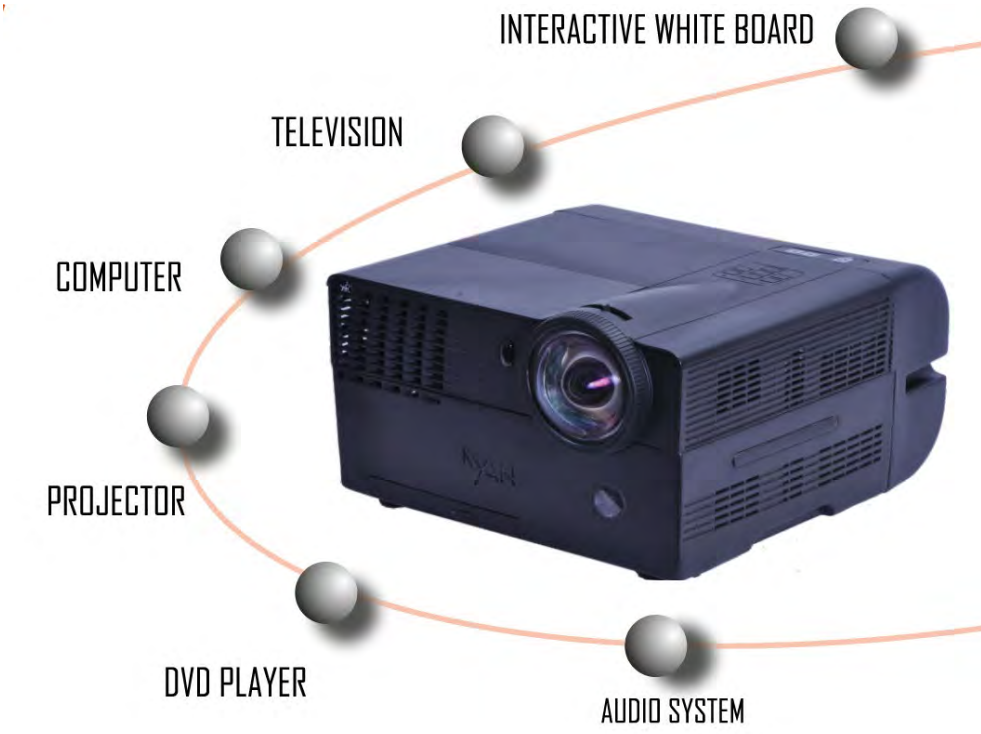
KYAN

From Chalkboards to Digital Boards: Improving Student and Teacher Outcomes

AN ALL-IN-ONE DEVICE



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INTRODUCTION

Decoding Digital Learning

"Technology will never replace great teachers, but technology in the hands of great teachers is transformational"

George Couros

The life chances of young people in any country continue to be determined by their backgrounds. Although education is key for enabling equality of opportunity, for many it does not change their course. Inequalities in the education system are widespread and shaped by factors including socioeconomic background, gender, special educational needs and access to networks. These factors lead to stark differences in outcomes such as academic attainment and skills development, which in turn determine young people's opportunities to progress throughout their education and into employment. Coupled with this is the demand for social and emotional skills, social networks and the ability to navigate them, and work experience, which are now recognised as additional critical foundations. However, young people from disadvantaged backgrounds are often less likely to develop these foundations during their school career.

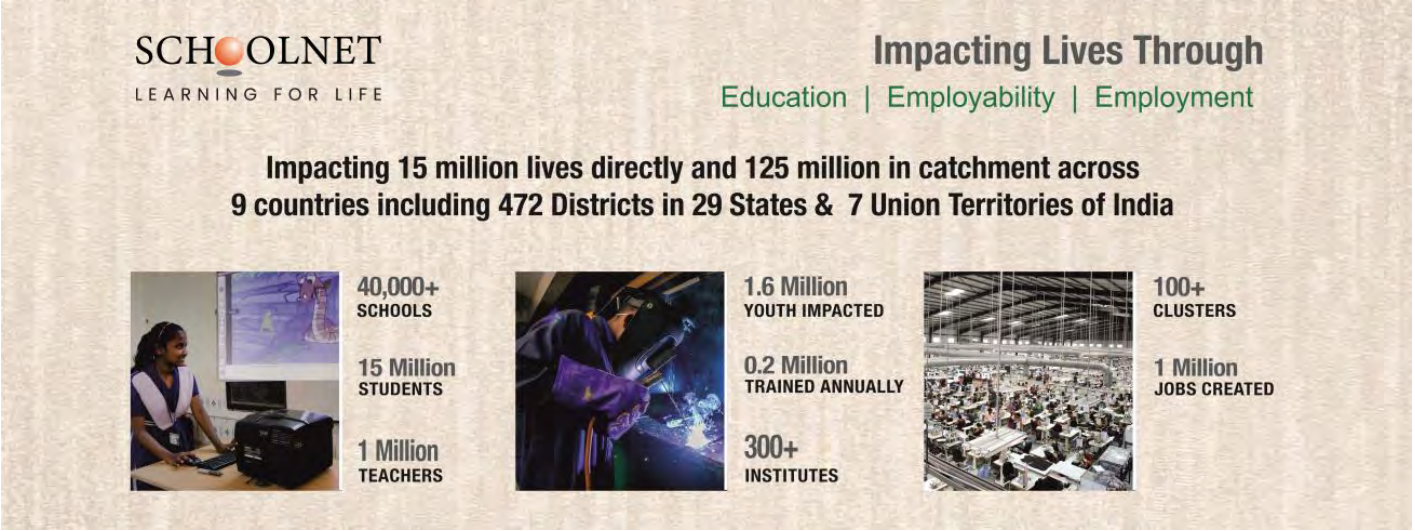
Digital technologies have a profound impact on economies and societies, which also change the way we work and communicate. The innovative capacity of technology is conditioned by the level of digital skills of the population. It is now widely recognized that there exists a strong correlation between education and skills and the uptake and use of digital technologies in various spheres of life. The role of education and skills in promoting innovation, therefore, is critical. In recent years there has been an explosion in the number of education technology (edutech) innovations available to teachers and young people. Growing investments in Information and Communication Technology (ICT) in schools have given way to the transformation of educational practices, improved teachers' ICT skills and professional development, and reformed pedagogies. At the same time, it has developed skills like critical thinking, creativity and imagination among the students. Although technology has the ability to bridge gaps in education, it alone cannot build such traits in students. Teachers have to act as facilitators of change, thereby becoming new leaders in the education space.

Schoolnet India Limited

Started in 1997 Schoolnet India Limited works in the key areas of Education, Skill Development, Healthcare and Cluster Development for long term and sustainable impact. Our 3E model has been recognized by McKinsey and Company as one of the top two global initiatives aimed at faster and inclusive growth. Globally, we deliver programmes in 17 countries of Africa, Middle East and South East Asia.

Currently, we work with more than 10 Central and 28 State Government departments, several Public Sector Enterprises (PSEs), Multi - lateral agencies and 1500+ private companies as a partner to their social development goals. Together with our subsidiary companies, Learnet Skills Limited and Cluster Development Initiatives Limited we have impacted over 15 million people in India.

With hundreds of millions spent on digital technology for education every year – from interactive whiteboards to the rise of tablets, every new technology seems to offer unlimited promise to learning. Cloud computing, mobile communications and Internet applications have changed the way manufacturing, business services, the media and retailers operate. But key questions remain in education: has the range of technologies helped improve learners' experiences and the standards they achieve?



Finding Solutions

A large part of the challenge for the Indian Government and others in the education sector lies in scaling innovation and the effective delivery of knowledge. Through years of experience in implementing EdTech in schools, Schoolnet recognizes that the need for technology has shifted from *'if' to 'how'.*

By implementing K-Yan, Schoolnet identified how it can be best customized across schools, universities and even communities. Using evidence, this report sets out where proof, promise and potential lie for technology in education.

The starting point for Schoolnet is that digital technologies do offer opportunities for innovation that can transform teaching and learning, and the challenge is to identify the shape that these innovations take. K-Yan is an innovative digital solution designed as a low-cost communication platform for group learning that can transform a wall into an interactive classroom among other technological inputs to achieve creative outcomes. Such an innovation provides for basic access, awareness and training to highly sophisticated, and more complex creative and critical literacies and outcomes.

Technology & Education in India

There is a paradigm shift in the use of technology in education – technology must be more strategically linked to achievement and learning in all schools and learning organisations.

The ubiquity of mobile devices in India is making real change happen. India is already home to the second largest online market of internet users worldwide despite untapped potential. In January 2018, India had 481 million internet users, projected to grow to 511.89 million internet users in 2022 (Internet in India 2017 Report). Coupled with this, is a large customer base in the K12 segment that provides scale: 260 mn students in 1.5 mn schools with 73% Government and 27% Private Schools respectively (ASER, 2017). Enrolments too are on a steady increase especially with 40% of these claimed by the private schools. Government of India launched new initiatives for the education sector to keep pace with the changing times. A new initiative, Revitalising of Infrastructure and Systems in Education (RISE) was announced in the Budget 2018-19 with a total investment of Rs 1 lakh crore in the next four years.

Given the huge divide between rural and urban India and the digital haves and have-nots, digitisation will be key to maintaining India's global competitiveness, GDP growth, innovation and creating employment. At the same time, to remain competitive, there is a need to manage, develop and invent systems that can drive the economy. The vast majority of jobs and services in the future will require knowledge and understanding of technology. The gradually maturing online market means that teachers and learners can now rely on technology and embed it into their working practices. A 'technology enabled school system' can now be used to support both high quality outcomes and where technology is tangibly transforming the process of teaching and learning.

E-Learning was one of the thrust areas identified by Department of Information Technology (DIT), Government of India in 2010. The initiative took note of the advances in digital electronics which made e-learning possible and resulted in better visualization and retention of the subject. A number of renowned academic institutions, R&D Labs and Industrial organizations were encouraged to formulate relevant proposals to develop e-Learning tools, technologies and pedagogy inter alia content adaptation, personalized learning, creation of high quality interactive simulation environment, Open Educational Resources (OER), ubiquitous Learning, augmented reality, gaming and Cloud Computing . Effort was also directed towards building a content creation framework to enable high degree of personalization and adaptation. The initiative observed that the efficacy of e-Learning, virtual class and virtualization of learning was not fully understood and the potential of these has not been fully emphasised and exploited.

National Policy on Information and Communication Technology (ICT) in School Education, Department of School Education and Literacy, Ministry of Human Resource Development, Government of India, provided the ICT vision. The National Policy on Education 1986, as modified in 1992, stressed upon employing educational technology to improve the quality of education. The policy statement led to two major centrally sponsored schemes, namely, Educational Technology (ET) and Computer Literacy and Studies in Schools (CLASS) paving the way for a more comprehensive centrally sponsored scheme – Information and Communication Technology at Schools in 2004. Educational technology also found a significant place in another scheme on upgradation of science education. The significant role of ICT in school education was also highlighted in the National Curriculum Framework (NCF) 2005.

ICT in Schools was launched in 2004 and revised in 2010. The vision of ICT Policy in School Education aimed at preparing youth to participate creatively in the establishment, sustenance and growth of a knowledge society leading to all round socio-economic development of the nation and global competitiveness. The Mission was 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. The scheme has now been subsumed into RMSA - the umbrella scheme for expansion and quality improvement in secondary education.

In 2009, Government of India launched the Sakshat or the National Mission on Education through Information and Communication Technology (NMEICT) with an intention **to create a robust eco-system that converts the demographic advantage into a knowledge powerhouse by nurturing and honing the a knowledge enabled working population.** With the dual purpose to provide connectivity and create high quality e-content for teachers and students, the mission envisages to bridge the digital divide among the teachers and students in the country.

The country has a huge market potential. The current market size for digitized school products in private schools is around US$500 million. This is expected to grow at a CAGR (compound annual growth rate) of 20% to reach the over US$2 billion mark by 2020. Apart from this, the current market size for ICT in government schools is US$750 million. This is expected to grow five times by 2020 due to the current low level of penetration in government schools (Knowledge@Wharton). The rapidly evolving landscape of digital learning, therefore, has the potential to change how education is transacted and how both teachers and learners engage and participate in the pedagogical processes.

Further in 2015, the Government of India launched 'Digital India' programme with a vision to transform India into a digitally empowered society and a knowledge economy. It aims to improve education through 'Digital Classrooms' by integrating all the initiatives in the classroom in a seamless learning environment which will propel the young Indians to take a leadership role in the Knowledge Economy.

