

Criteria for Managing ICT in Educational Institute

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Abstract

Information technology has spread every sectors of life like medical science, natural science, entertainment, business, research and education etc. Developed and developing countries are having great advantages of technology in education sector in comparison with poor countries. Science and technology is educational institute-centric where new advancement, discoveries, innovations and inventions happen. Thus, school is required to be ICT (Information and Communication Technology)-enabled to enhance the current conventional education system. In this paper, we have presented ICT related policies and list out software tools for educational institute management.

Keywords: *Information & Communication Technology, Classroom Management, Software Management, Integration of ICT.*

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1. Introduction

ICTs stand for information and communication technologies and are defined, for the purposes of this primer, as a “diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information” (Blurton, 1999). These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony. Information and Communication Technology (ICT) can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers’ professional development and more efficient education management, governance and administration (UNESCO, 2015). Information technology has spread every sectors of life everywhere- medical science, natural science, entertainment, business, research and education etc. Developing countries are having great advantages of technology in education sector. Science and technology is school-centric where new advancement, discoveries, innovations and inventions happen. Thus, school is required to be ICT enabled to enhance the current conventional education system. School is a miniature society where maximum formals educations have been providing by schools. So, it should be in every kinds of equipment. In preceding period, technology could not be developed in the education field properly and people used to focus only on quality of classroom, subject teacher, textbook and reference materials, teaching materials, extra activity-related materials and so on. But current era is advanced in technology and many sectors are related with it that causes every students, teachers and other

stakeholders should be familiar with technologies. In current context, knowledge of many fields can be gained and found in computer by using Internet. For the further social adjustment of students, technological skill should be provided in school. Two factors are there to cover all aspects – first is the management of technological instruments and secondly policies in school. Firstly, governmental and non-governmental sectors are pouring excessive budget in educational field directly and indirectly such as laptop distribution to students and computer and networking hardware distribution to schools. Policy factor is related to check the effectiveness- how school staffs and students using it for the fulfillment of their requirements and how they are making ICT related plan. Maximum number of administrators, policy makers, employees and other stakeholders may have lacking of ideas to manage technology in their schools, this paper will be helpful for them.

2. Policy Making & Practice

a) *ICT Policy*

Unlike language subjects, ICT related subjects require hardware and software resources to teach the subject matter. Separate and sufficient budget to import ICT related resources- computers, router, projectors, scanner, software, storage memories, electrical power supply, other input/ output devices etc. ensure the platform to exhibit the ICT-related materials. Governmental organizations and non-governmental organizations can assist to provide the ICT resources to school through different packages like one child one laptop policy, compulsory Internet access to every school program. It is necessary to keep all the above mentioned ICT resources safe by proper supply of electricity and mechanism to control the case of electrical surge, spike, brownout, blackout, etc. Enabling regulator/stabilizer and generator can control the above electrical anomalies. For the proper utilization of the ICT system, school staffs should attain ICT-related trainings, workshops, seminars, conferences and symposiums. Training for teaching and non-teaching staffs conducted by government/ schools like, interschool ICT related competition, ICT projects exhibitions, and other training program help to obtain ICT related new information and skills. By effective evaluation of usage of ICT in school in governmental level and from other appropriate ICT related policies to promote ICT for better achievement.

Besides, governmental policies, internal school policies also play vital role on managing technology in education institute. Students explore themselves studying ICT in school and as well as at home. Parents may feel hesitate to invest money to their children for ICT resources, unless they are not aware, thus school can convince to parents about the benefit of ICT-enabled education by several counseling programs, guardian meeting programs, interaction programs, ICT related exhibitions. ICT enabled education requires ICT access and requires that the learner use ICTs as a primary or basic medium of instruction. Motivating and initializing students is another challenge while adopting ICT in school however they can be easily influenced by showing real life implementations, field visits, short tours etc. In school level, administration committee and other stakeholders have to focus on proper budgeting for ICT infrastructure to obtain benefit of ICT.

