

Appendix 6

Reliability of the Try Out of Test Formula

1. First, using Pearson Product Moment Correlation, we should find the coefficient correlation between odd and even number of the items.

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

Where:

r_{xy} : coefficient of reliability between odd and even numbers items

x : odd number

y : even number

$\sum x^2$: total score of odd number items

$\sum y^2$: total score of even number items

$\sum xy$: total score of odd and even number

So:

$$r_{xy} = \dots?$$

$$\sum x^2 = 3348$$

$$\sum y^2 = 4473$$

$$\sum xy = 3776$$

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

$$r_{xy} = \frac{3776}{\sqrt{(3348)(4473)}}$$

$$r_{xy} = \frac{3776}{\sqrt{14975604}}$$

$$r_{xy} = \frac{3776}{3869.832}$$

$$r_{xy} = 0.975$$

2. Second, after we get the coefficient correlation between odd and even number, we continue to put them into the Spearman Brown's Prophecy Formula.

The Spearman Brown's Prophecy Formula is below:

$$r_k = \frac{2 r_{xy}}{1 + r_{xy}}$$

Where:

r_k : the reliability of the whole tests

r_{xy} : the reliability of half test

$$r_k = \frac{2 \times 0.975}{1 + 0.975}$$

$$r_k = \frac{1.95}{1.975}$$

$$r_k = 0.987$$