

ABSTRACT

This study aims to explore Form Four students' written responses to selected tasks in Algebra for their understanding of the meaning of quadratic equations and roots of quadratic equations, and the methods of solving quadratic equations.

The subjects of this study comprised five Form Four science students from a national girls' school. The instrument used was designed to elicit responses from students in quadratic equations. Individual interviews were conducted to further clarify the writings. The data from the written responses and interviews were then analyzed to explore the kinds of understanding the students had.

The findings of the study show that students' understanding were mainly concerned with applying rules that they remembered. Most of the written responses on the meaning of quadratic equations and roots of quadratic equations were theoretical while those on methods of obtaining roots of quadratic equations were algorithmic.

PERSAMAAN KUADRATIK DALAM ALGEBRA: ANALISIS
RESPONS BERTULIS PELAJAR TINGKATAN EMPAT

ABSTRAK

Kajian ini bertujuan mengkaji respons bertulis pelajar Tingkatan Empat mengenai beberapa tugas terpilih dalam bidang Algebra untuk menentukan kefahaman mereka tentang maksud persamaan kuadratik dan punca persamaan kuadratik serta cara-cara menyelesaikan persamaan kuadratik.

Subjek kajian ini terdiri daripada lima orang pelajar Tingkatan Empat Sains daripada sebuah sekolah menengah kebangsaan perempuan di Wilayah Persekutuan. Instrumen yang digunakan telah direka khas dengan tugas-tugas yang merangsang pelajar memberi respons. Temuduga telah dijalankan bagi menjelaskan perkara-perkara yang menimbulkan ketidakpastian. Data daripada respons bertulis dan temuduga dianalisis untuk penentuan jenis kefahaman yang diperolehi pelajar.

Dapatan kajian ini menunjukkan bahawa kefahaman pelajar adalah setakat penggunaan peraturan-peraturan yang telah dihafalkan. Penulisan pelajar mengenai maksud persamaan kuadratik dan punca persamaan kuadratik bercorak teori, manakala mengenai kaedah mencari punca persamaan kuadratik mengikuti algoritma.

ACKNOWLEDGEMENT

I would like to express my heartfelt appreciation and gratitude to my supervisor, Ms. Lee Siew Eng, for her invaluable assistance and advice throughout the course of this study.

I would also like to thank the Educational Planning and Research Division, Ministry of Education and the Federal State Education Department for permitting me to carry out my research. I extend my thanks to Mr. Wong Chee Kheon for his encouragement and support.

I extend my appreciation to the principal, teachers and students of the school involved in this study for their interest and cooperation in data collection. In particular, I would like to thank Pn. Ng Su Onn for her advice in the choice of subjects and Pn. Charngheet Kaur for her assistance in validating the instrument.

I would also like to record my deepest appreciation and gratitude to my husband, Chew Heng, and children Daniel and Christine and my other family members for their unflinching support, concern and love during the period of my study. To them I dedicate this research report.

Finally, and most importantly, I thank God for his abundant grace throughout the course of this study. He has enabled me to pursue my studies in spite of the difficulties and restraints that I have had.

