

# **MONITORING EDUCATION SYSTEM OF RURAL INDIA THROUGH VIRTUALIZATION**

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**Abstract-** The Terminology of virtual classroom is not new now. Specially talking about Rural India ,various steps have been taken by government and as well as voluntary organizations to encourage students to learn and grow. At the same time ,it is equally important to measure the performance of students to know what is the current situation and what steps need to be taken to get better results and improve the education system. Although effective measurement of performance is a crucial component where administrators and Teachers must understand the challenges of assessing performance virtually, with geographical challenges. This paper talks about how virtualization can be implemented to measure the performance of the students to get better results.

**Keywords-**Virtual classroom,Rural India,Performance measuremnt and Challenges

## **1. INTRODUCTION**

The primary concern of education is the low educational level of village residents .As per a report only 25% of all rural of 18 years were attending schools,the rest having dropped out earlier because of various reasons.By 2016,the percentage of students of age 18 years attending School/college had gone up to 70%(as per report of ASER Center).The need of the hour is to work on the various areas of concern for example, getting the children attend the school and providing them quality of education as well as monitoring the rural education system.[1]. There are several steps that the government of India is taking for the up gradation of education in rural India and the use of technology will largely help in imparting knowledge in most efficient manner. Hence virtualization can largely bring revolution in rural Indian education system [2].

### *1.1 Need of Monitoring*

1. In June 2015,the Madhya Pradesh government introduced an attendance tracking application using smartphones to monitor teacher absenteeism. The study found that some teachers were absent for 23 of their 24 years of service. [7]
2. Unavailability of curriculum specially customized for rural education, so that they can better understand and learn in an interactive environment.
3. Lack of teaching staff and corruption in recruitment of teaching staff is a major problem.
4. Lack of availability of monitoring tools leads to the poor performance of teachers.
5. Lack of exposer to innovative teaching methods and use of teaching aids. Teachers in villages are still using traditional offline pedagogy

## **2. VIRTUALIZATION**

### *2.1 Role of Virtualization*

To empower the Indian education system the paper is intended to make use of virtualization technology [5].This technology creates virtual instances of the hardware that acts like a system with an operating system.It provides the blend of various technologies wherein there is a layer of abstraction between processor, storage and hardware.[3] Virtualization enables the operating system and applications to have hardware independence as Virtual machines can be put into any machine to act as virtual instances.Desktop virtualization, which helps to increase the life of existing older computers as well at the same time reduces the cost-per-seat of new computer by running virtual desktop software on older PCs and using less expensive thin client workstations thus eliminates the need of purchasing full desktop computers to add additional workstation seats to the school.[11]

### *2.2 Benefits of Virtual Classrooms*

- 1.It provides an environment where students and teacher interact, view presentations or videos and engage with resources and groups. It is well accepted that learning in an ICT enabled environment is more interesting as well as simple for the children to learn.
2. Virtual Classroom solves the problem of the quality of study material that is used in rural education ,which is obsolete and needs to be upgraded. The course content is theoretical and along with this the vocational aspect still remains uncovered [4].

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3. It offer the option to send emails to the individual as well as to the groups.If a student misses a class, teachers can inform him/her about exam schedules, upcoming topics to be discussed.[9]

### 3. ANALYSIS OF EDUCATIONAL SURVEY

- Despite of the fact that 60% of the children living in rural areas are enrolled in schools and 70% of the public schools are there in rural areas, still there is lack of quality education as well as the quality of teachers is not upto the mark.[3].Figure 1 shows the Pupil Teacher ratio in Primary Education(2014) which clearly depicts the situation in India.

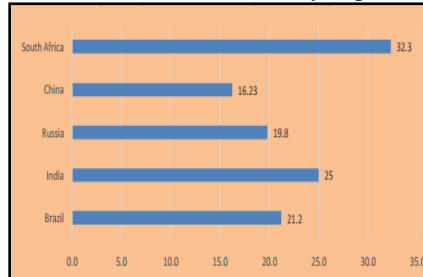


Figure 1: Pupil Teacher ratio in primary Education during 2014 (mhrd.gov.in)

- Another important issue is that the students in rural India lack even the basic ability to read/write.According to a survey conducted by ASER(Annual Status of Educational Report),which conducts a variety of survey ,in all rural districts of India,as shown in Figure 2.Another area of concern is the number of students enrolled in school or college is very low,details in Figure 3.

