International Journal of Engineering Science Invention (IJESI)
ISSN (Online): 2319 – 6734, ISSN (Print): 2319 – 6726
www.ijesi.org ||Volume 7 Issue 8 Ver II || Aug 2018 || PP 11-14

Improving Learning Ability and Skill in Mathematics Using ICT Tools

Mr.P.Charles Paul, Mrs. J.S.Chithra.
Lecturer in Mathematics, District Institute of Education and Training, Lawspet, Pondicherry.
Lecturer in Science, District Institute of Education and Training, Lawspet, Pondicherry.
Corresponding Author: Mr.P.Charles Paul

Abstract:*This paper aims at exploratory role of ICT in educational provinces and to afford an integrated blended programme for teachers and students working in the field of teaching. The use of ICT in teaching-learning process is a rapidly emerging phenomenon and it has been the educational researchers' focus. Today, information and communication technology (ICT) is of first race in the education systems, particularly in the field of education, science, engineering, medical development processes. The effective integration of this technology into classroom practices poses a challenge to teachers and administrators. The main objectives of this paper is to develop and Strengthen the mathematical concept of "Special Graphs" ,"Geometry", "Algebra", "Statistics" in Diploma in Elementary Education of the Tamil Nadu State Board. The tool used in this study is online software "Robocompass", "Geogebra", "Desmos" to study mathematical concepts and its applications .The author of the study suggested that all type of Geometrical skills ,Graphical equation, Statistical concept can be drawn and evaluated by using the three ICT tools instantly. In general graphical and geometrical concepts develop the skill to track the properties of all mathematical concepts.*

Keywords: *ICT, Robocompass, Geogebra,, Desmos.*

Date of Submission: 29-07-2018 Date of acceptance:16-08-2018

I. Introduction

Educational systems around the world are exposed for increasing pressure to use the new information and communication technologies (ICTs) to teach students the knowledge and skills they need in the 21st century. There is a extensive acknowledgement that ICT can be used to increase both learning and teaching in one go. It has great feasible, to make over the ways in which the teachers teach and the students learn. ICT provides a collection of powerful tools that can help in transforming the present sheltered, teacher centred and text-bound classrooms into technology enriched, student-focused and interactive knowledge environments. As a learning tool, ICT gives some better opportunities in terms of the learning competence and quality. It provides opportunities for greater elasticity, interactivity and convenience for attractive teaching and learning at the individual, group, and communal levels. In order to gain positive outcomes of ICT, there are some foreseeable problems that need to be overcome by educational institutions and people responsible for the functioning of this innovation. Today, there is a growing attentiveness among policy makers and educators that the educational system needs to be rehabilitated if it is to effectively equip students with the knowledge, attitudes and skills that they will need to succeed and thrive in the knowledge economy. The teacher education system of the country in particular needs to take full cognizance of the ICT input in making this pioneering process successful. The need of the hour is to develop technology savoir-faire teachers who are able to prepare students for the 21st century digital age, providing them significant education through the amalgamation of technology in the process of education through healthy blending of the faction of traditional pedagogy with the impress of the faction of ultra-modern ICT inputs - electronic as well as others. Thus the process of schooling must be envisaged not simply smart or extra-smart but also targeted at delivering what it ought to in order to make room for building a true learning society, a truly smart knowledgeable era.

II. Need and Significant Of The Study.

ICT plays a major role in creating the pleasant classroom environment in the present scenario. Nowadays the dropouts in school as well as higher education are on the fear of the subject like mathematics. In order to create interest in mathematics subject and reduce the dropout level ICT plays a major role in create the learning environment in mathematics .ICT tools like Robocompass, Geogebra, Desmos plays a precious role to develop the mathematical skill among the students and it is used to improve the skill for slow learners. Most of the schools in Puducherry is fully furnished by ICT lab. By using these ICT lab puducherry teachers both working in rural and urban effectively used this software tool to enrich the mathematical content.

III. Objective Of The Study

The objective of the study is to how to introduce ICT in Teaching and learning in Teacher Education curriculum of Diploma in Elementary Education of the Tamil Nadu State Board.

i) To incorporate the different ways of teaching Diploma in Elementary Education both First & Second Year of Tamil Nadu State Board using the dynamic online software tool Robocampass, Geogebra, Desmos.
ii) To measure the improvement in Mathematical skill in Diploma in Elementary Education students.
iii) To reinforce the mathematical concept of "Special Graphs", "Geometrical shapes", and Statistical diagrams and calculation by using suitable examples from the source book of Diploma in Elementary Education of the Tamil Nadu State Board.
iv) To appraise the improvements in Mathematical co ordination skills and psychomotor domain among Diploma in Elementary Education students.

