

**PENGEMBANGAN ASESMEN E-PORTOFOLIO-PjBL DENGAN  
*DIGITAL BADGES* UNTUK MENILAI KPS PADA TOPIK PEMBUATAN  
SABUN DARI MINYAK JELANTAH**



TESIS

Diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar Magister  
Pendidikan pada Program Studi Pendidikan Kimia

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2025**

**Pengembangan Asesmen E-Portofolio-PjBL dengan *Digital Badges* untuk  
Menilai KPS pada Topik Pembuatan Sabun dari Minyak Jelantah**

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Magister Pendidikan (M.Pd.) pada Fakultas Pendidikan Matematika dan Ilmu  
Pengetahuan Alam

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Tesis ini disusun sebagai salah syarat dalam menyelesaikan studi pada program Magister (S2) dan memperoleh gelar Magister Pendidikan pada Program Studi Pendidikan Kimia dari Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam (FPMIPA) di Universitas Pendidikan Indonesia.

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## ABSTRAK

Penelitian ini bertujuan untuk menghasilkan serta menerapkan asesmen e-portofolio-PjBL dengan *digital badges*. Metode penelitian yang diterapkan yaitu *Design and Development* (DDR) tipe 1, dengan pendekatan *Evidence-Centered Design* (ECD) yang meliputi model siswa, model tugas, dan model bukti. Produk instrumen yang dihasilkan terdiri atas 4 bentuk tugas, yaitu proposal rencana percobaan, video percobaan, artikel ilmiah populer, dan *leaflet*, dengan 6 indikator KPS yang terdiri atas 6 KPS dasar: mengamati, mengkomunikasikan, menafsirkan, memprediksi, mengukur, dan mengklasifikasikan, serta 4 KPS terintegrasi: membuat hipotesis, merencanakan percobaan, melakukan eksperimen, dan menafsirkan data. Instrumen dinyatakan valid (CVI, S-CVI/UA, dan S-CVI/Ave = 1,00), reliabel secara *inte-rater* (koef. ICC = 0,542 – 1,00; Sedang-Sangat Baik), serta sangat praktis (skor kepraktisan 3,80 dari 4,00). Peserta didik memberikan respon positif terhadap penggunaan *Google Classroom* dan *digital badges*. Pemberian umpan balik menunjukkan peningkatan KPS peserta didik, dibuktikan melalui *Wilcoxon signed ranks* ( $p = 0,000$ ;  $p < 0,005$ ), dengan kategori N-Gain bervariasi dari tinggi hingga rendah. Aspek KPS yang paling menonjol pada aspek dasar meliputi mengamati, menafsirkan, mengkomunikasikan, dan memprediksi, sedangkan pada aspek terintegrasi meliputi membuat hipotesis, merencanakan percobaan, melakukan eksperimen dan menafsirkan data. Secara keseluruhan, asesmen e-portofolio-PjBL dengan *digital badges* dapat menilai dan meningkatkan KPS peserta didik, meskipun indikator ‘mengukur’ memerlukan evaluasi lebih lanjut.

**Kata Kunci:** Asesmen E-Portofolio-PjBL, *Evidence-Centered Design*, *Digital Badges*, Keterampilan Proses Sains.

## ABSTRACT

*This study aims to develop and implement an e-portfolio-PjBL assessment with digital badges. This study employed a type 1 of Design and Development Research (DDR) method, with Evidence-Centered Design (ECD) framework, which includes the student model, task model, and evidence model. The instrument product consisted of 4 task types: a proposal, an experiment video, a popular science article, and a leaflet. The science process skills (SPS) indicators comprised 6 basic skills: observing, communicating, interpreting, predicting, measuring, and classifying, and 4 integrated skills: hypothesizing, planning experiments, conducting experiments, and interpreting data. The instrument was found to be valid (CVI, S-CVI/UA, and S-CVI/Ave = 1,00), inter-rater reliable (ICC coefficient of 0,541 – 1,00; moderate-excellent), and very practical (practicality score of 3,80 out of 4,00). Students responded positively to the use of Google Classroom and digital badges. Providing feedback showed a significant improvement in students' SPS, as evidenced by Wilcoxon signed ranks ( $p = 0,000$ ;  $p < 0,05$ ), with N-Gain categories ranging from high to low. The most prominent basic skills were observing, interpreting, communicating, and predicting, while the most prominent integrated skills were hypothesizing, planning experiments, conducting experiments, interpreting data. Overall, the e-portfolio assessment-PjBL with digital badges effectively assessed and enhanced students' SPS, although 'measuring' indicator requires further evaluation.*

