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Role of ICT to Enhance Teaching and Learning Process in Mathematics

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Abstract:

The aim of the present paper is to synthesizes the research literature on teachers use of Information and Communication Technology (ICT) in undergraduate level. The purpose of the study is to explore students and mathematics teachers' use of Information and Communication Technology in the teaching and learning process of mathematics. ICT gives emphasis to improve the quality of teaching and learning in the Mathematics. Advances in ICT will mean an enormous increase in the amount of information available to our students as they study their courses and as they move into the workplaces , but this must not be the limit of our expectations. We wants to attend the perceptions and beliefs about Information and Communication Technology and their motivating effects, technological literacy, con?dence levels, pedagogical expertise related to technology use and the role in undergraduate level mathematics education. These factors are considered in light of signi?cant infrastructure and other external issues.

Key Words- Information and Communication Technology (ICT), Mathematics Teaching , Innovative teaching, Learning environment, Computer-integrated manufacturing (CIM).

Introduction: Information and Communication Technology is the need of the day and one of the most discussed subjects of our everyday lives. In recent years, it seems there have been a sudden increase in the demand of ICT for teaching and learning of mathematics at undergraduate level such as computers, internet, overhead projectors, slide projectors, A-V materials, hand held calculator, printed materials, films motion pictures, sound and video recorders, improvised materials etc. The introduction of these modern tools at undergraduate level shall improve the teaching and learning of mathematics. The traditional education delivery system has been a classroom setting with a teacher giving a lecture and students listening and writing notes. The problems confronting mathematics teaching and learning at undergraduate level that cause poor performance of students should be addressed. One way of doing this is through the use

of information and communication technology. Interaction between the teacher and student has been viewed as an essential learning element within this arrangement. However, innovations in educational technology use of proposal as delivery mechanisms have challenged this paradigm. Advances in Information Technology (IT) are enabling little used educational delivery methods such as Distance Learning to gain new life. In addition, the advances in IT have ushered in a new paradigm, On-line Learning. The result is that many universities have adopted distance and on-line education as the next logical step in educational delivery systems. These systems are being promoted as the educational pedagogy of the future. Technology becomes a more widespread part of the Mathematics education. Schools and colleges cannot ignore the impact of technology and the changing face of curriculum.

The ICT System: There are some components to any Information and Communication Technology system, these are as follows:

Hardware: the physical devices that are needed to enter the data, to process the data, and to display the information in the most appropriate format. The hardware will include a keyboard or scanning device to enter the data, a microprocessor to calculate the readings into the amounts due, and a printer to print off bills to send to customers.

Software: The program that stores data such as names and addresses, and different rates and charges, that when readings are entered instruct the processor to produce the results of the calculations.

Procedures: Procedures are the ways in which tasks should be done as directed by the management of an organization. This will include how data is to be used, how systems are developed to suit the required outcome. All administration runs using predetermined procedures.

Information: The output of all the processing from the Information and Communication Technology system, bills are presented for the gas company's customers. Effective ICT use in education increases all round development students. If ICTs are to be used effectively that adequate teachers to develop new skills, explore their integration into their existing teaching practices, develop critical thinking and utility base curriculum,. However, Information and Communication Technology can be important tools to help meet such increased needs, by

helping to provide access to more and better educational content, aid in routine administrative tasks, provide models and simulations of effective teaching practices, and enable. learner support networks, both in face to face and distance learning environments, and in real time or asynchronously.

Objectives of ICT use :

Make the teaching learning process more interactive and effective.

Helps in motivating the students towards Mathematics education.

Enables students to interact with teachers and experts.

Expansion of provisions of basic education and training in other essential skills.

Increased acquisition by individuals and families of the knowledge, skills and values required for better living and sound and sustainable development.

Information and communication technologies (ICT) has emerged as one of the most important aspects of human life and it has affected every aspect of school working including administration, time table, lesson delivery, project work, evaluation, examination system etc. Information and Communication Technology have made teaching-learning process more relevant for the learner and connected to real life. The education system is the main source of human resource development.

