

**EFFECTIVENESS OF VAN HIELE APPROACH IN TEACHING  
GEOMETRY**

**A  
THESIS  
BY  
DHARMA RAJ JOSHI**

**FOR THE PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE  
DEGREE OF MASTER'S IN MATHEMATICS EDUCATION**

**SUBMITTED  
TO  
DEPARTMENT OF MATHEMATICS EDUCATION  
CENTRAL DEPARTMENT OF EDUCATION  
UNIVERSITY CAMPUS  
TRIBHUVAN UNIVERSITY  
KIRTIPUR, KATHMANDU  
NEPAL, 2017**

## LETTER OF CERTIFICATION

This is to certify that **Mr. Dharma Raj Joshi**, a students of academic year 2070/071 with Campus Roll No. 499 Exam Roll No. 280413, Thesis Number 1207, and T.U. Regd. No. 9-2-678-6-2009 has completed his thesis under my supervision during the period prescribed by the rules and regulations of Tribhuvan University, Nepal. The thesis entitled "**Effectiveness of Van Hiele approach in Teaching Geometry**" has been prepared based on the results of his investigation. I, hereby, recommend and forward that his thesis be submitted for evaluation as the partial requirements to for award the degree of Master of Mathematics Education.

.....

Prof. Laxmi Narayan Yadav

Depart Head

**RECOMMENDATION FOR ACCEPTANCE**

This is to certify that Mr. Dharma Raj Joshi, has completed his Mathematics Education thesis entitled "**Effectiveness of Van Hiele Approach in Teaching Geometry**" under my supervision during the period prescribed the rules and regulation of Tribhuvan University, Kirtipur, Kathmandu, Nepal. I recommend and forward his thesis to the Department of Mathematics Education to organize final viva-voce.

.....

Lecture Mrs. Sarala Luitel

Supervisor

Date: .....

**LETTER OF APPROVAL**

A

Thesis

By

**Dharma Raj Joshi**

Entitled

**"Effectiveness of Van Hiele Approach in Teaching Geometry"**

has been Approved for Partial Fulfilment of the Requirements for Degree of Master of  
Mathematics Education.

**Committee for Viva- voce**

**Signature**

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## **DEDICATION**

This study is  
Dedicated to My Affectionate Parents  
Who Gave Me Grandeur Opportunity to  
Step in This Earth  
And  
All My Respected Teacher  
Who Have Contributed to  
Arrive Me in This Position.

## DECLARATION

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

Date: \_\_\_\_\_

\_\_\_\_\_

Dharma Raj Joshi

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Dharma Raj Joshi

## **Abstract**

This is an experimental research related to find the effectiveness of Van Hiele approach in teaching geometry at lower secondary level. The objectives of this study were 'to compare the Van Hiele approach and traditional approach of teaching geometry at grade seven students' and 'to find the attitude of the Van Hiele approach of teaching geometry at grade seven students'.

Class seven students were taken from comparable government school with respect to academic performance and class size as experimental and control groups. The pre-test, post-test and non equivalent group design was adopted for this study. For this, a pre-test was administered to each class at the beginning of the study and the results indicated that the groups had same at 0.01 levels of significances and insignificant was identified in the achievement of two groups. Both experimental and control groups were taught by researcher himself one with Van Hiele approach and another with traditional method respectively. After completing the at least one month duration of experiment, achievement test (post-test) was administered on the both groups. In order to fulfil these objectives the researcher selected 54 students of grade seven from Janata Higher Secondary School Vidyapur-4 Surkhet. The different in mean achievement scores are tested by using mean, variance, standard deviation, C V and t-test to compare the achievement of students.

It was found that the mean achievement of students taught by using Van Hiele approach becomes higher than the mean achievement scores of the students taught by traditional method of teaching. It is also shown that the students taught by using Van Hiele approach were more active, regular, participation positive perception in all the activities than that of the students taught by using traditional method. Thus the researcher concluded that Van Hiele approach in teaching geometry is more effective and applicable then the traditional approach in teaching geometry in lower secondary level students'.

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## **ABBREVIATIONS**

VHT	:	Van Hiele's Approach
VHGT	:	Van Hiele's Geometry Thinking
SMS	:	Secondary Mathematics School
VHLT	:	Van Hiele's Level of Thinking
NCF	:	National Curriculum Framework
NCTM	:	National Curriculum of Teaching Mathematics