**Keywords:** *e-portofolio-PjBL Assessment, Digital Badges, Evidence-Centered-Design, Science Process Skills.*



## DAFTAR ISI

|                                                                        |             |
|------------------------------------------------------------------------|-------------|
| <b>LEMBAR PENGESAHAN .....</b>                                         | <b>ii</b>   |
| <b>PERNYATAAN BEBAS PLAGIARISME .....</b>                              | <b>iii</b>  |
| <b>KATA PENGANTAR.....</b>                                             | <b>v</b>    |
| <b>UCAPAN TERIMA KASIH.....</b>                                        | <b>vi</b>   |
| <b>ABSTRAK .....</b>                                                   | <b>vii</b>  |
| <b>ABSTRACT .....</b>                                                  | <b>viii</b> |
| <b>DAFTAR ISI.....</b>                                                 | <b>ix</b>   |
| <b>DAFTAR TABEL .....</b>                                              | <b>xii</b>  |
| <b>DAFTAR GAMBAR.....</b>                                              | <b>xiv</b>  |
| <b>DAFTAR LAMPIRAN .....</b>                                           | <b>xvi</b>  |
| <b>BAB I PENDAHULUAN.....</b>                                          | <b>1</b>    |
| 1.1. Latar Belakang Penelitian .....                                   | 1           |
| 1.2. Rumusan Masalah Penelitian .....                                  | 5           |
| 1.3. Batasan Masalah Penelitian.....                                   | 6           |
| 1.4. Tujuan Penelitian.....                                            | 7           |
| 1.5. Manfaat Penelitian.....                                           | 7           |
| <b>BAB II TINJAUAN PUSTAKA.....</b>                                    | <b>8</b>    |
| 2.1. Asesmen .....                                                     | 8           |
| 2.2. Asesmen E-Portofolio .....                                        | 13          |
| 2.2.1 Tugas-Tugas ( <i>Tasks</i> ) Asesmen Portofolio.....             | 19          |
| 2.2.2 Penggunaan Platform Google Classroom.....                        | 27          |
| 2.3. Pengembangan Instrumen Asesmen E-Portofolio.....                  | 27          |
| 2.4. <i>Digital Badges</i> .....                                       | 30          |
| 2.5. <i>Evidence Centered Design</i> .....                             | 34          |
| 2.6. Kualitas Instrumen Asesmen E-Portofolio.....                      | 37          |
| 2.6.1 Validitas.....                                                   | 37          |
| 2.6.2 Reliabilitas .....                                               | 43          |
| 2.6.3 Kepraktisan.....                                                 | 45          |
| 2.7. <i>Project Based Learning</i> .....                               | 46          |
| 2.8. Keterampilan Proses Sains (KPS) .....                             | 50          |
| 2.9. Ruang Lingkup Materi .....                                        | 55          |
| 2.10. Penelitian Terdahulu yang Relevan.....                           | 62          |
| <b>BAB III METODE PENELITIAN .....</b>                                 | <b>66</b>   |
| 3.1. Desain Penelitian.....                                            | 66          |
| 3.2. Partisipan dan Tempat Penelitian .....                            | 67          |
| 3.3. Instrumen Penelitian.....                                         | 67          |
| 3.4. Alur dan Prosedur Penelitian.....                                 | 76          |
| 3.4.1 Tahap Analisis Kebutuhan (Studi Pendahuluan).....                | 77          |
| 3.4.2 Tahap Desain dan Pengembangan .....                              | 77          |
| 3.4.3 Tahap Evaluasi .....                                             | 78          |
| 3.4.4 Tahap Implementasi .....                                         | 79          |
| 3.5. Teknik Pengumpulan dan Pengelolaan Data.....                      | 80          |
| 3.6. Analisis Data .....                                               | 81          |
| 3.6.1 Uji Kelayakan Modul Ajar .....                                   | 81          |
| 3.6.2 Uji Validitas Isi dengan CVR, CVI, I-CVI, S-CVI/UA, S-CVI/Ave... | 81          |
| 3.6.3 Uji Reliabilitas.....                                            | 83          |

