**Lampiran 11**

**HASIL ANALISIS STATISTIK INFERENSIAL *POSTTEST* KELAS EKSPERIMEN DAN KELAS KONTROL**

1. **UJI MANUAL NORMALITAS**
2. ***Posttest* KelasKontrol**

$$X^{2}=∑\frac{(Oi-Ei)^{2}}{Ei}$$

$\overline{X}$ (Rata-rata) = 79,20

Sd (Standar deviasai) = 7,59387

K (Interval kelas) = 1+3,3 log(n)

 = 1+3,3 log (25)

 = 1+4,61

 = 5,61 (6)

R (Range) = 90 – 65

 = 25

P (Panjang kelas) = $\frac{Rentang}{Banyak kels}$ = $\frac{R}{K}$

 = $\frac{25}{6}$

 = 4,16

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| KelasInterval | BatasKelas | ZbatasKelas | Luas Ztabel | Ei | Oi | $$\frac{(Oi-Ei)^{2}}{Ei}$$ |
|  | 64,5 | -1,9357 |  |  |  |  |
| 65 - 69 |  |  | 0,0741 | 1,8525 | 2 | 0,0117 |
|  | 69,5 | -1,2773 |  |  |  |  |
| 70 - 74 |  |  | 0,0548 | 1,37 | 3 | 1,9393 |
|  | 74,5 | -0,6189 |  |  |  |  |
| 75 - 79 |  |  | 0,6145 | 15,3625 | 5 | 6,9898 |
|  | 79,5 | 0,0395 |  |  |  |  |
| 80 – 84 |  |  | 0,098 | 2,45 | 6 | 5,1438 |
|  | 84,5 | 0,6979 |  |  |  |  |
| 85- 89 |  |  | 0,1551 | 3,8775 | 5 | 0,3249 |
|  | 89,5 | 1,3563 |  |  |  |  |
| 99 - 94 |  |  | 0,0647 | 1,6175 | 4 | 3,5093 |
|  | 94,5 | 2,0147 |  |  |  |  |
| $$X^{2}=∑\frac{(Oi-Ei)^{2}}{Ei}$$ | 17,9188 |

Jika $X\_{hitung}^{2}<X\_{tabel}^{2}$ maka data berdistribusi normal.

$X\_{hitung}^{2}$17,9188$<X\_{tabel}^{2}$ 37,652, data *pretest* kelas kontrol yang di peroleh berdistribusi normal.

1. ***Posttest*KelasEksperimen**

$$X^{2}=∑\frac{(Oi-Ei)^{2}}{Ei}$$

$\overline{X}$ (Rata-rata) = 85,40

Sd (Standar deviasai) = 9,88686

K (Interval kelas) = 1+3,3 log(n)

 = 1+3,3 log (25)

 = 1+4,61

 = 5,61 (6)

R (Range) = 100 – 70

 = 30

P (Panjang kelas) = $\frac{Rentang}{Banyak kels}$ = $\frac{R}{K}$

 = $\frac{30}{6}$

 = 5

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| KelasInterval | BatasKelas | ZbatasKelas | Luas Ztabel | Ei | Oi | $$\frac{(Oi-Ei)^{2}}{Ei}$$ |
|  | 69,5 | -1,6081 |  |  |  |  |
| 70 - 75 |  |  | 0,102 | 2,55 | 6 | 4,6676 |
|  | 75,5 | -1,0013 |  |  |  |  |
| 76 - 81 |  |  | 0,1896 | 4,74 | 5 | 0,0142 |
|  | 81,5 | -0,3944 |  |  |  |  |
| 82 - 87 |  |  | 0,5386 | 13,465 | 3 | 8,1333 |
|  | 87,5 | 0,2124 |  |  |  |  |
| 88 - 93 |  |  | 0,093 | 2,325 | 3 | 0,1959 |
|  | 93,5 | 0,8192 |  |  |  |  |
| 94 - 99 |  |  | 0,1279 | 3,2425 | 5 | 0,9525 |
|  | 99,5 | 1,4261 |  |  |  |  |
|  100 -105 |  |  | 0,0552 | 1,38 | 3 | 1,9017 |
|  | 105,5 | 2,033 |  |  |  |  |
| $$X^{2}=∑\frac{(Oi-Ei)^{2}}{Ei}$$ | 15,8553 |

Jika$ X\_{hitung}^{2}<X\_{tabel}^{2}$ maka data berdistribusi normal.

$X\_{hitung}^{2}$15,8553$<X\_{tabel}^{2}$ 37,652, data *pretest* kelas kontrol yang di peroleh berdistribusi normal.

Sumber (Sundaya, 2015)

1. **UJI MANUAL HIPOTESIS**
2. ***UjiManual Independent Sample t-Test Posttest* Kelas Eksperimen dan Kelas Kontrol**

thitung =$\frac{\overbar{x}\_{1- }\overbar{x}\_{2 }}{\sqrt{\frac{(n\_{1}-1)S\_{1}^{2}+ (n\_{2}-1 )S\_{2}^{2}}{n\_{1}+ n\_{2}-2}}} . \frac{1}{\sqrt{\left(\frac{1}{n\_{1}}+\frac{1}{n\_{2}}\right)}}$

thitung =$\frac{84,40-79,20}{\sqrt{\frac{\left(25-1\right) . (9,88686)^{2}+ \left(25-1 \right). (7,59386)^{2}}{25+ 25-2}}} . \frac{1}{\sqrt{\left(\frac{1}{25}+\frac{1}{25}\right)}}$

thitung =$\frac{6,2}{\sqrt{\frac{24. 97,750+ 24.57,667}{25+25-2}}} . \frac{1}{\sqrt{\left(0,04+0,04\right)}}$

thitung =$\frac{6,2}{\sqrt{\frac{2.346+ 1.384,008}{48}}} . \frac{1}{\sqrt{0,08}}$

thitung =$\frac{6,2}{\sqrt{\frac{3.730,008}{48}}} . \frac{1}{\sqrt{0,08}}$

thitung =$\frac{6,2}{\sqrt{77,7085}} . \frac{1}{\sqrt{0,08}}$

thitung =$\frac{6,2}{8,8152} . \frac{1}{0,2828}$

thitung =$0,7033 . 3,5360$

thitung =$2,4868$

jika$T\_{hitung}>T\_{tabel }$ maka data tersebut terdapat pengaruh.

$T\_{hitung}2,4868>T\_{tabel }$2,1016, maka data *posttest* kelas eksperimen dan kelas kontrol terdapat pengaruh.

( Utsman, 2015: 153 )