PENGARUH PROBLEM-BASED LEARNING BERBANTUAN DAN TIDAK BERBANTUAN TEKNOLOGI TERHADAP KEMAMPUAN BERPIKIR KRITIS MATEMATIS: REVIU SISTEMATIK DAN META-ANALISIS

TESIS

Diajukan untuk memenuhi sebagian syarat memperoleh gelar Magister Pendidikan Program Studi Pendidikan Matematika

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2021

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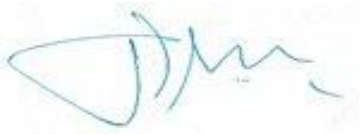

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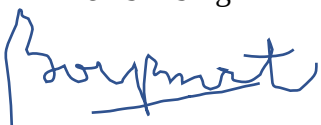
Pembimbing II



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ABSTRAK

Suparman (2021). Pengaruh Problem-Based Learning Berbantuan dan Tidak Berbantuan Teknologi Terhadap Kemampuan Berpikir Kritis Matematis: Reviu Sistematik dan Meta-Analisis.

Beberapa studi meta-analisis terkait pengaruh problem-based learning (PBL) terhadap kemampuan berpikir kritis matematis (KBKM) sudah dilakukan oleh beberapa peneliti. Namun, mereka belum mengkaji penggunaan teknologi dalam implementasi PBL untuk KBKM siswa. Studi ini bertujuan untuk mengestimasi, menguji dan membadingkan pengaruh dari PBL berbantuan dan tidak berbantuan teknologi terhadap KBKM siswa, serta menginvestigasi dan menguji beberapa faktor potensial yang diprediksi sebagai faktor penyebab heterogennya KBKM siswa dengan menggunakan studi reviu sistematik dan meta-analisis. Dari 54 studi primer yang disintesis, implementasi PBL berbantuan teknologi mempunyai pengaruh yang sedang terhadap KBKM siswa. Begitu juga, implementasi PBL tidak berbantuan teknologi mempunyai pengaruh yang sedang terhadap KBKM siswa dari tujuh studi primer yang disintesis. Bahkan, PBL berbantuan dan tidak berbantuan teknologi berpengaruh positif secara signifikan terhadap KBKM siswa. Selain itu, tidak terdapat perbedaan KBKM yang signifikan antara siswa yang memperoleh PBL berbantuan teknologi dan siswa yang memperoleh PBL tidak berbantuan teknologi. Selanjutnya, kapasitas kelas PBL dan demografi siswa adalah faktor-faktor yang signifikan menyebabkan heterogenitas KBKM siswa. Namun, heterogenitas KBKM siswa secara signifikan tidak disebabkan oleh jenjang pendidikan dan durasi perlakuan PBL. Studi ini memberikan masukan pada guru dan dosen matematika bahwa mereka sebaiknya memilih PBL sebagai salah satu pembelajaran matematika alternatif untuk menumbuh kembangkan KBKM siswa. Juga, dalam menumbuh kembangkan KBKM siswa melalui implementasi PBL, mereka sebaiknya memperhatikan lokasi siswa dimana siswa belajar dan menerapkan PBL pada kapasitas kelas yang tidak melebihi 32 siswa.

Kata kunci: Kemampuan Berpikir Kritis Matematis, Meta-Analisis, Problem-Based Learning, Reviu Sistematik, Teknologi.

ABSTRACT

Suparman (2021). The Effect of Technology-Assisted and Unassisted PBL on the Mathematical Critical Thinking Skills: A Systematic Review and Meta-Analysis.

Several meta-analysis studies regarding the effect of problem-based learning (PBL) on the mathematical critical thinking skills (MCTS) have been conducted by some researchers. However, they have not studied the use of technology in implementing PBL for students' MCTS. This study aims to estimate, examine, and compare the effect of technology-assisted and unassisted PBL on the students' MCTS, also investigate and examine some potential study characteristics predicted as the causative factor the heterogeneity of students' MCTS by using systematic review and meta-analysis study. From 54 primary studies synthesized, the implementation of technology-assisted PBL had a moderate effect on the students' MCTS. Also, the implementation of technology-unassisted PBL had a moderate effect on the students' MCTS from seven primary studies synthesized. Moreover, technology-assisted and unassisted PBL had positive effect significantly on the students' MCTS. In addition, there was no significant difference of MCTS between students obtaining technology-assisted PBL and students obtaining technology-unassisted PBL. Furthermore, PBL class capacity and student demography were the significant factors causing the heterogeneity of students' MCTS. However, the heterogeneity of students' MCTS was not caused significantly by education level and PBL treatment duration. This study suggests mathematics teachers and lecturers that they should select PBL as one of the alternative mathematics learnings to cultivate students' MCTS. Also, in cultivating students' MCTS by implementing PBL, they should consider students location in which they learn and implementing PBL on the class capacity that does not exceed 32 students.

Keywords: Mathematical Critical Thinking Skills, Meta-Analysis, Problem-Based Learning, Systematic Review, Technology.

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