|                                                                                     |            |
|-------------------------------------------------------------------------------------|------------|
| 3.6.4 Uji Kepraktisan.....                                                          | 85         |
| 3.6.5 Profil KPS Peserta Didik dengan Asesmen E-Portofolio-PjBL .....               | 86         |
| <b>BAB IV TEMUAN PENELITIAN .....</b>                                               | <b>90</b>  |
| 4.1. Studi Pendahuluan Asesmen E-Portofolio-PjBL dengan <i>Digital Badges</i> ..... | 90         |
| 4.1.1 Analisis Capaian Pembelajaran (CP) Fase F Mata Pelajaran Kimia ....           | 90         |
| 4.1.2 Kajian Literatur.....                                                         | 91         |
| 4.1.3 Wawancara Terstruktur .....                                                   | 94         |
| 4.1.4 Optimasi Praktikum.....                                                       | 95         |
| 4.2. Desain dan Pengembangan Asesmen E-Portofolio-PjBL dengan ECD....               | 96         |
| 4.2.1 Model Siswa ( <i>Student Model</i> ) .....                                    | 97         |
| 4.2.2 Model Tugas ( <i>Task Model</i> ).....                                        | 102        |
| 4.2.3 Model Bukti ( <i>Evidence Model</i> ) .....                                   | 104        |
| 4.3. Kualitas Asesmen E-Portofolio-PjBL dengan <i>Digital Badges</i> .....          | 107        |
| 4.3.1 Validitas Isi.....                                                            | 107        |
| 4.3.1.1 Kelayakan Isi Modul Ajar/RPP PjBL .....                                     | 107        |
| 4.3.1.2 Validitas Isi Asesmen E-Portofolio-PjBL .....                               | 111        |
| 4.3.1.3 Validitas Isi <i>Digital Badges</i> .....                                   | 120        |
| 4.3.2 Reliabilitas <i>Inter-rater</i> .....                                         | 121        |
| 4.3.3 Kepraktisan.....                                                              | 124        |
| 4.3.3.1 Aspek Kelayakan Instrumen .....                                             | 125        |
| 4.3.3.2 Aspek Bahasa Instrumen .....                                                | 126        |
| 4.3.3.3 Aspek Keefektifan Penggunaan .....                                          | 128        |
| 4.3.3.4 Aspek Kelemahan.....                                                        | 129        |
| 4.4. Pelaksanaan Asesmen E-Portofolio-PjBL dengan <i>Digital Badges</i> .....       | 131        |
| 4.4.1 Integrasi Asesmen E-Portofolio pada PjBL.....                                 | 131        |
| 4.4.2 Respon Peserta Didik: Penggunaan <i>Google Classrrom</i> .....                | 133        |
| 4.4.3 Respon Peserta Didik: Kelemahan Asesmen E-Portofolio-PjBL.....                | 135        |
| 4.4.4 Respon Peserta Didik: Pengerjaan Tugas berbantuan AI.....                     | 137        |
| 4.5. Peningkatan KPS Asesmen E-Portofolio-PjBL .....                                | 140        |
| 4.5.1 Pemanfaatan Umpan Balik pada <i>Task</i> Asesmen E-Portofolio-PjBL..          | 141        |
| 4.5.1.1 <i>Task 1</i> : Proposal Rencana Percobaan.....                             | 141        |
| 4.5.1.2 <i>Task 2</i> : Video Percobaan .....                                       | 146        |
| 4.5.1.3 <i>Task 3</i> : Artikel Ilmiah Populer .....                                | 151        |
| 4.5.1.4 <i>Task 4: Leaflet</i> .....                                                | 156        |
| 4.5.2 Pemanfaatan Seluruh Komponen Asesmen E-Portofolio-PjBL.....                   | 160        |
| 4.6. Profil KPS Asesmen E-Portofolio-PjBL dengan <i>Digital Badges</i> .....        | 168        |
| <b>BAB V ANALISIS DAN PEMBAHASAN.....</b>                                           | <b>175</b> |
| 5.1. Studi Pendahuluan Asesmen E-Portofolio-PjBL dengan <i>Digital Badges</i> ..... | 175        |
| 5.2. Desain dan Pengembangan Asesmen E-Portofolio-PjBL dengan ECD..                 | 179        |
| 5.2.1 Model Siswa ( <i>Student Model</i> ) .....                                    | 180        |
| 5.2.2 Model Tugas ( <i>Task Model</i> ).....                                        | 182        |
| 5.2.3 Model Bukti ( <i>Evidence Model</i> ) .....                                   | 185        |
| 5.3. Kualitas Asesmen E-Portofolio-PjBL dengan <i>Digital Bagdes</i> .....          | 187        |
| 5.3.1 Validitas Isi.....                                                            | 187        |
| 5.3.1.1 Kelayakan Isi Modul Ajar/RPP PjBL .....                                     | 188        |
| 5.3.1.2 Validitas Isi Asesmen E-Portofolio-PjBL .....                               | 189        |
| 5.3.1.3 Validitas Isi <i>Digital Badges</i> .....                                   | 190        |
| 5.3.2 Reliabilitas <i>Inter-rater</i> .....                                         | 190        |
| 5.3.3 Kepraktisan.....                                                              | 192        |

