

# IMPLEMENTATION OF MICROSOFT MATHEMATICS IN ENGINEERING MATHEMATICS

P. Kanakadurga Devi<sup>1</sup>, V.G. Naidu<sup>2</sup>

<sup>1</sup> Department of Mathematics, MLR Institute of Technology, Hyderabad-043, India.

Email: durga.thulasi@gmail.com

<sup>2</sup> Adama Science and Technology University, Dept. of Applied Mathematics, Po box-1888, Ethiopia.

Email: naiduvedam@yahoo.com

## **Abstract**

*Microsoft Mathematics is a freely downloadable educational program. In this paper implemented Microsoft Mathematics to develop the problem solving skills in Engineering Mathematics. In this survey two groups of students were participated. Conventional group was learning by using age-old teaching method and Empirical group was learning by using Microsoft Mathematics. Assessment of student's achievement was collected by conducting test before and after using Microsoft Mathematics. Using Microsoft Mathematics we can solve problems related to Calculus, Statistics, Trigonometry and Linear Algebra. In this investigation Empirical group students' attitudes and self confidence in solving mathematical and tech related problems comparing with Conventional group is more effective.*

## **Keywords**

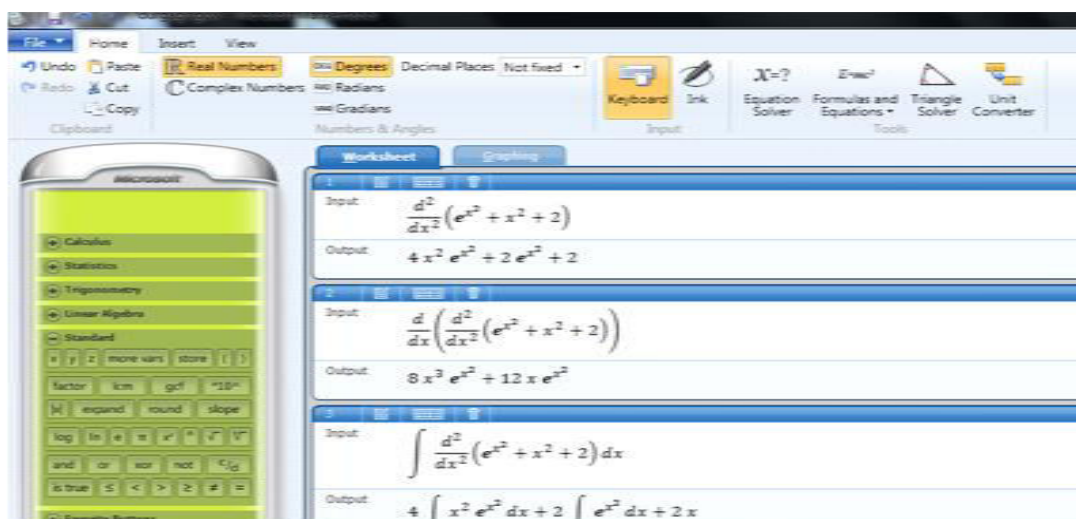
*Microsoft mathematics, Technology application, Problem Posing, Critical thinking.*

## **I. Introduction**

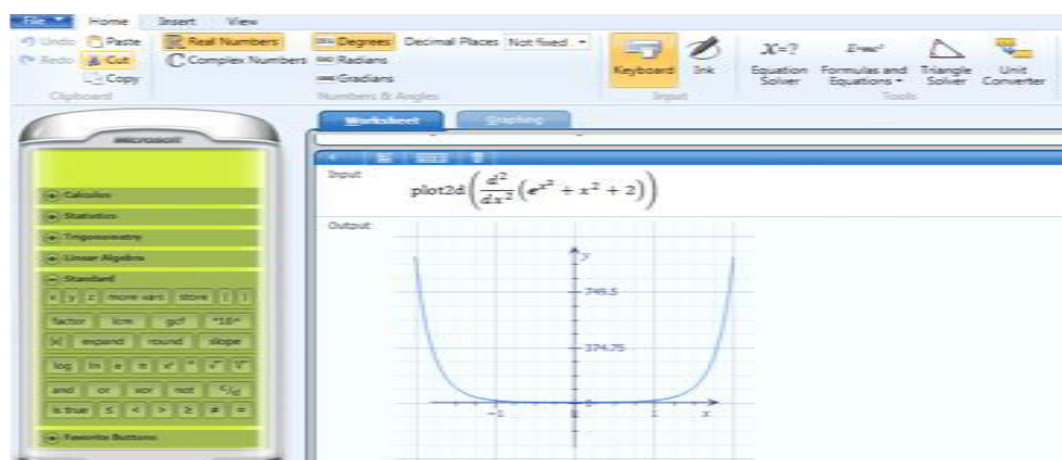
A learned Mathematics person has studied for a long time and has a lot of knowledge with the set of information as a chart or image [1]. To develop Mathematics problem solving skills, technology plays an important role [2]. Technical teaching of Mathematics is an important way as to be worthy of paying more attention and concentration compared with traditional method [3]. Technology used in solving Mathematical problems [4] and learning mathematics using graphs encouraged [5]. Theory of cognition according to which humans represent verbal and non-verbal information is developed in [6]. People develop their technical skills using multimedia [7]. Mathematics is backbone for all technical subjects and it has more applications in engineering and applied sciences. Weak students are unable to solve simple mathematics problems. Microsoft Mathematics take part in major role to develop attentiveness in learning Mathematics.

