helps in SRL and it is guided by the meta-cognition as metacognitive practices help learners to monitor their own progress which further follows by self-regulated behavior and higher order thinking (HOT) which is important for high academic achievement of students. NCF-2005 established the need of constructivist perspective in learning and ICT makes learning an active meaning making process, which is easily shown by covert and overt activities done by the learners.

Mrs. Priti Lata made presentation on ICT ENABLED SCHOOL LEADERSHIP: A QUALITATIVE EXPLORATION and abstract of her presentation is given below:

It has been widely observed that ICT in school education is an essential tool for leadership positions. We all realise that the current leadership position are totally affecting by ICT knowledge. With using of ICT a school leader remove many academic problems and give direction to teacher and student for doing best and innovative way .The present study is an attempt to investigate the effect of ICT in school leadership used observation and interview schedule in model senior secondary school of Haryana in the form of case study. The researcher found that ICT is positively affecting school leader by developing many soft skill such as problem solving, decision-making, creative thinking, establishing networking etc.

Ms. Nazneen Fatma PREPONDERANCE OF ICT IN ART AND CRAFT EDUCATION TO INSPIRE CREATIVITY: PROBLEMS AND POSSIBLTIES and abstract of her presentation is given below:

"Artistic creativity and critical thinking are essential for innovation in today's digital world. Already, highly innovative companies thrive on a strong link between

artists and their engineers; Daimler has set up a lab exploring futures of urban transport with artists..... ". (G. H. Öttinger). Information and communication technology (ICT) is a force that has an impact on all spheres of human life. Advances has resulted in a society where digital technology and devices are indispensable. The impact has been profound, but the field of education has not been able to reap its benefit. Even though minimal effect is felt in classroom, the arts and crafts classroom (A&C) has been unable to properly utilize it. Students are entering the art and crafts classroom with exposure to images on a scale never seen before. It has affected their creativity as they have adopted and mastered technology at a very young age. ICT application can have an effect on the classroom quality resulting in increased student motivation and creativity (Garrison and Anderson (2003).Art being a subject offered at all levels of education, can benefit resulting in students invested in their education as well in their arts. A parallel has been drawn between arts and ICT impact on students learning, in both of these arena .students have an opportunity for a flexible approach to any problem through refinement or restructuring of any ideas and practices (Holland & O'Connor, 2004). In this digital age and space the integration can assist students to meet challenges and relate their creativity.

Megha Dhamija made presentation on ICT: THE CATALYST OF CHANGE IN THE FIELD OF EDUCATION (An empirical study of innovative teaching practices) and abstract of her presentation is given below:
This paper largely focusses on modern-day ICT tools being used in teaching-learning process widely across innovative schools and their impact on learners. With the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important. This paper highlights the various tools of ICT being used in contemporary education, explores its impact on active learning while taking its

sample as learners in the age group of 14-17.
Contemporary learning theory is based on the notion that learning is an active process of constructing knowledge rather than acquiring knowledge and that instruction is the process by which this knowledge construction is supported rather than a process of knowledge transmission (Duffy & Cunningham, 1996). Keeping this in mind, various tools used at the school level such as Sway, Hot Potatoes, Blog. Spot, Moviemaker, Prezi etc. and their usability in various disciplines with empirical evidences have been highlighted in this study. The utility of these tools in classroom along with their comparative study w.r.t earlier used tools was judged. To give conclusive evidence of positive effects of ICT tools, the paper encompasses a detailed statistical research on the adaptability and feedback of learners as well as educators post the use of these tools. An in-depth analysis of feedback of learners is done with the help of graphical presentation of their responses.
With this study, the author intends to draw attention towards not just the evolution of ICT tools but also suggest multiple ICT tools specific to various disciplines for enhancing the experience of quality learning both for teachers as well as learners.

