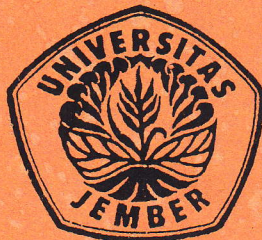


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Pendidikan Matematika

LAPORAN PENELITIAN  
HIBAH BERSAING



PENGEMBANGAN MODEL PEMBELAJARAN MATEMATIKA  
BERORIENTASI *VOCATIONAL SKILL* DI SMK  
DENGAN PENDEKATAN KONTEKSTUAL  
BERBASIS MASALAH KEJURUAN

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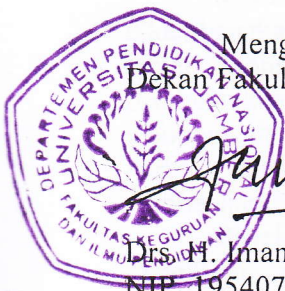
## HALAMAN PENGESAHAN

1. Judul Penelitian : **Pengembangan Model Pembelajaran Matematika Berorientasi *Vocational Skill* di SMK dengan Pendekatan Kontekstual Berbasis Masalah Kejuruan**
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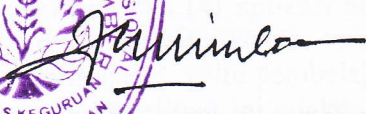
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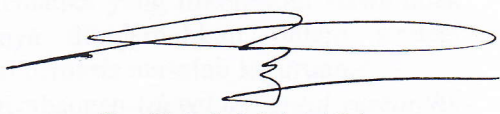
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## RINGKASAN

Hobri & Susanto, 2009, *Pengembangan Model Pembelajaran Matematika Berorientasi Vocational Skill di SMK dengan Pendekatan Kontekstual Berbasis Masalah Kejuruan*, Program Studi Pendidikan Matematika FKIP Universitas Jember.

**Kata-kata Kunci** : pengembangan, model pembelajaran, *vocational skill*, sekolah menengah kejuruan

Selama ini, siswa SMK belajar matematika karena “terpaksa”. Tuntutan kurikulum yang ada serta peran guru matematika SMK selama ini belum mampu meyakinkan secara nyata bahwa matematika perlu dikuasai oleh siswa, baik sebagai alat untuk berfikir (logika) maupun sebagai alat menyelesaikan masalah kejuruan secara praktis (sederhana). Satu hal penting dalam upaya ini adalah menunjukkan secara nyata dan sederhana bahwa konsep-konsep matematika dapat diaplikasikan dalam banyak persoalan kejuruan, terutama dalam hal hitung menghitung.

Desain model pembelajaran matematika berorientasi *vocational skill* dikembangkan guna memenuhi adanya tuntutan (kebutuhan) untuk menciptakan kebermaknaan kepada diri siswa SMK bahwa belajar matematika sebagai mata pelajaran kelompok adaptif sangat membantu dalam memahami dan menguasai mata pelajaran kejuruan (produktif). Dalam proses pembelajaran, tujuan tersebut dilaksanakan secara terintegrasi, mulai dari desain pembelajaran, alat peraga, pembentukan kelompok, sampai pada presentasi siswa di kelas. Dengan demikian, siswa SMK akan termotivasi belajar matematika dan menguasainya dengan perasaan senang dan tidak ada paksaan.

Model pembelajaran matematika berorientasi pada *vocational skill* yang dikembangkan, meliputi 4 aspek, yaitu : (1) melibatkan aspek psikomotorik, (2) materi (konsep) matematika terkait langsung dengan masalah kejuruan, (3) pembentukan konsepsi matematika siswa diperoleh melalui simulasi alat-alat kejuruan, dan (4) aplikasi atau terapan matematika yang dikerjakan siswa tidak verbal. Empat aspek tersebut, selanjutnya diterjemahkan dalam strategi pembelajaran, yaitu pembelajaran kontekstual berbasis masalah kejuruan.

Penelitian ini adalah penelitian pengembangan (*developmental research*). Penelitian ini berorientasi pada pengembangan produk, yang proses pengembangannya dideskripsikan seteliti mungkin dan produk akhirnya dievaluasi. Dalam penelitian ini yang dikembangkan berupa model pembelajaran, perangkat pembelajaran, dan instrumen-instrumen yang diperlukan. Secara operasional, proses pengembangan mengacu pada modifikasi model pengembangan Plomp, dengan memperhatikan aspek kualitas produk yang ditetapkan oleh Nieveen, yaitu aspek kevalidan, aspek kepraktisan, dan aspek keefektifan. Adapun fase-fase pengembangan model Plomp dalam penelitian ini adalah : (1) fase investigasi awal, (2) fase perancangan, (3) fase realisasi, (4) fase tes, evaluasi, dan revisi.

