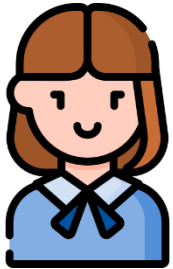


# Predicting Undergraduates' Satisfaction of E-Learning in a Pandemic Situation in Sri Lanka

Undergraduate Population in Sri Lanka  
More than 88000 (2017)

40%

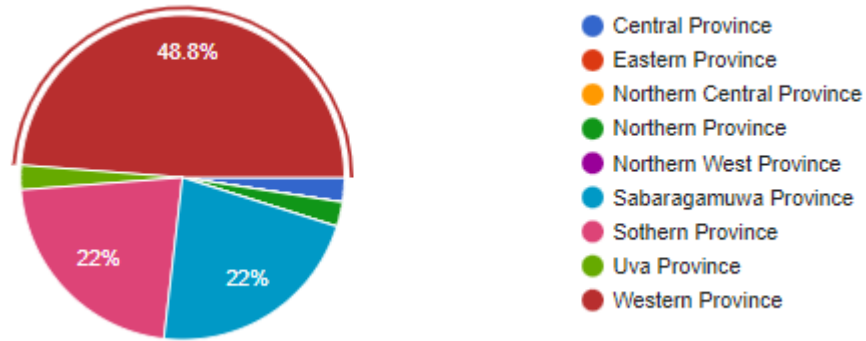


60%

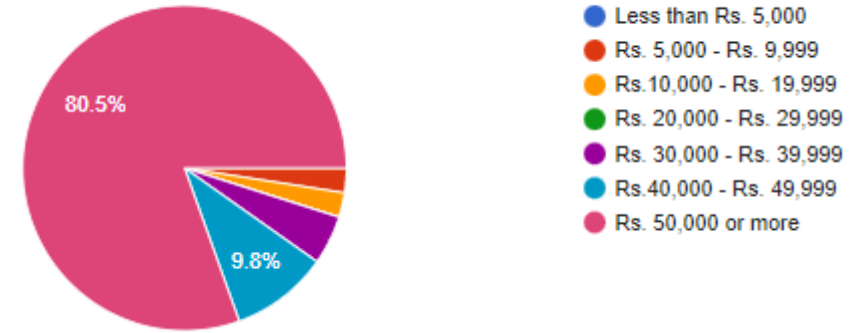


42 Student Sample

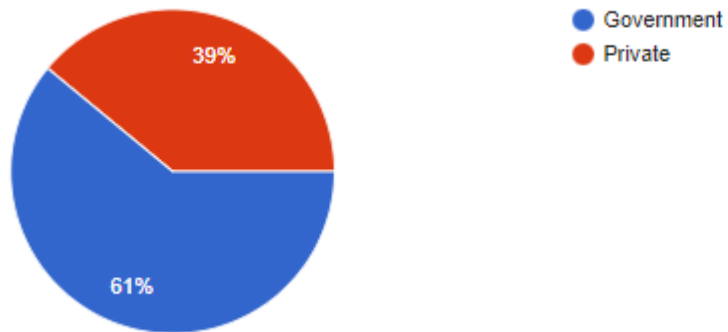
# Demographic details of the Study



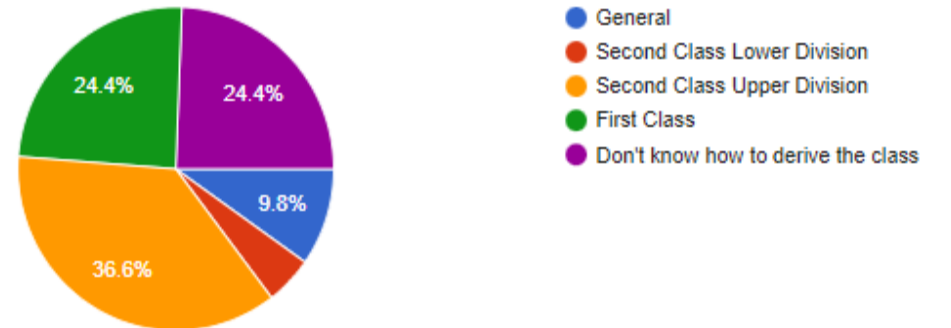
Provincial Participation



Monthly Income Analysis

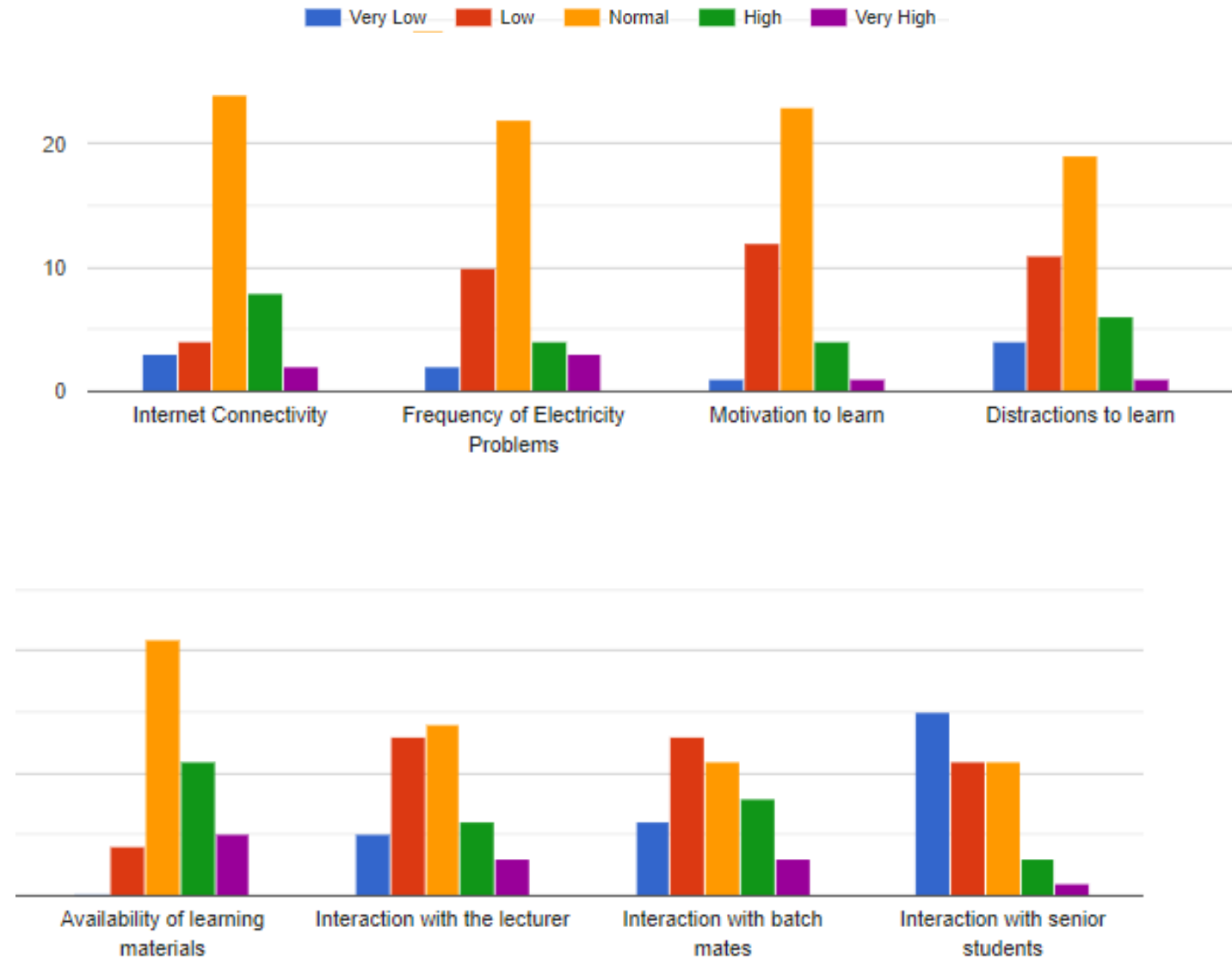


University Type

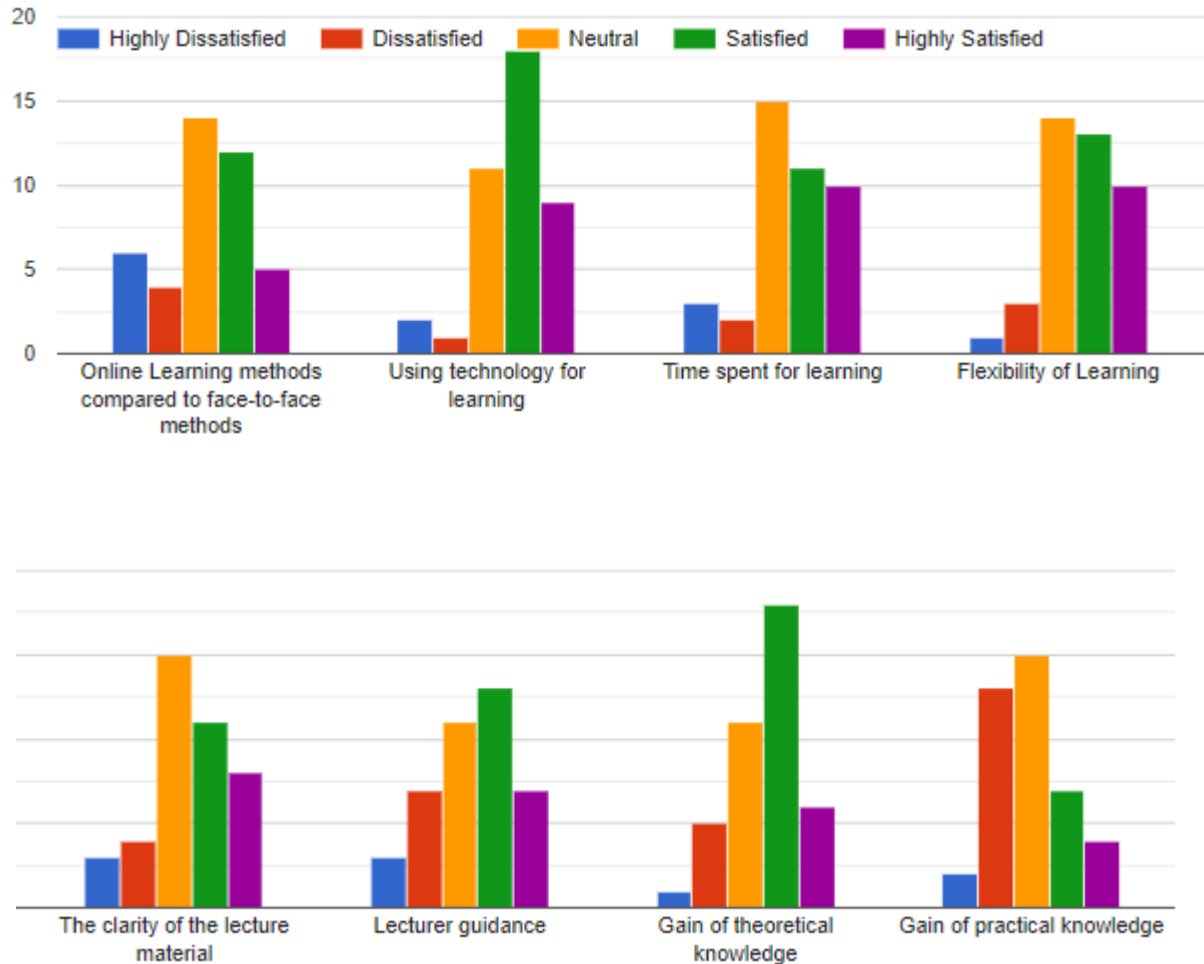


Currently obtained Class Details

# Conditions that students are facing



# Satisfaction of students in Different Aspects



# Different Relationship Testing

- Ho : There is no significant relationship between the peer interactions with the satisfaction of gain of knowledge.
- Ha : There is a significant relationship between the peer interactions with the satisfaction of gain of knowledge.

| Observed Frequencies  |               |                     |                  |         |           |             |
|-----------------------|---------------|---------------------|------------------|---------|-----------|-------------|
