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Pengaruh Model Pembelajaran Flipped Classroom terhadap Keterampilan Berpikir Kritis Matematis Siswa SMP

The Influence of Flipped Classroom Learning Model on Students' Mathematical Critical Thinking Skills in Junior High School

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Abstract: *This study aims to determine the effect of the flipped classroom learning model on junior high school students' mathematical critical thinking skills. The research employed a quantitative approach with a quasi-experimental design. The sample consisted of eighth-grade students divided into experimental and control groups. The research instrument was a mathematical critical thinking skills test based on interpretation, analysis, inference, and evaluation indicators. Data were collected through pre-test and post-test, then analyzed using the t-test. The results showed a significant difference in mathematical critical thinking skills between students taught using the flipped classroom model and those taught with conventional learning. The flipped classroom model positively influences students' mathematical critical thinking skills.*

Keywords: *Flipped classroom, Mathematics learning, Mathematical critical thinking, Quasi experiment*

Abstrak: Penelitian ini bertujuan untuk mengetahui pengaruh model pembelajaran flipped classroom terhadap keterampilan berpikir kritis matematis siswa SMP. Penelitian menggunakan pendekatan kuantitatif dengan desain quasi eksperimen. Sampel penelitian adalah siswa kelas VIII yang dibagi menjadi kelas eksperimen dan kelas kontrol. Instrumen penelitian berupa tes keterampilan berpikir kritis matematis dengan indikator interpretasi, analisis, inferensi, dan evaluasi. Data dikumpulkan melalui pre-test dan post-test, kemudian dianalisis menggunakan uji-t. Hasil penelitian menunjukkan adanya perbedaan signifikan keterampilan berpikir kritis matematis antara siswa yang belajar menggunakan model flipped classroom dan siswa yang belajar dengan pembelajaran konvensional. Model flipped classroom berpengaruh positif dalam meningkatkan kemampuan berpikir kritis matematis siswa.

Kata Kunci: Berpikir kritis matematis, Flipped classroom, Pembelajaran matematika, Quasi eksperimen

1. PENDAHULUAN

Perkembangan pendidikan abad ke-21 menuntut siswa memiliki keterampilan berpikir tingkat tinggi, termasuk keterampilan berpikir kritis matematis [1],[3],[23]. Namun, realitas di lapangan menunjukkan bahwa kemampuan ini masih rendah, terutama dalam pembelajaran matematika di tingkat SMP [2],[5],[7],[24]. Hal ini mengindikasikan perlunya strategi pembelajaran inovatif yang dapat mendorong siswa berpikir lebih mendalam.

Model pembelajaran flipped classroom merupakan salah satu pendekatan yang diyakini efektif untuk meningkatkan keterampilan berpikir kritis [8]-[10],[25]. Dalam model ini, kegiatan belajar tidak hanya berfokus di kelas, melainkan juga melibatkan aktivitas belajar mandiri melalui video atau materi yang diberikan sebelum tatap muka [4],[6],[11],[26].

Penelitian sebelumnya menunjukkan bahwa flipped classroom dapat meningkatkan keterlibatan siswa dan pemahaman konseptual, khususnya dalam pembelajaran matematika [12],[14],[17],[27]. Dengan demikian, model ini berpotensi memperkuat kemampuan berpikir kritis matematis siswa melalui aktivitas diskusi [28]-[30], kolaborasi [31]-[33], dan pemecahan masalah [34]-[136] di kelas.

Berdasarkan latar belakang tersebut, penelitian ini bertujuan untuk menganalisis pengaruh model pembelajaran flipped classroom terhadap keterampilan berpikir kritis matematis siswa SMP. Hasil penelitian ini diharapkan memberikan kontribusi bagi pengembangan strategi pembelajaran inovatif di bidang pendidikan matematika.

2. METODE PENELITIAN

Penelitian ini menggunakan pendekatan kuantitatif dengan desain quasi eksperimen tipe *non-equivalent control group design*. Populasi penelitian adalah seluruh siswa kelas VIII SMP, dengan sampel dua kelas: kelas eksperimen yang menggunakan model flipped classroom dan kelas kontrol yang menggunakan pembelajaran konvensional.

Instrumen penelitian berupa tes keterampilan berpikir kritis matematis yang mencakup indikator interpretasi, analisis, inferensi, dan evaluasi. Sebelum digunakan, instrumen divalidasi oleh ahli dan diuji reliabilitasnya.

Data dikumpulkan melalui pre-test dan post-test**.** Pre-test diberikan untuk mengetahui kemampuan awal siswa, sedangkan post-test untuk melihat peningkatan keterampilan berpikir kritis setelah perlakuan.

Analisis data dilakukan menggunakan uji-t (*independent sample t-test*) dengan taraf signifikansi 5%. Uji ini digunakan untuk mengetahui perbedaan rata-rata keterampilan berpikir kritis matematis antara kelas eksperimen dan kelas kontrol.

3. HASIL DAN PEMBAHASAN

Tabel. Hasil Analisis Statistik

Kelas	N	Rata-rata Pre-test	Rata-rata Post-test	Peningkatan
Eksperimen	29	57,41	83,62	26,21
Kontrol	28	56,89	74,13	17,24

Hasil uji-t menunjukkan nilai signifikansi 0,000 < 0,05, yang berarti terdapat perbedaan signifikan keterampilan berpikir kritis matematis antara kelas eksperimen dan kelas kontrol.

Peningkatan signifikan pada kelas eksperimen menunjukkan bahwa model flipped classroom efektif dalam mengembangkan keterampilan berpikir kritis matematis siswa. Hal ini sejalan dengan penelitian sebelumnya yang menyatakan bahwa flipped classroom memberi kesempatan lebih banyak kepada siswa untuk berdiskusi [10],[12],[37] dan mengeksplorasi masalah matematis [6],[13],[14].

Selain itu, flipped classroom memfasilitasi pembelajaran mandiri melalui materi video yang dapat diakses kapan saja, sehingga siswa memiliki pemahaman awal sebelum diskusi di kelas [15]-[17]. Kondisi ini memperkuat aktivitas berpikir kritis, seperti menganalisis, mengevaluasi, dan menyimpulkan solusi dari masalah matematis [18],[19],[38].

Dengan demikian, flipped classroom bukan hanya meningkatkan hasil belajar kognitif, tetapi juga melatih keterampilan berpikir tingkat tinggi yang sangat dibutuhkan dalam era digital [20]-[22].

4. KESIMPULAN

Penelitian ini menyimpulkan bahwa model pembelajaran flipped classroom berpengaruh positif dan signifikan terhadap keterampilan berpikir kritis matematis siswa SMP. Siswa yang

belajar dengan model flipped classroom menunjukkan peningkatan yang lebih tinggi dibandingkan siswa yang belajar dengan pembelajaran konvensional.

Implikasi penelitian ini adalah bahwa guru matematika dapat menggunakan flipped classroom sebagai alternatif strategi pembelajaran untuk meningkatkan keterampilan berpikir kritis matematis siswa.

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