

Signifying the Role of ICT in School Education and Importance of Student Information Management System

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Abstract – Education is a pillar of developed and a powerful country, besides being the most important element for growth and prosperity of a nation, education gives knowledge and enlightenment which opens up new avenues of development of humanism and also transforms a human being into a wholesome noble soul and promotes universal brotherhood in its true senses. Today’s world is a world of information explosion. This information explosion is taking place at such a fast pace that even a literate person is feeling as if he or she is illiterate being not able to cope up with such an information explosion. Technology, in this regard, is one of the most critical issues in the present global era. In order to gain a broad perspective, yet remain relevant to one’s own situation, now there is a need to think globally and act locally. Technology means scientific principles applied to practical knowledge for obtaining the specific results. Technology in acquiring knowledge and skill is an extremely essential component of education and training at all levels: primary, secondary, higher and professional education. Information Technology (IT) has a very important role to play as far as bringing transparency and accountability in the education system. In this article we will study about the meaning, role and importance of ICT in School Education and what are the importance and role of Student Information Management System and the significant role it plays for the students.

Keywords: Education, Information and Communication Technology, Student, Information, Management, System.

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I. INTRODUCTION

Information Technology (IT) has a very important role to play as far as bringing transparency and accountability in the education system. The resource sharing facility which the national knowledge network is creating by providing connectivity is making a huge difference. It provides equal access to all irrespective of place and time. According to Smith and Combell, “A mosaic of technologies, products and techniques has combined to provide new electronic dimensions to information management.” That is termed as Information and Communication Technology (ICT). ICT is defined as all devices, tools, contents, resources, forums and services which can be converted into digital forms on further deployment that are used to attain the goals of teaching learning, enhancing capacity building of the education system. This requires all necessary hardware and software applications but digital content, internet etc. so that ICT can work efficiently in a progressive manner. Transition, transformation and revolution are the current scenario of educational system. The inclusion

of Information and Communication Technology in education system is a major reason behind it. ICTs have the potential to enhance access, quality and effectiveness in education system. Education system in India can be improved by implementing ICT in education system. ICT focuses on improving delivery mechanism of education (Dahiya, 2005)

Since Independence, Government of India is making all efforts to improve the quality of education in India. In that direction, the government has formulated National Policy of Education in 1986 which was further modified in 1992. National Policy of Education stressed the need to employ education technology to improve the quality of education. ICT is playing a significant role in school education which is highlighted in National Curriculum Framework (NCF, 2005). With the development of technology, a new era has begun where all the technologies have started converging; therefore it is imperative to take comprehensive development look at all possible information and communication technologies for improving school

education in the country. A comprehensive policy for implementing ICT in education sector so that a comprehensive development may occur in the education sector of the country. ICT has tremendous potential to improve the quality of education in the country. Therefore the implementation of ICT policy in School Education is being viewed with great expectations. In India, Schools are the main centers of imparting education, which plays a very important role in the development of our society. Therefore, ICT has been viewed as the most potentially and powerful enabling tool for educational change and reform.

II. ICT IN SCHOOL EDUCATION

ICT has caused the convergence of wide range of technologies for the purpose of learning and teaching. It can be utilized to disseminate information about and catalyze adoption, translation and distribution of sparse educational resources scattered across various media and forms. ICT enables various educational resources to digitize in the audio and video formats existing in different language and formats. There has been dearth of quality educational resources available on the internet therefore there is a urgent need to digitize the resources available so that teachers and students can make the best use of the available resources which will help in capacity building of the teachers, students thus improving the overall efficiency of the education system. ICT involves deployment of variety of application, which is of great help to the education sector (May, 2003). ICT helps in capacity building of the teachers and students, thus strengthening the education system by enhancing competency. Teachers and Students are introduced to different technology levels depending on the level to which they are introduced. With the technological development, the technological levels are revised periodically.