| Count of Interactions | Column Labels |                     |                  |         |           |             |
| Row Labels            | Dissatisfied  | Highly Dissatisfied | Highly Satisfied | Neutral | Satisfied | Grand Total |
| High                  |               |                     |                  | 3       | 1         | 4           |
| Low                   | 2             |                     |                  | 1       | 3         | 7           |
| Normal                | 2             |                     |                  | 1       | 4         | 5           |
| Very High             |               |                     |                  | 1       | 1         | 1           |
| Very Low              | 1             | 1                   |                  |         | 2         | 2           |
| Grand Total           | 5             | 1                   | 6                | 11      | 19        | 42          |
| Expected Frequencies  |               |                     |                  |         |           |             |
| Row Labels            | Dissatisfied  | Highly Dissatisfied | Highly Satisfied | Neutral | Satisfied | Grand Total |
| High                  | 0.952380952   | 0.19047619          | 1.142857143      | 2.09524 | 3.619048  | 8           |
| Low                   | 1.547619048   | 0.30952381          | 1.857142857      | 3.40476 | 5.880952  | 13          |
| Normal                | 1.428571429   | 0.285714286         | 1.714285714      | 3.14286 | 5.428571  | 12          |
| Very High             | 0.357142857   | 0.071428571         | 0.428571429      | 0.78571 | 1.357143  | 3           |
| Very Low              | 0.714285714   | 0.142857143         | 0.857142857      | 1.57143 | 2.714286  | 6           |
| Grand Total           | 5             | 1                   | 6                | 11      | 19        | 42          |
| Chi-Square            | 0.765064694   |                     |                  |         |           |             |

## Chi-Square Test Statistic

$$\chi^2 = \sum \frac{(\text{Observed} - \text{Expected})^2}{\text{Expected}}$$

## Expected Cell Value

$$E = \frac{\text{row total} \times \text{column total}}{n}$$

As P value is > 0.05

**We cannot Reject Ho.**

There is no statistically significant relationship between the peer interactions with interactions with the satisfaction of gain of knowledge.

