Learning Difficulties In Mathematics Among The Ninth Standard SC/ST Students In Pudukkottai Educational District

Abstract
Basic knowledge foundation makes a successful life in students’ futures. Every competitive examination gives importance to test the mathematical knowledge. If students get basic knowledge in mathematics, they will tackle very easily to solve any problem in their life. Basic knowledge in mathematics of ninth standard will be used to securing more marks in tenth standard. SC/ST students meet many problems in family as well as in the society. Their education is affected by these problems. The proper diagnostic research is important in this situation to increase the enrolment in school level and also to attract students as much as possible. The students feel their untouchable position in their classroom and other public places. Such reasons affect their education. They are meeting learning difficulties in mathematics continuously. So the study is very important to find that one of the learning difficulties during students’ life is studying in mathematics. We are analyzing the students with the basic concepts, rules and laws of four basic operation by using +, - sign rules on numerical and algebraic in mathematics. Thus our research will suggest the expressive exploration, through the analysis of ninth standard SC/ST students learning difficulties in mathematics. Finally, the author has calculated the average of SC/ST students’ learning difficulties in mathematics with regard to management of schools and age of student, through LDIM tool. This will help to provide more accuracy to the results. In the present study, 23 Government, Government Aided Schools and Adi-Dravidar welfare schools are recognized by directorate of school education under taken by the state government of Tamil Nadu have been chosen, Simple Random Sampling Technique is followed by the researcher.
1. Introduction

Education is an empowering tool for the development of human societies in past, present and future. Nowadays education is interpreted in the light of its growth and development of modern culture and civilization. Mathematics is a mirror of civilization. Any development of civilization is not possible without mathematics. So mathematics is a developmental subject and language is a communicative subject. Both are very essential for the development of human society. Human beings can live without language, but not possible without mathematics. Educationally deprived students in India largely consist of children belonging to scheduled castes, scheduled tribes and girls. The SC/ST students have difficulties in matter of education at present in Indian social system because of socio-economic and cultural reasons. They are the mostly first generation learner, that is, they do not have the tradition of learning, writing and arithmetic. The parents are mostly illiterate. Even if the SC/ST children are enrolled in schools, they do not find any family support in terms of learning atmosphere or home support to augment or supplement the learning in schools. All the SC/ST students have learning difficulties in mathematics due to these reasons. Thus our research will propose the descriptive type of research, through the investigation of ninth standard SC/ST students learning difficulties in mathematics.

2. Needs For The Study

“Mathematics should be taught on compulsory basis to all pupils as a part of general education during the first ten years of schooling”

----Kothari Commission

Mathematics is one of the important subjects for ninth standard students. Generally the Indian culture is basically built on aesthetics and religious irrational thinking. So our country peoples believe many Gods rather than mathematics. So we do not compete with other countries. We will compete with other countries only as the way of development through mathematical knowledge upgrading. But unfortunately we are degrading ourselves in mathematical knowledge than the world average knowledge of mathematics. So many discoveries, research and inventions are not original in India because there is no proper way of knowledge transfers from teacher to students especially the teachers propagate that the concept of mathematics is a risky subject on all students’ mind. If Students feel the mathematics is hard, they will get more difficulties in the subject. So the calculation measurement of the students’ learning difficulties in mathematics is done through LDIM tool.

3. Importance Of Study

Now day SC/ST peoples deprived of their socio-economic prospects. Society refuses to give them the development through educational opportunity. Most of the parents are not aware of their children who do not know how to provide the education opportunity in proper way. Government takes the step to provide educational opportunity for all the deprived students through the article 45 in the constitution of India. Socio-economic problems influence their educational study throughout their life. The students feel their untouchable position in their classroom and other public places. Such reasons affect their education. They are meeting learning difficulties in mathematics continuously. So the study is very important to find that one of the learning difficulties during students’ life is studying in mathematics. We are analyzing the students with the basic concepts, rules and laws of four basic operation by using +, - sign rules on numerical and algebraic in
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mathematics. Till today, improper diagnostic way may make the students’ drop out and wastage in high rate. The proper diagnostic research is important in this situation to increase the enrolment in school level and also to attract students as much as possible.