With the help of this technological development a teacher or student can enhance their skill set in the respective field. With the aid of ICT job oriented courses are available online. With the help of these online courses an individual can enhance their skills and look for various avenues. ICT helps the people with different abilities. With the advancement of technology, it has offered a wide range of opportunities for the differently abled teachers and students. ICT has further made a foray into the realm of quality distance education. Access to e-books, digital learning resources, and digital repositories are developed by institutions as student support services. A great emphasis is made on online capacity building for open and distance teacher training. Information and communication technologies have caused the convergence of the wide range of technologies to assist the learning of the teachers. Therefore ICT has become a complete support system for the development of education system. The ICT has a great potential to meet the

challenges prevailing in the education system of India. ICT helps in disseminating information about the various educational resources distributed across the wide range of media and forms. ICT has digitized the educational materials and has catered to make available the educational audio and video resources of different languages and formats. ICT literacy has led to enhancement of competency levels of teachers in their capacity building so that they are exposed to wide range of education material at various levels (Yuen, et. al., 2003). Depending on the standard; ICT is used at various levels. With the advent of ICT, a new era of skill development with the aid of technology has emerged. ICT has opened various avenues for every field. With the help of technology; a wide range of information is accessed. Information and communication technology (ICT) centre has been proposed to set up in 247 schools located in rural areas of Ajmer and Jaipur to promote the use of ICT in the region. ICT centers are aimed to enhance learning capabilities of students with the increased use of information technologies and promoting e-learning. The ICT centers are intended to accelerate socio-economic development in area. ICT centre connects rural area with rest of the world. This would help in bridging the information gap between rural and urban areas. Managing activities is the newer application of computer software. The software aspect of Information Technology mainly comprises of management information system and decision support system. With respect to management function, information technology can be defined as the use of hardware and software for efficient management of information for social, economic and cultural upliftment. The education management information system is a way of providing accurate and timely information to educational managers for planning, decision-making, monitoring and other managerial functions.

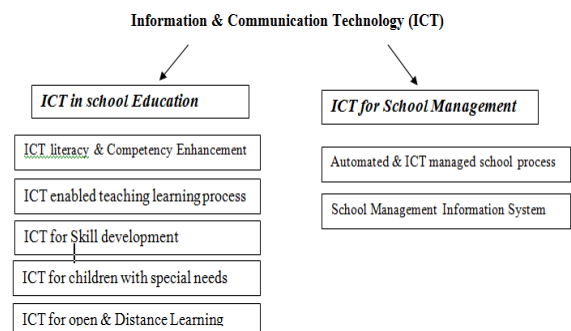


Figure 1: ICT Framework

III. ICT FOR SCHOOL MANAGEMENT

Schools have adopted an e-governance and automated school administration programme for schools, by building capacity for the implementation and deploy school management information system. A school wide local area network enables automation of a variety of

processes, such as library automation, maintenance of records student tracking, office automation, resource planning, with the help of ICT infrastructure efficiency is increased, with this help a great amount of cost and time is saved. Thus SIMS serves as a great tool to amalgam all the stakeholders viz schools, management, teachers, students etc. by creating a community in which these stakeholders participate. Many School Management softwares have been developed such as moodle, ATutor, webcaster, Quick School, Skool Manager, Literom, etc. These softwares provide various features to support different functions of the school. These softwares act as complete solution software. These softwares enable to cover all the dimensions and functions of the school and provide a systematic approach to its working. It helps the school administration in decision making, policy making and controlling. Management software like Moodle is a Course-ware Management System (CMS). It is also known as Learning Management System (LMS). It is a free open source web application designed to help educators create effective environment. Similarly School Manager is a product from Stellar. It is fully integrated institute administration software that is designed as a complete suite for features that educational software provides (Telem, 1999). Academy Information Management System Plus is an instrument through which administration of entire system can be done in an automated manner. It claims to be the solution for smooth running of school. ERP school software is an integrated, user configurable and dynamic solution. ERP school software helps institutions to get the wide range detailed and summarized in administrative, academic nature, management, accounting and maintenance of school in different forms required at different level. EIMS- Educational Institute Management System is java-based software. The software is the best software for colleges, institutes, management colleges and medical colleges with plug-ins like SMS, IVRS, GPRS and dynamic web portal.