The K-Yan: Integrated Digital Blackboard Approach

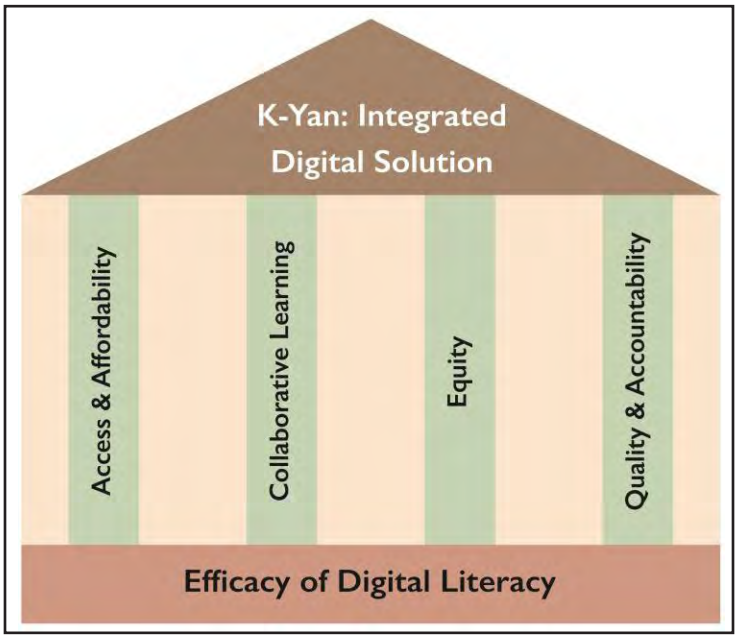
Over the years, Schoolnet has effectively delivered K-Yan as an integrated digital solution, rooted in evidence of impact, informed practice and tailored approaches to what works, where, and for whom.

It has been able to effectively educate, develop and empower individuals. The initiative was an effort to utilize ICT tools such as digital content, alternative power supply solutions, and capacity building programs to bridge the digital gulf and ensure sustainability.

K-Yan was developed in collaboration with the Indian Institute of Technology (IIT), Mumbai, as a community computer. It is effectively a digital multimedia device which was designed by Prof. Kirti Trivedi in 2004 and commercialized by Schoolnet in 2007. The device contains a computer with inbuilt projector, content, speakers, and has wireless keyboard and mouse. It combines the computing power of a computer with an appropriate high luminosity, high resolution, and large screen projection system.

To realize education's promise, we **prioritize learning**, not just schooling. To achieve learning we focus on three complementary strategies through our innovations:

1. Evidence-based approaches to build strong teacher-learner relationships in classrooms
2. Access and affordability of learning using the right metrics of measuring needs and customizing solutions
3. Align entire system to work for learning. Innovation in classrooms won't have much impact if technical barriers prevent a focus on learning at the school level



K-Yan as a technology enabled 'collaborative learning' solution has the potential to address geographical and social disparities and ensure broader goals of equity and social inclusion. Furthermore, the possibility of 'working at scale' has become a key ingredient to foster connectedness across the country.

As Prof. Kirti Trivedi rightly said, "We developed K-Yan to bring the benefit of new learning tech to everyone so that poorest of the poor can have access to same multimedia tech."

K-Yan is a powerful technology designed to fill a major void in the delivery of education. Schoolnet leverages the use of ICT to enhance the learning and teaching experience in schools while cultivating educational practitioners to become smart thinkers The company adopted technology as a key element to standardize large scale education solutions that could be deployed in the different parts of the country, especially the rural areas .

K-Yan is a multi-purpose device and can also be used as a community computer. Prof. Kirti Trivedi emphasized that K-Yan provides for a "new kind of learning environment called group interactive group learning where teacher and student learn together, learn better with full multimedia glory."

K-Yan Technical Aspects

K Yan a nationally awarded and acknowledged device was developed with an emphasis to improve the learning outcomes using content which is modern, engaging and involves active student participation.

i. Projection: The projector is of the highest quality 3000(lumens) bright enough for outdoor application with HD resolution 1280*800

ii. Computing: Coupled with latest generation i3 to i7 processor with integrated graphics and RAM varying from 4GB to 32GB. This device can perform all the activity that a high end computer can

iii. Interactivity: By using the IR and image processing technology K-Yan can convert any wall or whiteboard into an interactive teaching surface. One can write, draw, highlight and move the content like a touch screen

iv. High Quality Sound: Its 30Watt speaker acts like a home theatre eliminating need of nay separate audio accessories

v. Television: The school can attach the K-Yan to a DTH connection to watch television channels, like National Geographic, Discovery, History Channel and other important educational programmes within the confines of a classroom

vi. Huge Storage: 1TB hard disk storage allows the school to store unlimited content in the form of multimedia, movies, school videos and projects, songs, etc. The DVD player and the multiple USB ports allow external content to be viewed on the K-Yan.

K-yan: A 6-in-One 'Plug and play' Device

K-Yan Highlights

i. Ease of use: Single Cable set up which takes less than 2 minutes to set up. It is user installable; no setup skills required. Teacher operated with ultra-large wall projection, wireless mouse, keyboard, USB ports & DVD writer.

ii. Portability: Single plug and play device designed to be portable between classrooms to save hassle of setting up cumbersome laptops & projector or fixed infrastructure like electronic white board. Also, the device can be used outside classroom for annual days, special events and movie shows.

iii. Safety & Security: Single unit safeguarding is easy, can be locked in a classroom cupboard/almirah/ cabinet/locker.

iv. Future Ready: K-Yan is a future ready device as it can be seamlessly connected to external devices like Tablets/Chromebooks

v. Device Management: Conducts task like Content Push, Content Usage Tracking, Reports, Wi-Fi Restriction, Peripheral Device Control, Teacher & Admin Login can be managed easily.

vi. Internet Ready: The included broadband connectivity allows teachers to access content from internet as well. The world truly becomes your classroom

vii. Video Conferencing & Virtual Education: As the device is internet & future ready and allows participants to communicate with one another, view presentations or videos, interact with other participants, and engage with resources in work groups.

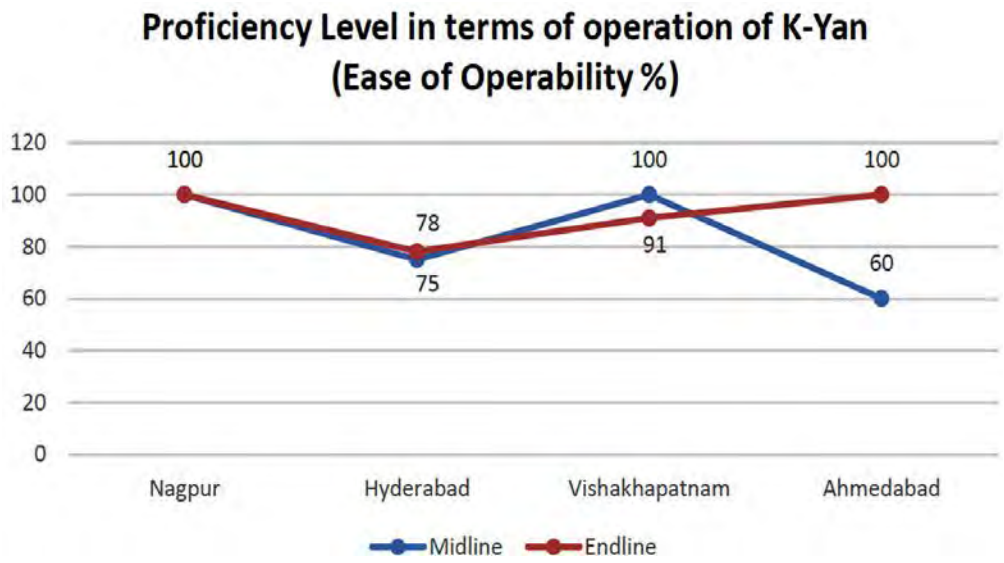
K-Yan Operability

Classrooms of today are slowly but surely changing. Blackboards in the classroom have gone from black to white to digitally 'smart.' Children today learn in an environment of connected learning. They learn, engage, and produce in richly productive and collaborative ways. Technological additions can now function as building blocks for unique and personalized productions. These new forms of engagement that shape how youth learn and connect comprise of "connected learning" (Mimi Ito, 2013).

Such learning is possible through the use of K-Yan and is depicted in Box 1.

Box 1: IMRB KANTAR Third-party assessment of schools in Nagpur, Vizag, Ahmadabad and Hyderabad

The report suggested increased usage and acceptability of technology in classroom due to K-Yan's ease of operability . A high usage of K-Yan, of around 59% teachers was reported in DMS, Bhopal .



In a typical implementation of K-Yan, an Schoolnet team would begin by conducting a needs assessment for the school. The team then performs an infrastructure check, understand how K-Yan can be customized, and make a presentation or a sales pitch to the principal and teachers. Upon the determination of the K-Yan as a good fit for the school, the Schoolnet team would begin implementation in either select classrooms as a pilot program or directly throughout the school as a full-scale launch by providing installation, training and orientation for teachers and students .

While youth learning is at the centre of connected learning, they also inspire and shift existing teacher practices and content delivery. Instead of following traditional models of education, teachers, too, are learners in connected learning environments, evident from testimonials below. In this context then, the principles of connected learning apply to K-Yan.

Better explanation of concepts

"Graphs can be explained very nicely on the interactive whiteboard. When kids watch videos, they get a firsthand experience of it. We learn together"

Teacher, Nagpur

Better understanding among students

"Earlier we were doubtful if content will be clear to the students, as we were using chalk and talk method. Now with the use of audio visual method, it is easy to understand the concept"

Teacher, Ahmedabad

Positive Impact of

K-Yan on Teachers

Of particular importance is the placement of technology in the classroom which has shown to have an impact on the students. The placement of computers in classrooms rather than separate computer laboratories enables much greater use of ICTs for 'higher order' skills. K-Yan is therefore placed in the classrooms and positioned in a way that the shadow of the projector does not prove a disability in teaching or learning.

K-Yan Ease of Usage

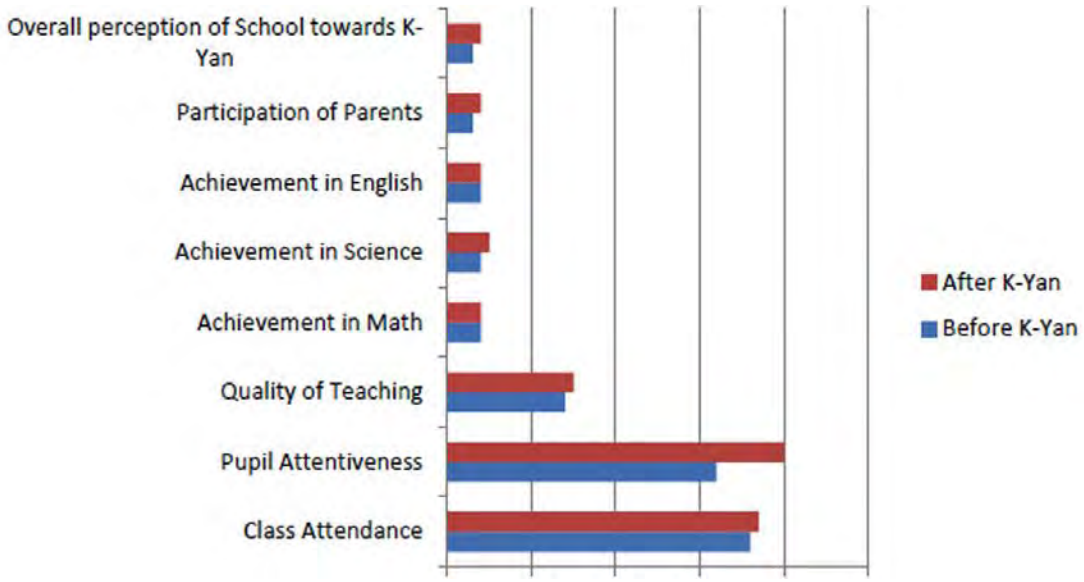
K-Yan supports connected learning which is 'socially embedded, interest-driven', and oriented toward educational opportunities. It is a simple 'Plug and Play' device and easy to use. At the touch of a button it is able to transform a wall into an interactive device. Ease of usage of K-Yan is also evident from the number of hours it is used in classrooms (Sample teacher usage reports is enclosed in Annexure 1). The longer the operability hours of K-Yan suggest teacher's familiarity with the device and ease of operability.

The overall impact of K-Yan is depicted in Box 2 below.

Box 2: Overall Positive Impact of K-Yan on Schools

[Third party Evaluation Agency for ICT Tools for Education Project in 42 Schools in the State of West Bengal]

Schools reported a significant positive impact post the usage of K-Yan on the students and teachers. According to the principals, a change in the way subjects are taught, attendance in class and pupil attentiveness increased. Quality of teaching improved which also play significant role in covering syllabus. There was also improvement in Math subject, Science Subject and in English. In a more interesting fact, parents had begun taking interest in the school affairs and particularly what their children were learning. Overall perception increased by 4%.



ICTs are used differently in different school subjects. K-Yan through its simulations and modelling in science and math has shown to be effective, as have word processing and communication software (e-mail) in the development of student language and communication skills.

Part I. K-Yan and evidence for Teaching Outcomes

Technology offers the opportunity for teachers to become more collaborative and extend learning beyond the classroom. This enhanced collaboration, enabled by technology offers access to instructional materials as well as the resources and tools to create, manage, and assess their quality and usefulness.

