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ABSTRAK

Yohanes Suyatno (041414047). 2008. *Kemampuan dan Kesulitan 5 Orang Siswa Kelas X Akuntansi 1 SMK Sanjaya Pakem yang Memiliki Skor Rendah dalam Menyelesaikan Soal Matematika dalam Bentuk Soal Cerita pada Materi Program Linear Pada Tahun Ajaran 2007/2008.* Skripsi. Program Studi Pendidikan Matematika, Jurusan Pendidikan Matematika dan Ilmu Pengetahuan Alam, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Sanata Dharma Yogyakarta.

Penelitian dalam skripsi ini bertujuan untuk mengetahui tingkat kemampuan serta kesulitan yang dihadapi siswa dalam menyelesaikan soal matematika dalam bentuk soal cerita pada materi Program Linear. Penelitian ini juga bertujuan untuk mengetahui upaya-upaya yang dilakukan guru untuk mengatasi kesulitan siswa tersebut.

Subjek penelitian adalah siswa SMK Sanjaya Pakem kelas X Akuntansi dipilih 5 siswa yang memiliki skor terendah dari kelas tersebut. Pada kelas X Akuntansi dilakukan tes klasikal, kemudian dipilih 5 siswa yang memiliki skor terendah untuk diteliti lebih lanjut. Kelas X Akuntansi 1 adalah kelas yang siswanya memiliki tingkat kecerdasan yang relatif heterogen.

Jenis penelitian ini adalah penelitian deskriptif-kualitatif. Data yang diteliti berupa kemampuan dan kesulitan siswa dalam menyelesaikan soal matematika dalam bentuk soal cerita pada materi program linear. Serta upaya-upaya yang dilakukan guru untuk mengatasi kesulitan tersebut. Instrumen pengumpulan data berupa tes terdiri dari 3 buah soal essay, wawancara siswa, dan wawancara guru. Analisis data diawali dengan pemaparan data-data berupa transkripsi data hasil penelitian. Selanjutnya, mengetahui kemampuan siswa dari hasil tes, mengetahui kesulitan siswa dari hasil wawancara siswa, dan mengetahui upaya-upaya mengatasi kesulitan dari hasil wawancara guru.

Hasil penelitian menunjukkan bahwa (a). Kemampuan dari ke-5 siswa dalam menyelesaikan soal program linear adalah semua siswa mampu menganalisis soal; 4 siswa mampu membuat model matematika; 3 siswa mampu menentukan titik potong persamaan garis terhadap sumbu x dan sumbu y, mampu menentukan titik potong garis terhadap garis lain, menentukan fungsi sasaran/objektif; tetapi 2 siswa hanya mampu menggambar grafik dan menentukan titik optimum daerah himpunan penyelesaiannya. (b). Kesulitan-kesulitan yang dihadapi oleh ke-5 siswa adalah 1. Siswa kesulitan membuat model matematika dialami 2 siswa; 2. Siswa kesulitan menentukan titik potong garis terhadap sumbu x dan sumbu y dialami 2 siswa; 3. Siswa kesulitan menentukan titik potong garis terhadap garis yang lain jika diketahui ada 3 buah persamaan garis, misal: garis k , l , m dialami 4 siswa; 4. Siswa kesulitan menggambar grafik dan menentukan daerah himpunan penyelesaian dari sistem pertidaksamaan linear dialami 4 siswa; 5. Siswa kesulitan menentukan fungsi tujuan permasalahan dialami 3 siswa; 6. Siswa kesulitan menentukan persamaan garis selidik dialami 1 siswa; 7. Siswa kesulitan menentukan titik optimum dengan menggunakan garis selidik dialami 3 siswa; 8. Siswa kesulitan melakukan operasi perkalian bilangan dengan nol dialami 2 siswa. (c). Upaya-upaya yang dilakukan guru untuk mengatasi kesulitan siswa adalah 1. Guru menjelaskan isi soal, selalu menekankan bahwa barang yang dijual/dibeli (x dan y) selalu positif, menjelaskan kembali tanda " \leq " untuk maksimum dan " \geq " untuk minimum, dan menerangkan urutan satuan berat; 2. Guru menerangkan kembali cara mencari nilai x dan y dari persamaan dua variabel; 3. Guru menjelaskan bahwa mencari titik potong garis diperlukan dua buah persamaan garis yaitu garis $k-l$, $k-m$, dan $l-m$; 4. Guru menjelaskan bahwa tanda pertidaksamaan " \leq " daerah himpunan penyelesaian di kiri/bawah garis dan tanda pertidaksamaan " \geq " daerah himpunan penyelesaian di kanan/atas garis, dan daerah himpunan

