Recent Advances in Delivering School Education and Cloud Technologies

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Abstract: **Education is not only limited to teaching the students according to prescribed syllabus but it has much broader objectives. It is an important tool to combat poverty and to establish a modern nation. In general the new ICT tools, technologies, applications and services have been contributing to the growth and development across innumerable domains like Business, Education etc. The future of developing countries might revolutionize with the applications of these ICT's. There are numerous examples of schools that are leading the way in developing new and exciting visions for ICT, and of industry-led initiatives which are stimulating ICT teaching in schools. The main motive of the education is to keep alive innovation and continuous quest for knowledge. It's this knowledge which brings advancement, achievement and success. In this paper the impact of EDUSAT, ICT tools and Cloud technology on education system is discussed by analyzing the potential factors that can improve the educational services.**

Keywords: ICT, EDUSAT, E-Learning, Cloud Computing, EduCloud etc.

1. INTRODUCTION

Information and Communication Technology (ICT) is a principal driver of economic development and social change worldwide. In general ICT tools, technologies, applications and services have been contributing to the growth and development across innumerable domains like Business, Education etc. Education is not only limited to teaching the students according to prescribed syllabus but it has much broader objective. Therefore education is considered as an important tool to combat poverty and to establish a modern nation. The future of developing countries might be revolutionize with the applications of these ICT's in education. The devices such as PC, iPod, tablets, iPhones etc are becoming simpler to use year by year. The efforts to integrate ICT into education sector have got increased in the last decade (Friedman ,2007)[7].

EDUSAT is the first Indian Satellite launched to broadcast quality education content to schools, colleges and universities with a total investment of Rs 549.09 crore. It opened a new dimension in the education scenario. It has made possible to provide access to uniform good quality of teaching curriculum for far flung and rural remote locations of the country (Gupta ,2012) [8]. But this utilization of EDUSAT program by students is only possible within the school premises or institutions having devices that support for satellite communication receipt and broadcast and it depends on the schedule of broadcast too. All such learning facilities are not availed by the students at any other place or home.

2 RELATED STUDIES

Bhandigadi (2006) [4] conducted a study in Karnataka and found that the impact of EDUSAT education on students is positive but the level of significance is underutilized. Mean Scores obtained in Pre- Post implementation of EDUSAT has shown minimum mean percentage gain 6 percent and maximum 15 percent with a significance level of 0.000 to 0.001.

Nayak and Kalyankar (2010) [13] discussed problems, considerations, issues and approaches to e-learning in India with giving stress on important features of e-learning and benefit of e-learning for rural child development. The researchers concluded that there is need to develop and implement strategies for IT education for solving rural areas problems along with conventional education. The IT subjects should be incorporated in curriculum at school level. The web based education at school level for rural children and youngsters would increased their knowledge level. It would result for improving the level of school and higher education. E-learning technology had great prospective to spread learning to reach the far flung or remote areas of India otherwise they would be one of the causes of digital divide.

Jadal (2011) [11] conducted a study and found that experimental group students, due to the usage of computer in English teaching, learnt effectively .

McKimm, Jollie, & Cantillon, 2003, cited in Kaur, M. (2011) [12] found that technology plays a positive role for encouraging more independent and dynamic learning between students.

Groves & O' Donoghue, 2009 cited in Kaur, M. (2011) [12] concluded that the main reason in using technology within a learning environment is to enhance the quality of learning and teaching. The use of ICTs in teaching and learning has great impact in the educational system. This has led certain changes in strategies and concepts of teaching and learning. The result of such changes has created student centered environment. The increase use of ICTs in schools have given large number of advantages to students like flexibility for access to study material. These modern facilities of teaching has motivated the students by providing the immediate feedback. Presently the increase in development of ICT yields improved learning environment which reflects an enhanced learning process and making student centered learning for the betterment of students..