Mrs. Kiran Joshi made presentation on ASSISTIVE TECHNOLOGY TO ENHANCEINCLUSIVE EDUCATION and abstract of her presentation is given below:
Over the past decades, Information and Communication Technology (ICT) have attracted enormous attention across various fields of society, including the field of education. It is essential for everyone to get benefit of education, on an equal basis. ICT helps to improve education in normal as well as inclusive classrooms. Inclusion is a process of addressing to the diversity of needs to all students through increasing participation in learning, communities, and reducing exclusion from the education. For this, we can help disable persons to provide technology called Assistive Technology

(AT). AT has developed many devices and software which assist disabled persons in classrooms as well as in daily routine life. It has been tried to make the life path of disabled people easier and help them to become integral part of the society.

According to 2011 censes, out of total population of India 2.21% persons are disabled. To improve the conditions of disabled persons it is necessary to encourage the inclusive education in India. This paper is intended to analyze the tools of Assistive technology for disables. It begins with a brief introduction of disable persons and their rapid changes of life using ICT and AT. We are also discussing the statistics figures on basis of attendance of disables in school and types of disabilities in India. It has been divided into three main parts. The first part provides a theoretical framework. It defines the concept of inclusive education, Assistive Technology and ICT. The second part looks at government policies for education of disable persons. The third part analyses different types of Assistive technologies for visually impaired, hearing impaired, physically impaired, language & speech impaired, persons having learning disabilities and their usage to provide them a quality education and to discuss the barriers that disable persons face. This research paper is mainly based on secondary sources of data such as books, papers, journal, magazines, internet resources, online reports as well as conference papers and thesis.

Kalpana.K made presentation on INTEGRATING USE OF DIGITAL ASSISTIVE TECHNOLOGIES AT SCHOOLS IN PROMOTING INCLUSIVE EDUCATION and abstract of her presentation is given below:
Information and communication technology (ICT) has become within a very short time, one of the basic building blocks of modern society. Many countries now regard understanding of ICT and mastering the basic skills as part of the core of education, along with reading, writing and numeracy. The recent efforts of the Government of India(GOI) seek to

deepen the use of ICT in almost every sphere of life. The Government have implemented Digital India Programme for providing access to digital resources for citizens with special needs for Special children too. Some people simply talk about providing the infrastructure and access to technology. In order to make meaningful changes in our classroom. We need a strategy that lead to social inclusion using technology. Social Inclusion is the process of improving the terms on which individuals and groups take part in society—improving the ability, opportunity, and dignity of those disadvantaged on the basis of their identity and providing special technologies for disabled children viz., text-to-speech, special Voice recorder and Braille line reader etc. We first need to become aware of our perceptions as educators and the perceptions of our learners. Here children must be thought "HOW TO THINK,NOT, WHAT TO THINK".As an Educators we need to take special efforts to help the disabled by equipping our teachers and Educational Institutions to adopt innovative,Cost effective Assistive technology to enable access to Education for disabled Children for providing Inclusive Education. This paper focuses on the following aspects that the researcher tried to explore:

Dr. Jigisha Parekh made presentation on TEACHING AND LEARNING WITH ICT: AN OVERVIEW and abstract of his presentation is given below:
paper is an attempt to present meaning of ICT, its importance & its mandatory need for education, advantages−disadvantages and overcome strategies. ICT or information and communication technology makes many common tasks simple and facilitates communications from virtually any geographical area. It requires the installation of complex systems that require trained employees in order to operate efficiently. The advantages of ICT in daily life is its utility, resource sharing capacity, Control etc.simultaneously on the other side the disadvantages are user competence, vulnerability, complexity etc.

The Information and Communication Technology (ICT) in schools have been subsumed in the Rashtriya MadhyamikShiksha Abhiyan (RMSA). Now ICT in Schools is a component of the RMSA. Use of ICT in school is becoming dominating features in 21st century education system. ICT has made students willing to learn as well as facilitating completion of work and the communications between teachers and students. It is an equalizing agent in that all students can have access to it and work together. In this paper the concept and use of ICT in education,effective use of ICT for Education, along with ICT use in the teaching learning process; quality and accessibility of education; learning motivation, learning environment and influential suggestions are discussed at length.

