

**AN ETHNO- MATHEMATICAL STUDY ON
Gurung Community Based on Concept and Process
of Basic Mathematics in Kaski District**

*For The Partial Fulfillment of the Requirements for the
Degree of Master of Education*

Thesis Submitted

By

Bishnu Prasad Poudel

Prithivi Narayan Campus

T.U. Regd. : 9-1-48-987-97

Exam Roll No. : 480378

To

Tribhuvan University

The Department of Mathematics Education

Prithivi Narayan Campus

Pokhara, Nepal

February, 2011

Tribhuvan University
Department of Mathematics Education
Prithivi Narayan Campus
Pokhara, Nepal

Recommendation Letter

This is to certify that **Mr. Bishnu Prasad Poudel**, Student of academic year 2060/062 with campus Roll No: 4, Exam Roll No: and T.U. registration number 9-1-48-987-97 has completed his thesis under my supervision during the period prescribed by the rules and regulations of Tribhuvan University, Nepal. The thesis entitled on "*An Ethno Mathematical Study on Gurung Community Based on Concept and Process of Basic Mathematics in Kaski District*" has been Prepared based on the result of his investigation conducted during the Period 2064-2066 under the department of mathematics, Prithivi Narayan Campus, Bhimkalipatan, Pokhara. I recommend and forward that his thesis submitted for the evaluation as the partial requirement toward the degree of Master of Education.

.....
Mr. Loknath Adhikari
(Head)
Department of Mathematics
Prithivi Narayan Campus
Bagar, Pokhara

.....
Mr. Gangadhar Paudel
(Supervisor)
Department of Mathematics Education
Prithivi Narayan Campus
Bagar, Pokhara

Date: 2067/12/25

Tribhuvan University
Department of Mathematics Education
Prithivi Narayan Campus
Pokhara, Nepal

Letter of Acceptance

Thesis Submitted

By

Bishnu Prasad Poudel

Entitled

On

"An Ethno Mathematical Study on Gurung Community Based on Concept and Process of Basic Mathematics in Kaski District" has been Approved

in

Partial Fulfillment of Requirements for the Degree of
Master of Education

Evaluation Committee

Signature

- | | | |
|----|---------------------------------------|-------|
| 1. | Mr. Loknath Adhikari
(Chairman) | |
| 2. | Prof. Dr. K.K. Shrestha
(External) | |
| 3 | Gangadhar Paudel
(Supervisor) | |

Date: 2067/12/25

DEDICATION

*THIS WORK IS AFFECTIONATELY DEDICATED TO
MY PARENTS*

Bhim Prasad Poudel,

&

Tulasi Poudel

and my lovely brother

Nashib Poudel.

AKNOWLEDGEMENT

I would like to express my gratitude and gratefulness to my supervisor as well as my teacher, Mr. Gangadhar Paudel, the member of the department of Mathematics, Prithivi Narayan Campus, Pokhara who has provided me with all sorts of basic ideas, instructions and invaluable scholarly guidance for carrying out this research work from the very beginning to the end and enabled me to present this dissertation in this form.

My Sincere gratitude also goes to Loknath Adhikari the head of Department of Mathematics. Prithivi Narayan Campus Pokhara, who has provided me an opportunity to write this thesis by approving my proposal.

Similarly, I am very grateful to express my gratitude to Prof. Dr Krishna Kumar Shrestha, Manbahadur Bhujel, Bivab Neupane, member of department of mathematics education for their valuable comments and suggestions to bring the work into present form. My thank goes to Tamudhee kaski, member of ACAP, Ghandruk and all the peoples of ghandruk for their kind co-operation in the acquisition of achievement scores required for this study.

Finally, I am obligated to all the friends who assisted me directly or indirectly in completing this study and to Sugam Computer Service, Bagar-1, Pokhara for effort in typing this thesis even in a small detail and difficult tables relevant to the study.

My special thanks go to my friends Mr. Bhawani Prasad Parajuli, Prakash Subedi, Bishnu Prasad Adhikari, I.P. Shapkota, and Bharat Raj Acharya for their kind help and co-operation.

Bishnu Prasad Poudel

ABSTRACT

This study was made to explore the counting system, algorithm of four fundamental operations and the measurement system as practiced in the Gurung community. The study was on ethnographic basis. "Ghandruk" of kaski district was chosen for the study area. And 20 respondents were taken in the first phase to find out the mathematics they use in their real life and six respondents of different age groups for in depth interview in the second phase. Observation were adopted as data deletion techniques and methods. Coding shorting analyzing and interpreting the data were carried out. The major findings are as follows.

- i. The numeration system of Gurung is a system of base 20. Except 20, other grouping systems (like 2, 5, 10, 50,100 etc) were found in practice. They have not developed their own script for numerals. Everything is in oral form of mathematics.
- ii. Gurungs have their own maths processes that is a simple cummulation process. Numbers are decomposed in different groups of numbers {like 2,5,10,20,100,500,1000 etc} for carrying out subtractions and division. Addition and multiplication are done by commulation process.
- iii. They have their own traditional/conventional system of measurement. Length is measured with hand and finger, area is measured with production of seed of grains and which are is measured with Mana, Kuruwa etc.
- iv. The fractional practices of measurement in Gurung community are done by using physical objects of the environment in the practical situations.

ABBREVIATION

CERID	-	Research Center for Educational Innovation and Development
IMP	-	Indigenous Mathematics Project
NCTM	-	National Council of Teachers of Mathematics
NEC	-	National Education Commission
NESP	-	National Education system plan
UNESCO	-	United Nation Educational Scientific and Cultural Organization
VDC	-	Village Development Committee

CONTENTS

Topics	Page No.
Recommendation Letter	
Letter of Acceptance	
Dedication	
Acknowledgements	
Abstract	
Contents	
List of Table	
Abbreviation	
CHAPTER- I	
INTRODUCTION	
	(1-11)
1.1 Background of study	1
1.2 Statement of the Problem	8
1.3 Objectives of the study	8
1.4 Significance of the study	9
1.7 Limitation of the study	11
1.8 Definition of the terms	11
CHAPTER II	
LITERATURE REVIEW	
	(12-17)
CHAPTER III	
METHODOLOGY	
	(18-20)
3.1 Description of study Area	18
3.2 Selection of key Respondents	19
3.3 Data collection procedure	19
3.3.1 Observation	19
3.3.2 Interview	20

CHAPTER IV	
BRIEF INTRODUCTION GURUNG COMMUNITY	(22-25)

CHAPTER V		
DATA ANALYSIS AND INTERPRETATION	(26-39)	
5.1	Counting system	27
5.2	Basic operation	31
5.3	Measurement system	36

CHAPTER VI		
SUMMARY FINDING		
CONCLUSION AND RECOMMENDATION	(40-43)	
6.1	Summary	40
6.2	Finding of the study	41
6.3	Conclusion	42
6.4	Recommendation for further study	42

Bibliography

Appendix

LIST OF TABLES

Table No.	Topics	Page No.
1.	Difference pronunciation among Gurung Community	26
2.	Name of number in Gurung Language	27
3.	Higher number more than 10 in Gurung Language	28
4.	Higher number more than 100 in Gurung Language	29
5.	Some other number in Gurung Language	29