EFFECTIVENESS OF VAN-HIELE GEOMETRIC THOUGHT IN TEACHING GEOMETRY AT SECONDARY LEVEL

A

THESIS

BY

SURESH SUBEDI

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

SUBMITTED

TO

DEPARTMENT OF MATHEMATICS EDUCATION

CENTRAL DEPARTMENT OF EDUCATION

UNIVERSITY CAMPUS

TRIBHUVAN UNIVERSITY

KIRTIPUR, KATHMANDU

APRIL, 2019

Letter of Approval

Thesis Submitted

By

Suresh Subedi

Entitled

"Effectiveness of van-Hiele Geometric Thought in Teaching Geometry at Secondary Level" has approved in partial fulfillment of the Requirements for the Degree of Master of Education.

Committee for the Viva-Vice Signature

1. Assoc. Prof. Laxmi Narayan Yadav ……..
   (Chairman)
2. Prof. Uma Nath Pandey ……..
   (Member)
3. Mr. Abatar Subedi
   (Supervisor) ……..

Date: ……

Letter of Certificate

This to certify that **Mr. Suresh Subedi,** a student of academic year 2070/071 with Exam Roll No. 281247 and T.U. Regd. No. 9-2-240-416-2008 has completed his thesis (Thesis No. 1173) under my supervision during the period prescribed by the rules and regulations of T.U. Nepal. The thesis entitled **"Effectiveness of van-Hiele Geometric thought in Teaching Geometry at Secondary Level"** embodies the result of his investigation conducted during the period of 2019 at the Department of Mathematics Education, University Campus, Kirtipur, Kathmandu. I recommend and forward that his thesis be submitted for the evaluation to award the Degree of Master of Education.

……. ……..

(Mr. Abatar Subedi) (Assoc.Prof. Laxmi Narayan Yadav)

(Supervisor) (Head)

Date: ……..

DEDICATION

Dedicated

To

My respected parents, Mitralal Sharma Subedi and Thuma Devi Subedi who have devoted their entire life to uplift and enlighten my life and also dedicated to my wife Deepa Sharma. I also remember my late brother Mr. Dinesh Subedi.

Acknowledgement

I am havely indebted to my respected supervisor Mr. Abatar Subedi, lecturer of Department of mathematics Education, Kirtipur, Kathmandu, for his constructive suggestion, instruction and scholarly guidance, a greatest property of this theses. Without His constant supervision and intellectual guidance this thesis would never have been appeared in this from.

My sincere appreciation goes to Assoc. Prof. Laxmi Narayan Yadav, Head, Department of Mathematics Education, T.U., Kirtipur for his helpful suggestions, cooperation inspiration and encouragement during this study. I wish to express my gratitude to prof. Dr. Min Bahadur Shrestha, Dr. Ekaratna Acharya and Mr. Dipak Mainali and faculty member of Education, T.U.Kirtipur for their suggestions, encouragement and stimulation to complete this study. I am very much indebted the students, great opportunities for collection data and want to say thanks to galyan Municipality for providing data.

I especially express my heartier gratitude to my family members and friends Krisna Sapkota, Dhalak Khadka, Shyam Neupane, Deepa Sharma and other relatives, who associated directly or indirectly to complete this study. Thanks also go to Satya Sheela Secondary School for provider of ICT.

Abstract

This is an experimental types and carried out the researcher to explore the effectiveness of van Hiele geometric thought in teaching geometry at secondary level. Out of 20 schools, four are selected randomly. Twenty five students of grade X from each school are participate in the research. Van Hiele geometric test (VHGT) is used main tool for data collection.

Students performance of VHGT is analyzed and interpreted using statistical devices as students to obtain total row score and converted in to percentage score at pre-test and post-test times. The reliability is checked using by test re-test method and calculated coefficient of correlation (ρ=0.83). The level wise performance of the students on VHGT of each school group were assigned mainly according to Usiskin;s (1982) “3 of 5” modified van Hiele level determination scheme.

At pre-test time majority of students were at low van Hiele geometric thinking levels (possibly level 0 and 1). At post-test time the group of many students, who are thought by teaching episodes according to van Hiele (1955/1986) are at VH level 3 and 4. To check effectiveness researcher administered and analyzed pre-test data, there is nearly same achievement on VHGT of these two groups named excremental and control. Secondly administered and analyzed post-test data, there is different achievement between these groups such that the average achievement of VHGT of experimental group is higher than the achievement of VHGT of control group. Hence, the van Hiele geometric thought in teaching geometry is more effectiveness than conventional teaching approach.

TABLE OF CONTENT

Abbreviations/Acronyms

CDASSG	:	Cognitive Development and Achievement in Secondary School Geometry
RCED	:	Research Center for Education Innovation and Development
TU	:	Tribhuvan University
VH level	:	Van Hiele Level
VHGT	:	Van Hiele Geometric Test
NCF	:	National Curriculum Framework