|                                                                               |            |
|-------------------------------------------------------------------------------|------------|
| 5.4. Pelaksanaan Asesmen E-Portofolio-PjBL dengan <i>Digital Badges</i> ..... | 197        |
| 5.4.1 Integrasi Asesmen E-Portofolio pada PjBL.....                           | 197        |
| 5.4.2 Penggunaan Google Classroom sebagai LMS.....                            | 199        |
| 5.4.3 Kelemahan Penerapan Asesmen E-Portofolio.....                           | 203        |
| 5.4.4 Pengerjaan Tugas berbantuan <i>Artificial Intelligence</i> .....        | 205        |
| 5.5. Peningkatan KPS terhadap Asesmen E-Portofolio-PjBL.....                  | 208        |
| 5.5.1 Pemanfaatan Umpan Balik pada <i>Task</i> Asesmen E-Portofolio-PjBL..    | 208        |
| 5.5.2 Pemanfaatan Seluruh Komponen Asesmen E-Portofolio-PjBL .....            | 211        |
| 5.6. Profil KPS Asesmen E-Portofolio-PjBL dengan <i>Digital Bages</i> .....   | 216        |
| <b>BAB VI SIMPULAN, IMPLIKASI, DAN REKOMENDASI.....</b>                       | <b>220</b> |
| 6.1. Simpulan.....                                                            | 220        |
| 6.2. Implikasi.....                                                           | 220        |
| 6.3. Rekomendasi .....                                                        | 221        |
| <b>DAFTAR PUSTAKA.....</b>                                                    | <b>222</b> |
| <b>LAMPIRAN.....</b>                                                          | <b>241</b> |