Quick Skool is a product developed by Info spectrum India Pvt. Ltd. Quick School is a complete end-to-end School Management Software. It has a modular approach. Campsys- a campus management system is an interactive platform for teachers, management, students and parents. Nipun software is developed by Cyborg IT services. The company has developed this software for collecting, storing and disseminating the school data, student's information, examination, admission etc. All the information can be received on a single click. Thus, it can be seen that management software provides varied types of features in different dimensions of school functions. All these software constitutes Student Information Management System. Therefore, as the dimensions of school function widened day by day, there arises a need to manage those functions more effectively (Pegler, 2002)

IV. DEFINITION OF STUDENT INFORMATION MANAGEMENT SYSTEM

Student Information Management System (SIMS) – Student Information Management System is software with an online website of the school and an intranet (Campus) version in the school. The Student Information Management System is an interactive platform for all entities viz. students, Teachers, Management, Parents and experts of an educational Institution. It is a simple yet powerful one-point integrated platform that connects all the departments of an institution namely, office, fee counter, academics, activity centre and so on.

A Student Information Management System (SIMS), Student Information System, School Administration Software, School Management System, Student Management System or Student Administration System is a Management Information System for education establishments to manage students' data. Student Information Management System (often abbreviated as SIMS system) provides capabilities for registering students on courses, documenting, grading transcripts and results of student test and other, assessment scores build student schedules, track student attendance, and manage many other student-related data needs in a school. Management of schools is using Student Information Management System to improve the efficiency of the administrative services of the schools. For this very purpose, Student Information Management System or Student Management System is recently very much in use (Malhotra, 2009).

Student Information Management System is configurable and can be configured to meet most individual school's needs. It is a multi-user system and can be used by hundreds or even thousands of users at same time. General speaking, it is platform running on a Local Area Network (LAN). However, if the Student Information Management System server is configured to be a public server - with a static IP or domain name - it would not have a boundary limitation. Wherever the client is, once he/she has an Internet connection and Student Information Management System client installed, you can logon to the Student Information Management System server easily just the same as if you were sitting in the school office. However, the speed limitation is up to both client's and server's Internet speed (Maurya, 2013).

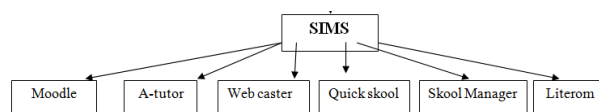


Figure 2: Software's of Student Information Management System

A. History of Student Information Management System

Student Information Management System is a large database system which can be used for managing school's day to day business. SIMS was the first MIS for schools. It was developed by Philip Neal, a teacher at Lea Manor High School, from 1982 to 1983. Bedfordshire County Council (L. Manor's local education authority) then further developed the product, which began being used by other schools in 1984. In 1988, a commercial company, SIMS Ltd, was founded to further develop SIMS. SIMS Ltd was acquired by Capita Group in 1994.

V. SIGNIFICANCE OF STUDENT INFORMATION MANAGEMENT SYSTEM

Student Information Management System allows users to store almost all of their school's information electronically, including information on students, employees, properties, teaching materials etc. Most importantly, this information can be easily shared with authorized users, records can be easily searched, and reports can be easily generated. Therefore, by using management software in schools one can easily manage academic and administrative functions of school. Thus Student Information Management System makes the working of an institution very systematic and less error prone. The whole working of an institute becomes so smooth which have been very cumbersome and lengthy otherwise. In Student Information Management System storage of data become very systematic and the accessibility of information is very easy. Student Information Management System makes the life easier for all the stakeholders viz, school Management, Office Staff, School Teachers, Parents, Students. In Student Information Management System, All the stakeholders are well informed about the day to day activities of the schools. Student Information Management System helps in information management, in a very short time. It helps stakeholders to know the information of current year and passed year perfectly and vividly. It also reduces the cost of collecting the information.

Thus, Student Information Management System could make school staff's work easier than ever. Using Student Information Management System, finding student information is just a few seconds away which might have cost hours, or even days, before. At the end of the semester, printing students' statement becomes just a few minutes' job. If a student is absent, an email or even a short text message could be sent automatically to their parents' email address or mobile phone. Being at the beginning stage of the Student Information Management System, computerization of the student management is the basic subject of today's school management. Principals have started to make use of information systems in the gradually-increasing daily management staffs (May, 2003)⁵. Generally

