

**IMPLEMENTATION OF THE CHARACTERISTICS OF EFFECTIVE
MATHEMATICS TEACHING AND LEARNING**

**A
THESIS**

**BY
SURESH KUMAR MAHATO**

**FOR THE PARTIAL FULFILLMENT OF REQUIREMENTS
FOR THE DEGREE OF MASTER OF EDUCATION**

**SUBMITTED TO
DEPARTMENT OF MATHEMATICS EDUCATION
CENTRAL DEPARTMENT OF EDUCATION
UNIVERSITY CAMPUS, KIRTIPUR
TRIBHUVAN UNIVERSITY
KATHMANDU, NEPAL**

2017

LETTER OF CERTIFICATE

This is to certify that **Mr. Suresh Kumar Mahato**, a student of academic year **2070/071** with Campus Roll No: **826/071**, Thesis number **1218**, Exam Roll No: **280542** and T.U. registration number **9-2-228-14-2009** has completed this thesis for the period prescribed by the rules and regulations of Tribhuvan University, Nepal.

This thesis entitled '**Implementation of the Characteristics of Effective Mathematics Teaching and Learning**' has been prepared based on the result of his investigation. I, hereby recommend and forward that his thesis be submitted for the evaluation as the partial requirements to award the degree of Master of Education.

.....

(**Assoc. Prof. Laxmi Narayan Yadav**)

Head

Date: June, 2018

RECOMMENDATION FOR ACCEPTANCE

This is to certify that Mr. Suresh Kumar Mahato has completed his M.Ed. thesis entitled **'Implementation of the Characteristics of Effective Mathematics Teaching and Learning'** under my supervision during the period prescribed the rules and regulations of Tribhuvan University, Kirtipur, Kathmandu, Nepal. I recommend and forward his thesis to the Department of Mathematics Education to organize final viva-voce.

.....
(Assoc. Prof. Dr. Bed Raj Acharya)
Supervisor

Date: June, 2018

LETTER OF APPROVAL

A
Thesis
By
SURESH KUMAR MAHATO

Entitled

'Implementation of the Characteristics of Effective Mathematics Teaching and Learning' submitted in partial fulfillment of the requirement for the Master's Degree in Education has been approved.

Viva-Voce Committee

Signature

Assoc. Prof. Laxmi Narayan Yadav
(Chairman)

.....

Prof. Uma Nath Pandey
(External)

.....

Dr. Bed Raj Acharya
(Supervisor)

.....

Date: June, 2018

© 2018

Copyright by Suresh Kumar Mahato

This document is copyright material. Under law, no parts of this document may be reproduced without the expressed permission of the researcher.

Defense Date:

All Right Reserved

DEDICATION

This work is affectionately dedicated to my maternal uncle **Rupesh Kumar Mahato** who, even in a very difficult situation, gave me a great span of his life for what I am now.

DECLARATION

This thesis contains no material which has been accepted for the award of other degree in any institutions. To the best of knowledge and belief this thesis contains no material previously published by any authors except due acknowledgements has been made.

.....
(Suresh Kumar Mahato)

Date: June, 2018

ACKNOWLEDGEMENTS

I am extremely grateful and indebted to my respected and honorable supervisor Associate Prof Dr. Bed Raj Acharya, Department of Mathematics Education, T.U., Kirtipur, Kathmandu for supervising me and for providing me to valuable guidelines, suggestions and comments in the preparation of this study. I am also grateful to my honorable respected Associate Prof. Laxi Narayan Yadav, Head of the Department of Mathematics Education, Central Department of Education, Kirtipur.

I would like to thank Prof. Dr. Hari Prasad Upadhyay, and all the respected Professors of Mathematics Education, FOE T.U. for their suggestions and encouragement to complete this thesis.

I wish to express my grateful appreciation to Mr. Balram Shah the Headteacher of Sankat Mochan Devsharan Ramrati Secondary School, Mathematics teacher Mr. Ram Chandra Thakur, Mr. Mod Narayan Raut, Mr. Dina Nath Shah and all the school family for their kind cooperation and providing opportunity for collection of data.