A Computer Aided Design software package allows a designer to create technical drawings and schematics. There are two main types of packages - 2D (two dimensional) which concentrate on 'flat' drawings having width and height, for example, a garden design program. The other type of CAD package is 3D (three dimensional) which allow you to deal with depth as well, for example a kitchen design application. The bene?ts of using CAD are that fast and accurate drawings are produced as well as tests are carried out electronically without the need of physically carrying it out, being time and money consuming.

Computer Aided Manufacture means to use a computer to program, direct, and control production equipment in order to manufacture products. Its primary purpose is to create a faster production process and components and tooling with more detailed dimensions and material consistency, which in some cases, uses only the required amount of raw material (thus

minimizing waste), while simultaneously reducing energy consumption. For example, on the production line of a car plant computers will control the robots that spot-weld the car body together or the robots that spray paint the car.

Computer-integrated manufacturing (CIM) is the manufacturing approach of using computers to control the entire production process, it is the total integration of computer aided design and computer aided manufacturing. The computers that design the products are linked directly to the computers that aid the manufacturing process.

Electronic Point of Sales is a computerized stock control system employed by ?rms it works by a laser at the checkout scanning a product's barcode. A computerized database then matches it to the correct item and the stock level is reduced by one. It prevents the ?rms carrying too much or too less of stock and sends an automatic reorder to the suppliers eliminating the time consumed.

ICT Enabled Course Structure competency & performance based approach towards it. To include advance technology and practical approach / Syllabus: It is the need of the day to improve quality & structure of the syllabi by enforcing is also one of the important. One such curricula requires, 1) Access to information types & different forms. 2) Student-centered learning though information access. 3) Learning environment concentrated on information access & inquiry. 4) Real life examples. 5) Teachers as mentors rather that content experts. The role of ICT in the education at secondary level chronic and unavoidable. It is challenge to integrate ICTs with schools, into their strategies and educational process. It should be implemented at national & international level. It will be helpful to improve quality and ?exibility, the widening access to the ?eld of tuition. ICT can be an effective tool in supporting teaching and learning. However, it is now ?rmly established that its introduction into schools does not by itself improve the quality of education or raise attainment. Encouragingly, there is growing and widespread awareness that the pedagogical and technical expertise of the teacher is absolutely critical here. This problem is further exacerbated by growing poverty and lack of funding. Effectively introducing technology into schools is also largely dependent upon the availability and accessibility of ICT resources (e.g. hardware, software and communications

infrastructure). Schools are increasingly being equipped with computers for teaching, learning and administrative purposes, connectivity is improving and students are enthusiastic about using computers for learning, despite the lack of equipment available. Some countries are developing digital content for use across the curriculum. Nevertheless, access and usage of ICT, like the electricity supply itself, remain rather sporadic.

Impact Of ICT On Students : The ICT has a positive impact on students learning, critical thinking and mathematics achievement. It is also widely acknowledged that ICT can be used to improve the quality of teaching and learning in the school system (Yusuf, 2000). ICT provides a lot of services for students including educational programs, inexpensive printing, technology equipment, rentals classroom media stations, etc. Lecturers and students get relevant materials needed through the Internet. Such quality materials are used in equipping the students and upgrading their knowledge in their ?eld of study. Impact on Pedagogy When ICTs are used properly to complement a teacher's existing pedagogical philosophies, ICT provides knowledge based system that includes knowledge acquisition, knowledge incubation, knowledge strengthening and knowledge spreading. It is evident that information is a key resource which permeates teaching, learning, research and publishing. To this end, Robinson (1991) in Okeh & Oporse (2007) stated that the use of new information technology can serve three main functions in the national educational growth. These are to: a. deliver all or part of the learning experiences to learners; b. supplement and extend content provided in different forms other than printed (hard copy); and c. provide a two-way channel of communication for exchange between tutors and students with their peers for feedback or for learning, problem solving, advice, debate, and reports.

Conclusion : The use of ICT in Mathematics is playing an important roe in teaching, learning and understanding the subject and is also helpful for the enrichment of knowledge of students and Indian society. ICT used by student to do self-study or tutorials on PCs, has been definitely show slightly improvement in their test scores on some reading and mathematical skills. These improvement correlates to real improvement in student learning. Develop learner con?dence and behavior which Students use ICTs at home, and for personal use, also use them in college

more frequently and with more con?dence than students who have no home access. New technology is one of the most in?uential forces that is changing the role of both the teacher and student.

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