## DAFTAR TABEL

| Tabel                                                                        | Halaman |
|------------------------------------------------------------------------------|---------|
| 2. 1 Tabel Minimum CVR dan CVRt, $p=0,05$ .....                              | 39      |
| 2. 2 Metode Pengujian Reliabilitas .....                                     | 43      |
| 2. 3 KPS Dasar dan Terintegrasi .....                                        | 51      |
| 2. 4 Jenis Koloid, Medium Pendispersi, Fase Terdispersi, Contoh Koloid ..... | 56      |
| 3. 1 Instrumen Penelitian.....                                               | 67      |
| 3. 2 Tabel Pedoman Wawancara .....                                           | 69      |
| 3. 3 Instrumen Uji Kelayakan Modul Ajar .....                                | 70      |
| 3. 4 Lembar Uji Validitas Isi <i>Pretest</i> dan <i>Posttest</i> .....       | 71      |
| 3. 5 Lembar Uji Validitas.....                                               | 71      |
| 3. 6 Lembar Uji Validitas <i>Digital Badges</i> .....                        | 72      |
| 3. 7 Tabel Kisi-Kisi Soal Pre-test dan Post-test .....                       | 72      |
| 3. 8 Lembar Penilaian dan Uji Reliabilitas Inter-rater .....                 | 72      |
| 3. 9 Kategori Skala Kuesioner .....                                          | 73      |
| 3. 10 Format Kisi-Kisi Kuesioner Uji Kepraktisan.....                        | 74      |
| 3. 11 Teknik Pengumpulan dan Pengolahan Data .....                           | 80      |
| 3. 12 Persentase Kelayakan Modul Ajar .....                                  | 81      |
| 3. 13 Tabel Minimum CVR dan CVRt, $p=0,05$ .....                             | 82      |
| 3. 14 Kriteria Nilai Cronbach's Alpha (Bhatnagar <i>et al.</i> , 2014) ..... | 84      |
| 3. 15 Kriteria Interpretasi Koefisien ICC (Koo & Li, 2016).....              | 85      |
| 3. 16 Kategori Kepraktisan Instrumen (Widoyoko, 2022).....                   | 86      |
| 3. 17 Kategori Indeks N-Gain (Hake, 1998) .....                              | 88      |
| 3. 16 Kriteria Ketercapaian KPS (Widoyoko, 2022) .....                       | 89      |
| 4. 1 Temuan Hasil Kajian Literatur.....                                      | 91      |
| 4. 2 Hasil Wawancara Terstruktur .....                                       | 94      |
| 4. 3 Hasil Optimasi Praktikum Pembuatan Sabun dari Minyak Jelantah .....     | 95      |
| 4. 4 Langkah Pengembangan Asesmen E-Portofolio-PjBL dengan ECD .....         | 96      |
| 4. 5 TP dan IKTP Materi Koloid.....                                          | 98      |
| 4. 6 Rancangan Langkah-Langkah Asesmen-Modul Ajar/RPP PjBL .....             | 100     |
| 4. 7 Kisi-Kisi Asesmen E-Portofolio-PjBL.....                                | 102     |
| 4. 8 Langkah-langkah Pengembangan Rubrik Penskoran.....                      | 104     |
| 4. 9 Tahapan Pengembangan <i>Digital Badges</i> .....                        | 105     |
| 4. 10 Representasi Visual Digital Badges .....                               | 105     |
| 4. 11 Kelayakan Isi Modul Ajar/RPP PjBL .....                                | 107     |
| 4. 12 Perbaikan Modul Ajar: Format Materi Pendukung.....                     | 108     |
| 4. 13 Perbaikan Modul Ajar: Langkah-Langkah Pembelajaran.....                | 108     |
| 4. 14 Perbaikan Modul Ajar: Bentuk Asesmen.....                              | 109     |
| 4. 15 Perbaikan Modul Ajar: Susunan dan Penggunaan Bahasa .....              | 110     |
| 4. 16 Hasil Uji Validitas Isi Instrumen Asesmen E-Portofolio-PjBL .....      | 112     |
| 4. 17 Perbaikan Indikator <i>Task</i> (Indikator Kombinasi).....             | 113     |

|                                                                            |     |
|----------------------------------------------------------------------------|-----|
| 4. 18 Perbaikan <i>Task</i> (Perintah Tugas) pada Instrumen.....           | 114 |
| 4. 19 Perbaikan Rubrik Penilaian pada Instrumen .....                      | 117 |
| 4. 20 Rekapitulasi Hasil Uji Validitas Isi Digital Badges .....            | 121 |
| 4. 21 Koef. ICC Uji Reliabilitas Inter-rater.....                          | 123 |
| 4. 22 Skor Kepraktisan Instrumen Asesmen E-Portofolio-PjBL .....           | 131 |
| 4. 23 Alur Pelaksanaan Asesmen E-Portofolio-PjBL .....                     | 132 |
| 4. 24 <i>Task 1</i> : Hasil <i>Wilcoxon Signed Ranks</i> .....             | 142 |
| 4. 25 <i>Task 2</i> : Hasil <i>Wilcoxon Signed Ranks</i> .....             | 146 |
| 4. 26 <i>Task 3</i> : Hasil <i>Wilcoxon Signed Ranks</i> .....             | 151 |
| 4. 27 <i>Task 4</i> : Hasil <i>Wilcoxon Signed Ranks</i> .....             | 157 |
| 4. 28 Kisi-kisi soal <i>pretest</i> dan <i>posttest</i> .....              | 161 |
| 4. 29 Hasil <i>Pretest-Posttest: Wilcoxon Signed Ranks</i> .....           | 162 |
| 5. 1 Komponen Utama pada Modul Ajar (Salsabilla <i>et al.</i> , 2023)..... | 181 |