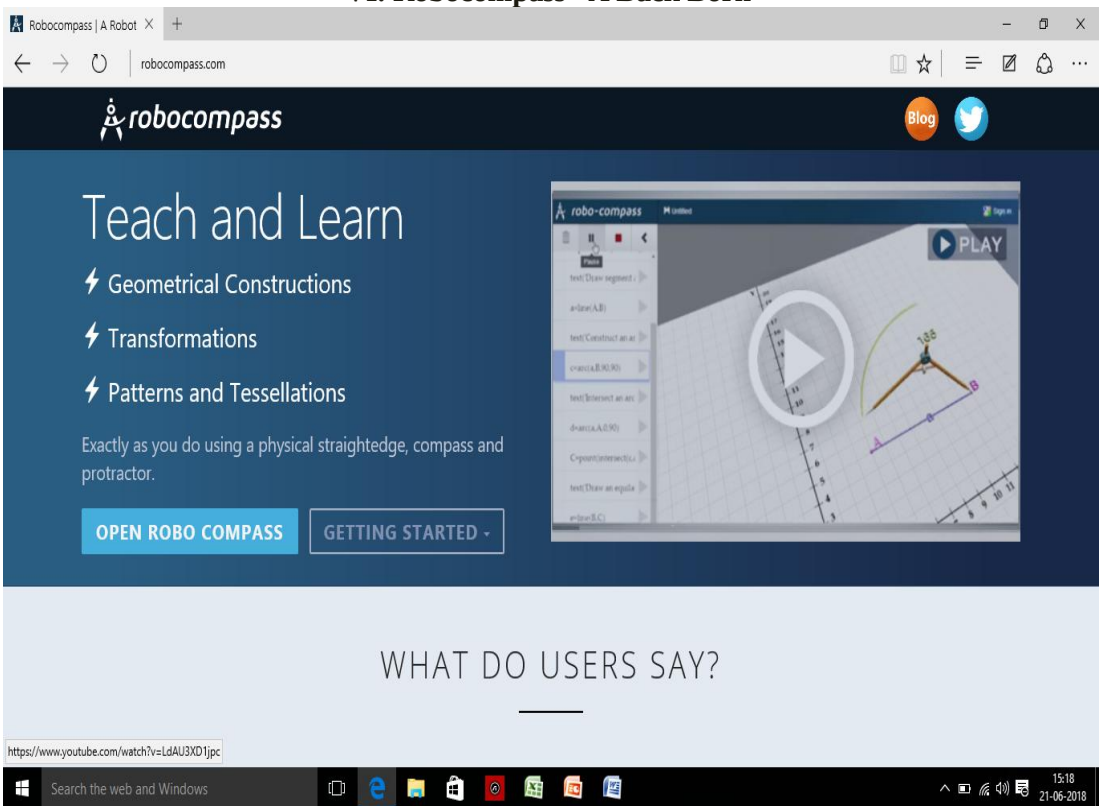
IV. Tools

- Robocompass online tool is used to construct the geometrical figures
- Geogebra free online open source to draw a graph and to do the algebraic and statistical problems.
- Desmos free online open source to draw a graph in a lively mode.