Aysha made presentation on INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) TO TRANSFORM TEACHING-LEARNING PROCESS IN SCIENCE CLASSROOMS and abstract of her presentation is given below:
This paper discusses the implementation and impact of ICT in science classrooms. ICT has infiltrated all aspects of our life to the extent that society is unable to function. It is being in availing governmental services, purchase of necessities as well as in education. In many countries ICT is strongly featured in education, with most students and teachers using it to enhance the teaching learning process. It is a "major tool for building knowledge societies" (UNESCO 2003) and as a mechanism for promoting quality school education. ICT incorporates technology usage of various electronic devices. At educational level, ICT is believed to bring about pedagogical changes. It can help in reshaping the curriculum and pedagogy of science as it offers easy access to resources that helps extend opportunities for students to learn.
This paper explores how science teachers who have access to ICT incorporate it while teaching. It was designed as a mixed method study, using both quantitative data and qualitative data collected from around

80 students. The data were used in a complementary manner. Quantitative included both formative and summative assessments and qualitative included interview, focused group discussion and optionaires. The data collected and analyzed showed that when science teachers have access to ICT they can add value to their teaching which is further enhanced if they have previous technological knowledge. The results indicate that in "ICT pilot schools" many teachers adopted more student-centered activities which led to increase in student achievement and motivation of students in science classrooms as well as helping them relate science to real world experiences It also helped them understand of how they prefer to learn and which materials can help achieve it.

Dr. Afshan Naz Quazi made presentation on ICT: A MOULDING WEAPON FOR REFORMATION IN QUALITY EDUCATION and abstract of her presentation is given below:
Information and Communication Technology (ICT) is an inevitable concept in a modern education system, which has altered the whole pedagogical structure of functional stream of imparting education. This paper focuses upon the extensive application of ICT, considering it as an indispensable moulding weapon for bringing reformation in quality education. ICT has radically brought transformation in the functional prospects of our modern developing society where every action is based on finger touch. Simultaneously, technology-assisting education is expected to give best learning outcome, when traditional teaching methods are revamped by the finger tips methods. Rote memorization strategy has now faded and incorporation of ICT as a new teaching strategy has generated a clear concept-building formation in minds of learners. It emphasizes over thought provoking ideas which give a creative challenge to education and contributing to newer scientific discoveries, hence pacing up the nation's economy. The growth and sustainability of a nation is reflected in the mirror of educational scenario of a country. Use of ICT focuses upon

developing critical thinking rather than merely learning. Indulgence of ICT in teaching-learning is the major cause of educational reform agenda manifested in the pedagogy practices of modern era in education through a marked shift from black board to space board. Thus holistic development of a learner can be achieved by the ICT based education. This paper will focus upon the function and role played by ICT in education and its catalytic impact in transcending education where the expected outcomes are at par with a national dream of functional literacy. Field of education is widened, the vision is enhanced and the development of student is ensured manifold through compilation of all psychological dimensions of learning. This augments cognitive skills like problem solving abilities, reasoning skills and other high order thinking skills which can inflame the creativity of young mind and shall broadly open many new vistas from the job perspective giving a step further to boost a national economy.

Aerum Khan made presentation on Massive Open Online Courses (MOOCs): The Road Ahead and abstract of her presentation is given below:
MOOCs (Massive Open Online Courses) are a recent phenomenon gaining popularity in the field of Education over the past few years. They are known for offering an exciting range of opportunities to widen access and participation in Education. The massive range and Open nature of these courses place the control of learning at learners' discretion. Specialized MOOCs are developed keeping in mind the needs and demands of the users in order to provide access to quality content. These courses are gaining an overwhelming response from learners across the age groups, who are keen to engage more with online learning. These courses have the potential to create massive opportunities for students, teachers, employers, professionals and teacher educators. They not only bring Education to more people, but also tailor their learning experiences to meet the needs of tomorrow's students, educational

institutions, universities and employers. In addition, the advent of indigenous platforms like SWAYAM developed by Government of India has paved the way towards easy access and delivery of MOOCs for a substantive audience. This paper is an attempt to go through the MOOCs way of empowering Education, through the examples of school level and PG level courses launched recently by NCERT; it tries to explore the possibilities in this area ahead.

