DATA ANALYSIS AND FINDINGS

4.1 Introduction

Data analysis is the process of ordering, categorizing, manipulating and summarizing data to obtain answers to research questions. It is usually the first step taken towards data interpretation. Every research is based on data which is analyzed and interpreted to get information. According to LeCompte and Schensul, "Research data analysis is a process used by researchers for reducing data to a story and interpreting it to derive insights. The data analysis process helps in reducing a large chunk of data into smaller fragments, which makes sense". Data analysis involves working to uncover patterns and trends in datasets while data interpretation involves explaining those patterns and trends. Data analysis is the most crucial part of any research. Analysis and interpretation of data is the most important phase of the research process, which involves the computation of certain measure along with searching for pattern of relationship that exist among data group.

4.2 Data Analysis

Data analysis is the process of systematically applying statistical and logical technique to describe, summarize and compare data. Analysis is refer to as a method of organizing data in such a way that research question can be answered and hypothesis can be tested.

The study is based on primary data sources. The primary data is collected from students of Badhei Munda Ashram School. The qualitative data collection was interaction with teacher.

Following statistical techniques were used for analyzing the data. Descriptive statistics of performance in Addition and Subtraction for total sample. The following table shows the measures of central tendency namely mean, median, mode and measures of variability namely standard deviation of performance in Addition and Subtraction for the total score of the sample.

Table 2 [Descriptive Statistics of performance in Addition and Subtraction]

Test	Sample Size	Mean	Median	Mode	SD
Pre	20	5.35	5.5	7	2.058
Post	20	6.25	6.5	7	1.860

Descriptive statistics of time taken(in second) for total sample
The following table shows the measures of central tendency namely mean, median, mode and measures of variability namely standard deviation of time taken in Addition and Subtraction for the total score of the sample.

Table 3 [Descriptive statistics of time taken(in second) for total sample]

Test	Sample Size	Mean	Median	Mode	SD
Pre	20	458.3	454.4		60.84
Post	20	414.6	413.5		80.01

4.2.1 Demographic information of the sample

The study was conducted in Badhei Munda Ashram School, Jharsuguda, which belongs to the state of Odisha. The researcher has worked out the experiment in class III and inference were taken after going through the results. Researcher has interacted with the school teachers whose opinion were taken into consideration for the accomplishment of the work.

4.2.2 Hypothesis wise analysis

In analysis the collected data were tabulated and statistical techniques were Interpreted as per research design. All the hypothesis were tested at 0.05 level of significance.

Testing of Hypothesis 1

There is no significant difference in the pre-test and post-test scores of the students performance in Addition and Subtraction after implementation of the Vedic Calculation Technique.
The statistical technique used to test this hypothesis was t-test. The following table shows the significance of difference in the performance of the students for solving the sums in the pre-test and post-test.

Table 4 [Pre and Post-test difference in the performance of the students]

Test	Sample Size	Mean	SD	t-test	L.o.s.
Pre	20	5.35	2.058		
Post	20	6.25	1.860	4.15	0.05

Df=20-1=19
Tabulated 't' at 0.05 level = 2.093
The obtained 't' = 4.15
4.15>2.093

The tabulated value of 't' for 19 degree of freedom(d.f.) and at 5% significance level is 2.093 . Since calculated value of 't' (4.15) is greater than the tabulated 't', It is significant at 5% level of significance .

Conclusion:-The tabulated 't' is less than the obtained 't'. Hence the null hypothesis is rejected. There is a significant difference in the pre-test and post-test scores with respect to the students performance in Addition and Subtraction after implementation of the Vedic Calculation Technique.

