IDENTYFYING LEARNING WEAKNESSESS IN ADDITION AMONG 5TH GRADE STUDENTS

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Abstract: Addition is the most important variable in the learning arithmetic of people. This article we investigated different type of weaknesses in learning addition of the people who read in school level by response on the Essential Problem Arithmetic Test. The present study examined the 200, class 5th high school students who read in under the W.B.B.S.E. The study identified some common errors in learning addition. The results of the study indicate that there was a gender difference in learning addition. Descriptive statistics has used for statistical analysis. Implication of the study: Weak student's need to be exposed to comprehensive counseling and remedial programmers based on their levels of abstract ability.

Index Terms – Learning Weaknesses

I. INTRODUCTION

Within the last few decades or so education for all children has become an accepted principle. But it has doubled the teacher's difficulty and increase the number of weak students. The most important subject in school curriculum is mathematics which develops intellectual habit, numeracy and calculation skills Addition helps primarily learn this skills and has earned a valuable place in one's life. Addition the foundation of mathematical it is taught since beginning of the school to provide competence in performing the fundamental operation with numbers, as they are required in the community. The ability to do addition includes many components like counting, memory for arithmetical facts, the understanding of concepts and the ability to follow procedures. Weaknesses in even one component can ultimately take its toll on performance in the other component when children fail at certain tasks, they may come to perceive themselves as "***no good at math's***" and develop a negative attitude to the subject ***(Danvir & Brown, 1986)***. Many children have difficulty with some or most aspect of addition. It is hard to estimate the proportion who have difficulty, since this depends on the criteria that are used. There are many cause and of arithmetical difficulty. It is likely that at least 15% to 20% of the population have difficulties with certain aspects of addition, which are sufficient to cause significant practical and educational problem for the individual***(Bynner&Parsons,1997,2005:Every Child a Trust,2008). Ginsberg,(1972,77)*** and his colleagues carried out a several case studies of children who were failing in school arithmetic and found that some pattern of strength and weaknesses were common and some children showed unusual and distinctive patterns. ***Bryant, Bryant and Hammill, (2008)*** found that several difficulties were common in children with arithmetical weaknesses, but that the commonest problems was a difficulty in carryout multi-step arithmetic.

II. REVIEW OF RELATED LITERATURE

Jasmine, (2004) conducted a diagnostic study of the difficulties in computation of pupils in standard third. The result of the study indicates that the level of attainment of students was very poor for the addition of four digit number with one digit number. Diagnostic information can be obtained from a test is based on a sequential steps of learning an additiona process. ***Schonell & Schonell (1947)*** has divided each fundamental process into a number of steps which they have determined to be representative of those through children progress in the mastery of operation in arithmetic. **Munida, l (2013)** conducted a study *on "The Assessment of Math Learning Difficulties in a Primary grade4 Child with high support needs: mixed Methods Approach."* They found several difficulties in learning mathematics in primary school children. **Aunola, K; Leskinen, E ; Lerkknen, M.K.& Nurmi, J (2010)** conducted a study on *" Developmental dynamics of math performance from pro school to grade4"*In their ***longitudinal study*** from pro school to ***4th*** grade they found that counting ability was the best predictors of the initial level of arithmetic performance and children's basic conceptual understanding of how to count objects and their knowledge of the order of number play an important role in later arithmetic performance. **Fragnant, A; Vlassis, J. (2013)** conducted a study on "*Schematic representation in arithmetical problem solving: Analysis of their impact on grade 5 students.* The major finding of study is that the presence of Schematic representation has been a clear positive effect on overall student's performance and that a non-negligible proportion of students manage to rescue the presentation encountered in order to solve new arithmetical problems. **Geary, et. al. (2012) worked on** "Counting knowledge and skills in cognitive addition: A comparison of normal and mathematically disables children. The major findings of the study is that small children with arithmetical disabilities were more likely to make procedural error in counting and had considerable conceptual difficulties. **Gurusamy, S. (2011)** made a *diagnostic study of the errors committed by the students of standard V in solving problems in arithmetic.* The major findings of the study is that students mean achievement score was increased and the errors was considerably reduced.

Bryant, D.P, Braynt B.R, and Hammill, D.D. (2010) conducted a study on "*Characteristic behavior of students with learning disabilities who have teacher defined with weaknesses in arithmetic."* The major findings of the study is that several several difficulties is common with children with arithmetical weaknesses but the commonest problem was a difficulty in carrying out multi-step arithmetic. **Osted, S. (2008)** worked on *" Developmental differences in solving simple arithmetic problems and simple number facts problems: a comparison between mathematically normal and mathematically disabled children*." The longitudinal study was used by the researcher. **36** children with and 36 children without mathematically difficulties in grade 5th were selected from Norwergain City. *Norwegin standardized mathematics achievement test* was used. The major finding of the study is that children with mathematical difficulties used almost exclusively counting based strategies, while those without such difficulties children were likely use retrieval or derived fact strategies. Moreover children with mathematical difficulties increased their use of retrieval and decrease their use of counting based strategies as they grow older, while the strategies of the children with mathematical difficulties did not change with age. *Desoete and Gregoire, (2007)* conducted a study on "Numerical competence in young children and children with mathematics learning disabilities The researcher found that children with arithmetic disabilities in grade1 already had encountered problems on numeration in nursery school. They also found some evidence of disassociation of numerical abilities of children with arithmetic disabilities in grade 3rd. **Canobi, H. and Katherine, (2005)** worked a study on *"children profiles of addition and subtraction understanding."* The major finding of the study is that children's spontaneous acknowledgement of the existence of numbers between 0 and 1 strongly related to their induction that number and infinitely divisible in the sense that can be repeatedly divided without ever getting to 0.

