

ABSTRAK

Sri Wahyuni, 1222050154, 2026 “Penerapan Strategi *Clarify, Classify, Compute, Communicate* Untuk Meningkatkan Kemampuan Komunikasi Matematis Berdasarkan Teori *Newman Error*”

Berdasarkan hasil studi pendahuluan di SMPN 2 Cipeucang, diketahui bahwa kemampuan komunikasi matematis murid dalam menyelesaikan soal cerita masih perlu ditingkatkan. Murid masih mengalami kesulitan dalam memahami informasi pada soal, mengubah informasi ke dalam bentuk matematis, melakukan proses penyelesaian, dan menyampaikan jawaban secara tepat. Kondisi tersebut menunjukkan perlunya strategi pembelajaran yang dapat membantu murid mengidentifikasi dan memperbaiki kesalahan dalam setiap tahapan penyelesaian soal. Oleh karena itu, penelitian ini bertujuan untuk mengetahui keterlaksanaan pembelajaran, peningkatan dan perbedaan kemampuan komunikasi matematis, serta perubahan jenis kesalahan murid dalam menyelesaikan soal cerita berdasarkan Teori *Newman Error* melalui penerapan strategi *Clarify, Classify, Compute, Communicate*. Penelitian ini menggunakan metode kuasi eksperimen dengan desain *pretest-posttest control group*. Subjek penelitian terdiri atas dua kelas VIII SMPN 2 Cipeucang, yaitu kelas eksperimen yang memperoleh pembelajaran menggunakan strategi *Clarify, Classify, Compute, Communicate* dan kelas kontrol yang memperoleh pembelajaran konvensional. Instrumen penelitian berupa tes kemampuan komunikasi matematis dan lembar observasi keterlaksanaan pembelajaran. Data dianalisis menggunakan uji *Shapiro-Wilk*, uji *Levene*, uji *Mann-Whitney U*, dan uji perbedaan rata-rata *N-Gain*. Hasil penelitian menunjukkan bahwa keterlaksanaan pembelajaran menggunakan strategi *Clarify, Classify, Compute, Communicate* berada pada kategori sangat baik. Rata-rata *N-Gain* kelas eksperimen sebesar 0,728 dengan kategori tinggi, sedangkan kelas kontrol sebesar 0,519 dengan kategori sedang. Hasil uji *Mann-Whitney U* menunjukkan nilai signifikansi sebesar $0,008 < 0,05$, sehingga terdapat perbedaan peningkatan kemampuan komunikasi matematis yang signifikan antara kedua kelas. Peningkatan kemampuan komunikasi matematis murid pada kelas eksperimen lebih baik dibandingkan kelas kontrol. Selain itu, terjadi perubahan dan pengurangan berbagai jenis kesalahan berdasarkan tahapan *Newman Error*, yaitu *reading error*, *comprehension error*, *transformation error*, *process skill error*, dan *Encoding Error*.

Kata Kunci: Kemampuan komunikasi matematis, *Clarify, Classify, Compute, Communicate, Newman Error Analysis, SPLDV*

ABSTRACT

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Based on the results of a preliminary study at SMPN 2 Cipeucang, students' mathematical communication skills in solving word problems still needed to be improved. Students experienced difficulties in understanding information presented in problems, translating information into mathematical forms, carrying out solution processes, and communicating answers accurately. This condition indicates the need for a learning strategy that can help students identify and correct errors at each stage of problem solving. Therefore, this study aimed to determine the implementation of learning, the improvement and difference in students' mathematical communication skills, as well as changes in the types of errors made by students in solving word problems based on Newman Error Theory through the implementation of the Clarify, Classify, Compute, Communicate strategy. This study employed a quasi-experimental method with a pretest-posttest control group design. The subjects consisted of two eighth-grade classes at SMPN 2 Cipeucang: an experimental class that received instruction using the Clarify, Classify, Compute, Communicate strategy and a control class that received conventional instruction. The instruments consisted of a mathematical communication skills test and a learning implementation observation sheet. Data were analyzed using the Shapiro–Wilk test, Levene's test, Mann–Whitney U test, and mean difference analysis of N-Gain. The results showed that the implementation of learning using the Clarify, Classify, Compute, Communicate strategy was categorized as very good. The average N-Gain score of the experimental class was 0.728, categorized as high, while that of the control class was 0.519, categorized as moderate. The Mann–Whitney U test showed a significance value of $0.008 < 0.05$, indicating a significant difference in the improvement of mathematical communication skills between the two classes. The improvement in the experimental class was better than that in the control class. In addition, changes and reductions in students' errors occurred based on the Newman Error stages, namely reading error, comprehension error, transformation error, process skill error, and Encoding Error.

Keywords: Mathematical communication skills, Clarify, Classify, Compute, Communicate, Newman Error Analysis, SPLDV