

A Modern Approach In Teaching – Learning Process Of Arithmetic



Education

KEYWORDS : Arithmetic, Numbers, Attitude and Modern Approach

M.Kavitha

Ph.D. Scholar, Department of Education, Alagappa University, Karaikudi

Dr.AR.Saravanakumar

Assistant Professor in Education, DDE, Alagappa University, Karaikudi

ABSTRACT

Mathematics represents a high level of abstraction attained by the human mind. Mathematics is the science of space and number. Mathematics holds a strong and unbreakable position as compared to the school subjects. It is more closely related to our daily life as compared to other subjects. Napoleon also remarked that "The progress and Improvement of Mathematics is linked to the prosperity of the state". The part of mathematics that deals with numbers and counting or calculation as Arithmetic. For a person belonging to any profession, knowledge of Arithmetic is essential to cope with the needs of daily life. The teaching of arithmetic should start at the pre-primary stage or infant stage. An infant should be made to learn things about Arithmetic through playway method. In other words, it means that teaching of Arithmetic should start with the beginning of education. In this way, this research paper highlights the importance of teaching arithmetic to children.

INTRODUCTION

Number is the basic element of Arithmetic without number nothing is possible in arithmetic. For this reason, Arithmetic teaching should start with numbers. At the infant stage the students may be taught about numbers, their different combinations, method of numeration etc. After this they will be able to proceed further. One basic thing that has to be kept in mind while teaching arithmetic is that it is "a means of developing, the child's natural ability," and so the teaching, should lead to the method or the results that bring accuracy & speed, (Kavitha et. al 2012). The best thing in the teaching of arithmetic is that too much of emphasis should not be put on theory. The student should be made to do things in a practical manner and their ability should be tested. The students must be given a good drill to make the teaching of Arithmetic effective and successful. Drill enables them to have the repetition of the knowledge that ultimately strengthens their experiences. Drill is nothing but exercise. However a careful and systematic planning of the exercise and the work is needed.

TEACHING ARITHMETIC

Arithmetic is the science of number and the art of computation. Historically, arithmetic developed out a need for a system of counting. It is considered to be essential for efficient and successful living. The need of a good command of arithmetic by a house-wife, by a modern farmer, by a successful merchant by a skilled worker, and by a progressive professional man. A well-known educationist once said that teachers never ask this question. They know that, in any case, they have to teach arithmetic and are content to leave it at that. (Tyagi, 2008). Surely we should not be content, when we spent much time on arithmetic, we ought to know why, we think the subject is so important. If it is not important, we should not waste our own and the children's time and energy on it. Moreover we must be able to give a satisfactory reply to the question "Why teacher arithmetic?" because upon our answer depends not only the arithmetic we teach but our methods of teaching it.

ARITHMETIC IS USEFUL IN EVERYDAY LIFE

In early days, when man lived in trees and caves, he did not need arithmetic. He had no ambition for the future, only immediate concern for the welfare of his children. His needs, apart from food and shelter, were very few. But when man began to live in communities, he wanted better things for himself and his family. With developing civilization his needs grew and he found it necessary to calculate. He wanted to count his possessions, to compare & assess their value. He began to need the language of number and the ability to understand it when it was used by his fellows. (Kulbir Singh Sidhu, 2006). It may be said, in fact, that the urge for arithmetical knowledge arose in tradings. A man had to be able to compare & estimate the value & prices of goods, in order to get food and clothes for his family, to buy tools for his work and so on. To a certain extent such knowledge may be passed on from parents to children in a simple society. But

the life and commerce of any community, constantly increases in complexity. The new generation needs more knowledge of number than the old. Thus we come to teach arithmetic in schools.

ARITHMETIC HELPS TO UNDERSTANDING OF THE WORLD

Acknowledge of number is necessary for the understanding of many activities. To take just one example, 'time' is important in a child's school-day. It is also connected with the seasons, with farming, and industrial activities, and with marketing. The question of time becomes even more important as new machinery, and techniques are introduced into a community. A true appreciation of history depends upon a time-sense, which includes arithmetical ideas like those of time-charts, date-lines etc. (Anice James & Balasubramanian, 2005). Arithmetic is also important for the understanding and study of many natural phenomena : Wind, rainfall, tides, heights and depths, temperatures etc. Moreover, aeroplanes, newspapers, radio and television bring even closer contacts between people all over the world. News travels further and faster every day. Arithmetic helps people to understand the news, which often contains references to graphs, percentages, averages, index numbers and so on. It may also help them to be more critical of what they see and hear.

ARITHMETIC HELPS TO DEVELOP A HEALTHY ATTITUDE TOWARDS LEARNING

As teachers one of our tasks, perhaps the most important one is to encourage in children a desire for the truth. We want our children to be obedient and respectful to their elders & to have high regard for good traditions. But we do not want them to grow up submissive, ready to believe anything they hear or read. If they merely absorb knowledge, as a sponge absorbs water, they are likely to grow up at the mercy of any trickster, ready to accept untruths and false propaganda without question. To be able to pass examination is not enough. We want children to learn to think for themselves. They should be able to decide what knowledge is worth having. They should know how to apply & use their knowledge. We hope that they can see what is wrong or inaccurate & how it may be put right. In other words, their education should help them to become searchers after truth. (Kavitha.M & Dr.AR.Saravanakumar, 2012). Arithmetic, properly taught, helps to develop this attitude. Children begin to realize that a result may be right or wrong, that its accuracy may be tested, and that it is necessary to work in a logical order. They gradually build up a systematic approach to problem-solving, and learn that they must always deal with the facts as they are and not as they would like them to be.