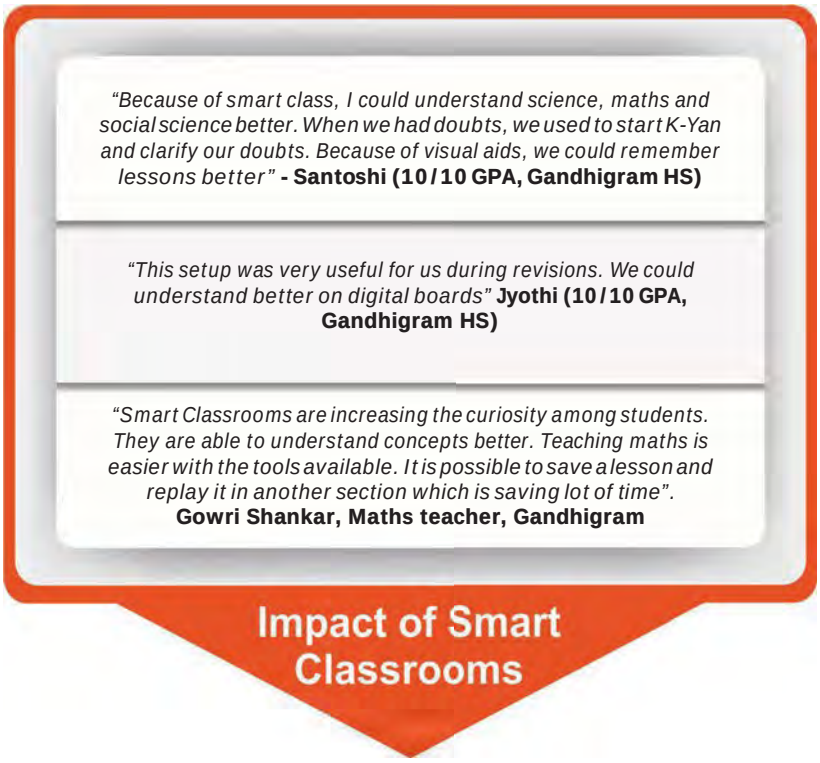
For students to learn, teachers have to teach effectively. K-Yan has focus on teachers' skills and motivation to improve student engagement and learning.

In order to have motivated and skilled learners, equipped and motivated teachers are the fundamental ingredient of learning. K-Yan, therefore, begins with a focus on counselling and training the teachers (See K-Yan training impact below)

Project Impact: Smart Success for the Smart City of Vishakhapatnam

With a motive to benefit the rural children GVMC Commissioner introduced Smart Classrooms in collaboration with Google and Schoolnet for a period of 3 years in the government schools.

39 students from GVMC Schools in Vizag got 10/10 GPA. The schools have K-Yan with smart boards. Lessons are taught on digital boards, which can also be saved. Students are given Ids, so if a teacher is absent, students can learn on their own.



Teacher Training

Teacher training focuses on improving classroom practice through the usage of technology, interactive teaching learning material, classroom organization skills, lesson planning, and appropriate teaching styles. An important component of the implementation of K-Yan in schools is the ICT and Soft Skill training for teachers, who then train all other teachers of the school and the ICT coordinator training for 2 selected teachers from the school.

With minimal training time, K-Yan is able to achieve higher impact on the teachers who use it. This is also supplemented by periodic re-training sessions and assessments. Such handholding ensures optimal use of the device and improves teaching outcomes (Sample teacher training feedback and assessment pictures are enclosed in Appendix 3).

K-Yan empowers teachers to become co-learners with their students by building new experiences for deeper exploration of content. This enhanced learning experience embodies John Dewey's (1937) notion of creating 'more mature learners.' Together, the students and teachers can also become 'engineers of collaboration, designers of learning experiences, leaders, guides, and catalysts of change' (Hannafin et al., 1997; Sandholtz et al., 1997).

Organizing and Presenting Lessons

Technology is not introduced in vacuum. What technology replaces is also important to observe in a connected environment. When teachers choose to adopt technology themselves, they often do it as part of a process of inquiry (Somekh, 2007) and it replaces or displaces some problematic practice; when it is adopted for its own sake, it displaces or replaces other teaching and learning activities which may have been as (or more) effective . Hence an **ecological view of adoption is needed, where the justification of technology adoption is a relative one** (Zhao & Frank, 2003). It should replace less effective practices, and be effectively integrated into the resources available to a learner to support their learning (Luckin, 2008), as part of a more effective or more efficient learning context. K-Yan helps fill this gap in learning and provides for continuous, just-in-time support that includes professional development for the teachers, informal collaborations and learning for students.

Another valuable role of K-Yan is its ability to increase teachers' effectiveness in organizing and presenting lessons. It embeds strategically selected video segments and interactive question-and- answer exercises in daily lessons. Multimedia lessons extend teachers' abilities to make material more meaningful and engaging (See Appendix 4).

Pedagogies of use

K-Yan has focus on the pedagogies of use, and the analysis of general impact to the specific differences that digital technologies make to teaching and learning contexts and interactions with regard to different learners. The quantity of technology use is not the key factor to student learning. **"How much" matters only when "what and how" are identified** (Lei & Zhao, 2007).

Through K-Yan and the in-built mapped curriculum, educators can design highly engaging and relevant learning experiences through technology and achieve student learning goals.

Regular use of K-Yan in the classrooms improved teaching compared to the traditional methods. Easy and quick coverage of syllabus is also one of the positive impact reported by a third party evaluation (Box 3 below).

Box 3: Evaluation of ICT Tools for Education Project in 42 Schools in the State of West Bengal

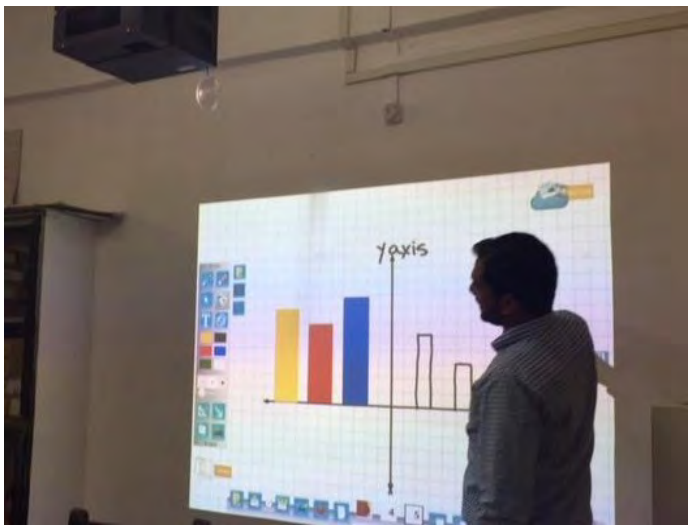
94% principals agreed that after the implementation of K-Yan, teaching has improved and now they were able to complete Syllabus faster than before**.** Only 6% schools deny of any impact of K-Yan**.** 60% principals also agreed that the usage of K-Yan has improved the teaching pattern**.** With improvement in the quality of teaching, covering syllabus efficiently became much easier.

Improvement in teaching methods

Quick coverage of syllabus

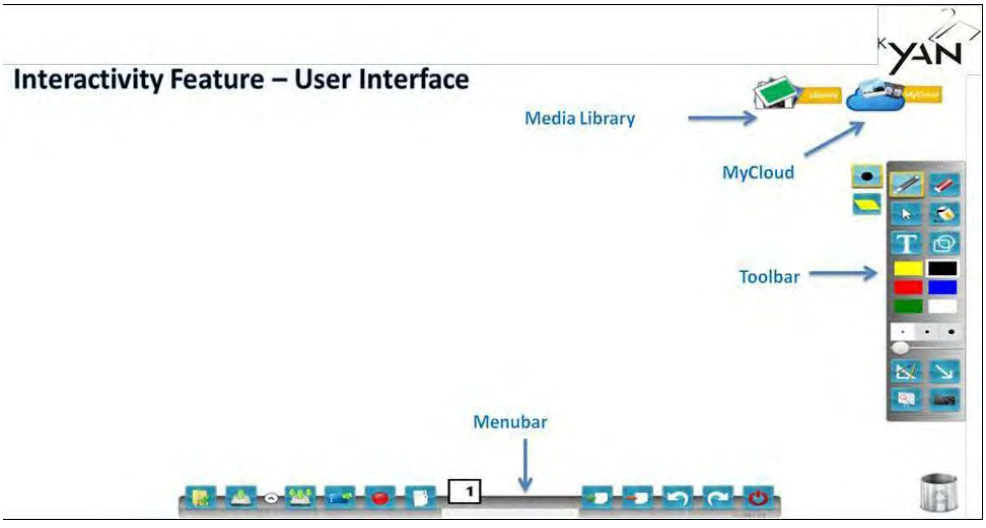
Interactive whiteboards

As an emerging technology innovation, interactive whiteboards have shown great promise. Because teachers and children can write on the whiteboard touch screen, learning becomes highly engaging and interactive .



Compared to conventional (non-technology aided) instruction, advantages of K-Yan include

1. Valuable immediate review and feedback for students,
2. Immediate data on student progress for teachers to examine and use as a basis for making instructional adaptations,
3. High engagement and interactivity by students during teacher led instruction
4. Enhanced teaching and learning experience, and
5. Motivates student and promote enthusiasm of learning.

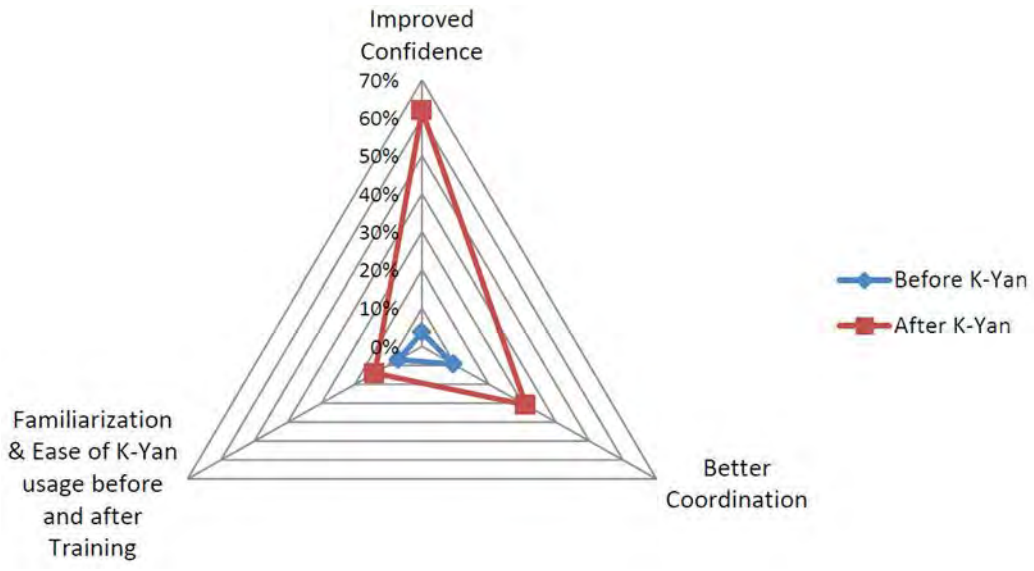


Educators can be guides, facilitators, and motivators of learners

The information available to educators through internet means teachers do not have to be content experts across all possible subjects. By understanding how to help students access online information, engage in simulations of real-world events, educators can help their students examine problems and think deeply about their learning. K-Yan is a catalyst to knowledge especially for the rural schools. When connectivity and access are uneven, the digital divide in education is widened, undermining the positive aspects of learning with technology.

K-Yan is able to extend rural students with personalized learning experiences, choice in tools and activities, and access to adaptive assessments that identify their individual abilities, needs, and interests. The overall impact of the use of K-Yan on teachers is presented in Box 4 below.

Box 4: Overall impact of K-Yan on Teachers: Evaluation of ICT Tools for Education Project in 42 Schools in the State of West Bengal



Teacher Testimonial

Teacher

PERSONAL INFORMATION

Add Photograph here →	
Name	SHAILESHWAR SHARMA
Age	42 Years.
School Name	GSSS - KAULANIWALA BHOOD
Qualification	M Phil. (Physics), MSc, B.Ed.
Location	KAULANIWALA BHOOD

TESTIMONIAL

1. Since how long you are teaching in this school?

Approx. for Two Years.

2. Before K-Yan was not provided, how was the learning environment and interest of students?

The learning environment & interest of students has obviously been increased when we make the use of KYAN for teaching.

3. What difference do you feel in students after K-Yan was installed?

Students take more interest in knowing the topics through seeing on & teachers also feel very comfortable while teaching through KYAN.

4. What difference do you feel while teaching with K-Yan?

It makes the teaching-learning very interesting & some of the topics become teaches via. I specially feel very comfortable while teaching on KYAN. I mainly make the

5. What difference is there in terms of drop out rate, pass percentage or attendance rate after introduction of K-Yan for teaching?

Drop-out rate has decreased to some extent. Pass %. is increasing & attendance rate has also increased.

