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Lapses in Learning Mathematics

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Abstract

The present conceptual study deals about lapses in learning mathematics of students in schools are a problem of serious academic significance. The present day situation of teaching-learning of mathematics is unsatisfactory as the results of mathematics in different classes show. In our country, there are many school-going-students cut a sorry figure in learning mathematics. The present paper identifies lapses in learning mathematics on the part of the students, teachers, institutions, parents and other educational concerns. The paper suggests the remedy for controlling and removing lapses in learning mathematics of learners on the part of the educational concerns.

Keywords: Lapses, Learning, Mathematics

Introduction

The Hindi / Bengali/ Punjabi name of mathematics is 'Ganita' which means the science of calculation. According to various definitions, mathematics is the science of measurement, quality and magnitude. As New English Dictionary defined "Mathematics – in a strict sense – is the abstract science which investigates deductively the conclusion implicit in the elementary conceptions of spatial and numerical relations". Mathematics is called the science of logical reasoning. Locke defined, "Mathematics is a way to settle in the mind a habit of reasoning". Mathematics trains the child's mind. It has a real disciplinary value and creates a discipline in the child's mind. If teaching – learning process is in the right way, it develops reasoning, logical, and thinking powers more and more and demands less from memory. Each and every school-going child realizes that thinking makes him a successful learner of all subjects. Its study helps in the development of convergent and divergent thinking powers rather than the acquisition of knowledge. In the word of Professor Skinner, University of Harvard "Mathematics is just like meat provides protein for educational diet". According to Bacon, "Mathematics is the gate key of the sciences. Neglect of mathematics works injury to all knowledge since he who is ignorant of it cannot know the other sciences or the things of the world. And what is worse, men who are thus ignorant are unable to perceive their own ignorance and so do not seek a remedy". Each school going child needs some knowledge of mathematics. It may be believed that mathematics is a difficult subject. Its study requires special ability and cognitive and emotional intelligences, as well as personality traits and characteristics and socio economic status due to availability of the different sources. And therefore every child is not able to learn mathematics successfully. NPE (1986) points as, "Mathematics should be visualized as the vehicle to train a child to think, reason, analyze, and articulate logically. Apart from being a specific subject it should be treated as a concomitant

to any subject involving analysis and meaning.” Mathematics is a very practical subject for most vocations and high specialized course of learning. But most school going children cut a sorry figure in learning mathematics.

Mathematics should be compulsory subject at the school level most of the material and non-material sciences demand the application of mathematics at the higher education. Ignorance of mathematics will be a great handicap in the progress of learners’ studies in many of the subjects at the university level. Its learning will benefit them to a great extent at technical, professional, vocational and research levels. So such education will remain incomplete if learning of mathematics is excluded from school level. Regarding this Kothari Commission (1964-66) points out that “Science and Mathematics should be taught on a compulsory basis to all pupils as a part of general education during first ten years of Schooling.”

The problem of lapses in learning mathematics of students at secondary level is a problem of serious academic significance. The present day status of teaching – learning of mathematics is far from being satisfactory as the results of mathematics in different classes show. This is not due to the drawbacks of any single agency of education at work. The entire educational system is to blame for this. In spite of the fact that it is taught compulsorily to all the students up to the class X. But they do not become well skilled in this subject particularly in elementary Arithmetic. An educationally qualified person fails to calculate while making payment to a shopkeeper for the articles bought by him or her. The learners also get confused in counting, notation, weighing, measuring, selling and purchasing of articles as well as four fundamental operation of arithmetic such as addition, subtraction, multiplication and division. The skill should be provided regarding improvement of this in an effective way by monitoring lapses in learning mathematics in schools. Otherwise the ignorance of mathematics in the masses will be obstacle in the way of a country progress. In this respect Napoleon has said, “The progress and improvement of mathematics is linked to the prosperity of the state.” Thus mathematics plays dominant role in child development and progress of the society as a whole. Kulshrestha (2003) writes each and every person of society needs mathematical knowledge either he is accepted personality or rejected one. It is not that mathematical knowledge is needed only by engineers, doctors, traders, businessmen etc. but also it is needed to smallest citizen of the society such as laboureres, workers, drivers, coolies, salesman’s benders etc. He also asserts that mathematics is not meant only for development of mental ability but also to develop their personality with some qualities like concentration, truthfulness, seriousness etc. That is why the disciplinary value of Mathematics is also important. A person who is gaining mathematical knowledge is not in favour of working against the rules of under sentimental situations. A child judges about his good or bad with the help of his reasoning power, wisdom, patience, and self-confidence. He further asserts that Morality is the important phase of life which is most effected by time, person, situation and place. Mathematical knowledge is helpful in character and personality development. It develops all those qualities which a person of strong character must possess. Child develops qualities of cleanliness, reality, punctuality, truthfulness, honesty, loyalty, justice, dutifulness, self-control, self-reliance, self-confidence, patience, listens to others and respect them etc. through the study of mathematics. In this way mathematics leads to character development and moral development. It deprives off the feelings of jealous, hate etc.

