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“ROLE OF INFORMATION TECHNOLOGY IN EDUCATION SECTOR: SCRUTINIZING ITS MERITS AND DEVELOPMENTS”

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Abstract

It's known that technology has invaded in all industries and for almost all services. This article will concentrate more about merits of technology in Education sector and highlights its crucial prominence to its fraternity. Many institutions have adopted IT inside their campus and reaping their fruit however on bird's view there may be few left-outs who are still demanding authenticity. There are needs to still extend the service in Education sector, for instance Online Education has become a global hit but still many students do not conceive it as professional mode of education. Only leading Institutions like Oxford and Harvard are gaining advantages by these innovations. Author has taken efforts to collect all relevant information's and put in simple & readable format herewith. Justifications are provided wherever necessary. Implementing appropriate technology is under the discretion of institution and their requirement. This report does not campaign or probagand any particular technology system or software that needs to be adopted. Evaluating the vox-pop outputs from Institutions, IT Enabled Service companies and fraternity of the institutions, the research was done.

Keywords

Technology in Education, Education System, Technology, Education, Education Software, Technology in Academics

1. Introduction

Computers are no more Luxury they have become a necessity. Considering Computers, as appliances will merely reduce its utility. Large Corporates cannot assume in their wildest dream a scenario without Technology. Introduction of Computers into all fields have increased the productivity of the nation as whole. Manufacturing, Retail, Agriculture, Automobile, Aviation, Communication, Textiles, Services, Banking etc. industries uses nearly 83% of Information Technology components or its allied services (*Malaysian Royal Police Cops, Research Report on Cyber Crime 2013*). The Credit of Watching a LIVE telecast of soccer game in Kuala Lumpur, which is happening in Brazil, goes to innovation in Technology; the Advantage of alarming complete Tokyo citizens about earthquake probability is because of Technology; the comfortless of performing a laser bye-pass surgery is due to entrance of Technology into Hospitals. Today in all fields and undoubtedly in every field there is an involvement of Technology. The growth is massive in very short span. National Aeronautics and Space Administration (NASA) admits that technology invasion has been spectacular in the field of Astronomy since its embarkment (New York Times, Feb 26th 2012). Similarly there are many large multinationals as well as government bodies who vouch the merits of Technology. Predominant fact is Computers increases the productivity.

2. Technology in Education

One of the sectors that have also been scaled up its outcome & service is, Education. Technology in the classroom with in the School is an increasing fact in today's world. This cannot be considered just as asset to the classroom, but its utility is beyond imagination. In service of Education, for utmost experiential learning the pupils require technology and in other hand, the management requires it as vital resource for better productivity. This essay shall concentrate primarily about Technology involvement in Management side of Education sector.

Infants and toddlers are even exposed to educational software on both computers and hand-held devices. Educational software claims to benefit children for cognitive abilities, such as reading readiness, maths, language and pattern recognition. Unfortunately, during infancy and the toddler years there is no empirical research to validate these claims. But It's true that the addition of instruction using computer technology is beneficial to student achievement. At the same time I don't believe that instruction should be solely based on computer technology. That's the reason why we say 'E-Learning' alone cannot improvise student's learning capability, it has to be blended with face-to-face tutorship. However, I agree that technological

instruction combined with manpower for instruction is extremely successful. Therefore, I will address the effectiveness of computer use or technology in education. To put it precisely I will profoundly disclose about Technology Innovation in Education sector.

I reviewed an article stating that technology is imperative to improving student achievement. Everyone knew technology comes at a cost. Successfully using technology in schools requires quality professional development. The best way to incorporate technology into the classroom is to add to what is already being done. Technology does not necessarily need to replace something. Technology should be an addition. Computers can address a variety of subject areas at once. One example this article gave was of a fourth grade teacher having a special needs made students to use Word to type a story. By doing this, the student recognized spelling mistakes and grammatical errors. Also, this same teacher found that by having her students use Excel, the students gained a better understanding of fractional parts and proportions.

For the purpose of efficiently running an institution and to provide better learning environment, the institutions try to technologies their campus. There are many journals and news feeds about this. Among that I meticulously reviewed around six journal articles and in that technology use in the classrooms was evaluated. In all of the articles, results showed academic progress due to computer technology in a variety of subject areas. The first article I reviewed was based on the knowledge that using technology in the classroom prepares students for their futures.

