

Why students of Computer Science find Mathematics Difficult ?

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Abstract

This article explores the adversities faced by computer Science students in learning mathematics in their leaning context. The main purpose of this study was to explore the causes of learning difficulties in mathematics. The design of the study was qualitative. We conducted a survey of nearly 200 students learning in MKSSS'S College of Computer Applications affiliated to SNTD university situated in Ratnagiri. From the analysis and interpretation of data, it is concluded that students, teachers and parents have to play an important role as key and the students should be provided f sound environment for improvement of pass rate respectively. Teachers lack of linkage between new mathematical concept and previously learned mathematics structure, mathematics anxiety, negative felling of mathematics, economic condition and their educational backgrounds, College management system, lack of infrastructure in college and lack of regular assessment system of college are main causes of difficulties in learning mathematics.

Keywords: Parental Supports, Environmental Related Factors, Teacher Related Factors, Causes, Participation, Affecting, Difficulties, Content Development, Use of ICT

1. INTRODUCTION

Mathematics is the one of the most importance subject in our human life. Mathematics has applications in every field of Science. In the study of Computer Science also Mathematics plays very important role. Now a day's mathematics is globally accepted but locally useless. Mathematics has been accepted as an important component of formal education from ancient period to the present day. Our history shows that ancient scholars developed mathematics practically being obliged day-to-day problem. In the ancient period, mathematics has developed by great shepherds. Mathematics is the body of knowledge in the area of science and technology. The subject mathematics is beautiful and interesting because its own symbols, language, terms, technology etc. Mathematics is being main part of human lifestyle. In the world, each society has their own mathematical languages, terms, symbols, counting system in different countries like as Chinese, American, Japanese, Arabian etc. Mathematic is the significant subject in our human life.

But it is found that most of the students find Mathematics very difficult. In case of Computer Science course like BCA, MCA, MCM the syllabus included many topics in Mathematics like Discrete Mathematics, Mathematical Logic, Relational Algebra, Numerical Methods, Operation research, Statistics, Graph theory, Combinatorial Analysis, Probability etc. It means syllabus makers of Computer Courses find it necessary that students learning Computer Science must be aware of good knowledge of Mathematics.

The reality is students get very less marks in this subject and there are many failures in this subject. In this research work we are trying to answer why this happens?

2. OBJECTIVE

The main objective of this paper is to find out the factors affecting difficulties in learning mathematics and to find solutions.

3. METHODOLOGY

We conducted a survey which was done in case of BCA students. The Response sheet was prepared and it contained nearly 25 statements to which students were supposed to respond with four different grades. Grades were A,B,C,D. If student fully agrees with the statement then A, if he just agrees then B, if he fully disagrees then C and disagree means D. Then each student's 'Mathematics Disliking Index' was calculated. Out of 1000 students of BCA and other Computer courses that were surveyed showed following results. Nearly 83 % students found Mathematics difficult. 10 % students were not able to give any decision and just 7 % students had no problem with Mathematics.

This survey was an eye opener and it motivated us to find reasons of such a drastic disliking among computer Science students about Mathematics.

The Response sheet is as follows.

Response Sheet For Research work

“ Mathematics and Computer Science(Applications) Students”

Name :

Name of College :

Class :

Mobile No. :

Email-id :

A : Fully Agreed
Disagreed

B : Agreed

C : Disagreed

D : Fully

Sr. No.	Statement	A	B	C	D
1.	I find Geometry is difficult.				
2.	I find that full marks are cut if I do silly mistakes.				
3.	I think Fundamental concepts are not clear.				
4.	I think Sometimes question is tricky so it is hard to find its solution.				
5.	I find that syllabus is lengthy.				
6.	Number of formulae are more so I am confused which one to be used in given example.				
7.	I find confusion in simplification such as cross multiplication, lcm etc.				
8.	I find that it is difficult to remember all the steps.				
9.	I think no one makes me realise that maths is easy and interesting.				
10.	Sometimes I do not get logic in given example.				
11.	I find more concentration and focus required to learn maths.				
12.	I find some questions in examination are not from syllabus.				
13.	I find confusion in signs.				