speaking, the reasons to use information system can be stated as increasing effectiveness at work by processing information, increasing managerial effectiveness by meeting the need for information and gaining superiority in competitions by directing strategies. Student management system aim to provide support for the managing and educational activities of the school managers by processing information, Telem (1999) defines Student Information Management System as "a management information system designed to match the structure, management task, instructional processes and special needs of the school". As for a broad definition, contributions of the information systems to schools can be defined as making programs more effective, making the teaching process and the changes in learning environment professional, enabling teachers to exchange their experiences in a more systematic way, working in teams, determining the needs of the students, supporting the school managers and other staff in doing their duties, developing their performances, effectiveness and efficiencies School managers can make more efficient decisions when they get correct and up-to-date information by Student Management System. Decision making is the heart of educational management. Daily, problematic conditions that require decision making are based on the complicated and unexpected nature of school environment (Telem and Buvitski, 1995). For this reason, as a problem solver, the educational manager has to gather and analyze information continuously. In addition, managers have been required to make more decisions in short times because of the increasing expectations from the educational system. Moreover, decision making has been faster, more frequent and more complicated in schools of today. In order to make decisions under these conditions, gathering data that is continuous, up-to-date and that can be accessed on- time and analyzing and using this data is an obligation. Success of school development studies are mostly based on data based decision making. However, school managers are not able to use the data efficiently in this aspect.

Student management system provides information and various reports from the database in order to make decisions in line with the aims of the school and facilitate controlling of the activities to achieve the aims. Information technology helps the manager to access, manage and report the information quickly and easily. While telecommunication nets provide the manager with wide resources of information that can be used in problem solving, written communication has been grown richer by means of word processors and e-mails. School Authorities access Student Information Management System (SIMS) by registering on the SIMS software. After registration on SIMS, a School Authority is provided valid login id and password through which SIMS is accessed.

An online repository of various orders is created in SIMS, which is accessed by school authorities by validating their authentication. School Authorities login into SIMS by a valid login id and password. In SIMS, School Authorities register the attendance of students, teachers, school staff etc. Further class attendance, marks, sports activities of students, teachers, laboratory, and library attendance is registered in SIMS. Faculty details are also stored in SIMS.

All the above information can be further used by School Authority through SIMS by valid authentication.

Therefore it can be stated that by means of Student Information Management System, school managers able to determine required information, access the information, interpret the data, use the data in decision making and evaluating and developing efficient use of the system. By registering on SIMS by valid ID and Password School Authorities can do fees management, exam management, faculty management and student management? Fees management in SIMS can be managed through SIMS very efficiently. An online fees management system can further keep the School Authorities updated about the fees status of the student. Exams can be conducted efficiently through SIMS. Schedule of exam is fed by School Authorities in SIMS, which can be further accessed by students. Exam results can be viewed online through SIMS. Further details of new session are also declared on SIMS. Faculty access SIMS, and get to know about their lecture details. Further if there is any adhoc arrangements then faculties are updated about it. Thus use and analysis of information at schools not only make School Authorities realize what should be done in order to develop school performance but also ensure success in accomplishing these changes. When Authorities use data, they start to realize innovation efforts on this issue.

Students or Parents can access SIMS with valid user ID and Password. Students can view their class time table, exam date sheet online. Thus information can also be accessed by Parents only. Students can take the online assistance. Parents can check their ward's attendance and marks online. Further Parents can keep a track of their ward's academic status and can also intimate about the leave. They are also informed about the activities in the school. Parents as well as Students can download the report card of their ward from the SIMS and can obtain any report for their ward. Thus, Student Information Management System increases effectiveness and efficiency by saving time and facilitating development of alternative solutions for sophisticated problems (Haag and Dawkins, 1998).

Although, School Management Softwares are now being popular in developed countries, it is still in its initial stage in developing and under developed

world. In India, many policies aimed at promoting the use of ICT throughout the country. With this regard, many notable initiatives of using ICT in education have been taken in the country. Many educational institutions have taken renowned steps to initiate the use of ICT countywide. University Grant Commission has proposed a scheme in the year 2013, known as 'ICT for teaching and learning processes to achieve quality and excellence in the education sector by promoting the use of ICT in education. "Information and Communication Technology (ICT) in Schools" Scheme was launched in the country on 16th December 2004 to provide opportunities to secondary stage students to build their capacity on ICT skills and to make them learn through computer aided learning process. The main aim of the ICT is to prepare students to compete globally, to survive and to contribute in today's knowledge society. The scheme aims to bridge the digital divide amongst students of various socio economic and other geographical and regional barriers. The Scheme provides support to various states and union territories to establish computer labs on sustainable basis. It also aims to set up smart schools in Kendriya Vidyalayas and Navodaya Vidyalayas that are the pace setting institutions of the Government of India to act as *Technology Demonstrators*. The aim is to integrate ICT in teaching learning process and to share resources among the schools across the country (Christopher, 2003).