4. Scope Of The Study

The purpose of the study is to focus the truth that the ninth standard SC/ST students have learning difficulties in mathematics. Let us find the learning difficulties through the investigation by using LDIM tools of research questionnaire. Tool is used to measures students’ learning difficulties by knowing the basic concepts, rules and laws of four basic operation by using +, - sign rules on numerical and algebraic in mathematics.

5. Objectives Of The Study

The objectives of a research project are to summarize what is to be achieved by the study. These objectives should be closely related to the research problem.

(i) GENERAL OBJECTIVES OF THE STUDY

(i) To find out the SC/ST students’ learning difficulties in mathematics through LDIM tool.

(ii) SPECIFIC OBJECTIVES OF THE STUDY

(i) To find out the average of SC/ST students’ learning difficulties in mathematics.

(ii) To calculate the average of SC/ST students’ learning difficulties in mathematics with regard to management of schools and age of student, through LDIM tool.

6. Statement Of The Problem

Developing country concentrates more on scientific concepts especially mathematical concepts. Each and every civilization is undergoing more changes through getting mathematics knowledge. Mathematical knowledge provides the major contribution to scientific innovations. Now India is mostly concentrating on mathematics. Basic knowledge of mathematics enhances students’ academic achievement in mathematics. Mathematics is developing reasoning ability, logical sequence, rational thinking, problem solving ability and etc., therefore, everybody should study compulsory subject namely mathematics. Nowadays academic achievements are influenced to the students’ future carriers and vocational carriers. There is no way to assess the students’ potential in education field except academic achievement. No alternate is found in the modern word of education field until now. We measure students’ ability, cognition, skills and etc., by using academic achievement marks analysis. Now most of the students are securing more scores in their mark statements but their educational outcomes is irrelevant to their mark statements at any level. We feel that cap between academic achievements and their competitive examinations that means they fail in the National, International and State competitive examinations. Basic knowledge foundation makes a successful life in students’ futures. Every competitive examination gives importance to test the mathematical knowledge. If students get basic knowledge in mathematics, they will tackle very easily to solve any problem in their life. Basic knowledge in mathematics of ninth standard will be used to securing more marks in tenth standard. SC/ST students meet many problems in family as well as in the society. Their education is affected by these problems. Also they have to meet social problems, emotional problems and economic problems. They are being treated as untouchables.
Pudukkottai educational district is the one among the backward districts in Tamil Nadu educational districts. Most of the SC/ST students are studying in Government, Government Aided and Adi-Draviderar schools in India. These SC/ST students are having learning difficulties in mathematics. Such learning difficulties affect academic achievement in mathematics of students.

In this context, it is worthwhile to investigate among SC/ST students’ learning difficulties in mathematics through LDIM tool in Pudukkottai educational district. Such students are studying in Government, Government Aided and Adi-Dravidar schools in Pudukkottai educational district. Thus an attempt is made to explore the rules of four basic operations (BODMAS) and rules of +, - sign and rules of combination of both at ninth standard SC/ST students level.

7. Operationalization Of Variable

The meaning of important terms used in study is given below:

7.1 Learning Difficulties In Mathematics

Learning difficulties defines an assessment of difficult to individual’s knowledge, skill or accomplishment in one or more content areas. Learning difficulties in Mathematics defines lose of attainment in any or all Mathematics skills, usually estimated by performance on a test. Learning difficulties in Mathematics is greater than other discipline learning difficulties based on comparing the public result of Tenth standard in Tamil Nadu Secondary Board of Examination. Achievement is vital role of influence on future carrier and getting employment in his life of students. Achievement marks are very important consideration of our education system in India than any other performance. Mathematics achievement is the main supporting pillar of the total achievement marks. Everyone uses the Mathematics through aware or unaware of experience. Mathematics is unavoidable term in every one life. So Mathematics is one of the main and compulsory subjects from one to Tenth standard. In education field, students with high learning difficulties get low achievement marks and students with low learning difficulties get high achievement marks.