b) *Supervision Mechanism*

Cross-observation of schools and ICT experts by related stakeholders (Principal, Parent Teacher Association, Academic/Discipline supervisor, School supervisor, Lab in charge, etc)

to evaluate and check whether, there is proper usage of ICT or not in teaching practice, had better to be conducted. According the ICT status, if needed, suggestions and commitments, can be given to school.

c) Integration of ICT on Curriculum

If it is not compulsory then it can be ignored even if government/school spends money in ICT, thus ICT integrated curriculum only ensures its effectiveness. As much as possible ICT should be integrated in curriculum because it makes learning process easy and students effectively involve on learning through ICT. Because of advances in digital technologies, it is very common to integrate multimedia into educational applications. Multimedia applications combine text, pictures, audio, graphics, animations, simulations, video, and hyper link between objects in software or in websites greatly enhancing the learning experience.

Teachers' motivation to use ICT in the classroom is, at present, adversely influenced by a number of constraints including: lack of time to gain confidence and experience with technology; limited access to reliable resources; a science curriculum overloaded with content; assessment that requires no use of the technology; and a lack of subject-specific guidance for using ICT to support learning (Osborne & Hennessy, 2003). While this technology can, in principle, be employed in diverse ways to support different curriculum goals and forms of pedagogy, such constraints have often stifled teachers' use of ICT in ways which effectively exploit its interactivity. Consequently, well-integrated and effective classroom use of ICT is currently rare.

d) Scheduling

Comparatively, ICT resources are more expensive than other resources in school, rules and regulations for ICT for optimum utilization of limited ICT resources like by students' lab routine, staffs lab routine, ICT enabled room booking system, time management and allotment of ICT room/lab for different teachers, different subjects, different classes, groups, at different time schedule based on its availability, is good practice. ICT related hardware and software or any machinery item may crash at any time that may cause the failure of whole ICT system of school. For managing this kind of glitches, school must have intuition to hire ICT expert at any time as per requirement.

3. Classroom Management

Management of comfortable furniture, light, appropriate size of classroom, maintaining suitable temperature etc. are the supplementary materials to support learning through ICT.

Software for the Classroom/Lab Management:

Software in the area of classroom management has evolved during the last twenty years during which computers have been available for classroom use. Here are examples of software that are used in schools to monitor computer based activities.

LanSchool Classroom Management and Monitoring Software is amazing educational tool. It improves learning in a lab, laptop cart or 1:1 environment. With *LanSchool*, the teacher can remove distractions, demonstrate skills, monitor and assess student progress. *NetOp* School is software that enables a teacher, or corporate instructor, to increase student time-on-task by being

able to monitor their activity on the computer while they work. Teachers can also enhance classroom interactivity with *NetOp* by broadcasting live demo screens to students; mark up the featured screen to highlight a lesson; create monitored chat rooms or allow students to send you private questions via an instant message button located on the student's computer. Like *NetOp*, *NetSupport* School software include features – the ability to display a screen on the students' workstation or view up to 16 screens on the Tutor machine simultaneously. As standard, a full testing module is included allowing for the design and delivery of customized tests together with full application and web control modules, ensuring students use only approved applications on their workstations and visit only approved websites.

4. Software Management

Server System

A centralized system which can response the requests of several clients at a time. Server system can be either hardware or software system. Server hardware means a highly configured system or computer which can hold huge amount of data and works in high speed and it has large amount of memory capacity. Server as software is specific machine that handles the requests coming from other clients on the network system. System software help to manage the network resources like printer, memory unit, projector etc. School can afford this type of system not only to reduce the cost of computer systems by utilizing the same resources by all computers in network, but also provide security in the whole system of institution by centralized security ensure.

