

# An Innovative Digital School Model for Primary Education in Rural Area

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## **Abstract**

Primary education in India has become a serious concern for all educators. The quality of the intake to higher standards affects on the teaching learning pedagogy applied as per defined norms. The teachers of higher standards need to spend their time more on educating the students the basic of reading-writing skills, mathematics, language etc. This paper covers the current scenario of primary education in India specifically considering the status of education received by rural students. The support of digital equipments and corresponding technology can help to resolve the dropout and absentia problems is the hypothesis of further study of this proposed model. The drop out ratio is more in rural area as compared to that of urban schools. The paper discusses the scenario of current technological support available for the proposed digital school model.

**Keywords: Digital School, Primary Education, Rural**

## **1. Introduction**

The primary education in urban and rural area of India experience lot of differences. The urban kids have ample resources to progress in their studies. In addition to school teachers, they have their parents, tuition teachers and others to take care of their studies. In rural area though the government has successfully implemented the projects like Anganvadi, the kids are not receiving appropriate attention from their teachers or parents to track their progress in education. Our survey shows that only 50-60% kids regularly attend their schools after admission. Others, though have enrolled in nearest primary schools do not go regularly in their classes as they assist their parents in farming, local Brick-furnaces, Marketing crops or house hold works like babysitting when their mother is working on farms. Our survey shows less than 25% kids can read or write their lessons.

On the other hand, technology has changed the education sector drastically. People are using video lectures and search engines like Google for searching necessary data and information. Mobiles have reached at remote places and the new generation has learned to use it for different purposes. The applications for listening songs, watching movies, watching favorite TV channel have become very common for the young generation irrespective to their age, designation, socio-economic conditions. The students of higher education know how to use internet for doing their practical assignments, home works and projects. The school going kids in urban area take help of their parents to complete their home work and projects using internet.

## **2. Problem Statement**

We carried out a study to understand the status of the primary education in India at the quarterly completion of the 21st century. We studied related reports published by government and other survey agencies. The Annual Status of Education Report 2014 (ASER 2014) for example states some facts that raise the seriousness of the issue. These facts are-

- More than 96% of children of the age 6 to 14 years are enrolled in school.

- 71% students of these regularly attend the school with a lot of variation in the daily attendance.
- Not more than 48% students of Std V can read the lessons of Std II level.
- 14 % of students can read words but not whole sentences.

With these facts we can understand the concern regarding the future of the next generation. It seems the government policies like “Sarvashikshaabhiyan”, “Every child should receive well elementary education” are not turning into fruitful outcomes.

So there is need to come up with solutions so that qualitative teaching facilities and appropriate infrastructure will be available to rural students, at least for their primary education.

A systematic investigation about the difficulties faced by rural students for attending the school is necessary. Understanding the related problems, acceptable solutions must be provided to them. As we are living in digital era, innovative solutions about using the existing and upcoming for building a supporting systems for the primary education in rural, remote areas of the nation are very much required.

We propose that using innovative applications of the wireless communication technology, mobile technology, internet of things, virtual class rooms etc can be combined to build the digital schools for primary education. The children living in rural, remote areas has to be considered while defining the digital school models. The students must get access to the contents in their local state language and respective script.

With this proposal we present now the current status of use of ICT in education.

### 3. Current Scenario

The traditional chalk and talk method has covered the way for more interactive teaching methods as schools are increasingly adopting digital solutions to keep themselves in touch with the technological changes. Today technology plays an important role in education. When teachers use it in their classrooms, they want to attract the students' attention, so that they can enhance effective ways of learning. It is obvious that learning a new language in a traditional way is not so enjoyable for today technology-dependent students, for this, the environment of the classroom has been changed.

As the current generation of students is well-versed with laptops, i-pads, and smart phones, these innovative methods of teaching guarantee more participation from students. As specified in [2], to cater the need of school students, education providers such as Educomp, Tata Class Edge, Pearson and TeachNext have been coming up with interactive software to aid teachers in classroom teaching

However, usage of digital technologies in schools for primary education is still in its emerging stages and efforts are being made to fine-tune these technologies to adapt to the students. In short, content development is yet to mature in primary levels of the schools.

