**DAFTAR ISI**

|  |  |  |
| --- | --- | --- |
| **ABSTRAK**  ............................................................................................... | | i |
| **KATA PENGANTAR**  …………............................................................. | | ii |
| **DAFTAR ISI**  ............................................................................................ | | iv |
| **DAFTAR TABEL**  .................................................................................... | | vi |
| **DAFTAR GAMBAR** ............................................................................... | | ix |
| **DAFTAR LAMPIRAN** ............................................................................ | | x |
| **BAB I** | **PENDAHULUAN** |  |
|  | 1. Latar Belakang Masalah ..................................................... | 1 |
|  | 1. Rumusan Masalah ............................................................. | 5 |
|  | 1. Tujuan Penelitian ................................................................ | 5 |
|  | 1. Batasan Masalah ................................................................. | 5 |
|  | 1. Manfaat Penelitian ............................................................. | 6 |
| **BAB II** | **KAJIAN PUSTAKA** |  |
|  | 1. Kemampuan Komunikasi Matematis Siswa ....................... | 7 |
|  | 1. Model Pembelajaran *Problem Based Learning* .................. | 9 |
|  | 1. Model Pembelajaran *Discovery Learning* .......................... | 13 |
|  | 1. Hubungan antara Variabel Penelitian …............................ | 16 |
|  | 1. Penelitian yang Relevan .................................................... | 18 |
|  | 1. Hipotesis ................…......................................................... | 19 |
| **BAB III** | **METODOLOGI PENELITIAN** |  |
|  | 1. Definisi Operasional ........................................................... | 20 |
|  | 1. Metode dan Desain Penelitian ........................................... | 20 |
|  | 1. Populasi dan Sampel Penelitian ........................................ | 21 |
|  | 1. Waktu dan Tempat Penelitian ........................................... | 21 |
|  | 1. Variabel Penelitian | 22 |
|  | 1. Instrumen Penelitian ........................................................... | 22 |
|  | 1. Teknik Analisis Data ......................................................... | 26 |
|  | 1. Prosedur Penelitian ............................................................ | 29 |
|  | 1. Alur Penelitian .................................................................. | 31 |
| **BAB IV** | **HASIL PENELITIAN DAN PEMBAHASAN** |  |
|  | 1. Deskripsi Hasil Penelitian ….............................................. | 32 |
|  | 1. Pembahasan Hasil Penelitian............................................... | 39 |
| **BAB V** | **SIMPULAN DAN SARAN** |  |
|  | 1. Simpulan ............................................................................ | 55 |
|  | 1. Saran .................................................................................. | 55 |
| **DAFTAR PUSTAKA** .............................................................................. | | 57 |
| **LAMPIRAN-LAMPIRAN** ....................................................................... | | 61 |
| **DAFTAR RIWAYAT HIDUP** ................................................................ | | 196 |