Part II. K-Yan and evidence for Learning Outcomes

Using K-Yan, they can help students create spaces to experiment and iterate with all of the information they need at their fingertips.

Technology is often promoted using the efficiency argument: technology will help students master the traditional goals of schooling, i.e. master the facts and concepts. These goals are measured in existing standardized tests. But K-Yan's strength is identified in the new possibilities of learning:

a) Focus on the active use of technology to enable learning and teaching through creation, production, and problem-solving

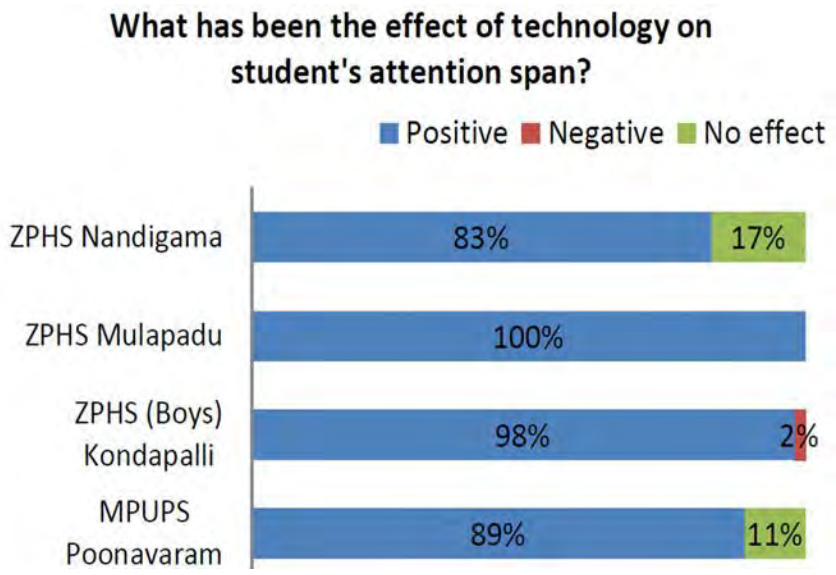
b) Using simulations to build inferential skills

c) Focus on long-term outcomes especially once the project matures and new cohorts are funded.

Teachers can explore new ways for their students to engage with technology effectively, especially when students are not optimizing their learning experiences (See Box 5). Traditionally, teachers asked students to read lessons as part of their homework. Such a method is not effective with the different learning styles of students no matter how entertaining or interesting the lessons are, students do not retain much of the information being presented, and often they confuse key concepts.

Box 5: Deepening Student Understanding: Using Interactive Video to Improve Learning *[Internal Evaluation on the use of K-Yan as a teaching-learning device in Schools in Andhra Pradesh]*

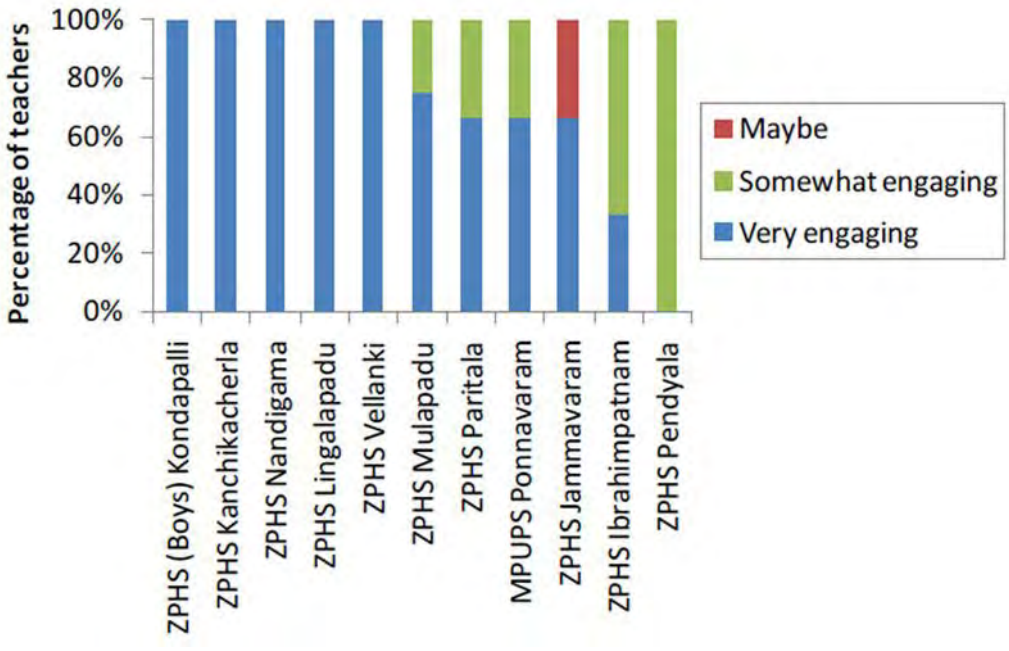
Data reveals the overall positive impact of technology on the student's attention span. Students reported being more attentive and interested in the learning activity compared to the earlier methods of learning.



The provision of a scanner cum printer and webcam enable teachers to proactively device their own teaching lessons. The backup of a high power UPS with extended battery ensure no disruption in the class.

The use of K-Yan allows educators to review individual student responses and class-wide engagement quickly, giving greater insight on how students are mastering key concepts as they watch and enabling teachers to address doubts quickly (See Table and Box below).

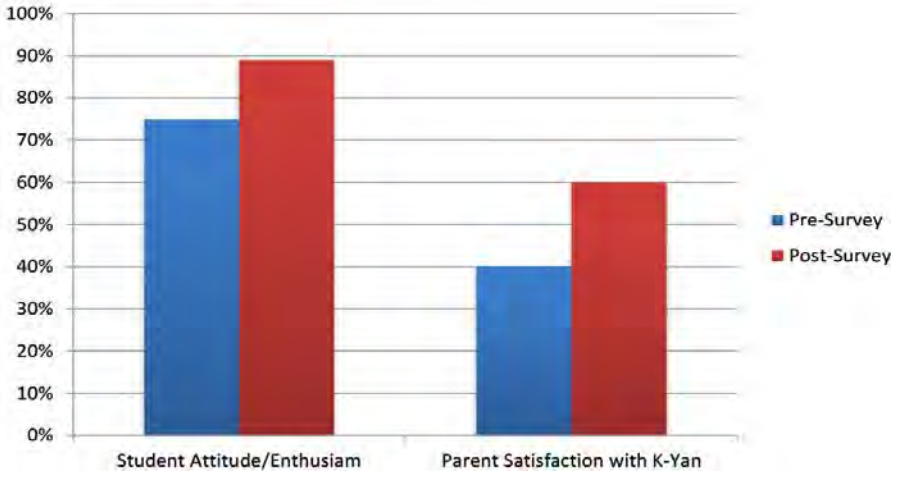
Use of K-Yan and improvement in student engagement



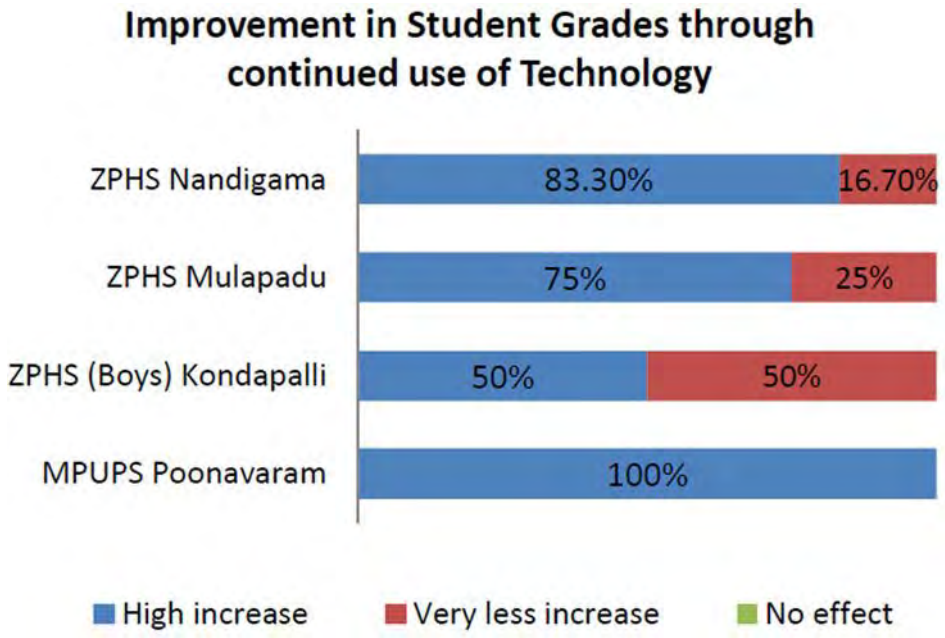
Box 6: Effect of K-Yan Technology on Enthusiasm for Learning Geography in a rural village of West Bengal

The study argued in favour of the K-Yan based teaching method compared to the traditional teaching methods. Students were more enthusiastic and enjoyed learning through the educational technology tool. Most notable was the enthusiasm to rush to class, and eagerness to see the presentations using K-Yan. Students also maintained silence and were seen engrossed in the videos. As a result the class sessions went beyond

the scheduled time.



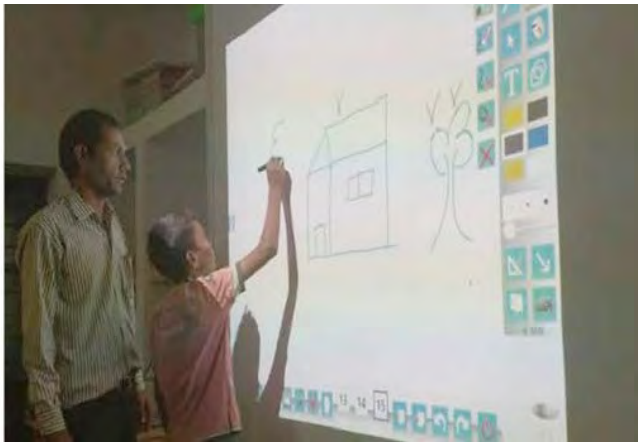
Through continued use of K-Yan as a teaching tool, teachers in various schools have reported an improvement in the grades of all students. Using K-Yan's interactive video platform, teachers explain using images, text, drawings, and questions to clarify tricky concepts and check for understanding as students watched the video.



Learning with Others

Learners can share learning resources, thoughts and ideas, thereby supporting each other to develop knowledge collectively. Much of the knowledge arises from social interaction. K-Yan involves learners interacting with other learners. It helps teachers to manage a teacher-learner dynamic, while also coordinating peer learning.

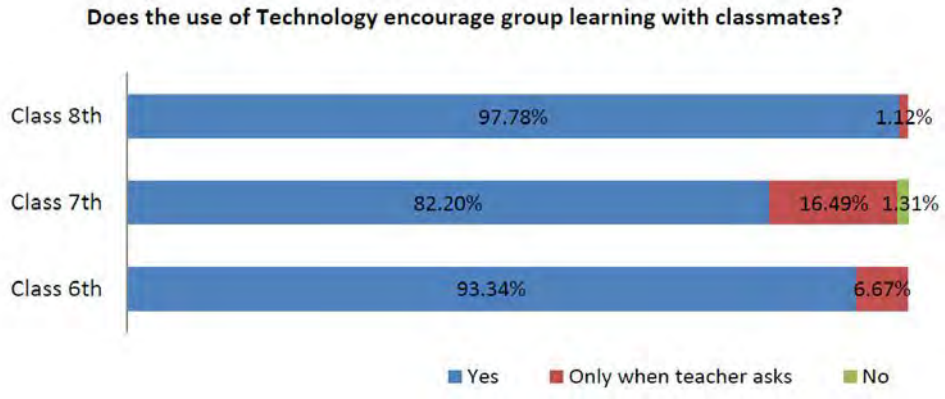
The interactive whiteboard (IWB) can be used effectively to support dialogue between the teacher and learners. K-Yan's IWB can support student learning through classroom conversation. Teachers can use IWBs more effectively by linking them to digital resources which can be archived and revisited later. This supports the progression of dialogue over time, across settings, and even across groups of learners



"I could not understand the concepts so clearly because of very few pictures or practical lessons. With K-Yan, I now am now able to learn through practical lessons. I am more interested in learning through the audio visual lessons that are delivered in class"

Varun Singh, Class 5

Through its innovative learning videos for science and other subjects, students are able to learn with their peers through group discussions and brainstorming sessions. Evidence to improvement in learning through peer interaction is reflected in the data below.



The impact on student learning is best reflected through the achievements of students in their final examinations. The case of Durga Bhavani, student of Class 10 at Madhuranagar High School, shows the impact of the use of K-Yan in the classrooms for learning. Durga stood first in the entire district in Vidyarthi Vigyan Manthan (VVM) examination. The classrooms were equipped with K-Yan in presence of another learning device, the Chromebooks (See Newspaper clipping below).