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penyelesaian dari sistem pertidaksamaan merupakan hasil irisan daerah himpunan penyelesaian dari pertidaksamaan-pertidaksamaan; 5. Guru menjelaskan isi soal dan diberikan soal yang bobotnya lebih rendah dari soal sebelumnya; 6. Guru menjelaskan bahwa garis selidik $ax + by = k$ diperoleh dari persamaan fungsi sasaran: $ax + by$; 7. Guru menjelaskan langkah-langkah menentukan titik optimum dengan menggunakan garis selidik dan diberikan contoh latihan yang tidak terlalu sukar; 8. Guru menjelaskan kembali definisi perkalian bilangan dengan nol.

Kata Kunci: Kemampuan, Kesulitan, Menyelesaikan Soal Matematika Dalam Bentuk Soal Cerita, Program Linear Metode Grafik.



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ABSTRACT

Yohanes Suyatno (041414047). 2008. *The Abilities and The Difficulties Faced by 5 Students from Class X Accounting I SMK Sanjaya Pakem who have Low Score in Solving Mathematics Problem in The Form of Story at The Linear Program Subject Matter in The Year 2007/2008.* Thesis. Mathematics Education Study Program, Department of Mathematics and Science, Faculty of Teachers Training and Education, Sanata Dharma University Yogyakarta.

The research in this thesis aims to find out the ability and the difficulty level faced by students in solving mathematics problem in the form of story at the Linear Program subject matter. This research also aims to find out the efforts conducted by the teachers to overcome those students' difficulties.

The subject of this research is five students from Class X Accounting I SMK Sanjaya Pakem who have the lowest score in that class. A classical test is conducted in Class X Accounting, and five students with the lowest score are chosen to be observed further. Class X Accounting I is a class which students have relatively heterogenic level of intelligence.

This was a descriptive-qualitative research. The data observed was the ability and the difficulty of the students in solving mathematics problem in the form of story at the Linear Program subject matter, and the efforts conducted by the teachers to overcome those students' difficulties. The data-collecting instrument was a test consists of three essay questions, students' interview, and teacher interview. The data analysis was begun by describing the data transcript as the result of the research. It was continued by finding out the students' abilities from the result of the test, finding out the students' difficulties from the interview with them, and finding out the efforts to overcome the difficulties from he interview with the teacher.

The result of this research showed that (a) The abilities of all five students in solving the Linear Program problem were that all students were able to analyze the problems; four students were able to make mathematics model; three students were able to determine the cutting point of a line equation toward axis X and axis Y, to determine the cutting point of a line toward the other line, to determine the target/objective function; yet two students were only able to draw the graphic and to determine the optimum point of its solution collection area. (b) The difficulties of the students were: 1. Students had trouble in making mathematics model; 2. Students had trouble to determine the cutting point of a line equation toward axis X and axis Y; 3. Students had trouble to determine the cutting point of a line toward the other line if there were three line equations, for instance, line k , l , m ; 4. Students had trouble to draw the graphic and to determine the solution collection area; 5. Students had trouble to determine the target/objective function; 6. Students had problem to determine the equation of critical line; 7. Students had trouble to determine the optimum point using the critical line; 8. Students had trouble to multiple numbers with zero in determining the optimum point. (c) The efforts conducted by the teacher to overcome the problems were: 1. The teacher explained the content of the problems, always emphasized that the sold/bought goods (x and y) were always positive, re-explained the use of symbol " \leq " for maximum and " \geq " for minimum, and explained the oder of weight unit; 2. The teacher re-explained the way to find the proportion of x and y from two-variable equation; 3. The teacher explained to the students that to find the cutting points of line, it was needed to have two line equations, that is $k-l$, $k-m$, and $l-m$; 4. The teacher explained that the unequation symbol " \leq " of solution collection area was located on left, bottom of the line and the unequation symbol " \geq " of solution collection area was located on right, above of the line, and the solution collection area from unequation system was the result of slicing the solution collection area from many unequations; 5. The teacher

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explained the content of the problem and gave the students some lower quality problems than the previous ones; 6. the teacher explained that the critical line $ax + by = k$ was attained from the target function: $ax + by$; 7. The teacher explained the steps to determine the optimum point using critical line and gave the students easy examples to exercise; 8. The teacher re-explained the definition of multiplication number with zero that any numbers multiply by zero is zero.

Key Words : Ability, Difficulty, Solving Mathematics Problems in the Form of Story, Graphic Method Linear Program.