V. Methodology

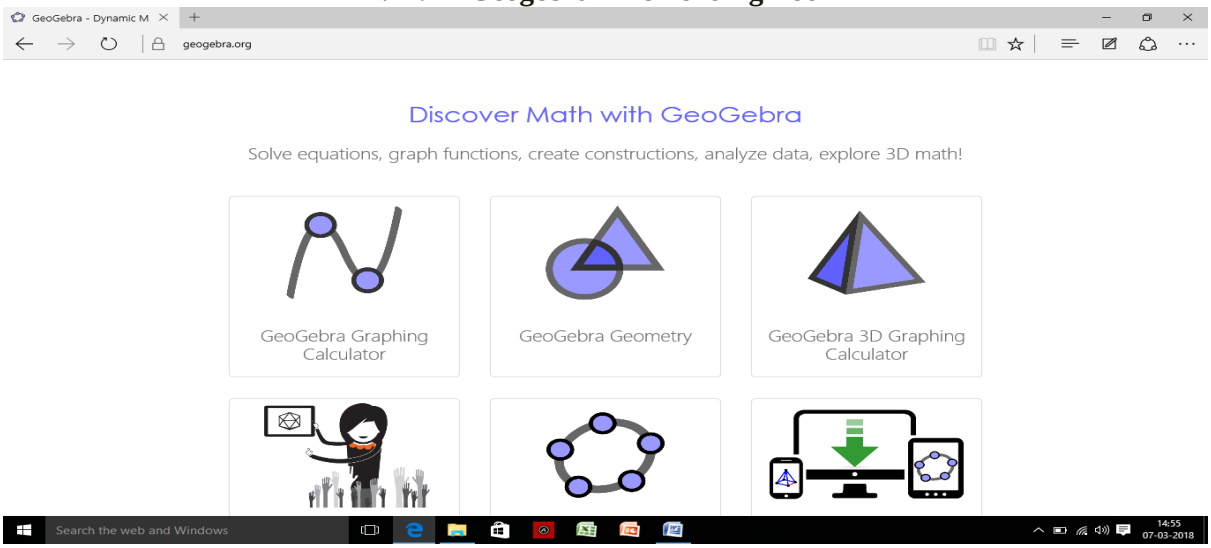
The method adopted for this study is an descriptive method, analytic method

VI. Robocompass –A Back Born



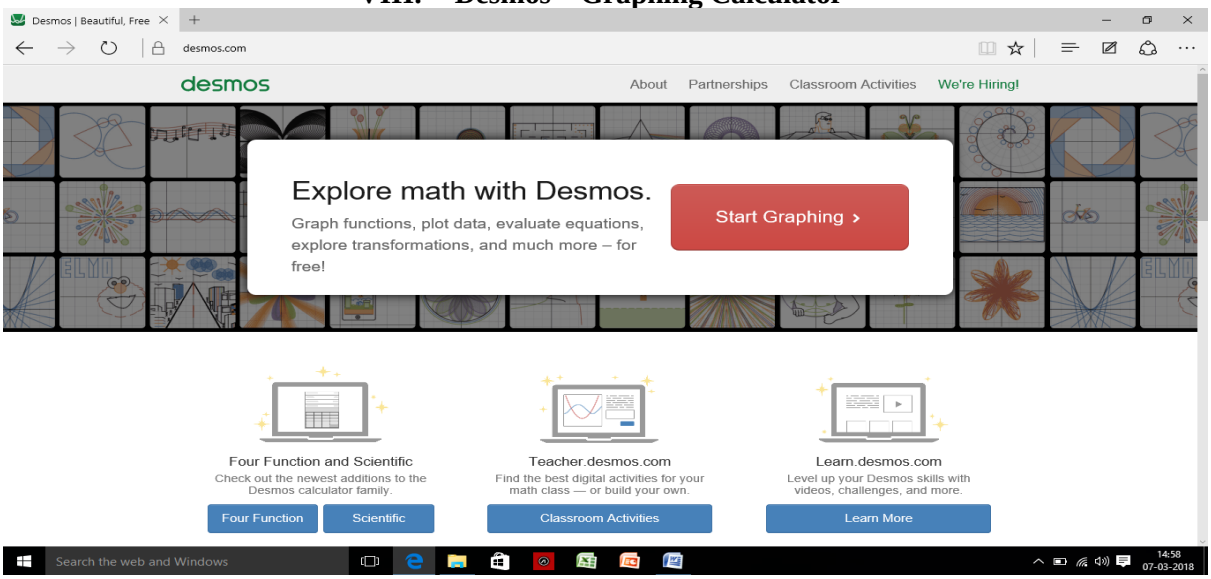
There's a new geometry tool in town and it goes by the name of Robocompass.com. It's a tool that shows geometrical constructions in a 3D environment, rather than the 2D plan view used by Geogebra, Geometer's Sketchpad etc. In addition to a wealth of common construction examples, you can program Robocompass to make your own constructions using an easy to learn language. Already the programmed geometrical shapes are inbuilt in the online software. The user manual for this software provides valid information for the user and it helps the teacher to demonstrate the construction part of each step by using this online software tool.

