International Journal of Research in Social Sciences
Vol. 8 Issue 7, July 2018,
ISSN: 2249-2496 Impact Factor: 7.081
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

USE OF ICT IN TEACHING MATHEMATICS AT PRIMARY SCHOOL IN WEST BENGAL

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Abstract

Indian schooling system provides opportunities of ICT (Information and Communications Technology) only for secondary level not for primary level. Also, West Bengal Board of Primary Education does not provide any opportunities of ICT for primary level. But it need for primary teacher to use ICT for teaching and official purpose. Children start learning with basic literacy and basic mathematics at the primary level. In the present time technology is essential to build up students' basic and advanced concepts of mathematics. There are so many tools and software for basic and advance mathematics practices. It also helps in evaluation process. So, ICT is useful for mathematics teaching learning process at the beginning of schooling. The main problem is that in West Bengal ICT integration is not a priority at primary level so it brings down the interest of teacher to use ICT. It is need to be compulsory use of ICT in primary school and teachers should be trained to use ICT for teaching and instructing students for making students with ICT minded.

Keywords:

ICT;

Primary;

Mathematics;

Technology;

Teacher;

School.

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1. Introduction

Primary education usually begins at ages five, six or seven and lasts for four to six years (UNESCO, 2012). In West Bengal it begins at ages six and lasts for four years (SED, 2016). At the primary level generally require no previous formal education (OECD, 2003). The main activities of primary education are reading, writing and mathematics. It is common for children to begin learning basic literacy and numeracy skills at the primary level.

According to UNESCO (2012), ICT is commonly used as an umbrella term for a wide collection of computer based instruments, resources, environments, procedures, and skills used for obtaining, processing, and communicating information. Particularly, computer-assisted learning can significantly help in developing proper mathematical skills in comparison to the traditional mathematical teaching method (Dimakos & Zaranis, 2010). According to Ittigson and Zewe (2003), in teaching and learning mathematics technology is essential. ICT improves the way mathematics should be taught and build up students' basic concepts of mathematics.

In India, ICT in schools have been subsumed in the Rashtriya Madhyamik Shiksha Abhiyan (RMSA). The ICT in Schools was launched in December, 2004 and revised in 2010 to provide opportunities to secondary stage students only (MHRD, 2016).

According to Gersten,*et.al.* (2005) the mathematical difficulties of a student is correlated with insufficient development of mathematical thinking in his/her early years. The students more efficiently understand the different mathematical notions with appropriate use of computers (Trouche & Drijvers, 2010). Thus, not only in secondary education but also it becomes obvious that in the primary school level a very attractive environment of investigating the computer use in mathematics education emerges.

2. ICT in Primary School

The use of ICT in the primary school mainly helps the teachers in two ways: It should be helpful for official work and ICT enhances the teaching and learning process directly.

2.1. General Use of ICT: Generally ICT can be used to produce an official letter and notice using a word-processing program, e-mail a file, file electronic documents in folders and sub-folders on the computer, take photos and show them on the computer, make a spreadsheet program for budgeting or student administration, share knowledge and experiences with others in a discussion forum/user group on the Internet, produce presentations with simple animation functions and online purchases and payments.

2.2. Use of ICT in Aspects of Teaching: Beside the general use of ICT, it is more important to use ICT in Teaching for primary school. Teacher can prepare lessons plan with help of ICT. They can find useful curriculum resources on the Internet and use it to give effective presentations/ explanations in the class room. There are various types of technologies like Radio, television, audio tape, video tape, slide projector, overhead projector currently used in traditional classrooms. The teachers can also use advance ICT tools for teaching learning like Class blogs and wikis, Wireless classroom microphones, Mobile devices, digital cameras, video cameras, Interactive Whiteboards, Digital video-on-demand, Online media, Online study tools, Digital Games etc. These can be used depending on the local school board and if the funds available.

