Problems Faced by Mathematics Students
in Secondary Level

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Abstract

With the rapid development of science and mathematics, many works of the people have become understandable. Despite the development of various technologies, people need mathematical knowledge in everyday tasks. Students are exposed to various problems while teaching mathematics. Themes are explored for why students are experiencing those problems, what may be the solution to those problems, and more. The problems encountered by students during their geometry, arithmetic and algebra learning are presented in a systematic way. Due to inadequate practical content in the curriculum, students have difficulty in learning. Therefore, the curriculum should include practical content.

Key Words

Mathematics, Mathematical Problems, Method, Geometry, Arithmetic, Algebra

Introduction

The formal education of Nepal started with the establishment of Durbar High School in 1990 BS. Though Ranas were against educating people, Jung Bahadur Rana established Durbar High School intending to teach English to his children. Later, *Nepal Rastriya Shiksha Paddati Yojana* was promulgated in 2028 BS and improvement in education began formally. (Adhikari 2076)

Mathematics is not just about knowledge and calculation. This is the simplest way of living. Mathematics is embedded in people's daily activities. Therefore, mathematics can be taken as the backbone of education. The development of various technologies has made

human life easier because of the development of mathematics and science. Mathematics is a compulsory subject in school level in Nepal. Several students complain that mathematics is a difficult subject. In this regard, this study observes the problems and their specific fields while learning mathematics at the school level.

We use mathematics in everything. When it comes to school level, mathematics is a compulsory subject from classes 1 to 10. Although mathematics is not a complicated subject in itself, teachers, students, administration, and pedagogy etc. have been making it complicated for various reasons. Despite being important, mathematics has not yet made the students feel it easy. Mathematics is a subject which is accepted by most students as a difficult subject. This subject is found to be hard due to lack of mathematical concept and sharp mind. According to a report, highest number of students have failed in mathematics in SLC/SEE examination (Board 2075). The following statements can be the reason for making mathematics look difficult:

- Lack of use of teaching materials,
- Lack of a trained teacher,
- Lack of basic mathematical concepts among students,
- Lack of association of mathematics in everyday behavior,
- Lack of use of information technology in mathematics,
- Lack of practical learning approaches etc. (Singha 2012)

Problems while learning mathematics can be studied methodologically. This study highlights on the problems faced by students in various branches like arithmetic, algebra, geometry, statistics, probability, coordinate geometry, trigonometry etc. The learning approaches of students in different disciplines varies. If a student is very skilled at arithmetic, he might face difficulty in solving geometry problems. When teachers are not responsible for their profession, learning mathematics will be problem for the students.

Students' attraction towards mathematics is declining these days although mathematics is a compulsory subject at school level. Among the compulsory subjects in school, large number of students are found to be fail in mathematics. Has mathematical teaching been so difficult? How can math learning be made effective? How useful is mathematics in our daily life? What problems are students experiencing while learning mathematics? This article is designed to explore these various aspects of teaching and learning mathematics. It is expected to make math learning easier for students in future.

Findings and Discussion

Mathematics is a subject of calculating and analyzing numbers and providing conclusions. The art of mathematics is to make each subject beautifully presented and logically analyzed and draw proper conclusions. If we extract mathematics from other fields, all of them will be incomplete and meaningless. If a student is weak in mathematics, he may be weak in other subjects. But a mathematics student can prove himself capable of everything. So math is a most useful subject for every field. This study covers the specific problems faced by students while learning geometry, arithmetic, algebra and other disciplines.

Geometry

Geometry is an important branch of mathematics. Geometry has begun with the development of human civilization. It is used in various fields like technology, architecture, designing, mapping etc. The development of geometrical method is defined by certain definitions, undefined term, axioms, postulate and theorem. The problems encountered by the students while learning geometry are discussed below.

Difficulty in visualizing geometry: The mathematical concept can be deduced through geometry. Such as graphs, diagrams, the use of science and technology, etc. Because of the inability to cope, students say the problems are difficult to understand. Therefore, the major problem is that geometry problems cannot be overcome. (Kshetree 2075)

Inability to interpret image: If the geometry of a picture is explained, it can easily solve many problems. Some problems are solved only when the given image is properly interpreted. Another major problem for students is the inability to interpret the picture.

Inability to present geometry in a simple and clear format: The easiest way to understand geometry is to create a picture. The simpler the image is made, the easier the geometry will be. Another problem with learning geometry is the inability to understand geometry as easily as other materials.