Sr. No.	Statement	A	B	C	D
14.	I find sometimes I am not confident during solving examples.				
15.	I find difficulty in word problems.				
16.	I think some answer of examples are to much lengthy.				
17.	I have no idea about use of mathematics in future.				
18.	I think mathematics is complex and abstract.				
19.	I find proof of theorems are difficult and lengthy.				
20.	I find myself fear of getting fail.				
21.	I find that there are two or more methods to solve one example so I am confused which method to be used to solve an example.				
22.	It is found in view of people that mathematics is hard.				
23.	I find calculation speed is less during simplification.				
24.	I find teacher teaches syllabus considering that student's has proper knowledge of previous things.				
25.	I think If subject teacher is good then students are also taking interest in that particular subject.				
26.	I find that grasping power should be more when mathematics is learnt.				
27.	I get less marks than expected.				
28.	I find difficult tables, squares of numbers difficult to remember.				

4. REASONS FOUND FOR THIS DISLIKING

We discussed with parents, teachers, syllabus makers and mainly students. Their interviews were conducted separately and following is an outcome of the discussion.

- a) Students have very poor Mathematical background. Students from Arts, Commerce faculty are also admitted for BCA course and these students have not studied basics of Mathematics in their previous years and naturally they find everything in Mathematics out of their capacity.

Solution : Admission policy can be revised. One thing is sure that lots of courses in Computer Science need standard knowledge of Mathematics and if student lacks in Mathematics then he can not face further challenges.

- b)** Students learning Computer Science course has one misconception that subjects of core computer science , like programming, operating systems etc, are their main subjects and Mathematics is not.

Solution : Mathematics and other subject teachers must take care that these students must be made aware of importance of Mathematics in other courses of BCA etc.

- c)** Poor Calculation Ability : The students now a days have poor calculation abilities and this affects their performance in Mathematics.

Solution : There are many ways by which this inability of fast and perfect calculations can be overcome. Teachers of Mathematics can form a bridge course and teach basic Numerical aptitude course to these students. Tricks of Vedic Mathematics can be very useful. Knowledge of tables from 2 to 30, finding square roots, cube roots and so many other things can be included in this bridge course.

- d)** Lack of knowledge of formulae : Mathematics is largely formula oriented. It is said that if you want to roam in the Mathematical forest then your must have formula gun with you. Students are very reluctant in learning formulae by heart. So naturally they find Mathematics very difficult.

Solution : Teachers of Mathematics can celebrate formula day. There can be frequent vivas, surprise tests by which knowledge of formulae can be tested. And when such frequent tests about formulae are conducted it will be very beneficial.

- e)** Mathematical symbols, Mathematical statements are most of the times are not understood by students. When they do not understand what is asked in the problem how can they answer questions. This problem largely arises in case of word problems.

Solution : Teachers should take extra efforts and explain the meaning of the problem by breaking the big statement in small ones. This is modular approach. This helps students to understand the whole statement in parts.

- f)** Main reason is inability to think logically. Mathematics is totally based on logic. The ability to think logically is necessary condition for learning any subject. In programming , in Electronics and in many other subjects strong logical thinking is a must. Each student has to face Aptitude test at the time of job search and it is found that to crack this aptitude test is nearly impossible task to students.

Solution : There are many test available in market in which logical reasoning abilities are tested. Teachers and management can make the deliberate effort to make such tests available to students.

- g)** Lack of use of ICT : It is seen that just use of Chalk and black board is done while teaching Mathematics. This lack of use of ICT in teaching creates non interest in learning.

Solution : Lot of video lectures on any topic in Mathematics are available on NET and teachers should use this material deliberately in teaching. Also teachers can give digital notes to the students well in advance. Department of Mathematics can think of developing E-content, virtual library etc.

- h)** Misconception that Maths is difficult must be removed from the minds of students. Actually Mathematics is very beautiful subject. It is like a poem. Poem can not be properly understood if the hidden meaning in that poem is not understood.

Solution : Mathematics teacher should take deliberate efforts to hammer on the minds of student that the subject is not as difficult as students think. The teacher should start with examples, its utility and then explore the main subject. Good teacher can make the subject lovable.

CONCLUSION

Study shows that with deliberate efforts students' thinking about Mathematics can be changed and this subject can be accepted by students. Computer science students need excellent knowledge of Mathematics for their further development and teachers and management can play very important role in this area.

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