3. ICT in Teaching Mathematics

The use of technology in mathematics education is not a new issue; it has a long history in mathematics education. Starting from magic slate, book, magic lantern, Blackboard, OHP (Over Head Projector), radio, Slide rule video tape, Television, Calculator, computer, Interactive Board, Apple I pad all come under technology. Paper money and coins, beans, bears, buttons, and other small items are helpful for counting and computation skills (Rajkumar & Hema, 2016). McAlister *et.al.* (2005) examined teachers' attitudes towards the use of computers in teaching mathematics in the primary school classroom. Positive attitudes of teachers towards the use of ICT in teaching and the availability of the necessary resources would facilitate the use of computers in teaching mathematics in the primary classroom. The computers could be used as a tool in supporting and enhancing students' learning as well as a tool for teaching. Technology provides opportunity for his /her students to collaborate with others. Internet cannot replace the teacher, here the teacher acts as a facilitator, as she or he must set up the task, pose questions, provide appropriate websites, and give feedback.

Naturally in mathematics class room the teachers are used the tools like

Graphic Calculators: In 1985 Casio introduced the fx-7000G, the first commercially-viable graphing calculator (Morris, 2014). Since then, their use has been included in the mathematics curricula of several countries. According to Waits and Demana (1994), It is useful for secondary and higher secondary students to solve their mathematical problem. But at primary level it is useful only for teacher.

Microsoft Excel Spreadsheet: It is very use full for solving low level of mathematical problems. The user can easily use the mathematical operation like addition, multiplication, subtraction, division of numbers. It also useful for official work and in making of marks sheet and maintain the records of students.

Microsoft Mathematics: Microsoft Mathematics provides a set of mathematical tools that help students get school work done quickly and easily. Students can learn to solve equations step-by-step while gaining a better understanding of fundamental concepts in pre-algebra, algebra, trigonometry, physics, chemistry, and calculus with it (Microsoft, 2011). It includes a full-featured graphing calculator that's designed to work just like a handheld calculator. Additional math tools help you evaluate triangles, convert from one system of units to another, and solve systems of equations (Microsoft, 2011).

Auto shape: AutoShapes is a tool to help us draw objects on our document in MS office. We can also put a Text Box inside it, or other shapes. We can move or resize them as required. The teacher can use this feature to prepare an e-content containing lines, curves etc. of mathematics.
The mathematics teacher can use ICT within a curricular area or use a cross-curricular approach to integrate the learning skills of students. For example, the child can be enabled to solve logical problems using Web Quests and Learning quests with help of teacher.

The child can be enabled to develop the comprehension skill by analysing, synthesising, summarising, and evaluating web-based texts and materials retrieved from the Internet and CD-ROMs prepared by the teachers.

4. ICT in Evaluation

Technology provides different assessment tools such as Checklists, rating scales and rubrics to assess the 21st century skills such as creativity, problem solving, decision making and leadership skills which are criteria for project based learning. The teachers can access number of printable worksheets for Mathematics. Checklists, rating scales and rubrics are readily available in some educational websites. The students can do self evaluation through different online tools and get immediate feedback for correction (Rajkumar & Hema, 2016).

5. Obstacles to Using ICT at Primary Level

In primary education ICT integration is not a priority, it's only available in some selected secondary school. So, there exist no accesses to computer or technical support for using ICT in primary school of West Bengal. If some teachers are want to use ICT in personal interest there in not any time in school schedule for teaching involving ICT. We have to, lack of knowledge about ways to integrate ICT to enhance curriculum for primary section, no any teacher training opportunities available for ICT skill development.

6. Recommendations and Conclusion

The study recommends the following:

i) It is need to be use ICT in teaching mathematics in all primary school.

ii) The schools should be resourced with ICT infrastructure to be able use ICT for teaching and learning.

iii) The teachers should be trained to use ICT for teaching and instructing students.

iv) Also teachers have to receive sufficient resources (time, training and support) to develop the skills and knowledge required to effectively integrate ICT in their teaching and learning.

v) Students need to be introduced to the use of ICT for learning at school.

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