Microsoft Mathematics is software used to solve problems of Linear Algebra, Statistics, Numerical Methods and Calculus and Trigonometry. In all subjects of Education, Mathematics is the challenging subject for students. Mathematics has got a lot of applications in day to day life and it has more applications in science and technology [8]. Understanding mathematics visually through graphs and image tools is easy compared with traditional methods [8] and it is complicated to understand Mathematics without visual images [9].conducting the activities using the visual images is also more efficient for Mathematics students [10-11]. Many researchers concluded that visualization way teaching methodology is most efficient method. Microsoft

Mathematics is a freely downloadable education program. It is used to solve mathematics and science problems very easily. This software was developed by Microsoft Windows. It is useful for students as a learning tool. Using Microsoft Mathematics software, people carry out mathematical computation and graphical presentation of 2D, 3D and animations effectively. In this paper, it is explained with an example. Examples will be analyzed in 2D and 3D.



**Fig.1** Computing the function.



**Fig. 2** function in 2D

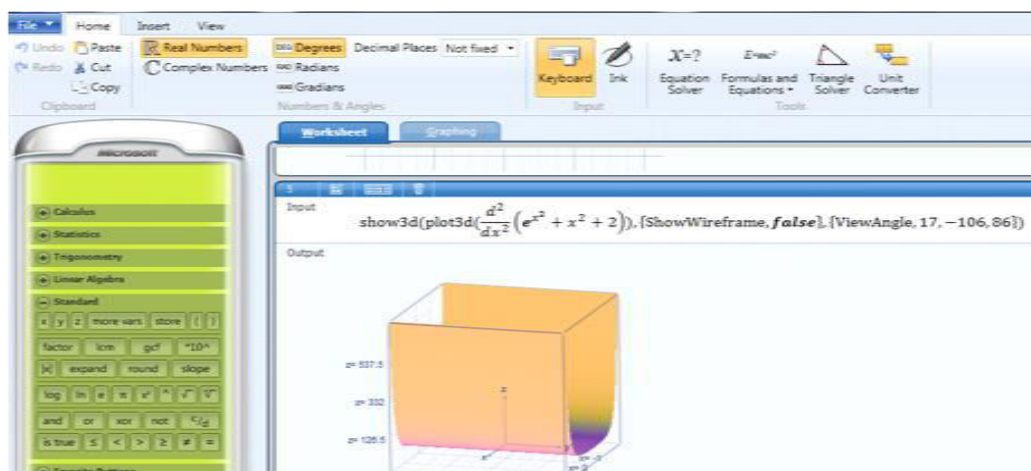


Fig. 3 Function in 3D

## II. Methodology

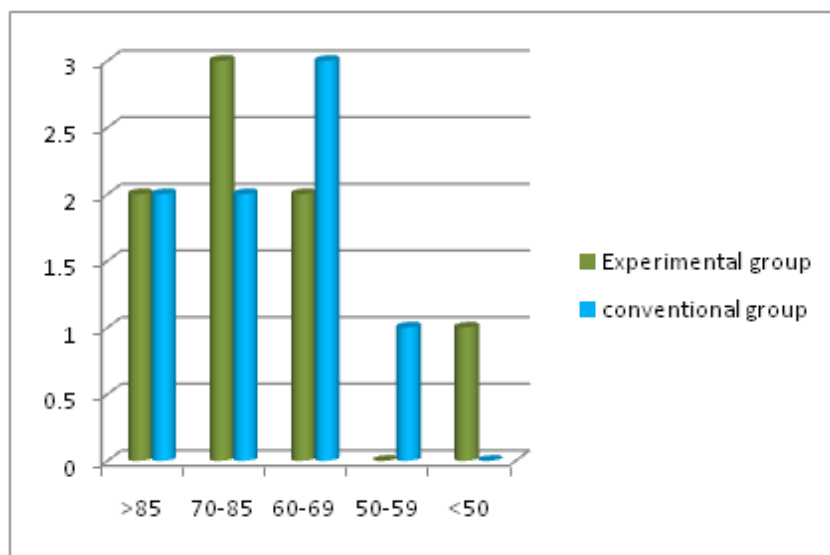
The aim of this investigation is to make students improve their problem solving and critical thinking skills. In this investigation 16 students were participated and separated into two groups, Conventional and empirical group. The data is collected by conducting test for Empirical and conventional group before and after using Microsoft Mathematics on Mathematics subject. Empirical teaching involves Microsoft Mathematics and Conventional teaching involves age-old teaching. Qualitative and Qualitative research method is applied in this investigation through graphs and tables.

