

## ABSTRAK

**JULIAN ANDIKA HARTONO.** Pengembangan Perangkat Pembelajaran Matematika Berbasis Model Pembelajaran Penemuan Terbimbing Dengan Metode Daring dan Berfokus Pada *Mathematical Power* Siswa SMP Istiqlal Delitua. Tesis, Medan, Program Studi Pendidikan Matematika Pascasarjana Universitas Negeri Medan 2020

Penelitian ini secara umum bertujuan untuk mengembangkan perangkat pembelajaran berbasis Penemuan Terbimbing dan berfokus pada *Mathematical Power* siswa. Secara khusus penelitian ini bertujuan untuk: (1) Menganalisis validitas perangkat pembelajaran; (2) Menganalisis kepraktisan perangkat pembelajaran; (3) Menganalisis keefektifan perangkat pembelajaran yang dikembangkan; dan (4) Menganalisis respons siswa terhadap pembelajaran menggunakan perangkat pembelajaran berbasis Penemuan Terbimbing dan berfokus pada *Mathematical Power*; (5) Menganalisis hasil tes kemampuan pemecahan matematis siswa yang dikaitkan dengan *Mathematical Power* siswa. Sasaran produk penelitian ini berupa perangkat pembelajaran Aritmatika Sosial kelas VII yang meliputi: Buku Panduan Guru, Buku Siswa, RPP, LKPD, dan Instrumen Evaluasi. Jenis penelitian ini adalah penelitian pengembangan (developmental research) menggunakan model 4-D Thiagarajan, Semmel, dan Semmel yakni : define, design, develop, dan disseminate. Pengumpulan data menggunakan angket validasi dengan metode observasi, tes kemampuan pemecahan masalah, dan angket respon siswa terhadap perangkat pembelajaran berbasis Penemuan Terbimbing. Analisis data menggunakan teknik deskriptif kualitatif dan kuantitatif. Uji coba perangkat dilakukan secara daring di kelas VII sekolah SMP Istiqlal Delitua. Hasil penelitian pengembangan bahwa perangkat pembelajaran berbasis Penemuan Terbimbing dengan fokus *Mathematical Power* menunjukkan bahwa: (1) Perangkat pembelajaran dinyatakan valid berdasarkan penilaian ahli dan guru dengan rata-rata tingkat kevalidan sebesar 4,71 dengan criteria valid; (2) Perangkat pembelajaran dinyatakan sangat praktis berdasarkan hasil observasi and analisis dengan persentase tingkat kepraktisan 89,94%; (3) Perangkat pembelajaran dinyatakan efektif dengan persentase keefektifan 86,49%; (4) Respons siswa positif terhadap penggunaan perangkat pembelajaran berbasis Penemuan Terbimbing yang berfokus pada *Mathematical Power* dengan kelayakan perangkat mendapat hasil rata-rata total presentase 94,9%; (5) Hasil tes kemampuan pemecahan matematis siswa yang dikaitkan dengan *Mathematical Power* siswa menunjukkan skor rata-rata rata-rata tes 79,00 dengan kategori tinggi dan standar deviasi 10,96, dengan koefisien reliabilitas tes 0,5741 dengan kategori sedang. Dari hasil analisis dapat disimpulkan bahwa perangkat pembelajaran berbasis Penemuan Terbimbing dan berfokus pada *Mathematical Power* adalah valid, praktis, dan efektif, serta respons siswa terhadap penggunaan perangkat adalah positif.

**Kata Kunci:** Daya Matematis, Perangkat pembelajaran, Model Pengembangan Perangkat 4-D Thiagarajan, Aritmatika Sosial, SMP

## ABSTRACT

**JULIAN ANDIKA HARTONO.** The Development of Mathematics Learning Devices Based on Guided Discovery Learning Model with Online Methods and Focusing on Mathematical Power of Students of Istiqlal Delitua Junior High School. Thesis, Medan, Postgraduate Mathematics Education Study Program, State University of Medan 2020.

This research generally aimed to develop learning devices based on Guided Discovery and focuses on students' Mathematical Power. Specifically, this study aimed to: (1) Analyze the validity of the learning devices; (2) Analyzing the practicality of the learning devices; (3) Analyze the effectiveness of the learning devices; and (4) Analyzing student responses to learning using guided discovery based learning devices and focusing on Mathematical Power; (5) Analyzing the results of the students' mathematical problem solving ability tests related to the students' Mathematical Power. The target of this research product was Social Arithmetic learning devices for Grade VII which includes: Teacher's Manual, Student Book, RPP, LKPD, and Evaluation Instruments. This type of research was a developmental research using the 4-D model of Thiagarajan, Semmel, and Semmel, namely: define, design, develop, and disseminate. The data were collected using a validation questionnaire with the observation method, a problem-solving ability test, and a student response questionnaire to guided Guided Discovery Learning devices. The data analysis used qualitative and quantitative descriptive techniques. Testing the devices was conducted online in Grade VII of the Istiqlal Delitua Middle School. The results of the development research showed that the Guided Discovery Learning devices with a focus on mathematical power indicated that: (1) The learning devices were declared valid based on the expert and teacher's assessment with an average level of validity of 4.71 with valid criteria; (2) The learning devices were stated to be practical based on the results of observation and analysis with a practicality level percentage of 89.94%; (3) the learning devices were declared effective with the effectiveness percentage of 86.49%; (4) Student responses to the use of guided discovery learning devices that focus on Mathematical Power was positive with the appropriateness of the devices getting an average total percentage of 94.9%; (5) The results of the students' mathematical problem solving ability test associated with the students' Mathematical Power showed an average test score of 79.00 with a high category and a standard deviation of 10.96, with a test reliability coefficient of 0.5741 in the moderate category. From the results of the analysis it could be concluded that the Guided Discovery Learning devices were valid, practical, and effective, and the student's response to the use of the devices were positive.

*Keywords: Mathematical Power, Learning Devices, Thiagarajan 4-D Model of Development, Social Arithmetic, Middle School.*