మధురానగర్ విద్యార్థిని ప్రతిభ

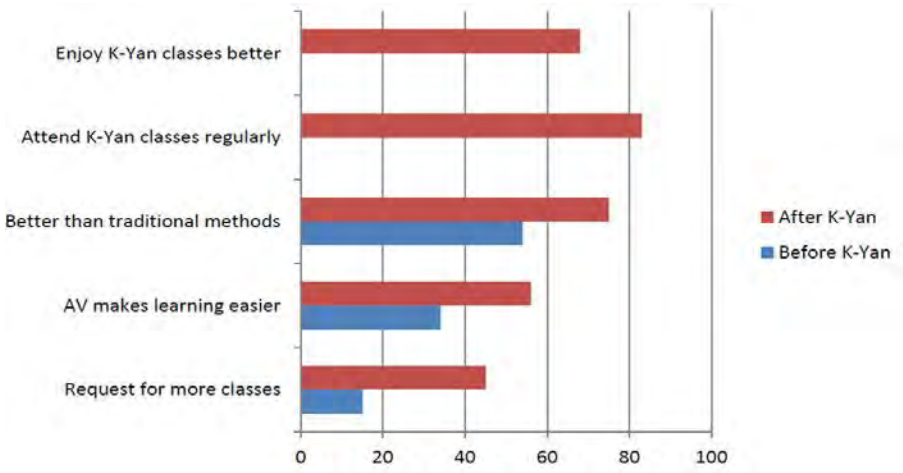
సీతంపేట, న్యూస్‌టుడే: సీతంపేట 13వ వార్డు పరిధిలోగల మధురానగర్ జీవీఎంసీ ఉన్నత పాఠశాల పదో తరగతి విద్యార్థిని దుర్గాభవాని తన ప్రతిభ చాటుకొంది. మూడు దఫాలుగా శాస్త్ర సాంకేతిక అంశాలపై నిర్వహించిన ఆన్‌లైన్ పరీక్షల్లో రాష్ట్రస్థాయికి ఎంపికయ్యింది. జాతీయ స్థాయిలో నిర్వహించిన ఈ ఆన్‌లైన్ పరీక్షలకు సుమారు 1.5లక్షల మంది విద్యార్థులు పాల్గొన్నారు. వీరిలో ప్రతిభ కనపర్చినవారిని తొలుత రాష్ట్రస్థాయికి తర్వాత జాతీయ స్థాయిలో ఎంపికచేస్తారు. విద్యార్థి విజ్ఞాన్ మంథన్(వి.వి.ఎం), విజ్ఞానభారతి, ఎన్.సి.ఈ.ఆర్.టిలు సంయుక్తంగా ఈ పరీక్షలు నిర్వహించాయి. జీవీఎంసీ ఉన్నత పాఠశాల సమన్వయకర్త ఎం.ఎ.ప్రభాకర పర్యవేక్షణలో గతనెల 28న డిసెంబరు 9, 5తేదీల్లో వివిధస్థాయిల్లో పరీక్షలు నిర్వహించారు. ఇందులో మధురానగర్ జీవీఎంసీ ఉన్నత పాఠశాలలో పదో తరగతి చదువుతున్న కె.దుర్గాభవాని ఎంపికైనట్లు పాఠశాల ప్రధానోపాధ్యాయులు వై.కృష్ణ చెప్పారు. రాష్ట్రస్థాయికి ఎంపికైన పాఠశాలల్లో ఏకైక మున్సిపల్ పాఠశాల మధురానగర్ పాఠశాలే కావడం విశేషం. ఈ సందర్భంగా దుర్గాభవానికి ప్రధానోపాధ్యాయులు కృష్ణతోపాటు ఇతర ఉపాధ్యాయులు అభినందించారు.

దుర్గాభవానిని అభినందిస్తున్న పాఠశాల ప్రధానోపాధ్యాయులు వై.కృష్ణ తదితరులు

VVM is a national program for educating and popularizing science among school students of VI to XI standards. VVM also endeavours to identify the bright minds among the student community who are keen on subjects related to science. VVM is initiated by Vijnana Bharati (VIBHA) in collaboration with Vigyan Prasar, an autonomous organization under the Department of Science and Technology, Government of India and National Council of Education Research and Training (NCERT).

Box 7: Overall impact of K-Yan on Students: Evaluation of ICT Tools for Education Project in 42 Schools in the State of West Bengal

The evaluation reported improvement in attendance in a day when K-Yan classes were scheduled 75% felt that K-Yan classes are better than regular classes where traditional teaching methods are used



Part III. K-Yan and evidence for Community Impact

Models for successfully integrating ICT use during both, in-school and after-school hours are still emerging. However, there are few successful models for the integration of student computer use at home or in other informal settings outside of school facilities with use in school. K-Yan is also used by community members to spread literacy and awareness among men and women.

A case in point is of the use of K-Yan by SEEDS, a non-profit organization that spreads awareness and imparts services in education, skills and agriculture to communities who would otherwise not have access to such support.

SEEDS believe that socio-economic empowerment can happen most effectively by inducing change during the formative years, hence our focus on improving the quality of education in government schools. In India, these schools have the maximum outreach and ought to provide young children with a conducive learning environment, regardless of their economic background. However, several constraints hamper the physical and intellectual growth of children who attend a typical government school, especially in remote rural areas

Lack of classroom space, lack of basic amenities like drinking water and sanitation, poor quality of teaching, low attendance of teachers and poor teacher- student ratio are some of the common problems one would encounter at a typical government school

Through the initiatives of SEEDS, government schools in rural areas are identified and adopted to ensure that a conducive learning environment is available for all students to help them achieve their potential. This section will share the case studies of students who benefitted with the Vidya initiative of SEEDS particularly through K-Yan.

It is more heartening to see government schools with high pass percentage advertising themselves and taking pride in digital classes supported by SEEDS which helped them in their success. Other than education initiatives in 5 schools, K-Yan has been used by us for other awareness campaigns and initiatives

1. **Communication channel in Villages -** Creating awareness campaigns playing relevant videos and presentations in regional language - Being a device which doesn't have any complicated wiring, it has become easy for us to carry the same to villages and use it for:

    a. Health camps (Awareness on temporary blindness - under SEEDS Swasthya initiative)

    b. Agri initiatives (Presentations and videos on dairy farming, vaccination cycles etc., explained easily through K-Yan in villages mobilizing people to the Gram Panchayat Office)

2. **Skilling Programs:** For implementing Basic computing courses for children, effective pedagogy in implementation of skill development programs for youth

Conclusion

Our argument is based on the fact that no education system is greater than the quality of its teachers and students. High quality teaching and learning has a direct correlation to high quality outcomes. Technology is introduced in schools to support young people to develop deep subject knowledge and understanding, facilitated through better teaching techniques. Support is also extended in areas around personalization and assessment with focus on improved outcomes.

The maturity in technological infrastructure and the ability to manage critical systems from the cloud means that teachers and learners can now rely on technology and embed it into their working practices.

By ensuring that our education system embeds up to date technology into the 'learning ecosystem' we can ensure that learners access the skills they require to be competitive in the modern workplace. Technology is a strategic tool in any learning organisation and when applied as part of maintaining high standards or as part of school improvement, can make a positive contribution to the lives of all learners.

K-Yan addresses key aspects related to the provision of equipment to schools and development of infrastructures both inside the school and the community area or home. It envisages visions for improved student learning, curriculum leadership, data collection and use, professional learning, sharing knowledge and practice, resource use, and new models of education provision. These strategies are shaping and transforming teaching and learning practices, which in turn impact the quality of student experience, learning, and achievement.

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Annexure I: K-Yan testimonials by Principals, Teachers and students

Principal

PERSONAL INFORMATION

Add Photograph here →	
Name	SHYAMAL BHATTACHARYA
Age	58
School Name	GOURHATI HARADAS INSTITUTION(H.S)
Qualification	M.A
Location	GOURHATI ,ARAMBAGH,HOOGHLY

TESTIMONIAL

1. What was the interest level of students & teachers before K-Yan was provided?

INTEREST LEVEL OF STUDENTS&TEACHERS IS BETTER VERY MUCH

2. What difference do you feel in teachers and their teaching methods after K-Yan was installed?

THEY ARE MORE INTERESTED WITH THE NEW LEARNING

3. What difference do you feel in students andbtheir interest level after K-Yan was installed?

STUDENTS ARE VERY INTERESTED WITH AUDIO VISUAL CLASSES

4. What difference is there in terms of drop out rate, pass percentage?

DROP OUT RATE IS DECREASED,PASS PERCENTAGE IS INCREASED

5. As a principal, what difference do you notice in overall development of your students?

ALL OVER IT WILL HELP BOTH TEACHERS AND STUDENTS CLOSER FOR TEACHING AND LEARNING.

Principal

PERSONAL INFORMATION

Add Photograph here →	
Name	SANTA CHAKRABORTY
Age	53
School Name	UTTARPARA UNION GIRLS HIGH SCHOOL(H.S.)
Qualification	M.A.(ENG), B.ED
Location	UTTARPARA, HOOGHLY

TESTIMONIAL

1. What was the interest level of students & teachers before K-Yan was provided?

Students were not so interested in class teaching.

2. What difference do you feel in teachers and their teaching methods after K-Yan was installed?

The concentration and interest level has reached to its highest level.

3. What difference do you feel in students andbtheir interest level after K-Yan was installed?

Students are much interested and regular in class.

4. What difference is there in terms of drop out rate, pass percentage?

The project is just started in this session and needs time to monitor the drop out rate and pass percentage

5. As a principal, what difference do you notice in overall development of your students?

Students feel much interest and come school regularly to avail this facility.

Teacher

PERSONAL INFORMATION

Add Photograph here →	
Name	SUBRATA DAS
Age	37
School Name	BOSO PRIYANATH HIGH SCHOOL
Qualification	BIO Sc(H), MA(EDU)
Location	BOSO, DHANIAKHALI

TESTIMONIAL

1. Since how long you are teaching in this school?

9 YEARS

2. Before K-Yan was not provided, how was the learning environment and interest of students?

THEY WERE INTERESTED FROM BEGINING BUT NOW THEY ARE MORE INTERESTED.

3. What difference do you feel in students after K-Yan was installed?

STUDENTS FEEL MORE COMFORTABLE WITH THIS TOOL.

4. What difference do you feel while teaching with K-Yan?

TECHNOLOGY ENABLE LEARNING IS ALWAYS INSTERESTING. IT HELPS TO GROW INTEREST.

5. What difference is there in terms of drop out rate, pass percentage or attendance rate after introduction of K-Yan for teaching?

THE RATE OF DROP OUT IS DECREASED AND PASS PERCENTAGE AND ATTENDANCE INCREASED AFTER USING THIS TOOL.

Teacher

PERSONAL INFORMATION

Add Photograph here →	
Name	SANTA MAITY
Age	32
School Name	TALPUR PATHSALA (H.S.)
Qualification	MSC(BIO SC), B.ED
Location	TALPUR, TARAKESWAR

TESTIMONIAL

1. Since how long you are teaching in this school?

6 YEARS

2. Before K-Yan was not provided, how was the learning environment and interest of students?

TEACHING WAS TEXT BOOK ORIENTD, STUDENTS WERE NOT VERY ENTHUSIASTIC.

3. What difference do you feel in students after K-Yan was installed?

INTEREST LEVEL HAS BEEN INCREASED A LOT.

4. What difference do you feel while teaching with K-Yan?

AV LEARNING METHOD IS VERY MUCH HELPFUL AND IT MAKES STUDENTS MORE INTERESTED.

5. What difference is there in terms of drop out rate, pass percentage or attendance rate after introduction of K-Yan for teaching?

NOT MUCH DIFFERENCE.

Student

PERSONAL INFORMATION

Add Photograph here →	
Name of the Student	SOUMYADIP PAL
Age	15
School Name	TALPUR PATHSALA (H.S.)
Class / Standard	IX
Location	TALPUR, TARAKESWAR

TESTIMONIAL

1. Since how long you are coming to this school?

2013

2. Do you like studying? If yes, why?

YES.YES, IT INCREASES THE KNOWLEDGE POWER.

3. What difference do you feel after K-Yan was installed?

IT IS VERY INTERESTING TO US.

4. Do you like studying with K-Yan? If Yes, why?

DEFINITELY. IT IS VERY ATTRACTIVE FOR OUR LEARNING. WE NEED TO LEARN MORE BY IT.

Student

PERSONAL INFORMATION

Add Photograph here →	
Name of the Student	POULAMI GHOSH
Age	13
School Name	BOSO PRIYANATH HIGH SCHOOL
Class / Standard	VIII
Location	BOSO, DHANIAKHALI

TESTIMONIAL

1. Since how long you are coming to this school?

2015

2. Do you like studying? If yes, why?

YES, IT INCREASES THE LEARNING TO KNOW MORE.

3. What difference do you feel after K-Yan was installed?

IT IS QUITE INTERESTING.