ERNET India aimed to help Kendriya Vidyalayas to provide training to its teachers regarding awareness and usage of internet and other related applications. This will improve the quality of education through sharing of experience over the network. ERNET India will also help Kendriya Vidyalayas in making use of information and communication technologies in academic and administrative activities of school like examination, performance evaluation etc. Thereby, this would lead to paperless office. Another initiative, National Programme on Technology Enhanced Learning (NPTEL) is funded by MHRD. The initiative is aimed at providing good quality learning resources. The main motive of the programme is to digitalize the educational institutions at low cost and low power consumption access to ICT. (MHRD, 2012) 'UGC INFONET' -a network of 17 Indian universities, helps to integrate ICT in the process of teaching, learning and education management. ERNET India manages the network. To promote the use of ICT in education some state governments have initiated many policies. Uttar Pradesh government has distributed 'Aakash' Tablet, a low cost computing device, to school and college level students. The main aim of this initiative is to enhance interactive sessions and promote online learning environment. National Mission on Education through ICT (NME-ICT) project of MHRD was launched in 2009 at Tirupati. It provides an opportunistic platform for the

teachers and experts across the country to develop the E-content. E-content is developed in all the main subjects and disciplines. The aim is to reduce the digital divide. Central Institute of Educational Technology (CIET) has started 'Development of MIS for implementation of ICT @ schools' programme in 2012. The programme aimed to provide training, research and development of Management Information Systems (MIS) in schools.

VI. CONCLUSION

In the era of globalization, the need for effective management is inevitable for any organization or institute. Present age is the age of science and technology. ICT has played an important role in revolutionizing the education system of the world. There has been many new trends developed because of this, things became much easier for the management of the students because of implying ICT techniques in schools. Same as that, Student Information Management System too, not only provides information but it gives the overall picture of the students and acts as a communication and planning tool. Information is considered to be an important asset for any school in the modern competitive world. Many schools in India are facing the problem of managing different administrative problems. Maintaining the records manually and keeping them safe is very difficult and time-consuming job for the school management in present scenario. The use of Student Information Management System in present not only saves the time and energy of teachers and principals but it reduces the exploitation of natural resources i.e. Paper for any school in the modern competitive world. There has been a lot of scope for the study of this topic in the near future.

REFERENCES

1. Dahiya, S.S. (2005). ICT Enabled Teacher Education. University News, May, 43 (8).
2. May, D. (2003). Pedagogy Before Technology: Re-thinking the Relationship Between ICT and Teaching. Education and Information Technologies, 6(4), pp. 251-266.
3. Yuen, H. K., Law, N. W. Y. and Wong, K. C. (2003). ICT Implementation and School Leadership: Case Studies of ICT Integration in Teaching and Learning. Journal of Educational Administration, 41(2), pp. 158-170.
4. Telem, M. (1999). A Case of the Impact of School Administration Computerization on the Department Head's Role. Journal of Research on Computing in Education, 31(4), pp. 385-401.
5. Pegler, J. M. (2002). A View of the Research on the Efficacy of CAI. Electronic Journal for the Integration of Technology in Education, 1(2), pp. 43-58.
6. Malhotra, N. (2009). The Implementation of School Management Software in Salwan Public School : A Case Study. Unpublished M.Ed Dissertation, Faculty of Education, Banasthali Vidyapith.
7. Maurya, P. (2013). An Implementation of Student Information Management System. Project Abstract. Department of Information and Technology. Makhanlal Chaturvedi Vishwavidyalaya. Bhopal.
8. Telem, M., and Buvitski, T. (1995). The Potential Impact of Information Technology on the High School Principal: A Preliminary Exploration. Journal of Research on Computing in Education, 27(3), pp. 281-297.
9. Haag, C. and Dawkins (1998). Management Information Systems for the Information age. USA: McGraw Hill.
10. Christopher, D. (2003). The Impact of Computers in Formal Learning Environments. Retrieved from <http://elgg.net/csessums/weblog/5863.html>

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