3. Utility of Technology

People use technology for learning, work and leisure activities. Computer use allows for better student time on task. The students show increased attentiveness for longer lengths of time when learning through use of technology. Also, the students are more likely to be engaged in learning during interactive multimedia technology. Another benefit reported in this particular article is computer use as a tool for more individualized instruction for the student. With the many budget cuts in education, class sizes seem to increase. Computers can provide that individual instruction that students need.

Another study researched the effects of online instruction on reading and mathematics test scores. Previous research had revealed higher achievement on homework assignments when using online tutorials (Sasser, 1991). The online tutorial that was developed and used in the experimental group was called FCAT Explorer. The study examined elementary and

secondary scores in reading and mathematics. I particularly liked this study because it looked at results in two different subject areas.

4. Case Study – Short Note

Results from the study reported elementary students that used FCAT Explorer had significantly higher scores than students that did not use the online tutorials. However, in secondary students, no significant difference was found in scores in the students that used particular software and students that did not use the tutorial. Other researchers from Marshall University in West Virginia were asked to evaluate the effectiveness of its computer software on the reading scores of middle school students. Merit Software is an educational software publishing company. The researchers asked Calhoun County Middle/High School in Mount Zion, West Virginia to participate in a study to evaluate the effectiveness of this company's software. One of the reasons Calhoun County Schools may have accepted to participate in the study is because previous research reported reading comprehension to increase using computer technology (Greenlee-Moore & Smith, 1996).

The Merit Software programs are based on contemporary constructivist theories (Anderson & Krathwohl, 2001). The Merit software provides teachers with fast and essential feedback so as to allow for better response to instruction. The researchers chose a control group and experimental group from the school. The teachers in the experimental group were trained to use the software from the Merit Software Company. The intervention used in the on the experimental group was two 30 minute sessions per week on the computer using this program. The results from the study showed that computer instruction, when associated with everyday classroom instruction, significantly increases standardized reading test scores.

I then reviewed a study that explored interventions used to improve the academic achievement of students struggling in Introductory Economics classes. This study sought to improve motivation in students in order to increase student achievement. This intervention did not cover classroom material. Instead, the intervention provided students with tips on practicing mastery goals and motivational issues. There were two interventions used in this study. One intervention was an in-class lecture and the other was an interactive computerized tutorial. Both of the interventions were successful in enhancing student achievement. However, only 12% of the students concluded the in-class intervention while 55% of the students completed the computerized tutorial intervention. Students who attended the in-class lecture had slight but increasing exam scores. However, after the computerized tutorial intervention, the experimental group outscored the control group by nine points on exams. By the fifth examination, the

difference was twenty-five points, which was a significant difference.

5. Learning Outcomes of Technology

Another question is how much software use is sufficient to produce a difference in learning outcomes? For example, the selected software programs were used, on average, for only about 10-11% of the instructional time.¹ more importantly, what is not clear is the degree to which the other, 90% of instructional time was meaningfully coordinated with computer use. If the use of educational technologies is regarded as a separate classroom activity, rather than an integral one, its effectiveness will clearly be limited. There is some evidence to support this position in the report, particularly for fourth grade, where effects were larger when teachers in the treatment condition reported higher levels of use of the selected software programs.

There are several questions about the training the teachers received, how it was implemented in the classroom, and how student learning was assessed. Was the length of the intervention adequate to observe an effect? Furthermore, how much training do teachers need to effectively use educational software? For example, the fact that teachers' confidence in using the software dropped from 95% after training to around 60% after they began to use the software suggests that perhaps teachers were not adequately prepared to use these technologies or that they realized its limitations once they actually started using it (Response to Reading and Mathematics Software – Effectiveness Study, 2012). One can also question whether standardized test scores are the only appropriate measures of student learning?

6. Basic Principles

There are many benefits to using computer technology in the classroom. However, there are potentially negative areas to consider when adding computer technology to the classroom.

- The first is to be careful not to use the computer as a babysitting device for a student.
- The computer items and materials can be expensive. The wrong choice in software can be straining to school budgets. Most educational communities want evidence that the technology they are investing in is worth the investment.
- The teachers must have adequate training in technology for the technology itself to be successful.
- Finally, the computer should be looked upon as an additional instructional resource not a sole instructional resource.