I also express my heartest thanks to Mr. Shayam Hari Kandel , Mr. Raju Shrestha, Mr. Rajiv Jha, Mr. Shanjay Shah, Mrs. Babita Mahato, , Mr. Chandra man Shrestha for their king help of this study.

Finally, I would like to acknowledge my parents for the invaluable contribution of my career and great patience and encouragement during my study. Lastly, I wish to acknowledge Mr. Raju Shrestha for designing this thesis.

.....
Suresh Kumar Mahato

Date: June, 2018

ABSTRACT

This is the case study of the research entitled "Implementation of the Characteristics of Effective Mathematics Teaching and Learning". The objectives of this study were; to identify the characteristics of mathematics teachers in the effective mathematics teaching learning, to identify the students' characteristics of effective mathematics classroom and to explore the school teacher in the effective mathematics teaching learning. To accomplish these objectives, I choose qualitative research design under this case study of a school.

In this research, I used two types of data: primary as well as secondary data. The primary data included the class observation, interview among head teacher, mathematics teacher, and students whereas secondary data included the eight years result of SLC and related documents of the school. The collected data was firstly categorized on the basis of themes that are teachers, students and school characteristics. The data were analyzed qualitatively in interpretive way. Theme was generated on the basis of conceptual framework. One head teacher, 4 mathematics teachers, and 10 students were the participants of this study.

Then, it was concluded that the opportunity for professional development, beliefs of teachers and qualification of teachers are the main characteristics of teachers in an effective school. Similarly, opportunity to learn, students learning activities and collaborative learning styles are the student's characteristics. Finally, the school administrative part is also found to be equally important characteristics for effective mathematics learning which are the school enabling conditions and mathematics teaching coherences.

At last, it was concluded that above characteristics is need to implement in every school for effective mathematics teaching and learning.

TABLE OF CONTENT

<i>Letter of Certificate</i>	<i>ii</i>
<i>Letter of Approval</i>	<i>iii</i>
<i>Recommendation for Acceptance</i>	<i>iv</i>
<i>Dedication</i>	<i>vi</i>
<i>Declaration</i>	<i>vii</i>
<i>Acknowledgements</i>	<i>viii</i>
<i>Abstract</i>	<i>ix</i>
<i>Table of Contents</i>	<i>x</i>
<i>List of Tables</i>	<i>xii</i>
 Chapters	
I: INTRODUCTION	1-6
Background of Study	1
Statement of the Problem	4
Objective of the Study	5
Significant of this Study	5
Delimitation of the Study	6
Definition of Operational Terms	6
II: REVIEW OF THE RELATED LITERATURE	7-15
Empirical Review	7
Research Gap	12
Theoretical Literature	12
Vygotsky Constructivism	12
Conceptual framework of the Study	14
III: METHODS AND PROCEDURES	16-19
Research Design	16
Case study	16
Study Site	17
Sample of the Study	17
Sampling	17
Data Collection approach:	18
Classroom Observation	18

Interview	18
School Document	19
Method of Data Collection	19
Procedure of Data Analysis	19
IV: ANALYSIS AND INTERPRETATION OF DATA	20-39
Introduction of Case	20
Physical Facilities and Environment	21
Current Data of the Students	23
Educational Achievement of the School	23
SLC Result status of the Case Study	24
Demography of Teaching and Non-Teaching Staffs in the School	25
Interpretation of Data.	26
Teachers Characteristics	26
Opportunity for Professional Development	27
Teachers' beliefs	30
Teachers Qualification	32
Students Characteristics	34
Students Opportunity to Learn	34
Students Learning Activities	35
Collaborative Learning	36
School Factors	37
School Enabling Condition	37
Mathematics Teaching Coherence	38
V: FINDINGS, CONCLUSIONS AND IMPLICATIONS	40-43
Finding of the Study	40
Conclusions	42
Implications	43
REFERENCE	
APPENDIX	

LIST OF TABLES

Table 1: Physical Facilities of the School.....	22
Table 2: Classwise and Level Wise Distribution of Students.....	23
Table 3 : SLC result of last eight Year	24
Table 4: The Level wise distribution of teaching and non teaching staff	25