#### *Video Lectures*

Video lectures allowed students to learn subject syllabi at their own pace and dedicate time spent in class towards interactions. This will continue to be a trend in the future where students will have access to rich and interactive content, that will be useful for both formal training as well as performance enhancement [1].

### ***Video Games***

In the classroom, video games can present unique opportunities for teachers and students, as they involve activities of observation, interpretation, simulation, inference, prediction, hypothesis, classification, and communication

Therefore, it is not surprising that educators, policy makers, investors, and developers are trying to build games for schools. Most games belonged to the strategy and simulation genres of gaming. This is not surprising: simulations are an established method of demonstrating and modelling within a range of educational and working environments, while strategy games require the use of skills such as information interpretation, logic, discussion and evaluation [3].

### ***PPT Presentation***

PowerPoint has become an in-built part of many instructional settings, particularly in large classes and in courses more geared toward information exchange than skill development. In their study students learned better if the course material was presented through some visual tools. Potential benefits of using presentation graphics include [5]:

- Increasing visual impact
- Improving audience focus
- Providing annotations and highlights
- Analyzing and synthesizing complexities
- Enriching curriculum with interdisciplinary
- Increasing spontaneity and interactivity
- Increasing wonder

### ***Mobile Familiarity***

Mobile has picked up by the population who have gradually adjusted it in their lives. It has offered students the flexibility to access educational content across multiple digital devices like desktops, laptops, tablets and smartphones. The smartphone user base in India continues to increase, in both urban and rural areas. The coming years will witness users accessing most of their educational content through internet powered smartphones in a massive way. Most educational content, including even online courses, will be optimized entirely for mobile devices. The increase in video-based learning on mobile devices will eventually account for 80 per cent of all internet traffic by 2019.

## **4. Available Technology**

### ***Virtual Classrooms***

A virtual classroom is a teaching and learning environment where participants can interact, communicate, view and discuss presentations, audio and video conferencing and engage with learning resources while working in groups, all in an online setting. Virtual classroom duplicates the features of a real classroom online [7].

virtual classroom allows both learners and instructors around the world to participate in live classes to collaborate and interact. MOOC programs like Coursera are a great example of this concept in action. The low costs of virtual classrooms are considered to be a major advantage. Learners can save money by not having to worry about travel expenses. Online classes also allow for the ability to record class as it happens, including any presentation audio and visuals. This means that the content is accessible even after being delivered, an added benefit for those who want a quick refresher, or perhaps did not fully understand the first time.



Figure 1: Virtual Classroom [9]

### ***Digital Slate***

As shown in Figure 2, students can use digital pad with touch screen and a pen for writing and recording it. Applications can be developed by applying graphics and image processing methods to trace and check the written text by the students. Innovative digital slates for handwriting lessons can help students to improve their reading-writing skill.

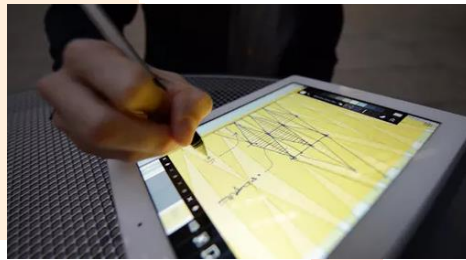


Figure 2: digital slate / Touch pads [10]

### ***Virtual Whiteboards***

Students nowadays are need a virtual place to share their ideas. One such place is an online virtual whiteboard. Many whiteboards support collaboration and sharing. They allow multiple users in a single session; some even have chatting, audio and video capabilities.

### ***Blogs and Forums***

Blogs as depicted in Figure 3 and Forums as shown in Figure 4 are some technologies used in advanced teaching. A blog is part of the Web 2.0 family, the second generation of web adventure. There are many types of blogs, such as LibLogs (library blogs) and EduBlogs (education blogs). A blog can be regarded as an online journal, and it is very easy to maintain a blog. A blogger enters posts into a blogging application and save the post. Blogging does not require programming languages or server knowledge from bloggers. The posts can include text, hyperlinks, images, or multimedia components.

