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USE OF ICT IN EDUCATION
ONLINE COMPUTER BASED TEST

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Abstract- A good education system is required for overall prosperity of a nation. A tremendous growth in the education sector had made the administration of education institutions complex. Any researches reveal that the integration of ICT helps to reduce the complexity and enhance the overall administration of education. This study has been undertaken to identify the various functional areas to which ICT is deployed for information administration in education institutions and to find the current extent of usage of ICT in all these functional areas pertaining to information administration. The various factors that contribute to these functional areas were identified. A theoretical model was derived and validated.

I. Introduction

Change has been happening at an uneven pace in any growth-oriented industry, and the education sector is no exception. Rapid growth in the field of education has made governance in academic sector a very complex task. The 21st century has witnessed tremendous advancements in technology which has led to far-reaching developments in the administrative system. Cost-effective technology combined with the flexibility in learning and administrative activities is essential to enhance efficiency. Computers can be used extensively for educational administration. The following are some of the areas where computers can be used for effective educational administration.

Information and Communication Technology (ICT) plays a vital role in supporting powerful, efficient management and administration in education sector. It is specified that technology can be used right from student administration to various resource administration in an education institution.Rajeev Singh (2008) has specified that ICT has played a major role in reducing operational inefficiency and improving decision-making in many areas of governance. An integrated Higher Education Service System is one such concept that can empower the governing bodies to administer the progress of the education plan in the whole country and serve various stakeholders in a much better manner.

According to Hossein Zainally (2008), "Information and Communication technology provides several facilities and possibilities for educational administrators to do their tasks".

I. ICT

Information and Communication Technologies (ICTs) are often associated with the most sophisticated and expensive computer-based technologies. But ICTs also encompass the more conventional technologies such as radio, television and telephone technology. While definitions of ICTs are varied, it might be useful to accept the definition provided by United Nations Development Programme (UNDP): 'ICTs are basically information-handling tools- a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. They include the 'old' ICTs of radio, television and telephone, and the 'new' ICTs of computers, satellite and wireless technology and the Internet. These different tools are now able to work together, and combine to form our 'networked world' – a massive infrastructure of interconnected telephone services, standardized computing hardware, the internet, radio and television, which reaches into every corner of the globe'.

When we talk of ICTs, we refer not only to the latest computer and Internet based technologies, but also to simple audio visual aids such as the transparency and slides, tape and cassette recorders and radio; video cassettes and television; and film. These older and more familiar technologies are referred to under the collective heading of "analogue media"
While the newer computer and Internet based technologies are called the "digital media".
However, in today's world, with the increased convergence or blending of the engineering designs and with the coming together of the satellite and the computer, the dividing lines between these different media are becoming blurred and consequently, the way people define and refer to ICTs is also getting blurred.
Often, the definition of ICTs is also done in terms of "old" and "new" as if to distinguish between the analogue and digital.
But what is "old and what is "new"? Livingstone (1999), in an extensive exploration of the idea of newness, has argued that the notion of "new" can either be seen with reference to the "newness of technology" or in the context of "what's new for society" about these media. Livingstone further argues that what is new for the western world is not necessarily so for the rest of the world. Within a social context, the introduction of radio or television may be as "new" as the introduction of Internet.
While there is much euphoria about the ICTs, after more than half a century of research, social scientists are still sceptical about tall and ill-defined claims about potential societal changes that may follow a technological innovation. This means that 'new" cannot merely be defined either in terms of time and time scales or in terms of the technology innovation.

