ABSTRAK

KHOLILAH AMRIANI HARAHAP. Pengembangan Perangkat Pembelajaran Berorientasi *Problem Based Learning* (PBL) Berbantuan *Geogebra* untuk Meningkatkan Kemampuan Visual Thinking dalam Pemecahan Masalah Matematis Siswa SMA Negeri 1 Samudera. Tesis. Medan: Program Studi Pendidikan Matematika Pascasarjana Universitas Negeri Medan, 2021.

Penelitian ini bertujuan untuk: 1) Menganalisis validitas perangkat pembelajaran yang dikembangkan dengan *problem based learning* berbantuan *geogebra* (PBL-BG); 2) Menganalisis kepraktisan perangkat pembelajaran yang dikembangkan dengan *problem based learning* berbantuan *geogebra* (PBL-BG); 3) Menganalisis efektivitas perangkat pembelajaran yang dikembangkan dengan dengan *problem based learning* berbantuan *geogebra* (PBL-BG); 4) Menganalisis peningkatan kemampuan *visual thinking* dalam pemecahan masalah matematis siswa dengan menggunakan perangkat pembelajaran yang dikembangkan dengan *problem based learning* berbantuan *geogebra* (PBL-BG). Penelitian ini merupakan penelitian pengembangan yang dilakukan dalam dua tahap, yaitu tahap pertama pengembangan perangkat pembelajaran melalui *problem based learning* berbantuan *geogebra* (PBL-BG) dengan menggunakan model pengembangan Dick & Carey dan tahap kedua mengujicobakan perangkat pembelajaran melalui *problem based learning* berbantuan *geogebra* (PBL-BG) yang dikembangkan di kelas XI-MIPA 1 dan XI-MIPA 2. Dari hasil uji coba I dan uji coba II diperoleh: 1) perangkat pembelajaran melalui *problem based learning* berbantuan *geogebra* (PBL-BG) yang dikembangkan telah memenuhi kriteria valid, praktis dan efektif ditinjau dari kriteria masing-masing; 2) kemampuan *visual thinking* dalam pemecahan masalah matematis siswa menggunakan perangkat pembelajaran berorientasi *problem based learning* berbantuan *geogebra* (PBL-BG) meningkat, ditinjau dari ketuntasan klasikal *posttest* uji coba I sebesar 75,00% dan meningkat menjadi 87,50% pada uji coba II;

Kata kunci: perangkat pembelajaran, model pengembangan Dick & Carry, *problem based learning* berbantuan *geogebra* (PBL-BG), kemampuan *visual thinking* dalam pemecahan masalah matematis siswa

ABSTRACT

KHOLILAH AMRIANI HARAHAP. Development of Learning Devices Based on Problem Based Learning Assisted by Geogebra to Improve Visual Thinking Ability in Solving Mathematical Problems of Students in SMAN 1 Samudera. Thesis. Medan: Postgraduate Program in Mathematics Education State University of Medan. 2021.

This study aims to: 1) Analyze the validity of the learning devices that developed through problem based learning assisted by geogebra; 2) Analyzing the practicality of learning devices that developed through problem based learning assisted by geogebra; 3) Analyze the effectiveness of learning devices that developed through problem based learning assisted by geogebra; 4) Analyze the improvement of visual thinking ability in solving student's mathematical problems using learning devices that developed through problem based learning assisted by geogebra. This research is a development research conducted in two stages, namely the first stage of the developing of learning devices through problem based learning assisted by geogebra using the Dick & Carey development model and the second stage is testing learning devices through problem based learning assisted by geogebra developed in classes XI-MIPA 1 and XI-MIPA 2. From the results of trial I, trial II and disseminated stage obtained that: 1) the learning devices through problem based learning assisted by geogebra met the valid, practical and effective criteria in terms of their respective criteria; 2) There is an increase of visual thinking ability in solving student's mathematical problems using learning devices that developed through problem based learning assisted by geogebra, in terms of the classical completeness of the posttest trial I is 75.00% to 87.50% in trial II.

Keywords: develoment of learning devices, Dick & Carry models, problem based learning assisted by geogebra, visual thinking ability in solving student's mathematical problems.