% YOUTH AT DIFFERENT READING LEVELS*			
Reading level	Enroled in Std XII or below	Enroled in undergraduate or other	Not Enroled
Std II level text	80.7	95.0	44.5
Std I level text	9.9	3.6	12.6
Word or below	9.5	1.3	42.9
Total	100	100	100

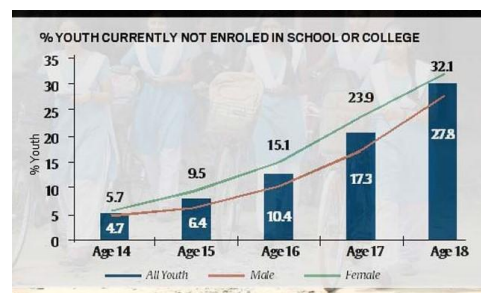
\*By current enrrolment status

Figure 2: Aser report 2017

Figure 3: ASER Report depicting Youth enrrolled in School or College of different age group

### 4. REQUIREMENTS FOR VIRTUALIZATION

In order to ensure that the implementation is carried out properly,there are certain requirements that need to be



fulfilled.Firstly,Memory space required for execution ie (RAM) and disc space for storing the software. More the number of Virtual machine, more is the amount of memory space required.Secondly,The people need to be trained to work on virtualization so that they can troubleshoot the basic issues.Thirdly,spreading awareness in the stackholders that how virtualization can prove beneficial to education system.

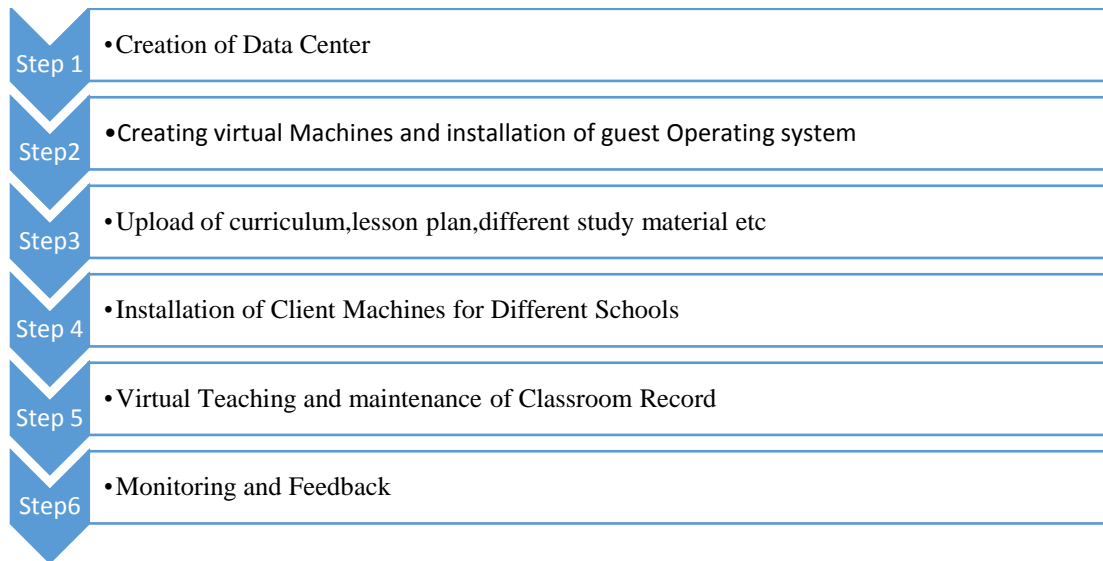


Figure 4:Basic Requirements of Monitoring System

The figure shows the steps of key activities that will be required to monitor the virtual classroom ,the very first step requires creating of a data center after which other dependent activites can be carried out. Another important issue is the estimation of cost that will be incurred in implementing virtualization.But it has its benefits are manifold.

## 5. IMPLEMENTATION

### 5.1 Steps of Virtualization

There are certain steps that need to be carried out for the implementation of Virtualization

1. Building virtual environment. During this phase servers are installed, , management platform such as VMware is loaded and virtual hosts are added.
2. Configuration : Now servers are configured and network settings are made.
3. Creating virtual machines: New virtual machines are added to the virtual infrastructure and all the installation is done with tools such as VMware's Converter Enterprise.
4. Monitoring virtual environment:In order to monitor new virtual host performance graphs offered by vCenter, can be used to configure "alerts" regarding performance issues.
5. Maintenance and Troubleshooting: Maintenance id different from that of monitoring and is very important to ensure that the system is functioning well. In case of any kind of issue, troubleshooting is required.