II. ICT in Education

Evaluating technology projects is notoriously difficult. Even more so is the evaluation of educational interventions. School influence on pupils' academic or social outcomes explains only about 12 to 15 per cent of the variance, leaving 85 per cent or more to be explained by the influence of factors such as the child's family background, lifetime experience, natural ability and so forth.
Many early experiments with ICTs in classrooms were based on nothing more than enthusiasm or hunch. However, the growing emphasis on the need to show concrete benefits has led to more attempts to evaluate the impact of computers in classrooms. But evaluating ICTs in education is particularly hard, for a number of reasons.
Even in schools that make extensive use of ICTs, the amount of time spent using them in class is still generally tiny in relation to the time spent using more traditional teaching tools, from blackboard and chalk to photocopied hand-outs. In Britain, children use ICTs for an average of 45 minutes a week in primary school, and for one hour and 15 minutes in secondary school.
In addition, technologies and the way they are applied both vary greatly from one school or university to another. Many studies merely collect examples, rather than attempting to gauge teaching effectiveness. Many, too, attempt to measure the effectiveness of ICTs against quantity measures—how many computers, how much ICT software, and so forth—instead of attempting to assess quality, by looking at the ways ICTs is deployed in the classroom.
One of the most thorough attempts to set out the measurement issues in the evaluation of ICTs in schools, published in April 2002, picked out three problems:
• "Terms such as 'technology' and 'technology integration' mean different things to different people."
• "Most of the measures used in evaluation are 'home grown'…measures that directly measure the effects of each grant."
• "There is a tendency to focus more on short-term outcomes and effects, rather than seeing the interventions as part of a total package designed to change how schools function."
"Evaluations", the authors add, "are more likely to look at whether students have specific knowledge (standardized tests) than whether students have acquired higher-order thinking and problem-solving skills that would allow them to gain and apply knowledge effectively." Moreover, "evaluations are

more likely to look at whether teachers have mastered specific technology skills than to what extent they can effectively apply those skills to enhancing teaching and learning."

Few studies use random control groups of students. The result, not surprisingly, is that most studies suggest that the effectiveness of ICTs depends on how computers are used, in what context and with what expectations.

The most intensively studied application of computers in education, and one of the oldest, is that known as "computer-aided instruction": drill programs that repeatedly test a student's factual knowledge. The program poses a multiple-choice question; the student gets an immediate result. Most research suggests that, when such testing is the only basis of instruction, its result is mixed. But when it is combined with traditional instruction, in frequent and short sessions, it is more effective and speedy than traditional instruction alone. Few studies have explored whether such instruction is cost-effective. One that did, conducted in the 1980s, found it more cost effective for improving maths scores than lengthening the school day or reducing class size, but less effective than peer tutoring.

Such a use of computers is relatively simple and therefore easy to test. Much more complex to assess is the effect of ICTs when teachers use them to encourage a class to do independent research. Many such studies fall back on anecdotal evidence or on largely subjective reports of changes in children's attitudes after ICTs became available.

A rare exception is a study by two economists of the introduction of computers into many of Israel's primary and middle schools in the mid-1990s. The way in which computers were allocated among schools gave the authors something that most studies lack: comparable groups of children with and without access to computers. The authors compared the test scores for maths and Hebrew achieved by children in the fourth and eighth grades

(i.e., aged about nine and thirteen in schools with and without computers. They also asked the classes' teachers how they used various teaching materials, such as photocopied worksheets and computer programs. The researchers found that the Israeli scheme had much less effect on teaching methods in middle schools than in elementary schools. It also found no evidence that the use of computers improved children's test scores. Instead, it found the reverse. In the case of the maths scores of fourth graders, there was a consistently negative relationship between computer use and test scores.

The authors suggest three possible explanations for this disappointing outcome. First, the introduction of computers into classrooms might have used up cash that would otherwise have paid for other aspects of education. However, because the money for the computer programme came from the national lottery and not the main education budget, this is unlikely to have been the case. Nor did the study find any significant change in teaching resources, methods or training in schools that acquired computers through the scheme.

A second explanation is that effective adoption of computers in education takes time to have an effect. However, the schools surveyed had already been using computers for a full year. The third explanation is the simplest: that the use of computers in teaching is at the least no better than other methods and may be worse. As one of the authors concludes, "the costs are clear-cut and the benefits are murky."

It may be difficult to produce incontrovertible evidence on the impact of classroom computers on children's learning. At the least, it would be helpful to have some properly randomized tests, set up with the precision that would be used to test an expensive new drug. Even then, it may be hard to reach enduring conclusions, just as it has proved hard to establish without doubt that children benefit from smaller class sizes. But at the very least, there are grounds for schools to hesitate before investing in computers in classrooms, if the aim of that investment is to improve the teaching of subjects other than computer literacy. Other investments, in teaching materials or in teacher development, may have more impact on educational outcomes.

Without effective evaluation of educational impact, it is hard to measure the cost-efficiency of the use of technology in classrooms. Yet this measure becomes increasingly important as the size of ICT investments increase, and as education budgets are more constrained. In the United States, the tightening economy has caused a greater emphasis on thinking about the real benefits of technology investment, compared with its cost.

For instance, a technology planning guide released in January 2001 by the California Department of Education said, "Technology planning needs to be comprehensive and include considerations of the long-term implications of the choices made … Hardware purchased should meet district needs and have the lowest cost of ownership over the long term."