Rastogi, S. (1983) conducted a study on *" Diagnosis of weaknesses in Arithmetic as related to the Basic Arithmetic Skills and their Remedial Measures."* The design of the study was essentially experimental in nature. A diagnostic test of basic arithmetic skill was constructed. The sample included 406 class **VIII** students (**230boys+176girls)** of nine different schools, one from each district of Arunachal Pradesh. The major finding of the study is that one of the important causes of backwardness in mathematics was the poor command over basic arithmetic skills, arithmetic was closely linked with achievement.

III. OBJECTIVE OF THE STUDY:

So, the purpose of the study is as following:

1) To analyze the different types of error that such students committed in learning Addition.
2) To highlight some common misconception identified through the administration of the diagnostic instrument.

IV.RESEARCH DESIGN

The present study is to be done by *Descriptive approach*, because it is concerned with the present Addition problems of grade **V** students. To undertake the present field of work the researcher has adopted *Fact-finding* survey design which is one of the important design of Descriptive Research.

- **POPULATION**

The population of the study were grade 5th pupils (boys + girls) studying under West Bengal Board of Secondary Education, in the district of South 24 Parganas, Bhangar block-1, Bengali (boys, girls and co-education) medium of instruction.

- **SAMPLE**

The researcher selected 5th grade of 200 sample both (boys + girls) from Bengali medium school of rural area of south 24 Parganas. A total of 200 students, 100 boys and 100girls.

- **SAMPLING TECHNIQUE**

For the selection of school researcher has adopted Area sampling technique to draw sample units. For the students selection Random sampling technique has been used for the study.

- **AREA OF THE STUDY**

The schools were selected only from Rural area of south 24 Parganas district.

- **INSTRUMENT(TOOLS)**

The researcher used the following instrument for collection of data for the fulfilment of the aims of research. An 'Essential Problem Arithmetic Test' by the researcher in the light of the "*Schonell Diagnostic Arithmetic Test"*, F. J. Schonell (1947).

- **STATISTICAL TREATMENT**

Descriptive statistics like **Mean, S.D, Correlation, t-Test, Percentage** of weakness in particular basic of arithmetic achievement was done for this study. Graphical representation **(Bar graph)** also done to show the Percentage of particular errors and barriers.

V. RESULT AND DISCUSSION

ANALYSIS OF DIFFERENT TYPES OF ERRORS IN ARITHMETIC COMMITED BY STUDENTS OF GRADE V.

Analysis of different types of errors in addition committed by students of grade v are now studies through the analysis of the data set on Essential Problem Arithmetic Test. Unattempt questions were regarded as separate category of error and the number of such questions was expressed as a percentage of the total number of questions.
The relatively frequency distribution of male and female students errors percentage are plotted simultaneously in the bar chart of Figure 4.5 .Each colours represents a different type of error.

Table1 shows different type of errors in learning ADDITION.

Name of errors	Boys		Girls	
	Number	Percentage	Number	Percentage
Errors in combination	30	9.4339	71	20
Omitted carry figure	51	16.0377	43	12.1126
Carried wrong number	67	21.0691	77	21.6901
Added number from other column	4	1.2578	10	2.8169
Added carrying number twice	13	4.0880	11	3.0895
Omitted number from column	31	9.7842	37	10.4225
Carry when nothing to carry	11	3.4591	3	0.8450
Retraced worked partly done	11	3.4591	18	5.0704
Added carried number irregularly	3	0.9433	7	1.9037
Wrote number to be carried	12	3.7735	5	1.3623
Subtracted instead of Addition	12	3.7735	2	0.5633
Subtracted and Addition both	3	0.9433	5	1.3623
Irregular procedure	70	22.0125	78	1.654
TOTAL	318		367	
Mean	24.4615	7.6923	28.2307	7.9438
S.D.	23.8139	7.4886	29.6764	8.3664

It is clear that most of the male and female students committed errors in carrying number (21%). Most students use irregular procedure (22&and 21.97%) to calculate addition within 2/3 digit. The relatively frequency distribution of male and female students error percentage are plotted simultaneously in the bar chart of Figure 4.6 .Each colours represents a different type of error.

IMPLICATION OF THE STUDY : It is clear that many children have difficulties with some or most aspects of arithmetic. Arithmetical thinking involves such a wide variety of components; so there are many form and causes of arithmetical difficulties. However a very significant proportion of the **population** have difficulties with certain aspect of arithmetic, which are sufficient to cause them at least some practical and educational problems. While teachers teaching in their classes they should always keep in the mind the type of errors committed by their student's and accordingly plan their lesion. Teacher should be careful about the students who are very weak in arithmetic. Weak student's need to be exposed to comprehensive counselling and remedial programmes based on their levels of abstract ability.

LIMITATION OF THE STUDY

In spite of all the precautionary measures taken while conducting the work,
the researcher identified some limitation of the study.
   The limitations of the study are:-
1) The study has been limited only to rural area of south 24 parganas.
2) The study has been limited to class V of government added secondary and higher secondary schools only.

FARTHER RESEARCH

The result of this study lead towered a few areas: identifying learning weaknesses in addition of those students who belong in the class V. Further investigation are of course necessary to show the difficulties which are related to other aspect of arithmetic. Further research would be explore what influence of this variable on participant in problem arithmetic test. In this study I fell that there was a need for a remedial treatment for the student's who are very weak. So there is a scope for further investigation. In this study teachers are not included. So there is a gap between teachers concept about different type of weaknesses and the learner who are weak.

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