ABSTRAK

HELMIWANIDA HARAHAP. Perbedaan Peningkatan Kemampuan Penalaran dan Komunikasi Matematis Siswa MTsN Kota Medan Antara yang Diajar Melalui Pendekatan *Problem Posing* Kelompok dan Individu. Tesis. Medan: Program Pascasarjana Universitas Negeri Medan, 2012.

Kata Kunci : Komunikasi matematis, Penalaran matematis, Pendekatan *Problem Posing*

Penelitian ini merupakan penelitian kuasi eksperimen yang dilaksanakan di MTsN 2 Kota Medan dengan menerapkan pendekatan pendekatan *problem posing*. Terdiri dari dua kelas eksperimen, yaitu kelas eksperimen 1 melalui pendekatan *problem posing* kelompok dan kela kelas eksperimen 2 melalui pendekatan *problem posing* individu. Penelitian ini bertujuan untuk mengetahui: (1) peningkatan kemampuan penalaran matematis siswa yang lebih tinggi antara yang memperoleh pendekatan *problem posing* kelompok dan individu, (2) peningkatan komunikasi matematis siswa yang lebih tinggi antara yang memperoleh pendekatan *problem posing* kelompok dan individu, (3) proses jawaban yang lebih dari kedua kelas pembelajaran dalam menyelesaikan tes kemampuan penalaran dan komunikasi matematis. Instrumen yang digunakan terdiri dari: (1) tes kemampuan penalaran matematis, (2) tes kemampuan komunikasi matematis, pokok bahasan himpunan, tes berbentuk uraian. Untuk menganalisis kemampuan penalaran dan komunikasi matematis siswa dengan menggunakan uji *Mann Withney* sedangkan proses jawaban siswa dianalis secara deskriptif. Hasil penelitian menunjukkan bahwa: (1) peningkatan kemampuan penalaran matematis siswa yang memperoleh pembelajaran *problem posing* kelompok lebih tinggi dibanding siswa yang memperoleh pembelajaran *problem posing* individu. Melalui pendekatan *problem posing* kelompok diperoleh rata-rata peningkatan pada aspek menyajikan pernyataan dengan simbol atau diagram adalah 2,214 (tinggi), aspek menarik kesimpulan dari beberapa pernyataan 0,594 (sedang), aspek manipulasi terhadap pernyataan matematis 1,935 (tinggi) dan pada keseluruhan aspek penalaran matematis 0,527 (sedang). Sedangkan pada siswa yang memperoleh pembelajaran *problem posing* individu rata-rata peningkatan pada aspek menyajikan pernyataan dengan simbol atau diagram adalah 0,267 (rendah), aspek menarik kesimpulan dari beberapa pernyataan 0,186 (rendah), aspek manipulasi terhadap pernyataan matematis 0,204 (rendah) dan pada keseluruhan aspek penalaran matematis 0,233 (rendah). (2) peningkatan kemampuan komunikasi matematis siswa yang memperoleh pembelajaran *problem posing* kelompok lebih tinggi dibanding siswa yang memperoleh pembelajaran *problem posing* individu. Melalui pembelajaran *problem posing* kelompok diperoleh rata-rata peningkatan pada aspek menyatakan masalah ke bahasa atau simbol matematis 0,829 (tinggi), aspek menginterpretasikan model matematis ke dalam gambar atau diagram 0,714 (tinggi), aspek menginterpretasikan gambar atau diagram ke model matematis 0,596 (sedang) dan pada keseluruhan aspek komunikasi matematis 0,712 (tinggi). Melalui pembelajaran *problem posing* individu diperoleh rata-rata peningkatan pada

aspek menyatakan masalah ke bahasa atau simbol matematis 0,712 (tinggi), aspek menginterpretasikan model matematis ke dalam gambar atau diagram 0,304 (sedang), aspek menginterpretasikan gambar atau diagram ke model matematis 0,483 (sedang) dan pada keseluruhan aspek komunikasi matematis 0,545 (sedang). Proses jawaban siswa yang memperoleh pendekatan problem posing kelompok lebih baik dibanding siswa yang memperoleh pembelajaran problem posing individu. proses jawaban siswa pada problem posing kelompok memiliki langkah penyelesaian yang lebih lengkap.

ABSTRACT

HELMIWANIDA HARAHAP. The Difference in The Improvement in MTsN Kota Medan Students' Mathematical Reasoning and Communication Competence Between Those Who Apply Group and Individual Problem Posing Approach. Thesis. Medan: Post-Graduate Program State University of Medan, 2012.

Key Words : Mathematical Communication, Mathematical Reasoning, Problem Posing Approach.

This study is a quasi-experimental study which was conducted in MTsN 2 Medan by applying problem posing approach. There were two experimental classes; those were the experimental class 1 through group problem posing and the experimental class 2 through individual problem posing. This study aimed to determine: (1) an improvement in mathematical reasoning higher abilities of students between those who obtain group and individual problem posing approach, (2) an increase of higher students' mathematical communication between those who obtain group and individual problem posing approach, (3) the answer process which was more than two classes of learning in completing tests of mathematical reasoning and communication. The instrumental which were used consisted of: (1) tests of mathematical reasoning competence, (2) tests of mathematical communication competence, the learning subject of set, the test in descriptive form. The competence of mathematical reasoning and communication was analyzed by using the Mann Withney test while the students' answer process was analyzed descriptively. The results of this study showed: (1) the improvement in mathematical reasoning competence of students who obtained the group problem posing of learning was higher than that of students who obtained the individual problem posing of learning. Through the group problem posing approach, it was found that the average improvement in the aspect of presenting statements with symbols or diagrams was 2,214 (high), the aspect of drawing conclusions from some statements was 0,594 (medium), the aspect of manipulation to the mathematical statements was 1,935 (high), and 0,527 (medium) was in the overall aspects of mathematical reasoning. While students who obtained the individual problem posing of learning had 0,267 (low) as the average improvement in the aspect of presenting statements with symbols or diagrams, the aspect of drawing conclusions from some statements was 0,186 (low), the aspect of manipulation to the mathematical statements was 0,204 (low) and 0,233 (low) was in the overall aspects of mathematical reasoning. (2) the improvement in mathematical

communication competence of students who obtained group problem posing of learning was higher than that of students who obtained the individual problem posing of learning. Through the group problem posing of learning, it was found that the average improvement in the aspect of stating problems into language or mathematical symbol was 0,829 (high), the aspect of interpreting mathematical model into pictures or diagrams was 0,714 (high), the aspect of interpreting pictures or diagrams into mathematical model was 0,596 (medium), and 0,712 (tinggi) was in the overall aspects of mathematical communication. Through the individual problem posing of learning, it was found that the average improvement in the aspect of stating problems into language or mathematical symbol was 0,712 (high), the aspect of interpreting mathematical model into pictures or diagrams was 0,304 (low), the aspect of interpreting pictures or diagrams into mathematical model was 0,483 (medium) and 0,545 (medium) was in the overall aspects of mathematical communication. The answer process of students who obtained the group problem posing approach was better than that of students who obtained the individual problem posing of learning. The students' answer process in group problem posing had the more complete solving steps.