Arithmetic

This is the mathematics associated with the count of numbers. This is especially done with regard to the count of numbers. This can be called the study of numbers. These include addition, subtraction, division, and addition of squares, densities, decimal numbers etc. Many arithmetic themes are used in everyday life. The problems encountered by the students during their learning are discussed as follows.

Lack of visual educational material: It is difficult to find educational material for all mathematical subjects due to which student's learning has declined. Teaching through educational materials makes it effective and easy for students to understand. Therefore, educational materials have not been used while teaching mathematics which has affected the learning of the students adversely.

Personal problem: The learner must be physically and mentally prepared to learn. Students can have problems regarding learning because of their personal weaknesses. Problems with students' learning are also caused by anxiety, family matters, fear of content etc.

Algebra

Algebra is a branch of mathematics. It is also called the abstract branch. Like other branches, it has peculiar actions and principles. Despite the development of various technologies in modern age, the problems of algebra still remain the same. The algebraic problems faced by students while learning are discussed as follows.

Algebraic signal: Algebra contains more symbols than other mathematical branches. This is why students are found to be discouraged by signals. There has been a problem while learning mathematics due to signals in different themes.

Abstract theme: The abstract theme is a problem for the students. The students want to learn mathematics incorporating it in daily life. The contents of algebra are rarely used in daily life. Because of its abstract type, it is difficult to present an example.

New theme: Along with the intense exploration of mathematics, algebra include newer themes, and older themes have become less used. Therefore, there will be few qualified teachers for new content. Because students find it difficult to cope up with new content, there are several problems while learning mathematics. (Kshetree 2075)

Data Analysis

The subjective results of the Secondary Education Examination 2075 conducted by the National Examinations Board, Examination Control Office are presented below.
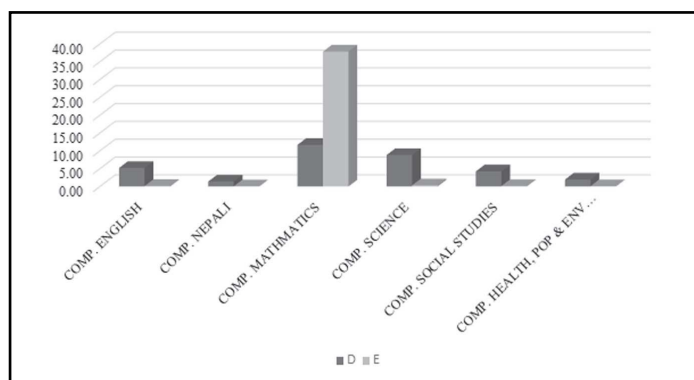
Table 1: Students obtaining D and E grade out of subject wise total results.

SUBJECTNAME	D	E
COMP. ENGLISH	5.18 %	0.12 %
COMP. NEPALI	1.39 %	0.02 %
COMP. MATHMATICS	11.66 %	37.83 %
COMP. SCIENCE	8.81 %	0.31 %
COMP. SOCIAL STUDIES	4.23 %	0.11 %
COMP. HEALTH, POP & ENV EDU	1.94 %	0.06 %

Source: National Examinations Board, Examination Control Office Class 10. (Board 2075)

Figure 1: Students obtaining D and E grade out of subject wise total results.

The above table show that many students have lower grades (D and E) in Mathematics in comparison to other subjects. Therefore, it proves that many students have problems in mathematics than in other subjects.

Conclusion
Students are experiencing various problems while learning mathematics. Some problems related to mathematics are caused by student's personal reason, some are because of teachers, while the others are due to school administration. The problem of students will arise when teachers do not use proper educational materials. The lack of a mathematics lab in school has also affected learning.

Recommendations
The problems encountered by students in geometry, arithmetic and algebra during mathematics teaching were discussed. In addition, mathematics learning has problems with other branches such as coordinate geometry, probability, statistics, etc. Learning about these problems and learning how to solve them can bring a way to address this issue. If the teachers, guardians and the concerned authority understand students' problems regarding mathematics, the students may learn mathematics effectively. Moreover, the curriculum development center and the policy makers should address this issue. Finally, teaching mathematics can be successful.

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Singha, Dr. Krishna Gopal. 2012. "Study of Various Problems Faced by The Students and Teachers Inlearning & Teaching Mathematics and Their Suggestive Measures." 7. Retrieved March 6, 2020 (https:// www.academia.edu/5450756/ STUDY_OF_VARIOUS_ PROBLEMS_FACED_BY_THE_ STUDENTS_AND_TEACHERS_ IN_LEARNING_and_TEACHING_ MATHEMATICS_AND_THEIR_ SUGGESTIVE_MEASURES).

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