VII. Geogebra- Tremending Tool



GeoGebra is dynamic mathematics software for all levels of education that brings together Geometry, Algebra, and Spread sheets, Graphing, Statistics and Calculus in one easy-to-use package. GeoGebra is a rapidly expanding community of millions of users located in just about every country .GeoGebra has become the leading provider of dynamic mathematics software, supporting science, technology engineering and mathematics (STEM) education and innovation in teaching and learning worldwide.

VIII. Desmos – Graphing Calculator



Desmos is a advanced graphing calculator implemented as a browser application and a mobile submission. **Desmos** is the next invention of graphing calculator: in-browser, handsome, and free. It is online software in which every educators, students can use this software frequently in order to develop their psychomotor skills. It can also be used in quite a lot of different languages. It is user friendly software for the student in the teaching learning process. If the learners want to enter in to this graphing calculator just they can type www.Graphing desmos.com. We can easily login by means of Face book; twitter etc and it will create the pleasant and integrative teaching methodology for the teacher educators as well as for the present student teacher.

IX. Current Scenario - Teacher Education

It is instinctive that teacher education must include new technology and innovative ideas to teach the various concepts on mathematics. Teachers should also know the right attitudes, Skill and values, besides being expert in skills related to teaching. Simulated Teaching, Micro Teaching, Programmed Instruction, Team

Teaching are also used in teacher education. ICT acts as the gateway to the world of information and helps teachers to be restructured and creates their inner personality to enhance their learning in their profession. It creates attentiveness of ground-breaking trends in instructional methodologies, evaluation mechanism etc. for skill development. ICTs have also been used to improve the 21st century skills of the present generation teachers to lead the new technology in the learning environment. The online software tools are more useful to present the mathematical ideas in video mode, static mode and make them to sustain the math interest among the students. Nowadays technology plays a major role for the teacher to develop their psychomotor skills to proven their mathematical concept in front of the students in the class room situation.

X. Observations Made During Interventions

Based on the above three tools mathematical concepts are made easy for the students to understand. In the modern day mathematical concepts play a vital role in student's active participation inside the classroom. It can be used to teach the 3D shapes, analytic geometry, graphs and calculus etc. This software is used in different platforms through online. It also gives hands on experiences to the student inside the class room and develops the learning environment .It stimulates the psychomotor skills in mathematical concepts. In this study the most important topic is Linear Graph, geometry, statics ,algebraic values from the second year of Diploma in Elementary Education course of two years duration in the Tamil Nadu state board was taken in to consideration .Many abstract concepts have been clearly explained through concrete examples and diagrams. In particular construction of geometrical figures, Linear Graph, Finding solutions of two linear equation through graph, calculus .In addition to that solving quadratic equation and finding solution with the help of this free online software tools like Robocompass, Geogebra, Desmos.

XI. Discussion

Enough practise for the teacher students to teach the mathematical concept using these software tools. Effective ways of teaching and learning methodology is used in all levels of education such as primary, upper primary, secondary and also in higher education and facilitates effective class room transaction. In future traditional method, abstract method of teaching as well as learning will be vanished. Technology plays an effective role in teaching and learning process. The main discussion in this study is to reduce the burden in teaching and learning process. These tools help the students to actively participate in their class room situation. It mainly creates interest to develop the mathematical skills .These software tools gives hands on experiences to the students as well as teachers in the teaching and learning process.

XII. Conclusion

This paper aimed at addressing the challenges to present the imperative issues pertaining to the mathematics curriculum of Diploma in Elementary Education of Tamil Nadu State Board that can resolved by teacher education to fully utilize the budding of computers and the Internet as educational tools. More teachers were comfortable using computers as an individual than as a teacher. Mathematics being an abstract subject, the use of ICT tools gives momentous relief in satisfying the students understanding in the concept of geometry, graph and some special graphs in the Mathematics subjects. In addition to that with the help of this software we can broaden and deeper our teaching and learning process in Algebra, Statistics, and Geometry also. As a teacher we should know how to teach the concept of mathematics in a lively manner, for that these tools are really a gift for the students as well as the teacher in order to express their ideas in an effective manner. In puducherry region all schools are furnished with ICT laboratory and separate teacher is allotted to maintain their ICT laboratory. The teachers in puducherry region utilize these opportunity to express their ideas and view in their relevant concept. These mathematical online software tools will accelerate and concretize their interest to teach the abstract mathematical concept effectively.

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