**DAFTAR TABEL**

**Tabel**

|  |  |  |
| --- | --- | --- |
| 2.1 | Langkah-langkah Pembelajaran *Problem Based Learning……………* | 11 |
| 2.2 | Tahapan *Discovery Learning*……………………............................... | 13 |
| 2.3 | Sintaks Model Pembelajaran *Discovery Learning……………….........* | 14 |
| 3.1 | Materi dan Jadwal Penelitian………………………………………... | 22 |
| 3.2 | Rekapitulasi Perhitungan Validitas Butir Soal………………………. | 24 |
| 3.3 | Klasifikasi Kriteria Koefisien Reliabilitas…………………………... | 25 |
| 3.4 | Rekapitulasi Tingkat Kesukaran Instrumen Penelitian……………… | 25 |
| 3.5 | Klasifikasi Daya Pembeda…………………………………………... | 26 |
| 3.6 | Rekapitulasi Daya Pembeda Instrumen Penelitian………………….. | 26 |
| 3.8 | Interpretasi *Gain* Ternormalisasi yang Dimodifikasi………………... | 29 |
| 4.1 | Data Hasil Penelitian Kemampuan Komunikasi Matematis Siswa…. | 32 |
| 4.2 | Rekapitulasi Hasil Uji Normalitas Data *Pretest………………………..* | 33 |
| 4.3 | Rekapitulasi Hasil Perhitungan Uji *Mann Whitney*…………………. | 34 |
| 4.4 | Rekapitulasi Hasil Uji Normalitas Data *Pretest………………………..* | 34 |
| 4.5 | Rekapitulasi Hasil Perhitungan Uji *Mann Whitney…………………….* | 35 |
| 4.6 | Data Hasil Gain Ternormalisasi Kelas *Problem Based Learning……* | 36 |
| 4.7 | Rekapitulasi Persentase Hasil Peningkatan Komunikasi Matematis Ditinjau Dari Tiap Indikator Di Kelas *Problem Based Learning…….* | 37 |
| 4.8 | Data Hasil Gain Ternormalisasi Kelas *Discovery Learning………….* | 38 |
| 4.9 | Rekapitulasi Persentase Hasil Peningkatan Komunikasi Matematis Ditinjau Dari Tiap Indikator Di Kelas *Discovery Learning*……….. | 39 |
| B.1.1 | Data Hasil Uji Coba Instrumen……………………………………… | 69 |
| B.2.1 | Uji Validitas Butir Soal No.1………………………………………... | 70 |
| B.2.2 | Rekapitulasi Perhitungan Validitas Butir Soal………………………. | 71 |
| B.3.1 | Uji Reliabilitas Instrumen Penelitian………………………………... | 72 |
| B.3.2 | Klasifikasi Koefisien Reliabilitas......................................................... | 73 |
| B.4.1 | Data Hasil Uji Coba Terurut………………………………………….. | 74 |
| B.4.2 | Data Kelompok Atas………………………………………………… | 75 |
| B.4.3 | Data Kelompok Bawah……………………………………………… | 75 |
| B.4.4 | Rekapitulasi Daya Pembeda Instrumen Penelitian………………….. | 76 |
| B.4.5 | Rekapitulasi Tingkat Kesukaran Instrumen Penelitian……………… | 77 |
| D.1.1 | Data Hasil Tes Awal (*Pretest*) Kelas *Problem Based Learning……...* | 138 |
| D.1.2 | Data Hasil Tes Akhir (*Posttest*) Kelas *Problem Based Learning……* | 139 |
| D.1.3 | Data Hasil Tes Awal (*Pretest*) Kelas *Discovery Learning……………* | 140 |
| D.1.4 | Data Hasil Tes Akhir (*Posttest*) Kelas *Discovery Learning…………..* | 141 |