That is why it may be said that mathematics has not only disciplinary value but also intellectual value, practical value, moral value, social value, aesthetic value, cultural value, vocational value, psychological value, national value, international value etc.

In our society, it has been seen that some of the learners are regarded by their teacher as being backward. It has also been seen that in the class-room situation, some learners do not understand mathematics due to group teaching. There are more than 50 learners in each class. The teachers do not take care of all learners in the class-room situation. Some learners are absent in the class-room. The subject demands regularity and punctuality in concept-formation and practicing the learnt ones. It is a sequence subject so the sequence is broken. So the learners fail to comprehend the subsequent concepts and steps and lag behind in some aspect of their school work. Since, in our country no extensive work of this sort has been done in this field, despite the apparent and long felt need of hour, this conceptual framework has been undertaken in the hope that its conclusion might help the teachers to solve some of its problems and move to orient thinking of the research workers in the field.

Statement of the Problem

In this background, the problem may be stated as –“There are lapses in learning mathematics of learners at secondary stage”

Definitions of Terms

Lapses

The meaning of Lapse in dictionary is slight mistake, a slip, a falling or gliding etc. But here lapse means a slight mistake. It has been seen that in the class-room situation, few students do mistake in learning mathematics. It is due to group teaching. In group teaching there are more than 50 students in each class. No individual attention can be paid. It becomes difficult for the teacher to establish close contacts with the students. He cannot easily judge the capacities of the individuals. In this study, Lapses are considered for as:

Lapses on the part of the learners

It includes irregular attendance of the learners, lack of seriousness in home-work, little help in home study and emotional set back due to indifference attitude of teacher.

Lapses on the part of the teachers

It includes careless for learning according to social needs, lack of identify backwardness in students, lack of application individualized instruction techniques, lack of home-task and lack of supervised techniques.

Lapses on the part of the institution

It includes lack of tutorial class, lack of remedial teaching programme and lack of instructional materials.

Lapses on the part of the Parents

It includes mechanical load at home, no guidance at home, and lack of utilization of leisure time at home etc.

Learning

Bernhardt (1953) defines learning as “The more or less permanent modification of an individual’s activity in a given situation, due to the practice in attempts to achieve some goal or solve some problem.”

Mathematics

Mathematics is a subject whose concepts are to be learnt sequentially and if a student is absent for a few days, the sequence is broken and he fails to learn step by step.

Objective of the Study

1. To study nature of the lapses in learning mathematics.
2. To take account of the lapses in learning mathematics through appropriate device.
3. To find out relation, if any, between the lapses and learning mathematics.
4. To recommend measures, if possible, to minimize lapses and to see whether this would cause remediation.

Methodology

Different studies indicate that some learners cannot progress usually in class because of their lapses in learning mathematics. And these lapses are mostly caused by teachers, students, institutions and parents. A study may be undertaken to identify lapses of which the learners become victims in learning mathematics.

Sidhu (2006) writes, "Everybody has a complaint against learning of mathematics. It is dull, boring, difficult and useless from the point of view of the learner. It is too remote from life to interest of the student. The teachers complain of excessive work load and lack of facilities in the form of teaching aids and equipment". The teachers see lapses in learning mathematics behind the lack of educational attainment. The backward child is not up to the standard of the other children in his class. Very often the teacher tends to say that the child is lazy or stupid or slow in learning mathematics and finds it difficult to take in what he is taught. He further asserts that "Headmasters/Headmistress and Management would complain that it is the fault of the teachers who do not make the students put in adequate labour". If the headmaster or headmistress is a teacher of mathematics himself or herself then he or she has no other excuse, but to blame the students. The parents often blame the institution and teachers and hence they cannot find the faults of their children and obviously lapses in learning mathematics increases. It should be responsibility of all educational concerns for necessary improvement in learning mathematics.