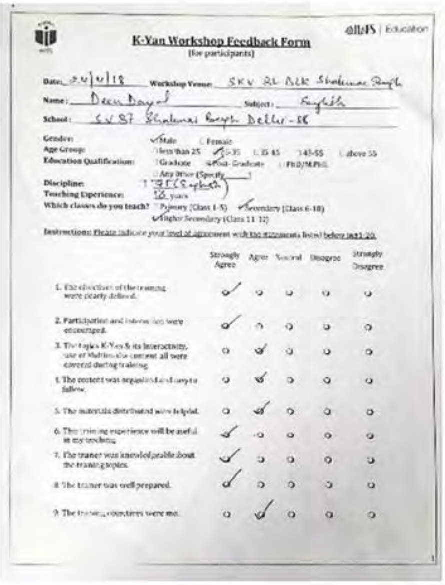
4. Do you like studying with K-Yan? If Yes, why?

SURE. IT IS VERY ATTRACTIVE FOR OUR LEARNING.

Appendix II: K-Yan Usage Reports generated for Teachers

School Name	District	Subject	User	Total Time in MINS
GHS MAJHERNA	KANGRA	क्षितिज - 1	IXक्षितिज - 1	600:04
GHS MAJHERNA	KANGRA	विज्ञान	IXविज्ञान	400:50
GHS MAJHERNA	KANGRA	English Literature (First Flight)	XEnglish Literature (First Flight)	100:34
GHS MAJHERNA	KANGRA	क्षितिज - 2	Xक्षितिज - 2	240:22
GHS MAJHERNA	KANGRA	गणित	Xगणित	900:52
GHS MAJHERNA	KANGRA	विज्ञान	Xविज्ञान	120:50
GHS MAJHERNA	KANGRA	इतिहास	IXइतिहास	60:40
GHS MAJHERNA	KANGRA	गणित	IXगणित	60:13
GHS NASLOH	MANDI	English Grammar	IXEnglish Grammar	60:16
GHS NASLOH	MANDI	English Literature (Beehive)	IXEnglish Literature (Beehive)	60:45
GHS NASLOH	MANDI	इतिहास	IXइतिहास	60:57
GHS NASLOH	MANDI	गणित	IXगणित	60:33
GHS NASLOH	MANDI	विज्ञान	IXविज्ञान	120:30
GHS NASLOH	MANDI	गणित	Xगणित	51:22
GHS NASLOH	MANDI	इतिहास	XIइतिहास	120:4
GHS NASLOH	MANDI	राजनीतिक सिद्धांत	XIराजनीतिक सिद्धांत	180:26
GHS NASLOH	MANDI	स्वतंत्र भारत में राजनीति	XIIस्वतंत्र भारत में राजनीति	60:54
GHS CHILALA	SHIMLA	इतिहास	IXइतिहास	50:48
GHS CHILALA	SHIMLA	विज्ञान	IXविज्ञान	60:16
GHS CHILALA	SHIMLA	English Literature (First Flight)	XEnglish Literature (First Flight)	60:03
GHS CHILALA	SHIMLA	विज्ञान	Xविज्ञान	300:50
GSSS DAGSHAI	SOLAN	विज्ञान	Xविज्ञान	1643:23

Appendix III: Teacher Training Feedback and Assessment



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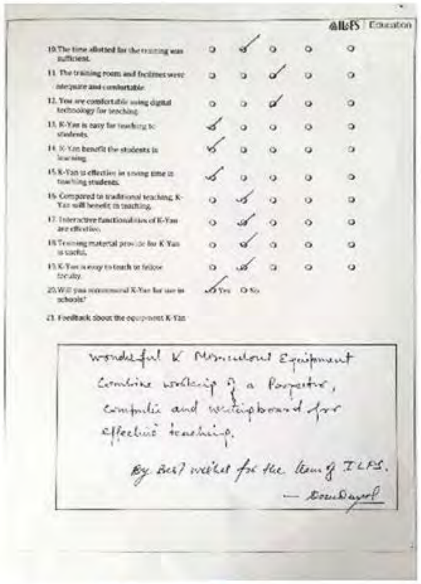
K-Yan Workshop Feedback Form
(for participants)

Date: 24/4/18 Workshop Venue: SKV AL BLK Shalimar Bagh
Name: Deen Dayal Subject: English
School: SV 87 Shalimar Bagh Delhi-88

Gender: ✓Male ☐Female
Age Group: ☐less than 25 ✓25-35 ☐35-45 ☐45-55 ☐above 55
Education Qualification: ☐Graduate ✓Post-Graduate ☐PhD/M.Phil. ☐Any Other (Specify)
Discipline: English
Teaching Experience: 16 years
Which classes do you teach? ☐Primary (Class 1-5) ✓Secondary (Class 6-10) ✓Higher Secondary (Class 11-12)

Instructions: Please indicate your level of agreement with the statements listed below in 1-20.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The objectives of the training were clearly defined.	✓	○	○	○	○
2. Participation and interaction were encouraged.	✓	○	○	○	○
3. The topics K-Yan & its interactivity, use of Multimedia content all were covered during training.	○	✓	○	○	○
4. The content was organized and easy to follow.	○	✓	○	○	○
5. The materials distributed were helpful.	○	✓	○	○	○
6. This training experience will be useful in my teaching.	✓	○	○	○	○
7. The trainer was knowledgeable about the training topics.	✓	○	○	○	○
8. The trainer was well prepared.	✓	○	○	○	○
9. The training objectives were met.	○	✓	○	○	○



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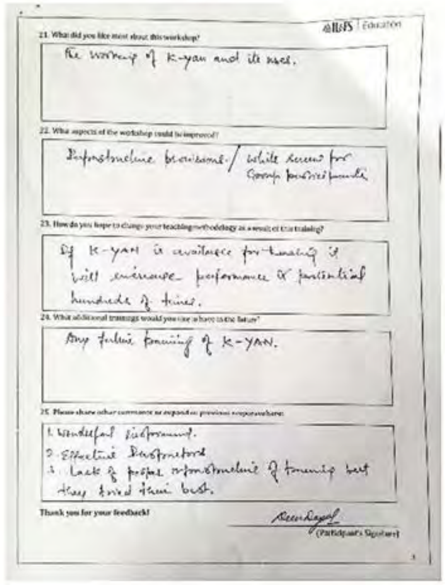
10. The time allotted for the training was sufficient.	○	✓	○	○	○
11. The training room and facilities were adequate and comfortable.	○	○	✓	○	○
12. You are comfortable using digital technology for teaching.	○	○	✓	○	○
13. K-Yan is easy for teaching to students.	✓	○	○	○	○
14. K-Yan benefit the students in learning.	✓	○	○	○	○
15. K-Yan is effective in saving time in teaching students.	✓	○	○	○	○
16. Compared to traditional teaching K-Yan will benefit in teaching.	○	✓	○	○	○
17. Interactive functionalities of K-Yan are effective.	○	✓	○	○	○
18. Training material provide for K-Yan is useful.	○	✓	○	○	○
19. K-Yan is easy to teach to fellow faculty.	○	✓	○	○	○
20. Will you recommend K-Yan for use in schools?	✓Yes	○No			

21. Feedback about the equipment K-Yan

Wonderful & Miraculous Equipment. Combine working of a Projector, computer and writing board for effective teaching.
My Best wishes for the team of ILFS.
— Deen Dayal



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21. What did you like most about this workshop?

The working of K-yan and its uses.

22. What aspects of the workshop could be improved?

Infrastructure provisions / white screen for group practice

23. How do you hope to change your teaching methodology as a result of this training?

If K-YAN is available for teaching it will enhance performance & potential hundreds of times.

24. What additional trainings would you like to have in the future?

Any future training of K-YAN.

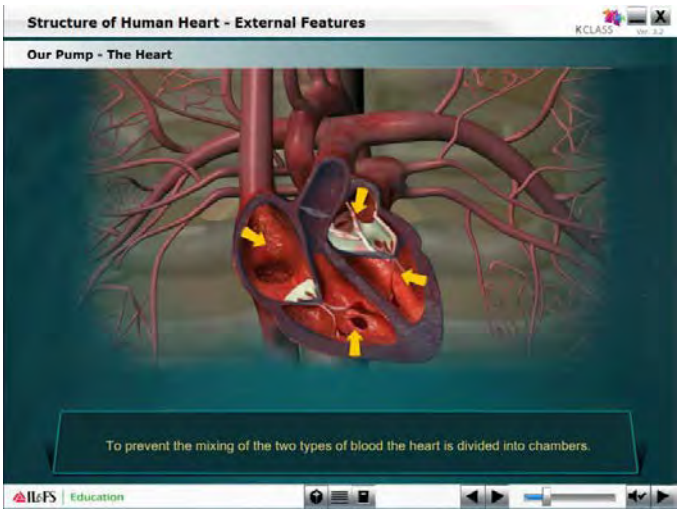
25. Please share other comments or expand on previous responses here:

1. Wonderful performance.
2. Effective Demonstrators.
3. Lack of proper infrastructure of training but they tried their best.

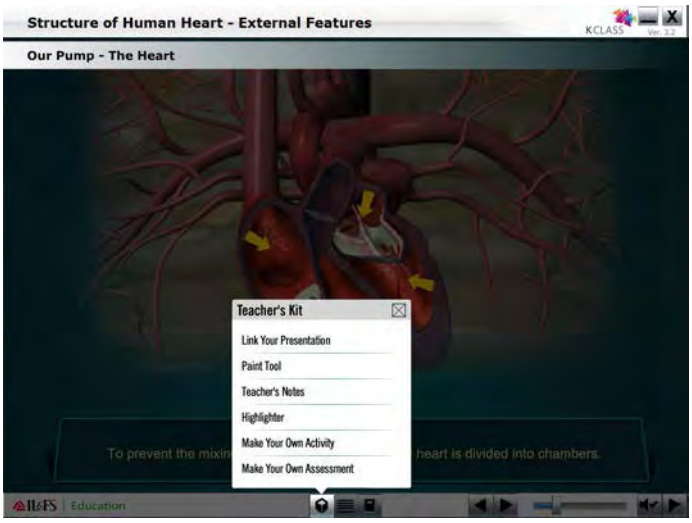
Thank you for your feedback!

Deen Dayal
(Participant's Signature)

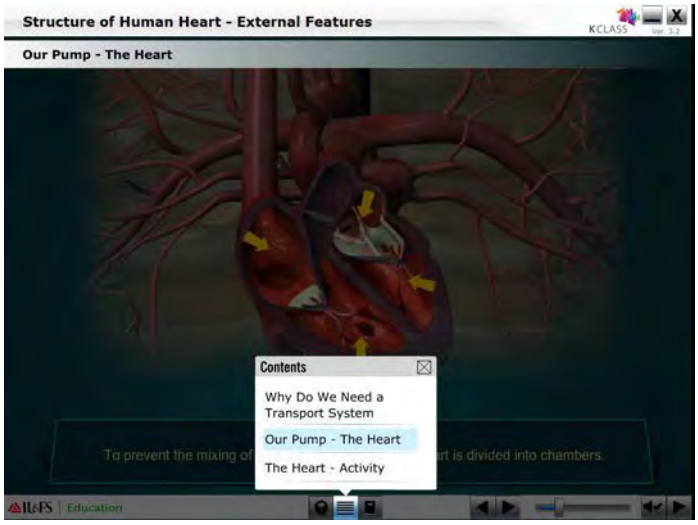
Appendix IV: In-built Mapped Curriculum and Teacher Dashboard in K-Yan



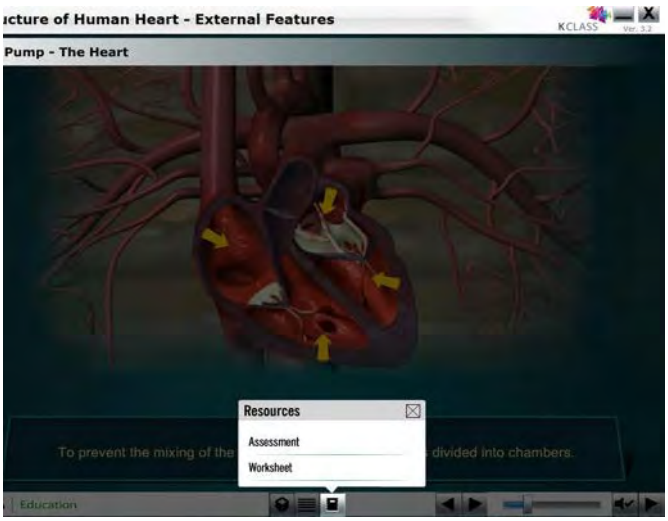
Multimedia Learning Units



Teacher Kit for adding resources, notes, activities & assessments



Easy navigation panel



Inbuilt assessments and worksheets

Annexure V: Success Stories by SEEDS

Baskar is a 15 year old student of Zilla Parishad High School, Duttalur Mandal in SPRS Nellore district Andhra Pradesh. He hails from a marginalized family. Since childhood, Baskar has seen a lot of violence at his home as his father would consume alcohol and indulge in gambling. This behavior was not appreciated by Baskar's mother and eventually, she left the house and moved to her maternal village. His father remarried. Due to these situations Baskar shifted to the BC hostel in Duttalur and got his sister admitted in a KGBV hostel

Baskar loves to study and aspires to become a hydrologist. He says "I come from a village where many people depend on rainfall and water for agriculture. There is an acute shortage of water in my Mandal and if I become a hydrologist I will be able to make the lives of people who are depended on water better"

Baskar had completed class X in ZPHS Duttalur and scored 9.2. When asked how he managed to score well in his boards he said that while he was constantly motivated by the school staff, it was SEEDS' initiative of improving Learning outcomes in schools through an innovative device "K-Yan" which helped him understand the concepts better . His favorite subjects are Math and Physics and he thoroughly enjoyed the physics classes on K-Yan as it had brought his imagination to reality through audio-visuals. Baskar says "Digital classes through K-Yan have helped me visualize the concepts that teachers taught us in class." He wishes to study further and has applied to APRJC Nellore, a government residential college which provides free education for students. The admission process is based on an application and a written exam and he's confident about clearing it

****

Kavya is a 15 year old student from Andhra Pradesh Model School in Duttalur village. She scored 9.5 CGPA in class 10th. Her father is a driver and her mother is a homemaker. She has an elder sister who is pursuing B.Tech from a private engineering college in Kavali and her younger brother is studying in a private school. She comes from a family where education is fiercely encouraged. Her parents want to see her become a Software Engineer. Kavya is determined to fulfill their dream.