| D.2.1 | Daftar Nilai *Pretest* Terurut Kelas *Problem Based Learning…………* | 142 |
| D.2.2 | Uji Normalitas Data *Pretest* Kelas *Problem Based Learning…………* | 143 |
| D.2.3 | Daftar Nilai Data *Pretest* Terurut Kelas *Discovery Learning…………* | 144 |
| D.2.4 | Uji Normalitas Data *Pretest* Kelas *Discovery Learning……………….* | 145 |
| D.2.5 | Ranking Gabungan Kelas *Problem Based Learning* dan *Discovery Learning………………………………………………………………………..* | 147 |
| D.3.1 | Daftar Nilai *Posttest* Terurut Kelas *Problem Based Learning………..* | 150 |
| D.3.2 | Uji Normalitas Data *Posttest* Kelas *Problem Based Learning………....* | 151 |
| D.3.3 | Daftar Nilai Data *Posttest* Terurut Kelas *Discovery Learning………....* | 152 |
| D.3.4 | Uji Normalitas Data *Posttest* Kelas *Discovery Learning………………..* | 153 |
| D.3.5 | Ranking Gabungan Kelas *Problem Based Learning* dan *Discovery Learning………………………………………………………………………….* | 155 |
| D.4.1 | Data Gain Ternormalisasi Kelas *Problem Based Learning………………* | 159 |
| D.4.2 | Rekapitulasi Gain Ternormalisasi Kelas *Problem Based Learning……...* | 160 |
| D.4.3 | Data Gain Ternormalisasi Kelas *Discovery Learning………………........* | 161 |
| D.4.4 | Rekapitulasi Gain Ternormalisasi Kelas *Discovery Learning………...* | 162 |
| D.5.1 | Daftar Nilai Gain Ternormalisasi Terurut Kelas *Problem Based Learning………………………………………………………………………* | 163 |
| D.5.2 | Uji Normalitas Kelas *Problem Based Learning…………………..........* | 164 |
| D.5.3 | Daftar Nilai Gain Ternormalisasi Terurut Kelas *Discovery Learning..* | 165 |
| D.5.4 | Uji Normalitas Kelas *Discovery Learning……………………………....* | 166 |
| D.5.5 | Ranking Gabungan Kelas *Problem Based Learning* dan *Discovery Learning……………………………………………………………………….* | 169 |
| D.6.1 | Hasil *N-Gain* Kelas *Problem Based Learning* Indikator ke-1……….. | 172 |
| D.6.2 | Hasil *N-Gain* Kelas *Problem Based Learning* Indikator ke-2……….. | 173 |
| D.6.3 | Hasil *N-Gain* Kelas *Problem Based Learning* Indikator ke-3……….. | 174 |
| D.6.4 | Hasil *N-Gain* Kelas *Problem Based Learning* Indikator ke-4……… | 175 |
| D.6.5 | Hasil *N-Gain* Kelas *Discovery Learning* Indikator ke-1…………….. | 176 |
| D.6.6 | Hasil *N-Gain* Kelas *Discovery Learning* Indikator ke-2……………. | 177 |
| D.6.7 | Hasil *N-Gain* Kelas *Discovery Learning* Indikator ke-3…………… | 178 |
| D.6.8 | Hasil *N-Gain* Kelas *Discovery Learning* Indikator ke-4…………….. | 179 |
| E.1.1 | Daftar Proporsi z (Luas di bawah Lengkungan Kurva Normal dari 0,00 s.d. z ) (Bilangan dalam badan daftar menyatakan desimal)…… | 180 |
| E.2.1 | Distribusi t …………………………………………………………... | 182 |
| E.3.1 | Nilai Kritis Uji *Lilliefors…………………………………………………* | 183 |