# Different Relationship Testing

- $H_0$  : There is no significant relationship between the University type with the availability of learning materials.
- $H_a$  : There is a significant relationship between the University type with the availability of learning materials.

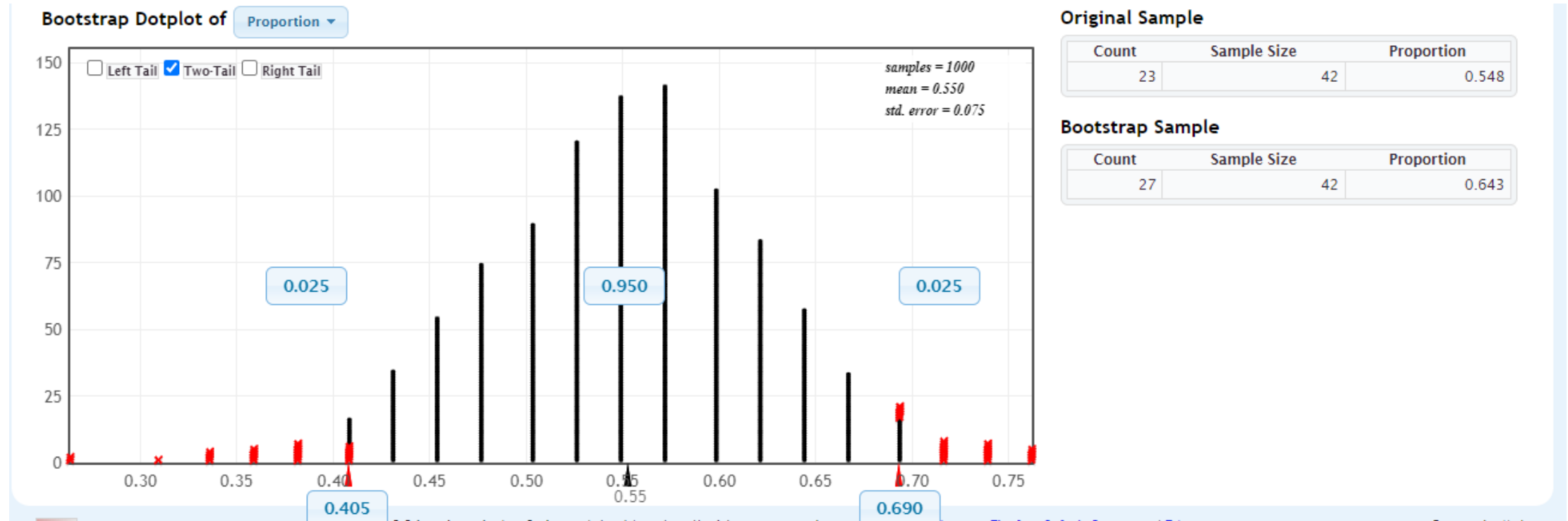
| Count of University Category |             | Column Labels |        |           |             |
|------------------------------|-------------|---------------|--------|-----------|-------------|
| Row Labels                   | High        | Low           | Normal | Very High | Grand Total |
| Government                   | 9           | 2             | 11     | 4         | 26          |
| Private                      | 2           | 3             | 10     | 1         | 16          |
| Grand Total                  | 11          | 5             | 21     | 5         | 42          |
|                              |             |               |        |           |             |
| Row Labels                   | High        | Low           | Normal | Very High | Grand Total |
| Government                   | 6.80952381  | 3.1           | 13     | 3.095238  | 26          |
| Private                      | 4.19047619  | 1.9           | 8      | 1.904762  | 16          |
| Grand Total                  | 11          | 5             | 21     | 5         | 42          |
|                              |             |               |        |           |             |
| Chi Square Test              | 0.224288234 |               |        |           |             |

As P value is  $> 0.05$

**We cannot Reject  $H_0$ .**

There is no statistically significant relationship between the University type with the availability of learning materials.