7.2 Government/ Government Aided And Adi-Dravidar Schools

Government Schools are approved and funded by the Government. Also, they are totally governed by the government authorized persons. Government Aided Schools and Adi-Dravidar Welfare Schools are approved and funded by the Government. Also, they are semi-governed by the government authorized persons and semi-governed by institutional authority that is establishing such schools. Government/Aided Schools and Adi-Dravidar Welfare Schools provide free education through allotment of Tamil Nadu State grants. But their result is lower than matriculation and Anglo-Indian schools. Total investment of education by the State Government does not proportionate between education and spending money. The State Government has not attained the expected goal in its education policy. Considering these above mentioned actual difficulties, the selection of this current research topic is more suitable for the investigation of the student’s learning difficulties in mathematics especially in Government, Government Aided Schools and Adi-Dravidar Welfare Schools.

7.3 Ninth Standard Students

Tenth standard is based on Ninth standard. Tenth standard result is based on Ninth standard basic knowledge of students. Ninth standard Mathematics achievement is a very important crucial role for Tenth standard. Our curriculum is designed by the spiral method. Thus continuous knowledge must be transferred from one grade to another grade.
7.4 SC/STs

SC/ST people are the deprived people belonging to the lowest socio-economic strata of Indian society. Most of the learner is the first learner of their study. So there is no support from parent side and society side and only supported by the Government norms or Indian laws. Most of the rural area students are the first learners. So they have to meet many problems from both the inner society and the outer society and in the educational field too. SC/ST students may have more learning difficulties of achievement in Mathematics rather than non-SC/ST students’ learning difficulties of achievement in Mathematics.

7.5 Pudukkottai Educational District

Pudukkottai district is one of the districts in Tamil Nadu state of our nation. Such a district has been divided into two educational districts namely Aranthangi educational district and Pudukkottai educational district. Pudukkottai educational district has more number of uneducated SC/ST people and its performance of Tenth results is very lower than other educational districts continuously. It is a backward district announced by the state government. This district does not have the basic natural resources. So this district people have to face many socio-economic problems in their living period and especially the SC/ST people are facing this problem more vigorously.

8. Hypotheses Of The Study

1. There is no significant difference among Government, Government Aided and Adi-Dravidar Welfare schools with respect to Ninth standard SC/ST students’ learning difficulties in Mathematics through LDIM.
2. There is no significant difference between ages of students is upto14 years old and above 14 years old with respect to Ninth standard SC/ST students’ learning difficulties in Mathematics through LDIM.
3.

9. Design Of The Study

In the present study is survey method. Thus the study here has been conducted through statistical survey method.

9.1 Variables Of The Study

a. Primary variable
   Learning difficulty in mathematics
b. Secondary variable
   Ninth standard SC/ST students in Pudukkottai Educational District
c. Moderate variables
   Management of schools like Government, Government Aided and Adi-Dravidar Welfare Schools
   Student’s age likes ≤14 and >14

9.2 Sampling Of The Study

Simple Random Sampling is a type of probability sampling technique. Lottery method of Simple Random Sampling Technique is adapted in the study. Each of the 124 schools is assigned a unique number by the researcher. The numbers are placed in a bowl and thoroughly mixed. Then, a blind-folded researcher selects 23 schools without replacement.
In the present study, 23 Government, Government Aided Schools and Adi-Draivadar welfare schools are recognized by directorate of school education under taken by the state government of Tamil Nadu have been chosen, Simple Random Sampling Technique is followed by the researcher, because, all the SC/ST pupils are allowed to study in Government, Government Aided Schools and Adi-Draivadar welfare schools. Some private schools do not give the studying opportunity to SC/ST pupils. The data were collected from the 600 Ninth standard SC/ST students in Government Schools, Government Aided Schools and Adi-Draivadar Welfare Schools by the researcher.