**DAFTAR GAMBAR**

**Gambar**

|  |  |  |
| --- | --- | --- |
| 3.1 | Alur Penelitian ..................................................................................... | 31 |
| 4.1 | Orientasi Pada Masalah ……………………………………………... | 42 |
| 4.2 | Eksplor Hasil Pengamatan …............................................................... | 43 |
| 4.3 | Stimulus (rangsangan)…....................................................................... | 45 |
| 4.4 | Pengolahan Data ….............................................................................. | 46 |
| 4.5 | Pembuktian …………………………………………………………... | 47 |

**DAFTAR LAMPIRAN**

|  |  |  |  |
| --- | --- | --- | --- |
| **LAMPIRAN A INSTRUMEN PENELITIAN** | | |  |
|  | A.1 | Kisi-kisi Instrumen Penelitian .………………............................... | 61 |
|  | A.2 | Rubrik Penskoran .………………….............................................. | 62 |
|  | A.3 | Instrumen Penelitian …………………………………….............. | 64 |
|  | A.4 | Alternatif Jawaban dan Penskoran Instrumen Penelitian ............... | 66 |
| **LAMPIRAN B ANALISIS INSTRUMEN HASIL UJI COBA** | | |  |
|  | B.1 | Data Hasil Uji Coba Instrumen Penelitian ………………………. | 70 |
|  | B.2 | Validitas Instrumen Penelitian ....................................................... | 71 |
|  | B.3 | Reliabilitas Instrumen Penelitian ................................................... | 73 |
|  | B.4 | Daya Pembeda Dan Tingkat Kesukaran Soal…………………… | 75 |
| **LAMPIRAN C PERANGKAT PEMBELAJARAN** | | |  |
|  | C.1 | Silabus Pembelajaran .................................................................... | 79 |
|  | C.2 | Rencana Pelaksanaan Pembelajaran Kelas Model Pembelajaran *Problem Based Learning*………………………………………… | 84 |
|  | C.3 | Rencana Pelaksanaan Pembelajaran Kelas Model Pembelajaran *Discovery Learning* ……………………………………………… | 104 |
|  | C.4 | Lembar Kerja Kelas Model Pembelajaran *Problem Based Learning………………………………………………………………….* | 120 |
|  | C.5 | Lembar Kerja Kelas Model Pembelajaran  *Discovery Learning* ... | 128 |
| **LAMPIRAN D ANALISIS DATA HASIL PENELITIAN** | | |  |
|  | D.1 | Analisis Data Hasil *Pretest* dan *Posttest* kelas *Problem Based Learning* dan *Discovery Learning*................................................. | 138 |
|  | D.2 | Analisis Perbedaan Kemampuan Awal Komunikasi Matematis Siswa Yang Mendapatkan Model *Problem Based Learning* Dan *Discovery Learning……………………………………………….......* | 142 |
|  | D.3 | Analisis Perbedaan Kemampuan Akhir Komunikasi Matematis Siswa Yang Mendapatkan Model *Problem Based Learning* Dan *Discovery Learning………………………………………………….* | 150 |
|  | D.4 | Analisis Data Gain Ternormalisasi……………………................. | 158 |
|  | D.5 | Analisis Peningkatan Perbedaan Kemampuan Komunikasi Matematis Siswa Yang Mendapatkan Model *Problem Based Learning* Dan *Discovery Learning……………………….................* | 163 |
|  | D.6 | Analisis Data Peningkatan Kemampuan Komunikasi Matematis Siswa…………………………………………………………….. | 172 |
| **LAMPIRAN E TABEL STATISTIKA** | | |  |
|  | E.1 | Tabel Proporsi Z ……………........................................................ | 180 |
|  | E.2 | Tabel Distribusi t ........................................................................... | 182 |
|  | E.3 | Tabel Kritis untuk Uji Liliefors ……............................................ | 183 |
| **LAMPIRAN F SAMPEL BERKAS JAWABAN SISWA** | | |  |
|  | F.1 | Sampel Jawaban Siswa Hasil Uji Coba Instrumen Penelitian …... | 184 |
|  | F.2 | Sampel Jawaban Siswa Hasil *Pretest* Kelas Model Pembelajaran *Problem Based Learning* .............................................................. | 185 |
|  | F.3 | Sampel Jawaban Siswa Hasil *Pretest* Kelas Model Pembelajaran *Discovery Learning*....................................................................... | 186 |
|  | F.4 | Sampel Jawaban Siswa Hasil *Posttest* Kelas Model Pembelajaran *Problem Based Learning* ............................................................. | 187 |
|  | F.5 | Sampel Jawaban Siswa Hasil *Posttest* Kelas Model Pembelajaran *Discovery Learning*........................................................................ | 188 |
| **LAMPIRAN G ADMINISTRASI PENELITIAN** | | |  |
|  | G.1 | Surat Pernyataan Hasil Seminar Proposal Penelitian .................... | 189 |
|  | G.2 | Surat Keputusan Dosen Pembimbing Skripsi ............................... | 190 |
|  | G.3 | Surat Keterangan Telah Melaksanakan Penelitian ........................ | 191 |
|  | G.4 | Kartu Bimbingan Skripsi ............................................................... | 192 |
| **LAMPIRAN H DOKUMENTASI KEGIATAN** | | |  |
|  | H.1 | Dokumentasi Uji Instrumen Penelitian………………………… | 193 |
|  | H.2 | Dokumentasi Kegiatan Kelas Model Pembelajaran *Problem Based Learning* …………………………………………............. | 194 |
|  | H.3 | Dokumentasi Kegiatan Kelas Model Pembelajaran *Discovery Learning* ……………………………………………………..... | 195 |