### 5.2 Monitoring through Virtualization

1. Setting up virtual Classroom:This step ensures that the virtual classroom is setup properly and a proper lesson plan is available for a particular subject/Course.
2. Lecture Delivery:Once the classroom is ready for virtual teaching ,Lecture can be delivered virtually ,here no need of additional appointments of teacher is required as lectures have to be delivered by the teachers teaching in the schools and each teacher must be provided with the topic(s) on which he/she has to deliver the lecture well in advance. Also ,teaching material /notes/teaching aids used in delivering a particular lecture must match with that of lesson plan
3. Generation of Sample Questions based upon the lecture: Based upon the lecture delivered, a sample test can be generated, in order to check how much the student have understood out of the lecture.
4. Recording the response of students based upon the test: It is very important to record the response to students corresponding to the test in order to analyse the understanding of topic by the students.
5. Generation of Test Report: Once the responses are recorded ,it is very simple to generate the test report using well known softwares such as Ms Excel in order to analyse the test report and take corresponding actions(if required)
6. Analysis of Test Reports:The teacher can be asked to upload the monthly test report on the portal ,so that monitoring of reports can be done and these reports can be discussed with all the teachers in the virtual meeting for the discussion and suggestions for improvement can be generated.
7. Award System: Last but not the least, it is very important to encourage the teachers work with this new kind of teaching methodology ,where reward/award can be given to the faculty for their performance.

## 6. PRESENT SITUATION

In the Budget –the Government has announced Rs 100 crore allocation for virtual classrooms in India,which will definitely prove a boon to the education system[8].In a event themed 'Amplify digital-Disrupt the core', the Prime Minister of India,Mr.

Narendra Modi ,said that ,in order to ensure that the digital literacy reaches each household, Pradhan Mantri Rural Digital Literacy Mission, will make 60 million adults digitally literate in rural India. Under this, 10 million people have already been trained.[10].Initiatives by organizations such as E-Vidyalok,registered under Section 12A of the Income Tax Act 196, Bengaluru in 2011 ,7125 benefited in 23611 online classes conducted in different E-Vidyalaya centres across different parts of India[11]

## 7. CONCLUSION

The future of India depends on the children who are going to schools today and it is well known that students who are living in rural India are not provided very good opportunity to learn and innovate. Implementing the kind of virtual classroom discussed in this paper will definitely ,improve the understanding of students. Ignorance to adopt technology in the rural areas[6] is one of the key problem that needs to be worked upon.The need of the hour is pay attention towards improving education system in India,because the country cannot progress unless the people are educated.

## 8. REFERENCES

- [1] Deshwal, A. and Dobhal, A., “Virtualization: A Tool to a Sustainable Education System”, IJARCSSE, 3, March, 2013, pp. 539-544
- [2] Dinesha, H., A., and Agarwal, V., K., “Advanced Technologies and tools for Indian Rural school Education System”, IJCA, 10, December, 2011, pp. 54-59.
- [3] Jethwani Kanika and Jha Kalpana,” Virtualization: A Boon for Indian Rural Education System.
- [4] Dwivedi, A. and Dheeran, A., “Virtualization of Education in Modern Era”.
- [5] Ruay-Shiung, Chang. „Network Virtualization for Cloud Computing” , Department of Computer Science and Information Engineering National Dong Hwa University.
- [6] <https://www.citrix.com/products/xenapp-xendesktop/?ntref=footer>, accessed on 25 May 2018
- [7] <https://fedena.com/blog/2016/01/salvaging-rural-india-with-virtual-classroom-an-introduction.html> ,accessed on 20 May 2018
- [8] <http://www.thehindu.com/business/budget/modi-moulding-digital-india/article6204247.ece>, accessed on 20 May 2018
- [9] <http://myedge.in/blog/?p=129584>, accessed on 21 May 2018
- [10] <https://economictimes.indiatimes.com/news/politics-and-nation/pm-modi-at-world-congress-digital-india-has-become-a-way-of-life/articleshow/62979194.cms>, accessed on 21 May 2018
- [11] <http://www-07.ibm.com/solutions/in/education/download/Virtualization%20in%20Education.pdf> , accessed on 22 May 2018