ARITHMETIC IS NECESSARY IN A STUDY OF SCIENCE

Arithmetical knowledge is essential for a study of science. This requires the ability to make detailed observations, careful measurements and accurate calculations. Skill of this kind cannot be taught or acquired just when it is needed for science. It has to grow gradually with the developing mind of the child. For

example, in a science lesson the teacher may be dealing with quantities of seed, fertilizer or produce in connection with a certain area of land. He has not time to spend at that stage on multiplication, division, area, weight, percentage etc. He expects the children to have learned these in the arithmetic lessons of earlier years. In fact a good arithmetic teacher may have used simple illustrations and examples based on agriculture matters. Thus arithmetic provides a necessary foundation of knowledge, and may also give increased meaning to subsequent science lessons.

THE MODERN APPROACH TO ARITHMETIC

How to teach Arithmetic

One of the main reasons for teaching arithmetic is that it is useful in everyday life. In this case we must make sure that we teach, first of all, the topics which children & adults are most likely to need for their ordinary affairs. We should also use everyday things and events to give meaning to this arithmetic and its written symbols.

What, then, is this desirable minimum of arithmetic which we want all our children to know? Perhaps we may put it very briefly like this:

- (i) The ability to count quickly.
- (ii) The ability to add, subtract, multiply and divide small numbers, mentally and on paper.
- (iii) A knowledge of coins.
- (iv) The ability to buy (and sell) goods without making mistakes. This includes the ability to assess the value of goods in terms of money. In general, we are concerned with small amounts of money.
- (v) The ability to tell the time & to use various kinds of time table.
- (vi) The ability to estimate & measure lengths or distances.
- (vii) A knowledge of the common weights and measures of capacity.

THE NECESSITY FOR ARITHMETICAL RULES

For quick & accurate calculation it is necessary to obey rules. A child who does not follow the rules makes many & frequent mistakes, whereas the habits formed by practicing good rules lead to efficiency. There are good & bad rules. Any rule which tends to stop a child thinking, is bad; it tends to prevent his learning, something new. In general, rules should be explained, with many examples, and a good rule is one, which is fully understood.

THE NEED FOR PRACTICE

Good habits come through practice. As children progress in their arithmetical work, the facts & processes they already know should become a matter of habit, leaving them free to devote their minds to fresh ideas. For example, by the time children begin to 'long division' they should know all the simple number facts without having to step & think about them. Habits are acquired mainly through repetition. But we must remember that this repetition should be interesting & varied, and that it should be based on understanding.

MAKING SURE PROGRESS

"Proceed from the known to the unknown is a well worn phrase, but nevertheless an instruction to be followed. When children first come to us in a new class we must find out what they know. This gives us the foundation on which we may build firmly, & helps us to ensure that the children make good progress. In arithmetic it is not easy to check the children's knowledge, because it is almost impossible to devise tests to cover the whole of a child's previous work. But it cannot be too strongly emphasized that we must never assume without testing, that children know the previous steps in some part of the course. For example, it is waste of time to start teaching, the later stages of the multiplication process if he children are not confident about the early number facts, and if some of them still count on their fingers. With these children we have to go right back to the beginning. In other words, we must make sure of the position before starting new work. The good teacher takes nothing for granted.

GRADING THE WORK

Similarly, we should grade the work so that each child goes into the new "unknown" step with sure knowledge of the steps behind him. Many detailed suggestions for the grading of the work in arithmetic are in this topic. But they should not be accepted uncritically. Each teacher should decide upon his own methods, choosing those which best suit him & his children in the particular circumstances of their own surroundings.

ENJOYMENT IN ARITHMETIC

When children dislike a subject they do not want to go on learning it at school, & so their progress, if any, is slow. They certainly want no more to do with it when their school days are ended. And in many ways their attitude will influence the education of future generations. In some schools arithmetic has been a dull uninteresting subject. Many children gave it up as soon as they could, & would have no more to do with it. This need not have happened. Arithmetic, properly taught, can be fun: that is, enjoyable hard work. Not only should the children get the satisfaction & achievement & success, but they should also enjoy doing the work itself. For most children this is the secret of progress. Arithmetic demands close concentration, atleast for short periods. But anyone who watches their leisure time activities knows that even young children show intense concentration. They concentrate because they enjoy what they are doing. We fail in our duty if children do not enjoy our lessons & shows the absorbed interest of which they are capable.

CONCLUSION

Reading, writing & arithmetic, the three R's as they are called, were considered as synonymous with education. Of course the definition of education has changed and modified, the importance of arithmetic remains. Much of the human progress has been possible because of the use of arithmetic & mathematics. The manipulation of numbers helps children to understand various physical & even social phenomena better. Elementary education is the most crucial period for the physical, intellectual & emotional development of a child. It is, therefore, very important that effective methods of teaching arithmetic are adopted by the teachers. It is generally believed that if the arithmetic teaching is improved the general standard of education will generally improve.

REFERENCE

- Anice James & Balasubramanian, P.S., (2005), "Teaching of Mathematics", Neelkamal Publishers Pvt. Ltd. | Kavitha M. Dr.K.Krishnamoorthy & Dr.AR.Saravanaumar (2012), Teaching Arithmetic : Effective and Innovative Strategies for Mathematical Operations, Indian Streams Research Journal Vol. 2, ISS- 1. | Kavitha, M & Dr.AR.Saravanakumar (2012), Teaching Strategies for Simplifying Fractions in Mathematics, Indian Journal of Applied Research, Vol. 1, Issue- 4. | Kulbir Singh Sidhu, (2006), "The teaching of mathematics", Sterling Publishers Pvt. Ltd. | Tyagi. S.K. (2008), "Teaching of Arithmetic", Commonwealth Publishers. |