Classrooms with Internet access went from 3% in 1994 to 94% in 2005 to almost 100% in 2013. Nineteen percent of public schools loaned laptop computers to students. Forty-five percent of public schools with Internet access used wireless connections in 2005 and of those schools, 97 percent used broadband wireless Internet connections. In 2005, 15 percent of all public school instructional rooms had wireless Internet connections (Computers in Education, *By Carla Cooper and Evelia Ramirez*, December 2006, University of California at Berkeley). According to a recent research of 2014 done by ASEAN Informational Technology committee, more than 99.2% of them use Internet and Broadband facility in Schools.

7. Benefits to Education Management Software

There are larger benefits of technology invasion into the management function of the institutions. The monitoring and productivity has come in positive aspect once the computers are replaced manpower to perform arithmetical and analysis works. Apart from it, there has been development of new software's to inter-connect the departments of the institutions. Many IT firms in India are constantly developing new software's on daily basis by updating and innovating from the old. Market is flooded with software's. Following are few merits of these software's to the institutions. This Software's manages all relevant information and produces proper report whenever required which can help the institution for better management. They are, Easy to use school software/college software,

- Reliable and secure software
- Complete Automation of operations
- Helps on Decision making for the Management
- Can manage Multiple Campuses
- Scalable, Customizable and Supports Multiple Modules
- Parents have access to all academic information about their wards through the internet
- Easy performance monitoring of individual modules leading to uncomplicated error detection
- Automated and quick report generation along with process turnaround time
- Centralized data repository for trouble-free data access
- Authenticated profile dependent access to data

- User friendly interface requiring minimal learning and IT skills
- High level data security
- Design for unproblematic scalability
- Elimination of people-dependent processes
- Minimal data redundancy

8. Educational Software System Utility

Table 7.1: Advantages of College Management System (Source: <https://www.advantainnovations.co/m/benefits-school-college-management-system.aspx>)

| Benefits to Management | Benefits to Parents | Benefits to Teachers | Benefits to Students |
|---|---|--|---|
| <ul style="list-style-type: none"> • Zero redundancy in managing the institutions records • Effective communication between teachers, parents and students • Complete automation of all operations • Centrally stored information with zero redundancy • Best possible resource optimization • Auto-generation of timetables with dynamic substitute management • Availability of microscopic as well as | <ul style="list-style-type: none"> • Get connected to the school effectively and easily • Frequent interaction with teachers • Active participation in school Activities • Reliable update on child's attendance, progress report and fee payment. • Prior information about school events and holidays • Regular and prompt availability | <ul style="list-style-type: none"> • Automated student attendance • Computerized management of marks and grades • Timetable creation in advance • Availability of more time for students • Efficient and effective interaction with parents • Access to a forum common to students and parents • Access to own and students' attendance • Better organization of | <ul style="list-style-type: none"> • Enhanced interaction with teachers, parents and peers • Access to attendance, timetable, marks, grades and examination schedule • Liberty to publish articles and views, and participate in discussion forums • Freedom to browse through library books catalogue and identify the book(s) to be issued • Prior information about school events and |

| | | | |
|---|--|--|-----------------|
| <p>macroscopic views</p> <ul style="list-style-type: none"> • Cost-effective one point solution for total school management • Save a lots of investment in different software and Management issues | <p>of school updates through articles, discussion forums, image gallery and messaging system</p> | <p>school Activities</p> <ul style="list-style-type: none"> • Manage class information and analytical reports • E-mail & Internal messaging system | <p>holidays</p> |
|---|--|--|-----------------|

8.1 The Supposition

As academicians, it is our job to teach students the value of information and the value of having access to that information. Current technology lets students produce spreadsheets, multimedia reports, graphics, timelines and many other technological concepts that were extremely difficult before computers were invented. Students in today’s world have almost everything at their fingertips. Students can obtain information from anywhere in the world. The advantages of using the computer in the classroom far outweigh the disadvantages. As educators, it is again our responsibility to implement utmost IT infrastructure in the institutions. Not merely for monitoring the staffs or for improving revenue, but for the sake of providing better delivery of service. Technology has taken a big bounce in all industries and Education sector is not an exceptional.

Education Sector is service oriented and is forced to provide utmost best services when it comes to Management Informational System. The productivity of staffs as well as engagement of students are well improved by interference of Information Technology. For instance, soft board is less used nowadays in classrooms. Most of teachers use only their digital slides and less of hand written works in classroom there is an evident increase of usage of IT in education sector. The benefits can be accurate data maintenance, easy class delivery, student understanding capability etc.

While there is still long way to go it should be noted that all institutions and students should be aware of its benefits. This article, I wish and hope that it will stay for that purpose.

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