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Master Thesis Defense

Entitled

THE IMPACT OF GEOGEBRA SOFTWARE ON THE PERFORMANCE OF GRADE 10-ALGEBRA STUDENTS IN GRAPHING QUADRATIC FUNCTIONS IN AL AIN

by

Khaled Waleed Sheikh Qasem

Faculty Advisor

Dr. Adeeb Jarrah, Department of Curriculum and Instruction

College of Education

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Abstract

GeoGebra is an interactive mathematics program for teaching and learning mathematics from early school years up to the university level. The program is considered dynamic mathematics software that enables student to see and explore mathematical concepts, their relations, and theories. The main objective of this study is to examine the effect of using GeoGebra on students' understanding of Quadratic Functions in 10^{th} grade Emirati students in Al Ain, United Arab Emirates. A quasi-experimental design was employed to collected data using a pre-test and post-test tool to evaluate the effectiveness of the GeoGebra software intervention. Eighty-five (n=85) participants were randomly divided into two groups of control and experimental. The result of the post-test indicated a statistically significant point of preference of using GeoGebra for the experimental group over the control group. Specifically, results revealed that students who were exposed to GeoGebra achieved a higher average score (mean 22.10, standard deviation = 5.363) on the overall score compared to the score (mean = 17.56, standard deviation = 5.655) of students of the control group as well as all the examined outcomes except the Interpret and use the graph of a quadratic function post factor. The research findings will facilitate further research on the use of GeoGebra on different concepts in mathematics. Additionally, it gives some recommendation for professional development for the implementation of GeoGebra in classroom practices for mathematics teachers.

Keywords: GeoGebra, Function, Quadratic Function, Transformations, Translations, Parameter, Achievement.