## DAFTAR GAMBAR

| Gambar                                                                                | Halaman |
|---------------------------------------------------------------------------------------|---------|
| 2. 1 Ilustrasi Evaluasi, Asesmen, Pengukuran, dan Tes.....                            | 11      |
| 2. 2 Alur Pelaksanaan Asesmen Lencana Digital .....                                   | 34      |
| 2. 3 Ilustrasi Emulsi .....                                                           | 57      |
| 2. 4 Reaksi Saponifikasi.....                                                         | 59      |
| 2. 5 Struktur Sabun.....                                                              | 60      |
| 2. 6 Sabun Membentuk Misel dalam Air (Wade & Simek, 2020).....                        | 60      |
| 3. 1 Alur Penelitian .....                                                            | 76      |
| 4. 1 Skema Tahapan Model PjBL .....                                                   | 99      |
| 4. 2 Ilustrasi ECD-Pengembangan Asesmen E-Portofolio-PjBL <i>Digital Badges</i> ..... | 106     |
| 4. 3 Lembar Penilaian Rater (Uji Reliabilitas <i>Inter-rater</i> ).....               | 122     |
| 4. 4 Tampilan <i>Google Form</i> Uji Kepraktisan .....                                | 124     |
| 4. 5 Diagram Batang Respon Aspek Kelayakan Instrumen.....                             | 125     |
| 4. 6 Diagram Batang Respon Aspek Bahasa Instrumen .....                               | 127     |
| 4. 7 Diagram Batang Respon Aspek Keefektifan Instrumen .....                          | 128     |
| 4. 8 Diagram Batang Respon Aspek Kelemahan Instrumen.....                             | 130     |
| 4. 9 Respon Peserta Didik: <i>Google Classroom</i> .....                              | 133     |
| 4. 10 Respon Peserta Didik: Kelemahan Asesmen E-Portofolio-PjBL .....                 | 135     |
| 4. 11 Respon Peserta Didik: Pengerjaan Tugas Berbantuan AI.....                       | 138     |
| 4. 12 Contoh Tugas dengan AI: (a) Sebelum, (b) Setelah Perbaikan .....                | 140     |
| 4. 13 Skema Pelaksanaan dan Pemberian Umpan Balik Tugas .....                         | 141     |
| 4. 14 Diagram Batang N-Gain <i>Task 1</i> .....                                       | 143     |
| 4. 15 Perolehan <i>Digital Badges Task 1</i> .....                                    | 144     |
| 4. 16 Contoh hasil <i>task 1</i> proposal rencana percobaan .....                     | 145     |
| 4. 17 Diagram Batang N-Gain <i>Task 2</i> .....                                       | 147     |
| 4. 18 Perolehan <i>Digital Badges Task 2</i> .....                                    | 149     |
| 4. 19 Contoh hasil <i>task 2</i> video percobaan.....                                 | 150     |
| 4. 20 Diagram Batang N-Gain <i>Task 3</i> .....                                       | 152     |
| 4. 21 Perolehan <i>Digital Badges Task 3</i> .....                                    | 153     |
| 4. 22 Contoh hasil <i>task 3</i> artikel ilmiah populer .....                         | 155     |
| 4. 23 Contoh <i>Task 3</i> Artikel Ilmiah Populer pada Media Masa.....                | 156     |
| 4. 24 Diagram Batang N-Gain <i>Task 4</i> .....                                       | 158     |
| 4. 25 Perolehan <i>Digital Badges Task 4</i> .....                                    | 159     |
| 4. 26 Contoh hasil <i>task 4 leaflet</i> .....                                        | 160     |
| 4. 27 Diagram Batang N-Gain <i>Pretest-Posttest</i> .....                             | 163     |
| 4. 28 Skor Rata-Rata <i>Pretest-Posttest</i> (Uji Coba).....                          | 164     |
| 4. 29 Skor Rata-Rata <i>Pretest-Posttest</i> (Implementasi) .....                     | 164     |
| 4. 30 Respon Peserta Didik: Pemahaman dan Motivasi .....                              | 166     |
| 4. 31 Diagram Batang Perolehan KPS <i>Task 1</i> (Uji Coba) .....                     | 168     |
| 4. 32 Diagram Batang Perolehan KPS <i>Task 1</i> (Implementasi) .....                 | 168     |
| 4. 33 Diagram Batang Perolehan Skor KPS <i>Task 2</i> (Uji Coba).....                 | 170     |