Keeping the view in mind deeply into the problem of lapses in learning mathematics, there should be a clear conception of the nature of the lapses with respect to students, teachers, institutions, and parents. There are many learners who lag behind in some aspect of their school work. Their attainments in learning mathematics are not commensurate with their intellectual ability. Few pupils show lapses which are uniformly on a level with their cognitive intelligence. The practical and application aspect of learning mathematics is not generally emphasized. Knowledge given in the class-room is divorced from practical life. The subject loses its appeal, as it is taught in an abstract, dry, and uninteresting manner. Group teaching also may cause lapses in learning mathematics. The teacher cannot pay attention to each individual. There is a lack of establishing close contacts with the learners. The learners suffer lack of concentration of mind. So they get confused to learn mathematics.

As it is well known fact that the learning of mathematics in our country is very poor. To search out the causes of lapses in learning mathematics, it is scientific to know how the learner becomes weaker and weaker day by day in this subject. The study hopes that it will be of some value for future educational planning. After the study of causes and remedy of lapses in learning mathematics will prove some worth for those who would here after conduct further research on a more extensive scale. It should indicate clearly the results of the research can influence educational theory and practice.

Now the question arises that the whether the lapses with respect to learners, teachers, institution and parents may be minimized or monitored in learning mathematics? If it is so, then it would be valuable in educational system and is an important part of integral education.

Thus the important of learning mathematics can be expressed in the form of the different values.

Learners

Whether are the learners regular in attending their class? Whether do the learners their home-work? Whether do the learners pay attention in classes? Whether all the learners can follow teacher's instruction in mathematics? Whether do the learners help to create better teaching –learning environment? Whether do the learners take interest in solving difficult problems? Whether do learners treat mathematics as a difficult subject? Whether do learners show co-operative attitude in classroom activities in mathematics? Whether do the learners take part in co curricular activities of the school? Whether do the learners self-evaluate learning outcome in mathematics? Whether do the learners response in the mathematics class? Whether do the learners commit mistake in the arithmetic operation?

Teachers

Whether are the teachers regular? Whether do the teachers pay attention to individual learners in the class? Whether do the teachers use black-board adequately? Whether do the teachers take interest to make their learners to understand the lesson? Whether do the teachers give home-work regularly and supervise them? Whether do the teachers present the concepts with good examples? Whether do the teachers identify backwardness in mathematics? Whether do the teachers show indifferent attitude to the learners? Whether do the teachers make the behavioral objectives of lesson clear to learners? Whether do the teachers identify the learners' learning needs?

Institution

Whether does the institution make arrangement for tutorial classes of mathematics? Whether does the institution make arrangement for remedial teaching? Whether is there instructional material in the institution? Whether is there additional tutorial class facility in the institution?

Parents

Whether do the learners get help from their parents in learning mathematics? Whether do the learners have mechanical load at home? Whether do the learners have private tutor of mathematics? Whether do the learners spend their time with parents in leisure time to learn mathematics?

Remedy and Suggestion

The field of mathematical education is too much vast and it is difficult to achieve a well balanced perspective of what is really happening? And what is lacking in our research work particularly in learning mathematics? To be quite honest and fair, one does not yet know much about the nature of lapses in learning mathematics. In fact, one see unsolved problem at every step. If the learners remain unavoidably irregular for a long time, there are chances of their falling a prey in learning mathematics. The facility of extra classes for some time should be arranged for them so that they can fill up their learning in mathematics. Regularity in home-work should be ensured. The parents should give full co-operation to the teachers regarding this. The teachers should use appropriate method of teaching. The teachers should follow Bloom's Taxonomy of educational objectives so that the learners can fill up their

cognitive, affective and psychomotor learning in mathematics. The institution should provide instructional materials and mathematical laboratory for the learners so that they can take interest in learning mathematics.

Conclusion

That is why it may be concluded that though the lapses on the parts of the learners, the teachers, the institution and the parents, as identified in the study cannot be totally removed, yet those which are caused by the institution itself, can least be minimized by management which can be made learners oriented. It is the responsibility of the teachers and learners to make the healthy environment in effective and interesting teaching-learning situation.

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