This shift of emphasis from effectiveness to cost-effectiveness is not surprising, given the weaker economy. But it may slow down the application of ICTs in public education. ICTs are a more expensive policy intervention than most. One of the characteristics of much cost effectiveness research is to find that very cheap interventions with relatively small effects are more cost effective than larger and more expensive interventions with larger effects. In addition, a greater emphasis on cost effectiveness may well slow the pace of innovation. That is a process that requires a certain amount of experiments in order to proceed.

By Using ICT we are trying to enhance education system to we are developing a system title "ONLINE COMPUTER BASED TEST(CBT)". Online Computer Based Test (CBT) System assesses students by conducting online objective tests. The tests would be highly customizable. This project will enable educational institutes to conduct test and have automated checking of answers. The main purpose behind the implementation of the "Online CBT System" is to enhance the administrative capabilities of the Organization such as school, colleges, institute, Private classes etc.

II. Software Requirement Specification (SRS):

2.1 Functional System Requirement.

The software shall support use of multiple users at a time. After a specified period of time, the remaining test will be submitted to the server and the result of the respective students will be displayed on the screen.

There are three sub modules in this application.

1. Administrator module.
2. Staff module.
3. Student module.

The functionality of each module is as follows:

1. Student module:

Student is the user of application who will register himself by filling personal details over online registration form. All the details about the Student will be taken at the time of registration. For e.g. Name, DOB, Branch, Year, Password etc. after submission of registration form Student will get a unique enrolment number instantly that will be active when admin verified a student and used as a username at the of student login. All Registered Student will be identified by their enrolment number. Student will login to the software and give his examination. The candidate will get result immediately after the completion of the examination. He can also check his previous examinations marks and his details.

Student Task:-

i. Requesting registration.

ii. Logging into the system.

iii. Appearing for the examination.

iv. Requesting Result

v. Requesting Answer key(if want)

2. Staff module:
Staff is registered by administrator and allocated a specific topic (subject). Staff username and password will be sending to their respective email. The function of Staff is to add the questions of their topic into the Question Bank and Create Question Set of associated topic and send it to admin to conduct exam. Staff can also update and delete their question bank. Staff can view students list and their result also.
Staff Task:-
i. Make question sets.

ii. Creating a test.

iii. Posting questions in the test.

iv. Time limit of the test if any.

v. Can view (Result of Student, Student List)

3 Administrator module:
The administrator is the most valuable person of this system. She/he has provided with an authority to keep track of Student and Staff and their work. Administrator verified the registered student, active the examination and have the Centralized control over the software. Administrator can check the detail of Student, Staff and can change person detail of both.

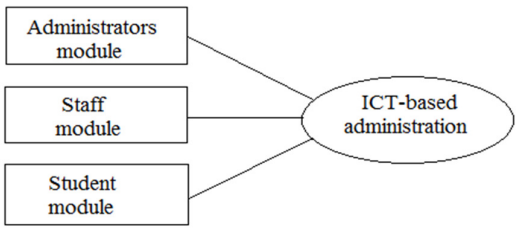

Fig. Theoretical Model For Administration

Administrator Task:-

i. Logging into the System.
ii. Changing the password.
iii. Accepting and verified registrations of candidates.
iv. Creating Account of Staff.
v. Arrange Test (Active Test according
vi. to schedule)
vii. Can view (Exam list, Result of student, Staff list)

2.2 Non-Functional System Requirements

After completing the exam, the entire score of the student will be calculated as per the rules in less than a minute. The Application should be user friendly and should require least effort to operate. The web server used provides services like session management to maintain sessions in the application.

III. System Requirement

3.1 Hardware Requirements:

Client side proposed System required processor as dual core and above. RAM should be at least 512 MB.
Whereas server side proposed System required processor as Dual Core and above and RAM should be of 1GB.

3.2 Software Requirements:

Operating System required for proposed system should be Windows 7 and above versions. Platform for developing the application will be .NET (ASP, C#).In Proposed System Server will be "MS SQL Server" and client can use system using web browser such as Google Chrome, Mozilla Firefox, and Internet Explorer etc.

3.3 Technologies

For the proposed system we are using ASP.NET with C# as Front end for user interface and MS SQL Server as a Back End to store data.