Discussion:-The students knew Addition and Subtraction but they use carry and cancellation work which was lengthy and time taking process. But, In Vedic Calculation Technique there is no such carry and cancellation work.
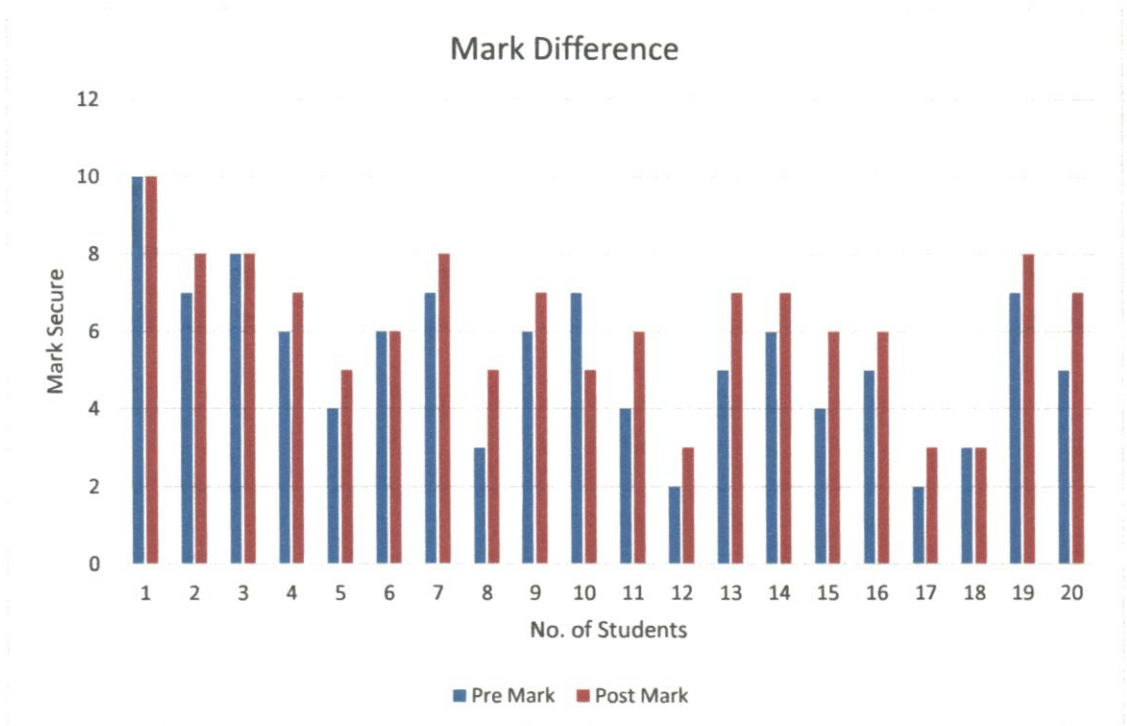

Figure 4 [Pre Mark and Post Mark of Students]

Observation:-After the pre test when I started teaching them Vedic Calculation Technique, The students were eager to learn something new initially they face little difficulty while doing some problem involving carry works specially from zero. Again while doing the same question for the second time they show some improvement and their efficiency had also improved as compare to traditional method. While learning the technique initially for the first time. Though students were eager to learn they were not able to grab the techniques so easily. So, First day it took longer time to make them learn the technique. But also, In the second day they show same enthusiasm to learn the technique and eventually they succeed. After the completion of the technique for the addition and subtraction they were looking forward to learn some more techniques. It was observed that when something is taught to the students in a new way they learn it better.

The entire scenario of this kind of mathematics learning thus a developing the ability to explore mathematical entities and add to what is known. A growing ability in Vedic Calculation Technique help the learner Mathematise his/her experiences along with overall attitude.

Testing of Hypothesis 2

There is no significant difference in the pre-test and post-test time taken by the students in doing Addition and Subtraction after implementation of the Vedic Calculation Technique.

Table 5 [Pre and Post-test difference in the time(in second) taken of the students]

Test	Sample Size	Mean	SD	t-test	L.o.s.
Pre	20	458.3	60.84		
Post	20	414.6	80.01	3.09	0.05

Df=20-1=19
Tabulated 't' at 0.05 level = 2.093
The obtained 't' = 3.09
3.09>2.093
The tabulated value of 't' for 19 degree of freedom (d.f.) and at 5% significance level is 2.093 .Since calculated value of 't' (3.09) is greater than the tabulated 't', It is significant at 5% level of significance .

Conclusion: The tabulated 't' is less than the obtained 't'. Hence the null hypothesis is rejected. There is a significant difference in the pre-test and post-test time taken by the students in doing Addition and Subtraction after implementation of the Vedic Calculation Technique.