Ms. Kanwaljit Kaur made presentation on EFFICACY OF COMPUTER BASED INTERVENTION FOR IMPROVING EXECUTIVE FUNCTION OF AUTISM SPECTRUM DISORDER: APPROACHING TOWARDS INCLUSIVE EDUCATION and abstract of her presentation is given below:
Autism spectrum disorder is neurodevelopment disorder which effects how they perceive this world. Children with autism spectrum disorder mainly deficit in executive function, social skills and communications which halt their academic achievement in schools. For improving these domains, computer-based interventions are promising tool in improving executive function which later on improves the social skills of the students. Executing maximum output from these games requires designing the games according to the needs of the students, access to these games and
teachers should have skills to use these technologies as well as implementing these technologies in the classroom effectively. This paper divided in four sections. Section-I deals with the terms executive function and autism spectrum disorder, Section-II points towards relationship between executive function and autism, Section-III focus on the computer based interventions and Section-IV deals with the how to access and implemented these games in the classroom by the teacher.

Preeti Singh made presentation on AN INCLUSIVE 4E FRAMEWORK FOR ICT USAGE IN PRIMARY SCHOOL

EDUCATION and abstract of her presentation is given below:

Primarily, owing to upsurge of research efforts and investments in early nineties, with a keen focus to increase on-chip computational power, and secondarily, advancements in digital communication technologies put together have brought in a transcendental change and motivated atmosphere for efficient and innovative thinking across various segments in society. In this work we propose a comprehensive 4E framework - Ensure, Engage, Entertain and Enrich, for enhancing the learning experience for both teachers and students through the use of ICT methodologies at various stages in each E-module. Description of each E-section carefully rolls out the integration of ICT framework, available tools, applications and required resources to achieve the overall objective of that stage. Wherever applicable the proposed theory is extensively supported by relevant data and researches from external journals.

Day 3 (29-11-2017)

Keynotes Were delivered by Prof. M.U. Paily, Regional Institute of Education (NCERT), Mysore on ICT Integration In Education: Easy Ways To Fail And The Possible Remedies. He was focused on Information and Communication Technologies (ICTs) have been making tremendous progress in this century shaping the knowledge society. These developments specifically in the last few years are demanding that the educational system updates its practices and contents to match the new knowledge society and Prof K. Puspanadham on Digital Learning Movement in india and Prof. Shard Sinha on Issues in E-Learning: Cyber Security and Prof. V.P.Singh on Effectiveness of Multimedia in Facilitating, Learning of Science. Two technical sessions were conducted in which a total 06 papers were presented Dr. Ram Babu Pareek and Dr. Ayushman Goswami chaired the sessions. After competed session than Valedictory Function, Prof. K.Pushpanadham was chief Guest of the function. The details of presentation are given below:

Dr.Yogeshwar Shukla made presentation on IMPACT OF ICT BASED LEARNING IN GRADE 12 ECONOMICS and abstract of his presentation is given below:

This research paper is based on my action research in the classroom. An online course on Action Research in Education by N.C.E.R.T. adds more depth and variety to my teaching. Research in Economics Education helps me to appreciate the intricacies of the subject, which has made my teaching more effective. The process of teaching a variety of themes for action research helps me to value and realise how much I learn by teaching. This paper discusses the effectiveness of teaching of Economics using ICT in grade 12. I observed that the topics like Theory of Demand, Producers' Behavior and Supply, etc are too logical with a lot of mathematics and that the students generally feel bored. To improve the effectiveness in teaching, an attempt has been made to investigate the use of ICT in classroom teaching as compared to traditional teaching method. An experimental research approach is adopted in the study and I try to improve teachers' teaching strategies to enhance interactions between the participants and improve students' learning outcomes. Furthermore, I also attempt to integrate assessment activities with ICT-based learning activities to support students' learning in the class. Using ICT resources to enhance economic courses has two principal advantages for students: First, these resources offer a new medium of interaction that complements classroom instruction and facilitates learning. Second, they offer students the opportunity to learn and use Internet technology and yield positive externalities for future academic and career paths. This paper discusses the issue of core learning skills among the students especially with reference to logical subjects like Economics, Mathematics, etc.