## III. Results and Discussion

The student's analysis from Empirical and Conventional group in the before test and after test was shown in the table. In this investigation one student of Empirical group and two students of Conventional group had lower performance. From the graphs, we observed that Empirical group students used visual images and technology so that they have more itical thinking power in comparison with Conventional group students. Empirical group students are more efficient comparing with Conventional group.

Table 1. Preliminary test score in both the groups

Preliminary Test	>85	70-85	60-69	50-59	<50
Experimental group	2	3	2	0	1
conventional group	2	2	3	1	0



**Fig. 4** Preliminary test of Experimental and conventional group

**Table 2.** after test score in both the groups

Preliminary Test	>85	70-85	60-69	50-59	<50
Experimental group	3	3	1	1	0
conventional group	1	5	0	2	0

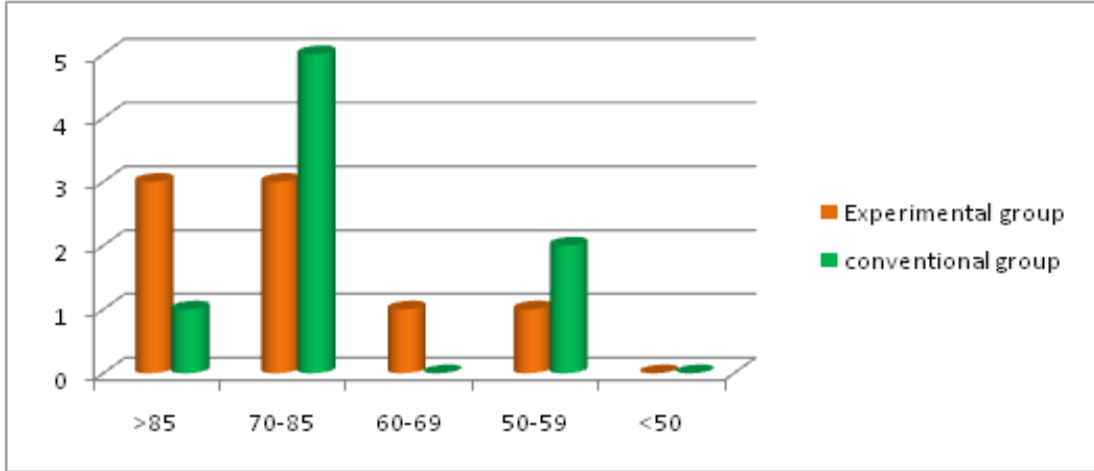


Fig. 5 After test of Experimental and conventional group

**IV. Conclusion**

The aim of this investigation is to analyze whether students improve their problem solving and critical thinking skills using Microsoft Mathematics. This data is collected by conducting test before and after using Microsoft Mathematics on Mathematics subject for Empirical and conventional group. From this investigation it is observed that, using computer technology; visual imaginations in learning Mathematics students enhance/improve their problem solving skills. The benefits of using Microsoft Mathematics is student able to (1) Try different approaches to solve a given Mathematical problem, (2) Facilitate the better visualization of functions in the problem, (3) Graphical presentation of Mathematical problem, (4) Investigate and recognize concepts of integration.

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