

**LEMBAR PERSETUJUAN PEMBIMBING**

**SKRIPSI**

**PENGARUH PROBLEM BASED LEARNING BERBASIS VIRTUAL  
LABORATORY TERHADAP HASIL BELAJAR SISWA PADA MATERI  
HUKUM BERNOULLI**

*(Suatu Penelitian di SMA Negeri 1 Kabilia, Kabupaten Bone bolango)*

**Oleh**

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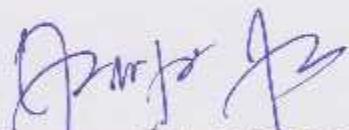
Telah diperiksa dan disetujui oleh:

**Pembimbing I**



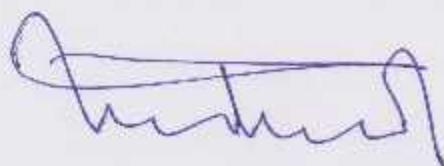
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**LEMBAR PENGESAHAN  
SKRIPSI**

**"PENGARUH PROBLEM BASED LEARNING BERBASIS VIRTUAL  
LABORATORY TERHADAP HASIL BELAJAR SISWA PADA MATERI  
HUKUM BERNOULLI"**

(Suatu Penelitian pada Siswa Kelas XI di SMA N 1 Kabilah)

Oleh

Dewi Riski

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Telah dipertahankan di depan dewan pengaji

Hari/Tanggal : Sabtu, 02 Juli 2016

Waktu : 09.00 WITA s/d selesai

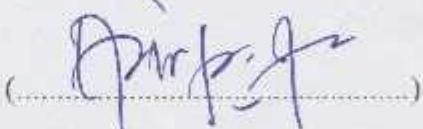
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(.....)  
  
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## ABSTRAK

**Dewi Riski.** 2016. *Pengaruh Problem Based Learning Berbasis Virtual Laboratory Terhadap Hasil Belajar Siswa Pada Materi Hukum Bernoulli*. Skripsi, Program Studi S1 Pendidikan Fisika, Jurusan Fisika, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Negeri Gorontalo. Pembimbing 1 Prof. Dr. Hi. Mursalin, M.Si dan Pembimbing II Tirtawaty Abdjul, M.Pd.

Penelitian ini bertujuan untuk mengetahui perbedaan hasil belajar fisika pada kelas yang menggunakan *problem based learning* berbasis media *virtual laboratory* dan hasil belajar fisika pada kelas yang menggunakan *problem based learning* berbasis *real experiment*. Penelitian ini dilaksanakan di SMA Negeri 1 Kabilo pada tahun ajaran 2015/2016. Metode penilitian yang digunakan adalah metode eksperimen dengan rancangan *pretest-posttest control group desain*. Pengambilan sampel dilakukan menggunakan teknik *cluster random sampling*, siswa kelas XI MIA 2 sebagai kelas eksperimen yang menggunakan model *problem based learning* berbasis *virtual laboratory* dan siswa kelas XI MIA 5 sebagai kelas kontrol yang menggunakan model *problem based learning* berbasis *real experiment*. Instrumen yang digunakan yaitu tes hasil belajar berupa soal-soal uraian. Data instrumen tes dianalisis menggunakan analisis statistik yaitu uji-t. Berdasarkan hasil perhitungan menggunakan uji-t pada taraf ( $\alpha$ ) = 0,05,  $t_{hitung} = 8,26 > t_{tabel} = 2,32$  sehingga hipotesis ( $H_0$ ) ditolak dan hipotesis alternatif ( $H_1$ ) diterima. Maka dapat disimpulkan bahwa terdapat perbedaan hasil belajar siswa SMA yang menggunakan model *problem based learning* berbasis *virtual laboratory* dengan hasil belajar siswa yang menggunakan model *problem based learning* berbasis *real experiment*.

Kata kunci : *Problem Based Learning, Virtual Laboratory, Hasil Belajar*

## ABSTRACT

**Dewi Riski.** 2016. *The Influence of Problem Based Learning Virtual Laboratory Based Towards Students Learning Outcome in Bernouli Law Material.* Skripsi, Study Program of S1 Physics Education, Department of Physics, Faculty of Mathematic and Natural Science, State University of Gorontalo. Principal Supervisor is Prof. Dr. Hi. Mursalin, M.Si and Co-Supervisor is Tirtawaty Abdjul, M.Pd.

The objective of this research is to observe the different of physics learning outcome in class that used problem based learning virtual laboratory based and physics learning outcome in class that used real experiment based. This research had conducted in SMA Negeri 1 Kabilia in academic year 2015/2016. The method used in this research is experiment method with *pretest-posttest control group desain*. The sampling is done by using cluster random sampling technique, students of class XI MIA 2 as the experiment class that used problem based learning virtual laboratory based and students of class XI MIA 5 as the control class that used problem based learning real experiment based. The instrument in this research is learning outcome test that is description tasks. The data of test instrument had been analyzed by using t-test statistical analysis. Based on the t-test result in significance ( $\alpha = 0,05$ )  $t_{hitung} = 8,26 > t_{tabel} = 2,32$  so that, hypothesis ( $H_0$ ) is rejected and alternative hypothesis ( $H_1$ ) is accepted. It can be conclude that there is a difference between students learning outcome that used problem based learning virtual laboratory based and students learning outcome that used real experiment based.

Keywords: Problem Based Learning, Virtual Laboratory, Learning Outcome