

ABSTRAK

Widya Puput Rahayu. Efektivitas *Game Based Learning* Berbantuan *Digital Math Education* Terhadap Kemampuan Berpikir Komputasi Siswa Dalam Koding dan Kecerdasan Artifisial. Skripsi. Program Studi Pendidikan Guru Sekolah Dasar, Fakultas Keguruan dan Ilmu Pendidikan, Universitas PGRI Madiun. Pembimbing (I) Dr. Octarina Hidayatus Sholikhah, M.Pd., (II) Dr. Lingga Nico Pradana, M.Pd.,

Berpikir komputasi merupakan kemampuan yang menuntut siswa untuk memecahkan masalah menjadi subbagian kecil, dan merancang solusinya dengan merumuskan langkah-langkah yang jelas. Dalam pembelajaran koding dan kecerdasan artifisial kelas V, memiliki indikator *abstraction*, *generalization*, *decomposition*, *algorithmic*, dan *debugging* yang belum banyak dimiliki oleh siswa. Penelitian ini bertujuan untuk mengetahui apakah model GBL berbantuan *Digital Math Education* efektif terhadap kemampuan berpikir komputasi siswa pada mata pelajaran koding dan kecerdasan artifisial. Subjek penelitian ini adalah siswa kelas V di SDN Tinap 2. Penelitian ini menggunakan pendekatan kuantitatif dengan jenis penelitian *quasi time series* tipe *Interrupted Time Series Design*. Teknik pengumpulan sampel menggunakan teknik sampling jenuh, karena populasi dibawah 100 dengan jumlah sampel 22 siswa. Teknik pengumpulan data menggunakan tes essay dan dokumentasi. Instrumen penelitian terdiri dari *pre-test* dan *post-test* dalam mata pelajaran koding dan kecerdasan artifisial kelas V. Hasil analisis data menunjukkan terdapat perbedaan kemampuan berpikir komputasi siswa kelas V antara sebelum dan sesudah pembelajaran menggunakan model GBL yang didukung *Digital Math Education*. Rata-rata nilai siswa mengalami peningkatan dari 58,40 menjadi 84,09. Hasil uji hipotesis juga menunjukkan nilai $p\text{-value} < 0.001$ yaitu $0.000 < 0.001$ yang berarti terdapat pengaruh yang signifikan dari penerapan pembelajaran tersebut. Dengan demikian, hasil penelitian menunjukkan bahwa penggunaan model pembelajaran GBL berbantuan *Digital Math Education* efektif dalam meningkatkan kemampuan berpikir komputasi siswa dalam pembelajaran koding dan kecerdasan artifisial.

Kata Kunci: *Game Based Learning*, *Digital Math Education*, Berpikir Komputasi

ABSTRACT

Widya Puput Rahayu. The Effectiveness of Game-Based Learning Assisted by Digital Math Education on Students' Computational Thinking Skills in Coding and Artificial Intelligence. Undergraduate Thesis. Primary School Teacher Education Study Program, Faculty of Teacher Training and Education, Universitas PGRI Madiun. Supervisors: (I) Dr. Octarina Hidayatus Sholikhah, M.Pd., (II) Dr. Lingga Nico Pradana, M.Pd.

Computational thinking is a skill requiring students to break down problems into smaller sub-parts and design solutions by formulating clear steps. In the context of 5th-grade coding and artificial intelligence instruction, this skill encompasses components such as abstraction, generalization, decomposition, algorithmic thinking, and debugging competencies that students often lack. This study aimed to determine the effectiveness of a Game-Based Learning (GBL) model supported by Digital Math Education on the computational thinking skills of students in coding and artificial intelligence lessons. The research subjects were 5th-grade students at SDN Tinap 2. A quantitative approach was employed, specifically a quasi-experimental time-series design known as the Interrupted Time Series Design. A saturated sampling technique was used, as the population was under 100, resulting in a sample size of 22 students. Data collection involved essay tests and documentation. The research instruments consisted of pre-tests and post-tests covering the 5th-grade coding and artificial intelligence curriculum. Data analysis revealed a difference in students' computational thinking skills before and after instruction using the GBL model supported by Digital Math Education. The average student score increased from 58.40 to 84.09. Hypothesis testing yielded a p-value of <0.001 (specifically $0.000 < 0.001$), indicating a significant effect resulting from the implementation of this instructional method. Thus, the findings demonstrate that the use of a GBL model supported by Digital Math Education is effective in enhancing students' computational thinking skills within coding and artificial intelligence lessons.

Keywords: Game-Based Learning, Digital Math Education, Computational Thinking