A forum is agathering of conversations that occur over time.They are also called message boards, bulletin boardsand discussion groups. Forums can beused to support a group of participants taking thesame class or can be used to support participantsperforming related tasks. A forum is a verycompetent way to supply expert answers to a large group people [7].



Figure 3: Use of blogs [11]



Figure 4: Use of Forums [12]

### *Video Conferencing*

Video Conferencing Connects Different Schools for Collaboration. It allows the student to attend the school remotely. It allows to record the lessons for the review purpose. In conferencing allows teachers and students can chat and interact with the experts. On the other hand, experts always have a busy schedule, and this kind of conference helps them to save a lot of time and money for travel. Teachers connects parents easily through conferencing. Cisco WebX, VCNOW, EZTalks, GlobalMeet are some of the video conferencing providers in India.

### **5. Proposed Model**

Figure 5, is the preliminary model that shows the use of various applications for the primary education. The idea is to use cloud technology for uploading the necessary digital resources. The teachers and students are connected to create a virtual classroom. A teacher teaching the lessons at remote class room is available in real time at any location. The virtual whiteboard, video conferencing can be used for this purpose. The students of rural area can access or download these lessons for his/her study sitting in his farm or can experience the classroom environment in the school of his village. The important thing is to allow the students to learn the necessary reading writing skills by using these available technologies in hand. Number of vendors is coming with innovative products for the digital learning facilities. The researchers need to come up with solutions for using these products with innovative applications. Like Digital Touch Screen pad can be used as digital slate for tracing the handwritten text and learn the writing of respective words, sentences by overwriting.

We propose to combine these innovative digital technologies to build a digital school specifically considering the needs of a rural student. The limitations of scarcity of enough infrastructure, necessary bandwidth need to be overcome by some solutions, which is the part of further research work in future.

### **6. Conclusion**

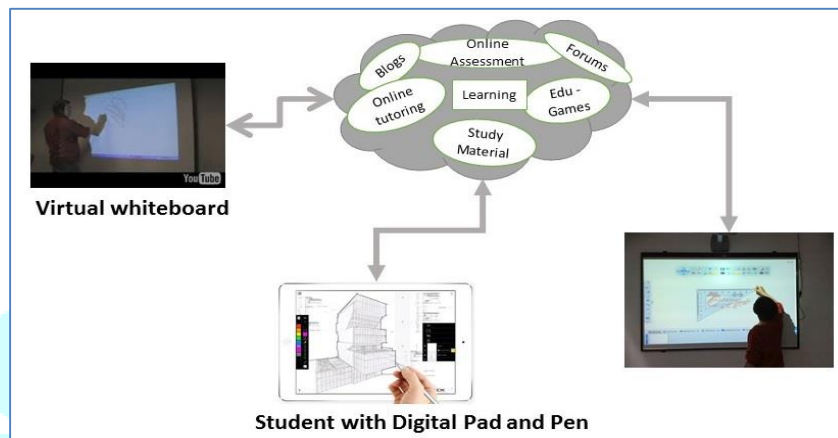
This paper is about the discussion of the current scenario of primary education in India specifically considering the status of education received by rural students. The digitalization has become part of every aspect of our life, so it is obvious to allow our schools to upgrade in its infrastructure and teaching-learning methodologies. At present the study shows limited use of digital technology in schools. In fact the ICT based education is not going beyond Power Point Presentation and Audio-Video Lectures.



We have suggested a proposed digital school which uses innovative digital technology by connecting various components which allows students to learn the basic reading-writing skills as expected from the Primary Education.

The availability of necessary infrastructure, technical staff and training to use the digital equipments are the important challenges for actual implementation of this model.

We have selected one village nearby Jalgaon city where we propose to implement this model in future.



**Figure 5: Proposed Digital School Model**

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