

**EFFECTIVENESS OF GEOGEBRA IN TEACHING LEARNING GEOMETRY  
AT SECONDARY LEVEL**

**A  
THESIS  
BY  
SUNIL KUMAR SHAH**

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

**SUBMITTED  
TO  
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**UNIVERSITY CAMPUS**  
**TRIBHUVAN UNIVERSITY**  
**KIRTIPUR, KATHMANDU**  
**2021**

**LETTER OF CERTIFICATE**

This is certify that Mr. Sunil Kumar Shah a student of academic year 2070/71 with the campus Roll Number 372, Thesis number 1385, Exam Roll Number 280540 and TU Registration Number 9-2-15-2955-2009 has completed this thesis for the period prescribed by the rules and regulation of Tribhuvan University, Nepal. This thesis entitled **Effectiveness of GeoGebra in Teaching Geometry at Secondary Level** has been prepared based on the result of his investigation. I, here by recommend and forward that his thesis be submitted for the evaluation as the partial requirements to award the degree of Master of Education.

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Date:.....

(Prof. Dr. Bed Raj Acharya)

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### LETTER OF APPROVAL

This thesis entitled "**Effectiveness of GeoGebra in Teaching Geometry at Secondary Level**" submitted by Mr. Sunil Kumar Shah in Partial fulfillment of the requirement for the Master's Degree in Education has approved.

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### RECOMMENDATION OF ACCEPTANCE

This is to certify that Mr. Sunil Kumar Shah has completed his M.Ed. thesis entitled **"Effectiveness of GeoGebra in Teaching Geometry at Secondary Level"** 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 vice-voce.

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Honestly Dedicated

To

my parents

who spend their life to make me what I am today.

### Declaration

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

.....

Sunil Kumar Shah

Date:-4<sup>th</sup> Oct, 2021

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### Abstract

This is the study entitled "**Effectiveness of GeoGebra in Teaching Geometry at Secondary Level**" has been carried out to find out the effect of GeoGebra in teaching geometry and to explore the student attitude about GeoGebra. Researcher selected convenience sampling and selected the two schools. This research has conducted by using quantitative method focused only experimental research design. The use of technology in the pedagogical process is growing at a phenomenal rate due to the vast availability of gadgets. As a result, educationists see the urgent need for integrating technology in students' mathematical activities. Therefore, the purpose of this pre-test post-test experimental study was to investigate students understanding in learning geometry using GeoGebra. Grade ten, fifty-seven students from two different two school are in the same classes participated in this study with one class assigned as the experimental group and the other as the control group. The researcher used achievement tool and questionnaires to collect the data. Finding of this study showed a significant difference existed in the mean scores between these two groups. The result indicated that students in the experimental group outperformed those in the control group. In addition, a questionnaires instrument had used to find the student perception about the GeoGebra. Result show student has positive attitude about GeoGebra. Analysis of the questionnaire responses indicated a positive overall perception about GeoGebra in learning geometry. Finally, the research work proved the GeoGebra is the effective tool teaching geometry.



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**ABBREVIATION**

CAS	Continuous Assessment System
GAI	GeoGebra-Assisted Instruction
GBL	GeoGebra Based Learning
GSP	Geometer's Sketchpad
ZDP	Zone of Proximal Development
MOE	Ministry of Education
NCED	National Center for Education Development
MOJET	Malaysian Online Journal of Education and Technology
ICT	Information Communication Technology
M.Ed.	Master in Education
TU	TribhuvanUniversity