Hasil pengembangan model pembelajaran matematika berorientasi pada *vocational skill* ini menunjukkan bahwa model pembelajaran yang dikembangkan valid, baik validitas isi maupun validitas konstruk. Hasil penilaian pakar dan praktisi terhadap validitas isi model menunjukkan nilai rerata total sebesar 4,15, sedangkan terhadap validitas isi model menunjukkan nilai rerata total sebesar 4,26. Kedua nilai tersebut menunjukkan bahwa model tersebut valid. Begitu pula penilaian pakar dan praktisi terhadap perangkat pembelajaran. Dalam skala 1 – 5, nilai rerata total aspek untuk Rencana Pembelajaran sebesar 4,53, buku siswa sebesar 4,55, lembar kerja siswa (LKS) sebesar 4,57, buku guru sebesar 4,39, dan tes hasil belajar sebesar 4,40. Semua nilai mengindikasikan bahwa perangkat pembelajaran yang dikembangkan adalah valid.

Dapat ditarik 2 kesimpulan dalam penelitian pengembangan ini. Pertama, dihasilkan Model Pembelajaran Matematika Berorientasi *Vocational Skill* di SMK yang valid, praktis, dan efektif dengan sintaks model adalah : (1) pengantar, (2) praktek alat kejuruan dan presentasi, (3) perolehan konsep matematika dan presentasi, (4) diskusi dan aplikasi, dan (5) penutup. Kedua, dihasilkan perangkat pembelajaran pendukung model dalam pelaksanaan pembelajaran kompetensi "Menerapkan Konsep Barisan dan Deret". Perangkat pembelajaran terdiri dari Rencana Pembelajaran (RP), Buku Siswa, Lembar Kegiatan Siswa (LKS), dan Buku Guru. Perangkat-perangkat pembelajaran tersebut memenuhi kriteria kevalidan.



## SUMMARY

Hobri & Susanto, 2009, *Development of Mathematics Instructional Model which is Oriented Toward Vocational Skill at Vocational High Schools use Contextual Teaching and Learning Approach Based on Vocational Problem Based Learning*, Department of Mathematics Education, Faculty of Teacher Training and Education, Jember University.

**Key Words:** development, instructional model, vocational skill, vocational high school

Learning mathematics for vocational high school (VHS) students was so far due to "be forced". Curriculum demand and mathematics teacher role at VHS have not been able to confine the students that they must be master the subject, either as an instrument of logical thinking or simple vocational problem solver. Thus, it should be simply showed that mathematics concept could be applied in many vocational problems, especially for calculating.

The design of mathematics instructional model oriented toward vocational skill was develop to make VHS students realize that mathematics as an adaptive subject was very helpful in understanding and mastering vocational subject (productive), the objective was performed in integrated way from instructional design, instructional instrument, and group building until the student's presentation in the class. Hence, the SMK students would be motivated to study the subject and master it happily.

Mathematics instructional model oriented toward vocational skill covers four aspects, namely (1) psychomotor, (2) concept of mathematics is related to vocational problems, (3) building the students' conception of mathematics through simulation of vocational instruments, and (4) the application of mathematics made by the students was non-verbal. The four aspects were then translated into instructional strategy, which was instructional contextual based on vocational problem.

This research is developmental research. The developmental research is oriented toward product development in which the process of development is described in detail and the product is evaluated. The aspects to develop in this research were instructional model, instructional instrument, and some necessary instrument. Operationally, the process of development was based on the modification of Plomp's development model, by observing the quality aspect of product stated by Nieveen. The modification phases of Plomp's development model are: (1) preliminary investigation phase, (2) designing phase, (3) realization phase, and (4) phase of test, evaluation, and revision.

The result of mathematics instructional model oriented toward vocational skill showed that the development model was valid, either the content validity or construct validity. The result of experts' validation and the practitioners toward the content validity of the model showed that mean score was 4.15, while the construct validity of the model showed that mean score was 4.26. The two score showed that the model was valid. It also happened to the experts and practitioners

evaluation of the instructional instrument. In the interval of 1 – 5, the mean scores for Lesson Plan (LP) were 4.53, the students' book was 4.55, the students' worksheet was 4.57, the teacher's ledger was 4.39, and the result of learning result was 4.40. All the scores indicated that the instructional instrument developed was valid.

After knowing that the model and instrument of instructional were valid, they were try-out performed to know their practical and effectiveness. On the first try-out, the model completeness of instruction application in the class using instructional instrument was on category 3.44. Thus, the model completeness was not met. It also happened to the four indicators of model effectiveness. There were some indicators unsatisfied. The first indicator, the completeness of learning results, reached 86.11% (fulfilled). The second teacher, the teacher and students activities, was not fulfilled. The third indicator, the mean score of teaching capability, was 3.71, in the moderate category. The last indicator, the students' responses were positive.

There were 2 conclusions can be derived in this research. First, the research produced a mathematics instructional model oriented toward vocational skill at SMK which is valid, practice, and effective. The syntax of this model covering: (1) introduction, (2) practice on the vocational tools and presentation, (3) mathematical concept acquisition and presentation, (4) discussion and application, and (5) application. Second, this research produced instructional instruments supported to the model in the application of competence instruction "Applying the concept of sequence and series". The instructional instruments covered Lesson Plan (LP), student book, student works sheet (SWS), and teacher book. The instructional instruments fulfilled the validity criteria.