# Bootstrap Distribution



I'm 95% confident that 40.5% to 69% undergraduates are satisfied with lecturer guidance in e-learning under the pandemic situation



# Hypothesis Testing

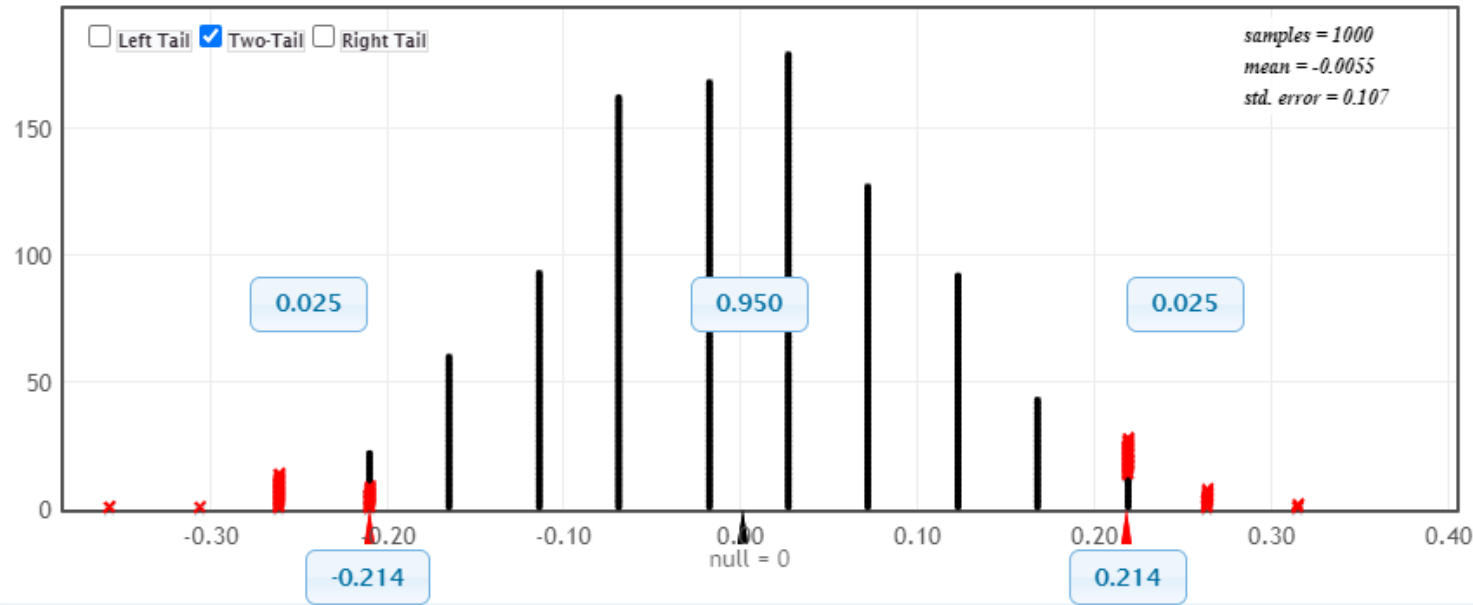
Is the dissatisfaction of lecturer guidance caused by the level of interaction with the lectures as per this study?

- $p_g$  - proportion of students who are dissatisfied with lecturer guidance.
- $p_i$  - proportion of students who are having less interaction with lecturers
- $H_0 : p_g = p_i$
- $H_a : p_g \neq p_i$

$$p_g = 0.238$$

$$p_i = 0.452$$

# Randomization Dotplot of $\hat{p}_1 - \hat{p}_2$ Null Hypothesis: $p_1 = p_2$



## Original Sample

| Group           | Count | Sample Size | Proportion |
|-----------------|-------|-------------|------------|
| Group 1         | 10    | 42          | 0.238      |
| Group 2         | 19    | 42          | 0.452      |
| Group 1-Group 2 | -9    | n/a         | -0.214     |

## Randomization Sample

| Group           | Count | Sample Size | Proportion |
|-----------------|-------|-------------|------------|
| Group 1         | 20    | 42          | 0.476      |
| Group 2         | 9     | 42          | 0.214      |
| Group 1-Group 2 | 11    | n/a         | 0.262      |

Therefore , dissatisfaction of lecturer guidance is not caused by the level of interaction with the lectures as per this study.

As P value is equal  
to 0.05  
We can Reject Ho.

# Conclusions

- According to this study
  - The satisfaction of gain of knowledge does not depend on the peer interactions
  - The availability of learning materials does not depend on university type
  - Also there is no causation found between the satisfaction of lecturer guidance and the level of interaction with the lecturer.
- As this sample is not a true representation of random sample, we cannot strictly apply the findings to population.

Thank You