Table 1: School Wise Distribution Of Sample For Data Collection

<table>
<thead>
<tr>
<th>S. No</th>
<th>School Name</th>
<th>Genders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BOYS</td>
</tr>
<tr>
<td>1</td>
<td>V.V.H.S.S,PONNAMARAVATHY(AIDED)</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>RANIAR,G.G.H.S, PUDUKKOTTAI</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>NIZAMORIENTAL,H.S.S,PUDUKKOTTAI(AIDED)</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>T.E.L.C.H.S.(AIDED)</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>R.C.H.S.S,NARSANDUPATTI(AIDED)</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>S.G.B.H.S.S,PUDUKKOTTAI(AIDED)</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>G.G.H.S.S,SANTHAPETTAI,PUDUKKOTTAI</td>
<td>14</td>
</tr>
<tr>
<td>8</td>
<td>SRI BRAHATHAMBAL.H.S</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>G.MODEL.H.S.S,PUDUKKOTTAI</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>G.G.H.S,THIRUGOKARNAM</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>G.H.S.,ILUPPUR</td>
<td>19</td>
</tr>
<tr>
<td>12</td>
<td>G.G.H.S,ILUPPUR</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>ST.MARY’S.H.S,PUDUKKOTTAI(AIDED)</td>
<td>69</td>
</tr>
<tr>
<td>14</td>
<td>G.H.S.,KAVERI NAGAR</td>
<td>9</td>
</tr>
<tr>
<td>15</td>
<td>G.H.S.,MOKKANAMALAIPATTI</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>G.H.S.,KILAGURICHI</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>G.G.H.S.,THIRUMAYAM</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>G.H.S.,LEMBALAGUDI</td>
<td>5</td>
</tr>
<tr>
<td>19</td>
<td>G.H.S.,PERUNGUDI</td>
<td>15</td>
</tr>
<tr>
<td>20</td>
<td>G.H.S.,MIRATTUNILAI</td>
<td>6</td>
</tr>
<tr>
<td>21</td>
<td>G.A.W.H.S,PILAVIDUTHI</td>
<td>18</td>
</tr>
<tr>
<td>22</td>
<td>G.A.W.H.S.,MULLANGURICHI</td>
<td>31</td>
</tr>
<tr>
<td>23</td>
<td>G.H.S.,KODIMIAN MALAI</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>271</td>
</tr>
</tbody>
</table>
9.3 Tool Used For The Study

The researcher made questionnaire was used as the tool for the study is learning difficulties indicator in mathematics, designed by B. PRABAKARAN under the guidance of Dr. R. KARPAGAKUMARAVE, Professor, Department Of Education Technology, Bharathidasan University, Trichy. Entitled “Learning Difficulties Indicator in Mathematics (LDIM)” It is designed as the five point Likert Scale.

9.4 Statistical Techniques

The data was quantified and analysed in the term of t-test and ANOVA test.

9.5 Delimitation Of The Study

Delimitations of the study described as follow:

(i) The study was confined only to the Government, Government Aided and Adi-Dravidar welfare schools in Pudukkottai educational district. The self-finance schools were not included within the purview of the study.

(ii) Data were collected only from ninth standard regular SC students in Pudukkottai educational district. The open school or mobile school students were left out.

(iii) Even though lot of methods are available, because of suitability, only survey method was employed and questionnaires were used to collect data from ninth standard regular SC students in Pudukkottai educational district.

(iv) LDIM Tool was used for ninth standard and above ninth standard students following Tamil Nadu state board syllabus.

(v) Number of samples was taken 600 only in 23 Government, Government Aided and Adi-Dravidar welfare schools in Pudukkottai educational district.

(vi) Statistical techniques were employed t-test and F-test,

(vii) Graphical representations were drawn bar graphs only.

10. Analysis And Interpretation Of The Study

Hypothesis - 1

There is no significant difference among Government, Government Aided and Adi-Dravidar Welfare schools with respect to Ninth standard SC/ST students’ learning difficulties in Mathematics through LDIM.