Nishi Wadhwa made presentation on TEACHING, LEARNING IN THE TECHNO SAVVY CLASSROOMS THROUGH TEACHERS'

PERSPECTIVE and abstract of her presentation is given below:

In this evolving world where technology is becoming an integral part of our lives with its easier accessibility and growing need. The idea of teaching and learning has also evolved a lot in the last decade with the innovation of various ICT tools and pedagogical approaches in the field of education. The idea of ubiquitous learning has changed the very understanding of the classroom, as now the learner is not restricted by time and space. So it is very difficult to control the learner's interaction with the virtual world's unlimited knowledge. As with the accessibility of the World Wide Web one can look out to resolve any query one has. So it becomes difficult for the teachers to keep the different learners engage in the classrooms. Most of the classrooms are ICT equipped and the remaining ones are already planning to incorporate it. So the role of teacher become really significant in these ICT equipped classrooms and techno savvy learners as she has to keep a balance between the learners who are expose to the internet and the ones who are still hesitate to use it. Here in this paper the researcher has tried to study the perspectives of teachers on the impact of emerging ICT tools in the teaching learning environment of the students, how they deal with the problem of "digital divide". The researcher has used a questionnaire to collect data from in service teachers from private schools and pre service teachers and also held focused group discussion with the selected group to develop an understanding on this particular aspect about the innovations in ICT used in Indian Classrooms..

Rajendrakumar Gowrigari made presentation on ENT OF PHYSICAL SCIENCE AND SCIENTIFIC ATTITUDE OF STUDENTS AT SECONDARY SCHOOL LEARNERS and abstract of his presentation is given below:

In present scenario, the digital technology plays a vital role to reach the learner at all levels irrespective of location, caste, gender and other facilities. The state and Central Government emphasizing the importance of Digital learning at school level. A large number of schools are using the digital classes for teaching different subjects particularly at secondary level. At secondary school level, achievement in physical science influences the individual to choose a right career in their life. The abstract nature of physical science concepts increases the difficulty in achieving the objectives of teaching and learning. As a result, the student remains a passive learner. This article highlights the effect of open educational resources (OER) that are available in internet such as NCERT, Amritha University, You Tube videos was used in teaching physical science and its influence will be observed the participation of students in the process of learning physical science. The present study investigates whether OER has a better choice for the learner to enhance the knowledge in physical science. The digital mode for the chapter/topic viz., light, atomic structure, chemical bonding, Electricity are taught for 10th Class students selected on convenient sampling procedure. Pre-test and post-test method was used for collecting the data. Gender, locale and caste are the independent variables, achievement in physical science is considered as dependent variable. The achievement test consists of 50 items prepared and standardized by the investigator and Scientific attitude scale by Smitha V consists of 36 items are the tools used for collection of data. The collected data was analyzed. The result shows that female students achievement in physical science better than the male students. There is no significant difference with respect to locale and caste in achievement of physical science and scientific attitude of students.