|                                                                                      |     |
|--------------------------------------------------------------------------------------|-----|
| 4. 34 Diagram Batang Perolehan KPS <i>Task 2</i> (Implementasi) .....                | 170 |
| 4. 35 Diagram Batang Perolehan KPS <i>Task 3</i> (Uji Coba) .....                    | 171 |
| 4. 36 Diagram Batang Perolehan KPS <i>Task 3</i> (Implementasi) .....                | 172 |
| 4. 37 Diagram Batang Perolehan KPS <i>Task 4</i> (Uji Coba) .....                    | 173 |
| 4. 38 Diagram Batang Perolehan KPS <i>Task 4</i> (Implementasi) .....                | 174 |
| 5. 1 Tampilan antar muka <i>Google Classroom</i> .....                               | 200 |
| 5. 2 Penyampaian Informasi pada <i>Google Classroom</i> .....                        | 200 |
| 5. 3 Penyusunan <i>Task</i> pada Fitur <i>Assignment</i> .....                       | 201 |
| 5. 4 Penggunaan Rubrik Penskoran pada <i>Task Google Classroom</i> .....             | 201 |
| 5. 5 Proses Penilaian <i>Task</i> Peserta Didik dengan <i>Google Classroom</i> ..... | 202 |
| 5. 6 Umpan Balik pada Kolom Komentar <i>Google Classroom</i> .....                   | 202 |
| 5. 7 Pemberian <i>Digital Badges</i> pada <i>Google Classroom</i> .....              | 203 |

## DAFTAR LAMPIRAN

| Lampiran                                                                      | Halaman |
|-------------------------------------------------------------------------------|---------|
| 1. Pedoman dan Hasil Wawancara (Guru).....                                    | 241     |
| 2. Hasil Optimasi 1.....                                                      | 244     |
| 3. Hasil Optimasi 2 (Final).....                                              | 247     |
| 4. Hasil Uji Kelayakan Modul Ajar/RPP .....                                   | 250     |
| 5. Modul Ajar PjBL Sabun dari Minyak Jelantah (Final).....                    | 255     |
| 6. Hasil Uji Validitas Isi Soal Pretest-Posttest .....                        | 279     |
| 7. Hasil Uji Reliabilitas Internal Soal <i>Pretest-Posttest</i> .....         | 290     |
| 8. Soal <i>Pretest</i> dan <i>Posstest</i> (Final) .....                      | 292     |
| 9. Hasil Uji Validitas Isi Instrumen Asesmen E-Portofolio-PjBL .....          | 301     |
| 10. Instrumen Asesmen E-Portofolio-PjBL (Final) .....                         | 325     |
| 11. Hasil Uji Reliabilitas <i>Inter-rater</i> Asesmen E-Portofolio-PjBL ..... | 348     |
| 12. Hasil Uji Validitas Isi <i>Digital Badges</i> .....                       | 365     |
| 13. Rekapitulasi Uji Kepraktisan .....                                        | 371     |
| 14. Panduan Proyek dan <i>Task</i> Peserta Didik.....                         | 375     |
| 15. Skor <i>Task</i> E-Portofolio-PjBL (Uji Coba).....                        | 382     |
| 16. N-Gain dan Wilcoxon E-Portofolio (Uji Coba).....                          | 390     |
| 17. Skor <i>Task</i> E-Portofolio-PjBL (Implementasi) .....                   | 398     |
| 18. N-Gain dan Wilcoxon E-Portofolio (Implementasi).....                      | 409     |
| 19. Skor <i>Pretest</i> dan <i>Posttest</i> KPS (Uji Coba).....               | 417     |
| 20. N-Gain dan Wilcoxon <i>Pretest-Posttest</i> (Uji Coba).....               | 419     |
| 21. Skor <i>Pretest</i> dan <i>Posttest</i> KPS (Implementasi).....           | 421     |
| 22. N-Gain dan Wilcoxon <i>Pretest-Posttest</i> (Implementasi) .....          | 424     |
| 23. Hasil Kusioner Respon Peserta Didik .....                                 | 426     |
| 24. Berbagai Surat Penelitian .....                                           | 428     |
| 25. Dokumentasi .....                                                         | 432     |



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