There is strong relation between learning needs and new generation .With advancement of teaching methods these learning needs keep on changing with new generation demands. The association of ICT with teaching methods have helped students to focus on concept ofs understanding , to develop capabilities for decision making and independent learning. Nowadays the latest technologies like cloud computing is in demand for education purposes. Most cloud providers like Microsoft, Google, Amazon, Apple etc. are providing services to educational institutes. The use of these services like document sharing, calendar, document storage, address list etc are increasing day by day. The cloud technology enables education institutions to focus on its core activities for smooth functioning of operations and improving the quality of the teaching course content. These educational institutions can have an option to leverage many SaaS, PaaS and IaaS services without the need of investment and maintenance of infrastructure. Also educational environment has being changing as new generation attracted towards social networking sites like Facebook , Twitter and new gadgets such as tablets, smart phones etc. There are number of technologies which have been used for enhancing the working environment, but cloud computing differs significantly in terms of its functionalities, virtualization and high end network abilities. It is popular technology being used entirely for service side services. The generation which has embraced social networking and other related technologies, is likely to accept Cloud computing concept Plummer *et al.* (2008) [6]. So the possibility of acceptance of Cloud Computing services by students is expected to be high.

In India the initiative to use cloud computing applications for learning in shared or distance mode is increasing. These applications are designed to ensure maximum impact based learning through proven techniques such as conceptual videos and collaborative learning methods.

Most of the cloud computing concepts are based upon the grid computing, parallel computing and autonomic computing. In Cloud computing organizational data as well as the software reside within the cloud. User can access everything not only through personal computer but also cloud friendly devices such as tablets, smart phones and (Personal Digital Assistant) PDAs Ahmed Patel (2011) [2]. In most cases, cloud computing is only associated with businesses (Bailey ,2012) [3]. Linking EduCloud and ICT with teaching and learning activities will enable the educationists to exploit the potential of whole class interactive teaching and encouraging pupils to share ideas and findings (Bruce Wilcox ,2012) [5].

3 ANALYSIS OF THE VARIOUS ATTRIBUTES OF CURRENT ICT TOOLS AND EDUCLOUD

3.1 INTERACTIVE STORAGE

Current ICT tools don't have interactive storage therefore the end user has no direct access to the stored content in EDUSAT & ICT tools. The basic service of cloud is storage that allows the Edu user to access the knowledge base which is essential part of education system.

3.2 EXPERT EASE OF AVAILABILITY

The availability of experts on campus is at the time scheduled by the System Coordinator. Web portals like You Tube presently used for online lectures by experts. Currently the most unique and affordable platform to run e-class is a pen drive that runs on TV through a small multi-media player called e-box or directly on the laptops or computers. With this tool content is available all the time but it lacks student – teacher interaction. With EduCloud Expert can be always available on campus as well as off campus.

3.3 COST

The development and maintenance of the Satellite communication and ICT tools need a large investment whereas Cloud based applications requires no expenditure on Satellite and ICT labs.

3.4 QUALITY OF SYSTEM

As far as system improvement is concerned there is no such system exist like education audit, expert lecture rating or feedback from end-user. Rating of expert lectures, education

audit can be easily implemented with the cloud as compare to other educational supplements.

3.5 REQUIREMENT OF DEDICATED CLASSROOMS/LABS

Dedicated Labs with Satellite Interactive Terminals (SIT) and Receive Only Terminals (ROT) are required to use the facility of EDUSAT. Presently services of satellite is achieved by ROT. EduCloud don't require such infrastructural demands.

3.6 REQUIREMENT OF SKILLED STAFF FOR OPERATION

Trained staff is required for properly operating the hardware. No such requisite is needed in EduCloud.

3.7 BYOD (BRING YOUR OWN DEVICES)TO WORK

Current ICT tools and EDUSAT based systems requires dedicated infrastructure like LCD, Projectors, DVD players etc. Any communication device like mobile, tablets, Personal computer or laptop can become the part of EduCloud.