Kavya's favorite subjects are Math, Science, and Social Science. Pedagogy in schools through K-Yan in class 9th and later on reproduction, the respiratory system and excretory system in class 10 has helped her learn the concepts better. Kavya says, "These concepts were tough for me to understand and the videos helped me understand them better. The day the results were declared I was very confident that I would score well. I was happy that I learned a lot from my teachers who made use of the K-Yan. The knowledge I have gained will help me in future too."

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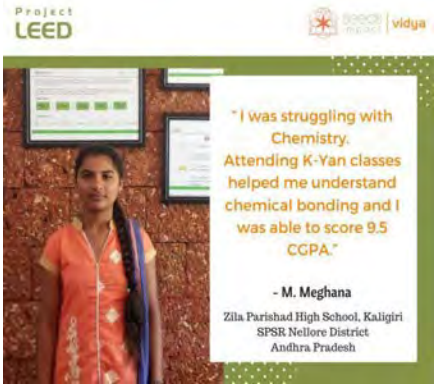

M. Meghana is a student of Zilla Parishad High School, Kaligiri, SPSR Nellore District, Andhra Pradesh.. Her parents are farmers. She has an elder brother who is pursuing Electronics and communication engineering from Regional Meteorological Centre, Chennai.

Classes supported by K-Yan has helped her learn more clearly about chemical bonding. As a result of her hard work, she has scored 9.5 CGPA in class 10th. She aspires to become an Electrical engineer like her brother

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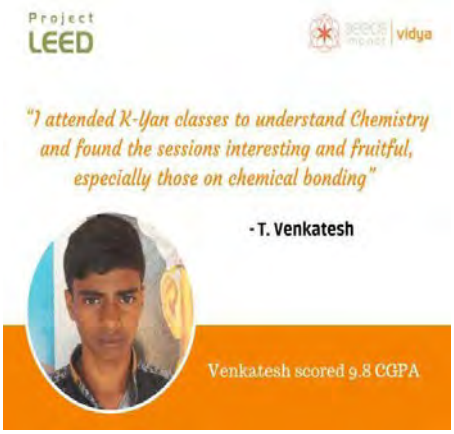

T. Venkatesh has pursued his education in Telugu language medium. He has a younger brother who studies in class 8th. His parents are daily wage workers who migrated from Vijayanagaram to Kaligiri. They are required to spend most of their time in the rice mill where they work.

Digital Classes through K-Yan in his school helped him understand the concepts of Chemistry and found the sessions on chemical bonding particularly interesting and fruitful. He worked hard and scored 9.8 CGPA in class 10th. He aspires to be an IAS officer. He has applied to IIIT Idupulapaya for further studies

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Srinivas completed his class 10th from Andhra Pradesh Model School (APMS) in Duttalur, SPSR Nellore District, Andhra Pradesh. His parents are farmers. He has an elder sister who is preparing for EAMCET, that is Engineering Agricultural and Medical Common Entrance Test.

Srinivas and his family feels that government schools have the best faculty. Thus, he shifted to APMS from a private school in 6th grade. He participated in quiz competitions organized by SEEDS and credits them for developing his comprehension and learning skills. Digital classes through K-Yan helped him understand Biology better. He says that he was amused by the videos, especially those of blood flow and this helped him gain clarity about the concept. His favourite topic was the heart and its functioning. Srinivas has scored 10 CGPA in 10th grade. He aspires to become a software engineer and has applied to IIIT Idupulapaya to pursue this dream

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Annexure VI: News Clipping

The Hindu, 13th August 2017, Vishakhapatnam

Menu THE HINDU e-Paper Manas
Home | August 13, 2017 | Visakhapatnam | 04: States Search
4 VISAKHAPATNAM

Smart learning for municipal school students

Teachers being trained in operating computer, accessing lessons

GVL PRASADA SARMA
VISAKHAPATNAM

"For students looking at textbooks and listening to teachers continuously, the audio-visual medium is a welcome change. The inspiring Quit India movement comes alive before them flashing pictures of great leaders with voice over. A teacher explains the narrative once in a while to make the lesson more intelligible to them. While freedom movement was great, destroying government property now was not good, she tells them interspersing the content and making a point."

The scene at the KDPM High School in China Waltair is just the beginning of digital labs experimentally started in six schools in the GVMC under the Smart City Mission early last month by the Greater Visakhapatnam Smart City Corporation Limited. They are still going through the baby steps with teachers themselves acquainting with the procedures, operating the computer or accessing the lessons.

As part of the project, the schools have been given an integrated projector with sub-

VIZAG 360

ject-wise storage of lessons, projector, CPU and 1TB storage. The K Yan projector is designed by a professor of Mumbai IIT. The project is being implemented by the Google Education and the ILFS Education Division will run it for three years. In the digital classroom, students will be provided Chrome Books.

The six schools have trainers for capacity building to teachers and run the project. Four of the six schools are also equipped with solar power under a pilot project. In Phase II, all the 144 GVMC schools will get solar power and the tender for it has been finalised. K Haribabu, MP, has assured fund for it from his MPLAD funds.

The six schools are the Waltair I and II, KDPM School, Jalaripeta Primary School, MVD School and the Sriranjapuram Primary School on the Beach Road that fall in the area selected for the Area-Based Development (ADB) under the Smart City Mission. Visakhapatnam stood eighth in the 20 cities selected in the first Smart City Challenge.

A teacher explaining visual content in a social studies lesson at KDPM High School in Visakhapatnam. ▪ PHOTOS: G.V. SUBRAHMANYAM

Corridor of Waltair II Municipal School and a view of digital classroom is being implemented under Smart City Mission.

The content under "K Class" comprises the material developed by the ILFS based on the CBSE syllabus from nursery to Class X and that of the "U Sky Classroom" the State syllabus in English and Telugu media.

The students once given individual email id and password can log on to the Chrome books. The teacher can assign work or gives exercises, says P Ranjitha, trainer at the Waltair II School.

However, for this to take place, first the teachers have to be well-versed in using the computer, explaining the lesson and giving exercises.

According to Ms. Ranjitha, it will take three months to make every teacher in the school good at using the computer and run the class.

Students of various classes come in turns to the digital classroom.All the schools have Net connectivity and can also take the content from the Net, if necessary.

Students are very fast in using the technology, Waltair II School Headmistress G Krishnaveni says recalling how a student downloaded a movie to the surprise of every one present at the time of inauguration.

At the KDPM School, two digital labs have been provided. One of them is being used for four classes every day running audio-visual content. The students have not yet learnt to work on the Chrome Books.

Graphic headline

Schools Phase-I	Students covered
6	1,862

Expenditure ₹1.09 cr

- No. of High schools in Phase-II: 25
- Expenditure: ₹5.94 crore

Municipal school students should not lag

The project is meant to provide Information Technology-related education to students of municipal schools so that they do not lag behind their counterparts from private schools, says Municipal Commissioner **M. Hari Narayanan**.

All the high schools will have one digital classroom each to be equipped with projector, interactive screen and Chrome Books. Besides all the 27 high schools will have 150 smart classrooms. The project will be implemented with an additional cost of ₹6 crore.

"The smart classrooms will enable interactive learning system, have teaching material, students can go online, see experiments, do video-conferencing using the projector and the interactive screen," says the Commissioner.

While primary schools in ADB area have been included, the focus will be on high schools to provide IT-related education as part of the initiative meant for the entire city in the smart city project, he elaborates.

It is still in the initial stages and the entire process will be streamlined in six months and the classrooms will be ready by then, Mr. Hari Narayanan says.

More focussed effort will be made by drawing up timetable and allotting subjects period-wise.

VOICES

Priority is being given to Science and English in using the digital classrooms from Class VI to X. In Science, they can see the experiments themselves to understand them better. English has good grammar lessons with good explanation.

Every day four classes are being run.

B.A. NAIDU, Headmaster, KDPM School

While the medium of instruction is English in municipal schools, most of the children come from poorer economic backgrounds and to help them understand the content Telugu is being used.

G. KRISHNAVENI, Headmistress, Waltair II Municipal School

Once trained, the teachers can access lessons from the APSCERT website. They can give assignments in the Google Documents. Any other relevant content also can be downloaded from the web and explained.

P. RANJITHA, Trainer

Govt school gets digital makeover

MAYANK TIWARI

Vijaynagar Colony: Government High School of Vijaynagar Colony provides digital education to the school students with the help of 40 Chrome books and a K-Yan projector which is an innovative solution to bring the benefits of interactive learning to students and teachers throughout the country.

It is the first school in Telangana to get Google for education which is working together with IL&FS foundation to enhance the quality of education in India and facilitate digital learning. Students are taught with the help of K-Yan projectors and each student in the school also get the opportunity to work with chrome books every day.

Google has also employed a full time engineer in the school Murali Krishna who teaches students and teachers to operate the devices. Krishna said "Chrome books which Google has provided are pretty easy to use when compared to a windows computer and the K-Yan projectors has built in Computer tower, Speakers and Wifi connectivity which makes it a portable device equipped with all features designed for students to learn and teachers to teach.

A ninth class student Sai Ram said "digital class is like watching movies every day we are very excited for digital class every day. We also learn English there, digital class is our favourite class of the day.

School Principal Suresh Kumar said "since two years we are teaching students using digital devices they are interactive and very helpful for students to understand. Teachers also take help of video lessons to teach students difficult concepts which can be easily understood with the help of these digital learning. Students have their own e-mail addresses which they can use to log on to their account which is connected to the server, so that they can access their notes. They are also taught how to make notes share them, look after things online, navigate through the map and almost everything that helps their growth in the field of education and life".

He added: "We are also the first school to have a robotics lab for students where they can learn the basics of robotics and engineering with the help of miniature equipments using which they can design their own lego robotic models.

సాక్షి విశాఖ సిటీ | బుధవారం | మే | 2 | 2018

స్థానికం 13

స్మార్ట్ సక్సెస్!

పదో తరగతి ఫలితాల్లో జీవీఎంసీ పాఠశాలల విద్యార్థులు ఔరా అనిపించారు. ఉత్తమ ఫలితాలతో భేష్‌గా నిలిచారు. స్మార్ట్ తరగతులను సద్వినియోగించుకుని సక్సెస్ బాటలో నడిచారు. కార్పొరేట్ పాఠశాలలకు దీటుగా 10/10 జీపీఏ సాధించి జీవీఎంసీ బడుల సత్తాను వెలుగెత్తి చాటారు. గత ఏడాదితో పోల్చితే ఈ ఏడాది స్మార్ట్ తరగతులు ప్రవేశపెట్టాక ఉత్తీర్ణత 7.1 శాతం పెరిగి 92.61కి చేరింది.

బీచ్‌రోడ్డు (విశాఖ తూర్పు):

ప్రైవేటు స్కూళ్ల విద్యార్థులకే పరిమితం అయిన 10/10 జీపీఏ ఇప్పుడు జీవీఎంసీ స్కూళ్లలోని విద్యార్థులు సాధించారు. మొన్న విడుదలైన పది ఫలితాల్లో 39 మంది విద్యార్థులు 10/10 జీపీఏ సాధించి జీవీఎంసీ బడుల సత్తా...