Application Software

Painting tool, typing tutor, are the basic application software, children can learn while entering into the computer field. By these software students will be able to move mouse cursor, to press keys, to draw simple pictures etc. Word processor is word processing software that works with word or letters. Microsoft Office Word 2007, OpenOffice.Org, AppleWorks etc. are the commonly used word processing software. Teachers can use this software to teach how to write letters draw table, copy/paste, mail-merge, formatting document, save/edit/delete document etc. Presentation software like Microsoft Office PowerPoint is application software to create presentational slides, apply effects between slides, apply transition on slides, etc. When the information can be representation in tabular format the spreadsheet software is the good software. Microsoft Office Excel is very popular spreadsheet software. To insert/edit/delete information on regular basis maintaining file of information is not good idea, so Database Management System (DBMS) can be used to manipulate huge amount of data. Microsoft Office Access, Oracle, Microsoft SQL Server, MySQL etc. are commonly used DBMS software. To access Internet from a computer, a software is required which is Internet Browser, for example- Internet Explorer, Mozilla Firefox, Google Chrome, Opera Mini, Apple Safari etc. These browsers are also used to access the server data/information from client system on a network.

Mathematical Tools

To teach mathematics better using ICT, Mathematical tools/software assists our day to day teaching practice. Statistical software-SPSS, GeoGebra, MatLab, Minitab, Mathematica, Splus, Maple, GeStat are commonly used mathematical software that help to check mathematical solution, to draw various chats, to perform statistical test etc. Mathematical teachers have to attain mathematical software training programs at the beginning to use these software effectively.

Science Related Tools

Science education is the study of biology, chemistry or physics in conjunction with education in order to be able to teach science concepts and address students' misconceptions in science. Effectiveness of teaching and learning is required in science education through application of ICT (Aina & Kola, 2013).

Programming Tools

Programming tools are commonly included in computer subject. But these tools would be helpful to make simple program to complex software as per the requirements. QBasic, C, C++, Java, C#, and Visual Basic are popular programming software.

Encyclopedia/Encarta

Students can themselves use these software (Encyclopedia, Encarta, and Dictionary) to enhance their general knowledge using ICT. These software can be easily available in the market.

E-library

Greenstone is a suite of software for building and distributing digital library collections. It provides a way of organizing information and publishing it on the web or on removable media such as DVD and USB flash drives (Greenstone, 2015). The aim of the Greenstone software is to empower users, particularly in universities, libraries, and other public service institutions, to build their own digital libraries.

SimpleDL is digital collection management software that allows for the upload, description, management and access of digital collections and is UTF-8 compatible. SimpleDL is not limited by format and is capable of handling documents, PDFs, images, videos, audio files, and data only objects (SimpleDL, 2015).

eLibrary is the electronic books library organizer. Catalog, tag and search your books database with ease. The book's info is downloaded using the ISBN, which you can be entering manually, or let the application guess it. Guessing is done by either searching the book on Google, Amazon or (only for PDF) scanning the text for the ISBN, thus allowing you to quickly load books into the app (eLibrary, 2015).

e-Granthalaya (A Digital Agenda For Library Automation and Networking) is an Integrated Library Management Software from National Informatics Centre (NIC), Department of Electronics & Information Technology, Ministry of Communications and Information Technology, Government of India. The software has been developed by a team of experts from software as well as Library and Information Science discipline. The software is useful for automation of in-house activities of libraries and to provide various online member services (e-Granthalaya, 2003).

Computer Aided Instruction (CAI)

CAI is ICT-enabled technology that provides interactions among students and teachers can be presented on computers in the form of text or in multimedia forms; this could include multimedia objects- photograph, videos, animations, speech and music.

5. Conclusion

To obtain the advantage of ICT, educational institute is required to adapt ICT-enabled education system over current conventional education system. Many researchers have focused in ICT-enabled school, we tried to focus government level policy, and school level policy and as well as list out some very essential popular software tools, here we summarize with conclusion that developed and developing countries are having great advantage of ICT in education sector in comparison with poor countries. So in our future study we will focus on how poor countries can take advantage of ICT for managing the education system.

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