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Effect Of Ethnomathematical Teaching On Numerical Ability Of Secondary Students

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Abstract: This study aimed to study the effect of Ethnomathematical Teaching on Numerical Ability of Secondary level students. To study the effect the Quasi-Experimental method was used**.** A sample of 60 students of class VIII from a School of Thiruvarur(Dt.), Tamil Nadu was selected through purposive sampling. The researcher has used lesson plans based on Ethnomathematical Teaching and for the collection of Data; the researcher constructed a tool to check the numerical ability of the students, named Numerical Ability Test. The statistical techniques used to find the effect was t-test and found there exists a significant effect of Ethnomathematical Teaching on Numerical Ability of Secondary Students.

Index Terms **- Ethnomathematical Teaching, Numerical Ability, Secondary Students.**

INTRODUCTION

Mathematics is one of the school subjects, which has been considered as a tough subject by many students. Even Though teachers teach them with almost sincerity and support, it has been considered with the same status till date. This is the basic condition in every state, whereas the efforts and support taken by the teachers to teach mathematics at school level is amorous. But at some point to change the worst condition of Mathematics learning difficulty, could be solved through many ways, one among which is Ethnomathematics. Ethnomathematics is the embedded Mathematical concepts in the respective cultures or the way of expression of Mathematics through that culture. Thus many researchers believed that the concept of Mathematics teaching through or with the help of cultural practices may bring a positive effect on Mathematics learning (Rosa & Orey, 2012; Ozofor, N.M. 2001).

REVIEW OF LITERATURE

Teaching Mathematics through a culturally relevant and Ethnomathematical perspective helps students to know more about reality, culture, society, environmental issues, and see Mathematics in the world around them. By providing students with Mathematical content and approaches that enable them to successfully master academic Mathematics, an Ethnomathematical approach to the Mathematics curriculum is considered a pedagogical vehicle for achieving such a goal.

The studies related to Ethnomathematics are tabled below:

Table 1.1: Table depicting Researches on Ethnomathematics

Researcher	Year	Title of the study	Results
Unodiaku, Stanislus Sochima	2013	Effect of Ethno-Mathematics Teaching Materials on Students' Achievement in Mathematics in Enugu State (Nigeria)	Ethno-mathematic achievement test was effective in enhancing students' achievement in mensuration with particular reference to volumes of cylinder and hemisphere.
Iluno, C., Taylor, J.I	2013	Ethnomathematics: The Key to Optimizing Learning and Teaching of Mathematics	The students exposed to ETA performed highly than those taught with convectional teaching approach (CTA).
Emmanuel E. Achor et.al.,	2009	Effect of Ethnomathematics Teaching Approach on Senior Secondary Students' Achievement and Retention in Locus	The students exposed to ETA were superior in achievement and retention than those taught with conventional approach.

Based on the International research evidence most of the researches on Ethnomathematical Teaching are concentrated on Academic Achievement, retention, language learning, learning, locus of control and curriculum and of different regions or countries of the world. Literature search revealed insufficient research reports on the use of concrete teaching materials such as Ethnomathematics teaching materials in teaching Mathematics concepts (Ozofor, 2001; Unodiaku, 2012; NCTM, 2013).

Thus the researcher decided to work on "Effect of Ethnomathematical Teaching on Numerical Ability of Secondary Students".

OBJECTIVE OF THE STUDY

The objective of the research study was mentioned below:

1. To study the effect of Ethnomathematical Teaching on Numerical ability of secondary students.

HYPOTHESIS OF THE STUDY

The hypothesis of the study was as follows:

Ho1: There will be no significant effect of Ethnomathematical Teaching on Numerical ability of secondary students.

METHOD OF THE STUDY

Quasi – experimental design with two groups was used. One was the experimental and the other was the control group. The experimental group was taught through Ethnomathematical Teaching Approach, whereas the control group was taught through the traditional method. There were 30 periods taught using lesson plans prepared based on Ethnomathematical teaching approach, for duration of 40 minutes each.

SAMPLE OF THE STUDY

A sample of 60 secondary students was taken from a school of Tamilnadu through purposive sampling as the sample should be the true representative of a particular ethnic group. Then random sampling technique was adopted for the selection of experimental and control groups.

TOOL USED

To measure the numerical ability of the students, a Numerical Ability Test was constructed by the researcher. The researcher tried to find a suitable tool to use, but couldn't find much suitable tool according to the sample. The constructed test on Numerical Ability which covering numerical using different operations. It consisted of 35 items, administered as a pre and posttest for duration of 25 minutes, before and after the intervention.

STATISTICAL TECHNIQUES

To analyze and interpret the data obtained the researcher used Mean, SD and t-test as statistical techniques:

DATA INTERPRETATION

The pre test scores of 60 students of class VIII were depicted below in the table. this table shows that the mean value of experimental and control group were 16.43 and 14.73 and SD values were 5.077 and 5.783 respectively. After checking normality of the scores the researcher used t - test to find the calculated t - value.

Table 1.2. Descriptive statistics of Pre test scores of Numerical Ability Test

	Group	N	Mean	SD
NAT - PRETEST	**EXP**	30	16.43	5.077
	CONT	30	14.73	5.783

Mean and SD were used as statistical techniques for the experimental and control group, and were found to be 31.27, 2.392, 20.73 and 2.828 respectively. The calculated t value was 15.579, which is greater than the table value.

Table 1.3. Descriptive statistics & t- value of Post test scores of Numerical Ability Test

NAT	N	MEAN	SD	t - value	df	Sig
EXP	**30**	31.27	2.392	15.579	58	at 0.05 level
CONT	**30**	20.73	2.828			

As the calculated t value is higher with 58 degrees of freedom at 0.05 level of significance, the null hypothesis “There exists no significant effect of Ethnomathematical Teaching on Numerical Ability of Secondary Students” was rejected. Hence it could be concluded that “There exists a significant effect of Ethnomathematical Teaching on Numerical Ability of Secondary Students”.

DELIMITATIONS OF THE STUDY

The delimitations of the study will be as follows:

1. Ethnomathematical Teaching was only considered.
2. Students of Tamil Nadu were only considered.
3. Only class VIII students were considered.

SIGNIFICANCE OF THE STUDY

The research study is very closely associated with present scenario and of great importance of Mathematical education today. The results of this study would be more beneficial to the student community, but also to the teachers, curriculum framers, policy makers, administrators and parents.

The students will be highly benefitted because Ethnomathematical Teaching strategies will increase better understanding of the concepts. The more the students understand the concepts easily, the better they attain knowledge. The cultural background of the students will help them to enjoy the class and makes the class interesting. The practical aspects of the present culture give real life experiences that provide long lasting knowledge. It will also be helpful to the students to express their views in the better way rather than expressing in an alien language. The cultural activities and the native environment helps the students to develop their creativity in Mathematics.

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