Bichitra Choudhuri made presentation on COMPETENCY LEVEL OF TEACHERS TOWARDS SMART CLASS TECHNOLOGY and abstract of her presentation is given below:

It's a well known fact that we are living in digital India where more and more emphasis is given on the use of digital technology. No revolution and progress in any field is possible without touching the field of education because it provide base

to everything. In recent decades many technological approaches have been used and developed in the field of education. One of the recent approaches is smart class technology. Smart class technology is the class where teaching is done by using e-content and Interactive white broad. No electronic gadget or technology is successful until the user become competent enough in handling that technology. In the same way efficiency and effectiveness of a smart class technology depend upon the competency of teachers. How competent they are in handling that technology. In this paper researcher tried to study the competency level of science teachers of Kendriya Vidyalaya, Private and Govt. aided school of Delhi towards the smart class technology. Total 140 samples of teachers, 50 from Kendriya Vidyalaya, 50 Private and 40 from Govt. aided school were taken for the study. By doing percentage analysis and ANOVA analysis it was found there is significant difference between the competency level of teachers of different type of schools. Private teachers are the most competent and govt. aided teachers are least competent in all the three levels of competency. Along with that it was also found that teachers in all the three types of school competent in handling basic level features of smart class but as we move from basic to advanced level the level of competency decreases.

Arindam Sengupta made presentation on INTEGRATING THE WEB and abstract of his presentation is given below:
This presentation discusses about an e-course entitled "Integrating the Internet into the Classroom' by Michael Krauss of Lewis & Clark College, Portland, Oregon. The focus is on examining techniques for designing classroom materials using a S.M.A.R.T framework after exploring the unique resources that exist on the World Wide Web. The present paper intends to focus on these very important aspects of internet integration and discuss the barriers to its proper implementation. The paper will also offer some practical solutions to overcome some of these barriers based on micro-research conducted with teachers

and students at the secondary level. The paper presentation would also be supported by activity material conducted in the classroom, classroom based assessment and project works assigned and evaluated. The investigator conducted a questionnaire of both open and close ended questions aimed at ascertaining the perception of the teachers about the need of integrating the internet at the secondary level. The data thus collected was analysed qualitatively by making use of descriptive statistics. Participants will leave with a clear idea on how to integrate the internet and create interactive, structured activities for students.

Udit Sharma made presentation on PROFESSIONAL DEVELOPMENT OF TEACHER'S THROUGH INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) and abstract of his presentation is given below:
The role of Information and Communication Technology (ICT), in education plays an important role, especially in the process of empowering the technology into the educational activities. Information and Communication Technology (ICT) can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development and more efficient education management, governance and administration. The present study is to investigate the effectiveness of ICT program for teachers in relation to-Views, Knowledge and Use of ICT conducted on 30 teachers. The data are collected through a self-designed questionnaire on the views about ICT, knowledge about ICT and use of ICT by teachers. Based on the responses percentages are calculated and used to compare the result of pre test and post test. The study results concluded that training in ICT would be most effective for teachers' professional development. Now more teachers have started using ICT in their teaching learning process. The teachers must have the skills, knowledge and attitude necessary to inculcate ICT in to the curriculum. Without maintaining the

quality of teachers no innovation should be expected. The teacher is required to use ICT to enhance students learning and the Govt. should introduce more ICT training programs.

Dr. Praveen Kumar CHAURASIA is Professor of Mathematics, Department of Education Science and Mathematics at Regional Institute of Education, Ajmer, India. He obtained his academic qualifications in B.Sc. and M.Sc.(Mathematics) from University of Allahabad,NET, and Ph.D. from IIT, Kanpur. The topic of his doctoral research was "Some Results on Vector Valued Function Spaces and Multipliers" which he obtained from Indian Institute of Technology Kanpur (IIT Kanpur). He has received many awards, some of them are: 1. First prize in Video Programe under Teacher's category in NCERT Golden Jubilee Festival, 2011- 16th All India Children's Educational Audio- Video 2. Ishwar Narain KichluGold Medal (1999), University of Allahabad, Allahabad 3. Cox Vidyant Memorial Gold Medal (1999), University of Allahabad, Allahabad 4. Merit Certificate at M.Sc., (1999), University of Allahabad, Allahabad. His areas of specialization are: 1. Technology in Mathematics Education 2. Mathematics Education, & 3. Harmonic Analysis.