Table 2: Learning Difficulties: Significant Difference Among Managements Of Schools: ANOVA Of LDIM

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Source Variance</th>
<th>Of Sum Squares</th>
<th>Of Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance At 0.05 Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Between group</td>
<td>361.28</td>
<td>2</td>
<td>180.64</td>
<td>2.42</td>
<td>No Significance</td>
</tr>
<tr>
<td>2.</td>
<td>Within group</td>
<td>44602.64</td>
<td>597</td>
<td>74.71</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above table reveals that the null hypothesis is accepted as revealed by the calculation F = 2.42 which is significant at 0.05 level of confidence. Hence, there is no significant difference among Government, Government Aided and Adi-Dravidar Welfare schools with respect to Ninth standard SC/ST students’ learning difficulties in Mathematics through LDIM.
Hypothesis-2

There is no significant difference between ages of students is upto 14 years old and above 14 years old with respect to Ninth standard SC/ST students’ learning difficulties in Mathematics through LDIM.

**TABLE 3: Learning Difficulties: Significant Difference Between The Age Group Of Students: ‘t’ Test Of LDIM**

<table>
<thead>
<tr>
<th>S.A.</th>
<th>N.O.S.</th>
<th>Average</th>
<th>Sd</th>
<th>T- Value</th>
<th>Significance at 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤14</td>
<td>511</td>
<td>62.7632</td>
<td>8.6786</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;14</td>
<td>89</td>
<td>64.8427</td>
<td>9.0603</td>
<td>2.0106</td>
<td><strong>Significance</strong></td>
</tr>
<tr>
<td>TOTAL</td>
<td>600</td>
<td>63.0717</td>
<td>8.7598</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above table reveals that the null hypothesis is rejected as revealed by the calculation t = 2.0106 which is not significant at 0.05 level of confidence. Hence, there is a significant difference between ages of students is upto 14 years old and above 14 years old with respect to learning difficulties in Mathematics through LDIM. It concludes that ages of students is a variable influencing the Ninth standard SC/ST students’ learning difficulties in Mathematics through LDIM.
10.1 Major Finding Of The Study

There is no significant difference among Government, Government Aided and Adi-Dravidar Welfare schools with respect to Ninth standard SC/ST students’ learning difficulties in Mathematics through LDIM. There is a significant difference between ages of students is upto 14 years old and above 14 years old with respect to learning difficulties in Mathematics through LDIM. It concludes that ages of students is a variable influencing the Ninth standard SC/ST students’ learning difficulties in Mathematics through LDIM. Students have more difficulties in their age is above 14 than others.

10.2 Implications Of The Study

The present study reveals that the SC/ST students have more learning difficulties in Mathematics especially basic numerical and algebraic operations rules and regulation by using +, - sign rules. The students’ social backwardness, their economical and emotional problems are increased by students’ learning difficulties in Mathematics. The remedial instruction must be followed by the teacher and management as well as government. All the SC/ST students have lack of self-confidents, emotionally weak and so on. Therefore if Government takes action for learning difficulties, it appoints immediately the psychological guide and a counselor district wise. These psychologists visit every schools and he/she identifies the SC/ST pupils and then rectifies their psychological problems meet by society.
11. Conclusion

It has been found that the SC/ST students of ninth standard remain ignorant of the basic concepts of mathematics; the teaching-learning of mathematics up to Eighth standard has no bearing on the mathematical knowledge of ninth standard students. As a result, teachers of mathematics have to give more stress on tenth standard students. To avoid wastage and stagnation among SC/ST students, teachers have to work very hard. Still, this result brings out only the improper outcomes and attending competitive examinations is a difficult one for them. Hence, SC/ST students have to enhance drill and practice gradually in mathematical basic concept from first standard to ninth standard. Also, it is recommended that Government may appoint the guides and counselors district wise; they may solve many psychological and socio-emotional problems of SC/ST students. This may result in better learning. This study describes only the ninth standard SC/ST students’ dyscalculia problems at present. In future study may be elaborately conducted by any researcher in the topic of remedial teaching for these students and thereby help the growth of their academic improvements.

References