IV. Merits and Demerits

Like all innovations that we have come to accept, ICTs also have strengths and weaknesses. We should list these because it is important to know what they are especially if we are to plan and use them effectively.
Some of the strengths of the ICTs include

- **Individualization of learning:**

This means that people learn as individuals and not as a homogenous group. ICTs allow each individual to relate to the medium and its content.

- **Interactivity:**

Interactivity is the way in which a person can relate to the content, go forward and backward in the content, start at any point depending upon prior knowledge instead of always in a sequential way.

- **Low per unit cost:**

Per person, ICTs reduce the cost of education from very high to very low.

- **Distance and climate insensitive:**

It does not matter where you are, or how the weather is, you can still access and learn from ICTs.

- **Serves multiple teaching functions and diverse audiences:**

The computer and Internet based ICTs can be useful in drill and practice, to help diagnose and solve problems, for accessing information and knowledge about various related themes.

- **High speed delivery, wide reach at low cost:**

There is instant delivery of information.

- **Uniform quality:**

If content is well produced and is of good quality, the same quality can be delivered to the rich and the poor, the urban and the rural equally and at the same low cost. But ICTs also have weaknesses which we must understand. Some of these include

- **High infrastructure and start-up costs:**

It costs money to build ICT systems and to maintain them.

- **Tend toward centralized uniform content in economies of scale:**

The larger the numbers, the lower the cost. This means that sometimes we try to reach large numbers so we make content common, not taking into account individual differences.

- **Are not ideally location and problem sensitive:**

Address problems in a general way, but cannot, without special effort, solve local and culturally sensitive problems?

- **Problems of reach, access, remain:**

Not everyone has equal access; so not everyone benefits equally from the use of ICTs.

- **Tend to create new class of knowledge rich/knowledge poor:**

Those who have access and knowledge through the media become richer and those who do not become poorer, widening the "knowledge or digital gap" between rich and poor.

- **Essentially delivery systems:**

A medium is different from the content; and often we forget that we can deliver any content, because ICTs are essentially meant only to deliver content, not to change attitudes or bring about behaviour change.

- **Hard to assess impact:**

Learning from ICT delivered content is difficult to assess since such learning is of a multidimensional and long term kind, rather than from immediate learning assessment as in a classroom test.

- **Officers, trainers need reorientation and retraining:**

Just as people learn to use ICTs, trainers and officers also need training -something they sometimes resent.

- **Call for attitudinal change to understanding of teaching and learning:**

These are different media and have a different way of teaching from what we are accustomed to—therefore, they need different ways of understanding what teaching and learning is all about.

And so, they are a mixed bag and it is necessary that we recognize both their strengths and weaknesses, before planning to use them in our adult learning setup. It is more important that we recognize because if we use a technology thinking it to be ideal one, but not recognizing its limitations, we are likely to fail in our effort and then to believe that all ICTs are useless and inadequate in education.

V. Future Scope

Online Computer Based Test is designed for any Educational Organization (like schools, universities, training centres). The system handles all the operations, and generates reports as soon as the test is finish. Allow students to see or display correct answers after the exam is finish. The type of questions is only multiple choice and online CBT System is bounded i.e. Student can give exam only from an organization specified exam centre not from anywhere. The system can be designed for further enhancement. This could also be developed according to the growing needs of the Examination Centres‟ who conducts competitive, Aptitude etc.

VI. Conclusion

Information and communication technologies (ICT) have become commonplace entities in all aspects of life. Across the past twenty years the use of ICT has fundamentally changed the practices and procedures of nearly all forms of endeavour within business and governance. Education is a very socially oriented activity and quality education has traditionally been associated with strong teachers having high degrees of personal contact with learners. The use of ICT in education lends itself to more student-centred learning settings. But with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in the 21st century. In this paper, a literature review regarding the use of ICTs in education was provided. Effective use of ICT for Education, along with ICT use in the teaching learning process; quality and accessibility of education; learning motivation; Learning environment. Beside an overview of the ICT and scholastic performance.

REFERENCES

1. Wikipedia-ttp://en.wikipedia.org/wiki/Information_and_communications_technology
2. TechTarget- http://itknowledgeexchange.techtarget.com/ modern-network-architecture/cloud-network- architecture-and-ict/
3. Department of School Education & Literacy, Ministry of Human Resource Development, Government of India- http://mhrd.gov.in/ict_school
4. Manual Question Paper of HVPM‟S COET, Amravati.
5. http://www.deftinfosystems.com/index.php/application/e-education-system/online-examination-system.html
6. Manual Examination of Amravati University (SGBAU)