Discussion:- As student took lesser time to solve in doing Addition and Subtraction in the post test, it clearly indicates that the Vedic Calculation Technique for Addition and Subtraction was more effective and less time consuming. It definitely has helped to enhance the students speed in solving the carry work .The post test gives better result as compared to the pre-test.
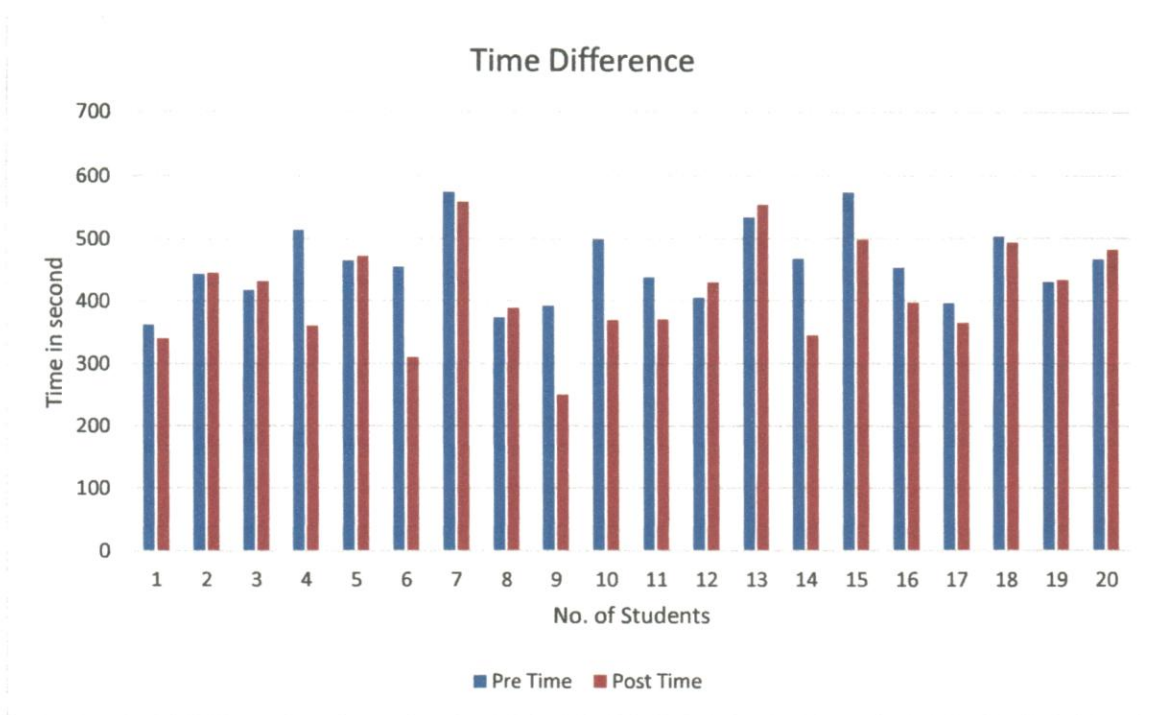
Figure 5 [Time Difference in Second]

Observation: Earlier, students were unfamiliar with the traditional mathematical computational skill. After getting familiar with the Vedic Calculation Technique it was found that a sense of knowing calculation is enhanced with a lot of enthusiasm. It was observed that students were able to solve the given problem within the latse of given time which was nearly a difficult and time consuming before the introduction of this technique.

Students were making some mistake in trying to solve but they found to be in anxiety leading them to failure in their work. But, later with adequate environment their performance was seen improvised. In the context of time students were shown their enhanced skill than that of before. In this way Vedic Calculation Technique is seemed to be more effective than the traditional method.

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RQ: How Vedic Calculation Technique is different from regular at primary level ?

T1: Vedic Calculation Technique is going to be cumbersome in nature for small students. They are not acquainted with these new things. Also, the teachers are not trained or have practiced the same for the students so we need some time and arrangements from the government.

T2:It's a good thing that we are revisiting our own tradition and trying to revive it. some support and improvement still required but I am hope full it will re-establish lost glory of Indian education again.

T3: Happy to see we are trying to do something different for the students especially for mathematics. Vedic calculation technique is our own learning and we can further improve it but we cannot ignore the traditional methods at a once. We have to go slowly and looking at the requirement of the student we will teach them either one of them or both.

RQ: Why basic mathematical operations so important at primary level?

T1: In today competitive world to achieve something we have to start at the very beginning. So, Students have to learn these from an early age. Now the approach of education is also changing so to sustain our self we have to go for this at the dawn.

T2: Education is very important and mathematics is a crucial part of it.Students should start learning basic operation in class one or two so that in higher classes they can go for more difficult and complex mathematical operation.

T3: Its normal beginning the learning process at the small age they will better learn and can develop themselves also by doing this we can develop the positive attitude for mathematics.

4.3 Findings of the study

The study revealed the difference in the pretest and post test score while doing Addition and Subtraction by the methods of traditional and Vedic Calculation Technique. It was observed that students were aware to do the problems accurately making less error by using the Vedic Calculation Technique in comparison to the traditional method of Addition and Subtraction.

Also, There is difference in time taken to complete the worksheet in the pretest and the post test. Students took less time in doing the problem using the Vedic Calculation Technique in comparison to doing the same using traditional method.