- స్మార్ట్ తరగతులతో పది ఫలితాల్లో జీవీఎంసీ విద్యార్థుల సత్తా
- కార్పొరేట్‌కు దీటుగా 10/10 జీపీఏ సాధన

డిజిటల్ బోర్డుపై పాఠం బోధిస్తున్న ఉపాధ్యాయుడు

సులభంగా అర్థం చేసుకున్నా

– డి.సంతోషి, 10/10 జీపీఏ, గాంధీ గ్రామ్ పాఠశాల

రివిజన్‌కు బాగా ఉపయోగపడింది

– దివియా జ్యోతి, 10/10 జీపీఏ, గాంధీ గ్రామ్ పాఠశాల

ఆసక్తి పెరిగింది

– గౌరీ శంకర్, లెక్కలు మాస్టర్, గాంధీగ్రామ్ పాఠశాల

ఈనాడు కరీంనగర్

ఆధునిక బోధనకు.. కేయాన్ ప్రొజెక్టర్లు

● 59 పాఠశాలలకు అందజేత

ఆదర్శ పాఠశాలలో కేయాన్ ప్రొజెక్టర్‌తో డిజిటల్ తరగతుల బోధన

కొత్తగా అందజేస్తున్న కేయాన్ ప్రొజెక్టర్

విశాఖ దక్షిణం

సర్కారీ బడుల్లో

సాంకేతికత ఆధార బోధనకు జీవీఎంసీ చర్యలు

'స్మార్ట్' పరవళ్లు

విద్యార్థుల్లో ఉత్సాహం

స్మార్ట్ తరగతి గదిలో ల్యాప్‌టాప్‌లతో విద్యార్థులు

Annexure VII: Awards

Title: Indian Diadactic Association Award

Category: ICT Company in Education Year:

2015

Description: Recognizing ICT solutions that have enhanced the learning and teaching environment across schools, Indian Diadactic Association has awarded Schoolnet as ICT Company in Education 2015. The IDA Awards has been established to create industry benchmarks for innovation and quality in the education and training domain. This award is a presentation of India Didactics Association, the premier trade association for the Indian education and training fraternity engaged in improving learning and teaching.

Title: World Education Award

Category: Jury Award

Year: 2013

Description: The Computer Aided Learning programme for primary schools of Gujarat won the Jury Award at World Education Award 2013. Schoolnet is Project Implementing Agency for the programme with the main objective to attract the children, retain them in the schools and to improve the quality of the education through introduction of IT and educational applications such as multimedia based educational content.

Title: ShikshaRatna Award

Category: Best Initiative In Interactive Learning

Year: 2013

Description: Schoolnet won the ShikshaRatna Award 2013 for Best Initiative in Interactive Learning in Punjab, India.

Title: eMaharashtra Awards

Category: Best ICT Enabled School of the Year Category

Year: 2012

Description: Schoolnet adopted school, Daji Peth Municipal School of Solapur Municipal Corporation, under Project Parivartan has been adjudged as the Best ICT Enabled School of the Year, at the eMaharashtra Awards, by Government of Maharashtra. The award was conferred by Smt. Fouzia Khan, Hon'ble Minister of State, School Education and Shri Rajesh Agarwal, Secretary IT, Government of Maharashtra.

Title: National Consultative Summit

Category: Research on digital minorities

Year: 2011

Description: K-Yan featured as part of a Research Study presented at the “Digital Minorities” – National Consultative Summit, India

Title: Skotch Award

Category: Enabling Quality Change in Tribal Schools

Year: 2008

Description: K-Yan receives the ‘Skoch Award’ for enabling Quality Change in Tribal Schools in West Bengal State, India

Title: eMpi - The Indian Express

Category: Indian Innovation Award

Year: 2005

Description: K-Yan, our All-in-One interactive device receives the 2005eMpi - The Indian Express constituted “Indian Innovation Award”

Title: Outlook

Category: Best Technologies in the World

Year: 2004

Description: The Outlook Magazine rates K-Yan, our All-in-One interactive device as one of the “Best Technologies in World”

Title: IT Award

Category: The best community learning technology

Year: 2004

Description: K-Yan, the world’s first integrated community computer receives the “IT Award 2004” in Maharashtra State, India for the best community learning technology. This accolade was given by Maharashtra State Government.

Annexure VIII: Schoolnet and AVM school Partnership – A glimpse of the journey for Digital classroom for enhanced Learning outcome

Arya Vidya Mandir (AVM), a chain of four schools in Mumbai, offers a unique system of education. An English medium school affiliated to ICSE board, the school aims to achieve an innovative amalgamation of the wisdom of Indian culture and tradition along with the latest digital academic resources.

To embrace the rapidly changing global environment and to meet the requirement of higher skill sets, AVM School joined hands with Schoolnet in 2004. The aim was to integrate the best of the digital technology in the form of K-Class Teaching Learning platform. It resides in the innovative Knowledge Vehicle, K-Yan. K-Class offers a blended solution for active learning, interactive classroom and a vibrant teacher professional development programme.

The partnership has progressed over the past many years and now AVM schools have more than 120 K-Yans installed with the latest features.

- In 2000, the AVM began using 7 K-Yans in all the four branches of the school - Bandra East, Bandra West, Santacruz and Juhu.
- During 2002 to 2013, K-Yan was used to conduct numerous Teacher training programs like Basic IT foundation course, advance IT skills, Adding Dimensions (Classroom Management pro gramme). Trainings were conducted on a ceiling mounted K-Yan and feedback collected to cater to the training needs of the Teachers.
- With the purchase of K-Yan, the school focused on equipping first the higher class 8, 9 & 10. In 2013 K-Class content comprising ICSE content, Exploriments, Science Videos were in stalled in all classes (K-10) of Bandra East school
- In 2018 the school installed 119 classrooms of the latest K-Class in all the classrooms. The Day-wise curriculum developed by the school has been mapped by the Schoolnet along with pro viding associated regular Teacher Professional development and academic sup port to help achieve the learning outcome.

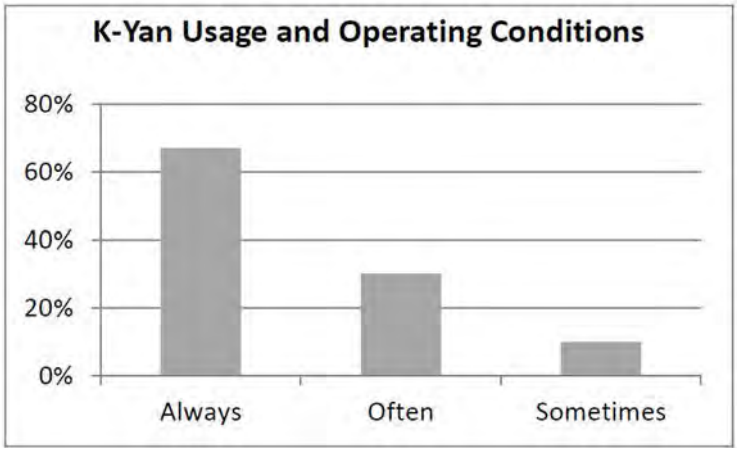
K-Class has now become an integral part of the blended classroom teaching at AVM schools. This partnership aims at achieving the twin goal - covering the curriculum along with discovering the joy of meaningful learning both for teachers and students. This partnership has transformed the teaching learning culture and instructional methods in the classroom with the use of digital resources embedded in K-Class.

Thus, the overall involvement of Schoolnet with the AVM school covers the following areas:

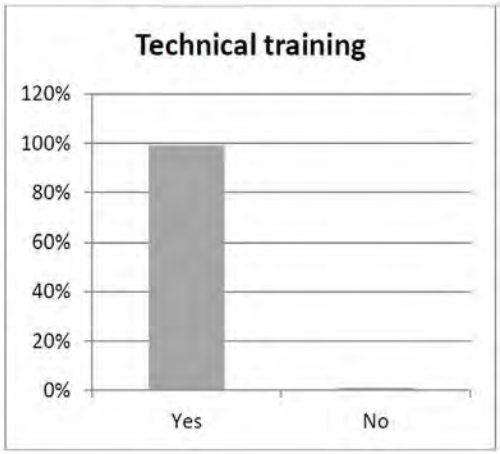
1. Providing interactive platform with customized digital content
2. Regular Teacher Professional Development to harness the potential of digital pedagogy and en hanced learning outcomes.
3. Regular academic / curricular support and hndholding.
4. Documentation of Teaching Learning processes and evaluation
5. Monitoring and K-class usage Survey

One of the hallmarks of K-Class partnership with AVM has been the proactive channels of feedback-sup- port mechanisms. The feedback mechanisms are multi-dimensional, interactive and time bound. It includes a) technical feedback support mechanism b) technical training support c) K-Class usage mon- itoring d) Feedback on the digital content e) regular Teacher Professional Development workshops among others.

Technical usage and proficiency:

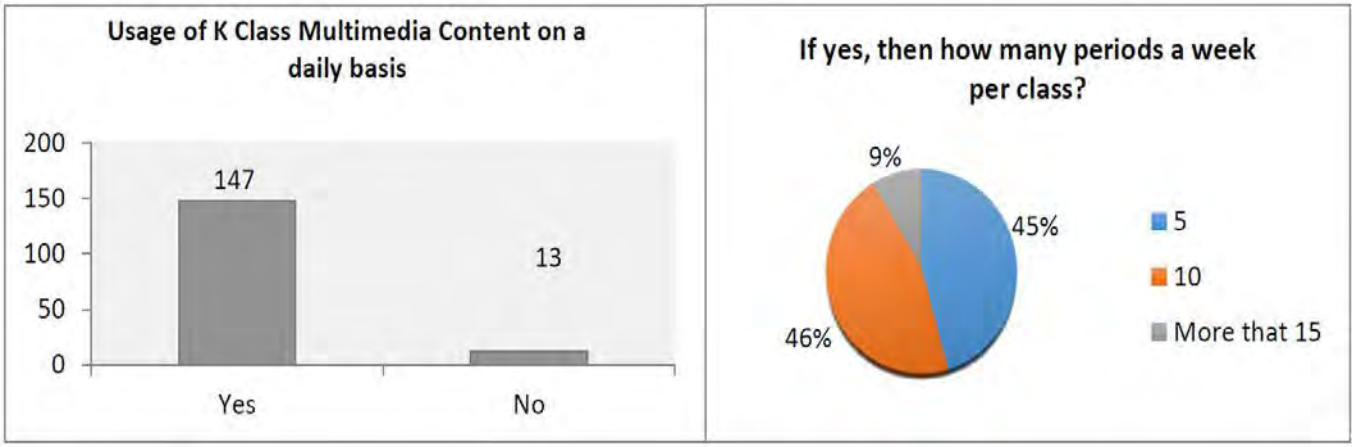


67% of the teachers reported that K-Yans were in good condition despite regular usage. A dedicated technical resource was available for the maintenance of K-Yan



99% teachers underwent extensive technical training at regular intervals.

K-Class usage frequency:



45% teachers used K-Class for 10 periods per week and 45% for 5 periods and 10% for more than 15 periods.

Student engagement and Learning Outcomes:

Almost all students enjoy subjects taught using K-Yan and content. 52% teachers reported that K-Class made learning interesting. 34% teachers saw improvement in students conceptual understanding with the use of K-Yan and 14% said that visual aids impact retention positively.

Versatile use of K-Yan in activities outside the classroom

K-Yan is used outside the classroom during assembly, teacher workshops, parent meetings, special day celebrations and annual day programmes. The partnership, now has increased focus on gathering evidence for learning outcomes and enhancing teacher efficiency for creating student centric classroom.

Annexure IX: List of National and International Publications on K-Yan

Report	Published by	Date Published
International Publications		
The Knowledge Vehicle (K-Yan): Sustainable Value Creation by Design	Book chapter in "Practice and Progress in Social Design and Sustainability", IGI Global Publishers	2018
MA Educational Technology Course Material: "Case Study on K-Yan: ICT Solution of Schoolnet	Jamia Milia Islamia	2018
Impact of K-Yan Machine on Borno State School Pupils	International Journal of Law, Education, Social and Sports studies (IJLESS)	2017
A Baseline Study on Technology-enabled Learning in the Asian Commonwealth	Educational Technology Management Academy	2015
Effect of K-Yan Technology on Enthusiasm for Learning Geography	International Multidisciplinary Research Journal	2014
Third Party Impact Evaluations		
Educational Technology in India: An Exploration of the Current Situation & Future Needs	The Alliance for Quality of Education & Skills Training (QUEST Alliance)	July 2005
Report on efficacy of the equipment in multimedia classroom transaction for the better learning of the students.	School Education Department and IT Department	2015
Effect of K-Yan Technology on Enthusiasm for Learning Geography (Journal Article)	Prolay Mondal	2014
Case studies on e-Governance in India	National Institute of Smart Governance (NISG)	2013-14
Third party Evaluation Agency for ICT Tools for Education Project in 42 Schools in the State of West Bengal	CS Datamation Research Service	2008-09
Monitoring and Evaluation of ICT Programme through K-Yan in Select Schools in 24 Pgs (N) District	Quest Advisory Services	2010-11
ICT in School Education	Pricewaterhouse Coopers (PwC) for World bankww	2010
Evaluation/Impact assessment of ICT @ School Scheme	Ministry of Human Resource Development	2009
Internal Evaluations		
K-Class Feedback Survey Report of AVM Group of Schools, Mumbai		2015

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