3.8 GEOGRAPHICAL AREA COVERAGE

An expert on a subject can simultaneously teach hundreds of students in multiple locations across a vast geographical area. Students of remote and 'unreached' villages can benefit from the live lectures whereas EduCloud needs the availability of 2G/3G or CDMA network to deliver such services.

3.9 CONTENT DEVELOPMENT MECHANISM

Content are developed separately not as a part of integrated system. Current ICT technologies are aimed at to provide pre-defined learning contexts, and they are allocated manually at design-time. Therefore, a content package cannot consider the actual learning context, since this is only known at runtime of a learning process. Thus problem of little or no personal interaction with professors/instructors leads to inferior results. With EduCloud technology contents can be developed dynamically as system development part. Wikipedia is an example of dynamic content development.

4 CONCLUSION

National Policy on Education (NPE), 1986 and the revised NPE, 1992, addressed the quality concerns for school education on priority basis. Quality cannot improve by itself. It requires multi-pronged and strategic reforms in teacher training; improvements in the facilities and infrastructure in schools; teachers' motivation; and a change in the style of teaching to make it attractive to the students. The policy also recommended that a system of continuous and comprehensive evaluation would be established[1]. The revolution with cloud paradigm in education system will give new definitions for School, Teacher and Learner. It will provide an alternative ways of deploying ICT infrastructures for an efficient and effective teaching-learning and service delivery in school education in India. Thus this new system will spread the quality education to each and every part of India. So government should increase its efforts for providing education delivery using cloud based applications**.**

REFERENCES

[1] Aggarwal Y. "Quality Concerns in Primary Education in India Where is the Problem?" http://www.dise.in/

[2] Ahmed Patel A. S. (2011) " Comparative study and review of grid, cloud,utility computing and software as a service for use by libraries", Library Hi Tech News, Emerald , 28 (3), 25 - 32.

[3] Bailey W. (2012) http://www.cloudtweaks.com/2012/09/effective-ways-cloud-computing-can-contribute-to-education-success/.

[4] Bhandigadi P. (2006). http://pcf4.dec.uwi.edu/ viewpaper.php?id=357&print=1.

[5] Bruce Wilcox. (2012). http://www.educloudconsortium.org/introducing-the-educloud-consortium/

[6] Plummer D.C., Bittman T.J., Austin T., Cearley D.W. and Smith D.M. (2008) "Cloud Computing: Defining and Describing an Emerging Phenomenon", Gartner.

[7] Friedman, T. L. (2007) "The World Is Flat - A Brief History of the Twenty-first Century (3.0 ed.)", Farrar, Straus & Giroux.

[8] Gupta A.K. (2012) "A Comparative Study of Approaches Available to Support the Impact Study of Satellite Supported one way Educational System". *ARPN Journal of Science and Technology VOL. 2, NO. 10*, ISSN 2225-7217.

[9] http://www.21stcenturyschools.com/what_is_21st_century_education.htm

[10] http://www.educloud.net.au

[11] Jadal M.M. (2011) "Efficiency of using computers in teaching English". *Indian Streams Research Journal*, *Vol - I , Issue – IV* ,http:// www.isrj.net

[12] Kaur, M. (2011) Using Online Forums in Language Learning and Education. *Student Pulse* [Online], 3. Available: http://www. studentpulse.com/a?id=414

[13] Nayak S.K. & Kalyankar N.V.(2010) "E-Learning Technology for Rural Child Development" *(IJCSE)International Journal on Computer Science and Engineering Vol. 02, No. 02*, 208-212.ISSN: 0975-3397

[14] Public Communication Unit, U. (2012). http://www.education.gov.uk/inthenews/inthenews/a00201864.

[15] Sife A. S., Lwoga E. T. & Sanga C.(2007) "New Technologies for Teaching and Learning: Challenges for Higher Learning Institutions in Developing Countries". *International Journal of Education and Development using Information and Communication Technology (IJEDICT), Vol. 3,Issue 2,* pp. 57-67.

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