# ABSTRACT


# THE DEVELOPMENT OF WORKSHEETS BASED ON OPEN-ENDED TO IMPROVE STUDENTS' MATHEMATICAL REVERSIBLE THINKING ABILITY


**By**


**Aura Purwaningrum**

This study aims to produce worksheets based on open-ended that are oriented towards students' mathematical reversible thinking abilities that are valid, practical and effective. This research refers to the Borg & Gall development model which starts from research and data collection, initial product design development planning, initial field trials, initial field trial revisions, field trials. The research subjects were students at SMP Negeri 2 Purbolinggo East Lampung in the even semester of the 2021/2022 academic year. Data from the research were obtained through observation, interviews and tests of students' mathematical reversible thinking abilities. The data analysis technique used is descriptive statistics and t-test. The results showed that the open-ended based LKPD on data presentation material met valid and practical criteria with a very good category. Furthermore, the average N-Gain score of students' mathematical reversible thinking abilities after using open-ended based LKPD is more than the average n-gain score of students' mathematical reversible thinking abilities who do not use open-ended based LKPD. So that LKPD based on open-ended is effective for increasing students' mathematical reversible thinking abilities. It can be concluded that open-ended based worksheets meet valid, practical, and effective criteria for improving students' mathematical reversible thinking abilities.

**ABSTRAK**


**PENGEMBANGAN LKPD BERBASIS *OPEN-ENDED* UNTUK MENINGKATKAN KEMAMPUAN *REVERSIBLE THINKING* MATEMATIS PESERTA DIDIK**


**Oleh**


**Aura Purwaningrum**


Penelitian ini bertujuan untuk menghasilkan LKPD berbasis *open-ended* yang berorientasi pada kemampuan *reversible thinking* matematis peserta didik yang valid, praktis dan efektif. Penelitian ini mengacu pada model pengembangan Borg & Gall yang dimulai dari penelitian dan pengumpulan data, perencanaan pengembangan desain produk awal, uji coba lapangan awal, revisi uji coba lapangan awal, uji coba lapangan. Subjek penelitian adalah peserta didik SMP Negeri 2 Purbolinggo Lampung Timur pada semester genap tahun pelajaran 2021/2022. Data dari penelitian diperoleh melalui observasi, wawancara dan tes kemampuan *reversible thinking* matematis peserta didik. Teknik analisis data yang digunakan adalah statistik deskriptif dan *Uji-t*. Hasil penelitian menunjukkan bahwa LKPD berbasis *open-ended* pada materi penyajian data memenuhi kriteria valid dan praktis dengan kategori sangat baik. Selanjutnya rata-rata skor *N-Gain* kemampuan *reversible thinking* matematis peserta didik setelah menggunakan LKPD berbasis *open-ended* lebih dari rata-rata skor *n-gain* kemampuan *reversible thinking* matematis peserta didik yang tidak menggunakan LKPD berbasis *open-ended*. Sehingga LKPD berbasis *open-ended* efektif untuk meningkatkan kemampuan *reversible thinking* matematis peserta didik. Dapat disimpulkan bahawa LKPD berbasis *open-ended* memenuhi kriteria valid, praktis, dan efektif untuk meningkatkan kemampuan *reversible thinking* matematis peserta didik.


**Kata kunci:** LKPD, *open-ended*, kemampuan *reversible thinking*