

“Education for Knowledge, Science and Culture”

-Shikhanmaharshi Dr. Bapuji Salunkhe



**VIVEKANAND COLLEGE, KOLHAPUR (Autonomous)**

**DEPARTMENT OF STATISTICS**

**A PROJECT REPORT**

**on**

**“STATISTICAL STUDY OF IMPACT OF ONLINE TEACHING ON  
GRADUATE STUDENTS”**

*Submitted by*

**Mr. Kedar S. Kumthekar**

**Mr. Santosh A. Gurav**

**Mr. Uditanshu S. Prabhavale**

**Mr. Siddesh R. Lohar**

**Mr. Yogiraj R. Killedar**

*in partial fulfillment for the award of*

*the degree of*

**BACHELOR OF SCIENCE**

*in*

**STATISTICS**

**2021-22**

“Education for Knowledge, Science and Culture”

-Shikhanmaharshi Dr. Bapuji Salunkhe



(स्वायत्त) कोलहापूर

**VIVEKANAND COLLEGE, KOLHAPUR(Autonomous)**  
**DEPARTMENT OF STATISTICS**

## Certificate

This is to Certify that,

Sr. No.	Name	Roll No.
1	Mr. Kedar S. Kumthekar	7919
2	Mr. Santosh A. Gurav	7906
3	Mr. Uditanshu S. Prabhavale	7928
4	Mr. Siddesh R. Lohar	7920
5	Mr. Yogiraj R. Killedar	7916

Have satisfactorily completed the project work on “STATISTICAL STUDY OF IMPACT OF ONLINE TEACHING ON GRADUATE STUDENTS” as a part of the skill enhancement course for B.Sc. III, prescribed by the Department of Statistics, *Vivekanand College, Kolhapur (Autonomous)*, in the academic year 2021-22.

This project has been completed under our guidance and supervision. To the best of our knowledge and belief, the matter presented in this project report is original and has not been submitted elsewhere for any other purpose.

  
**Project Guide**

(Mr. A. B. Bhosale)

  
**Examiner**

  
**Head**

(Ms. Pawar V. V.)  
**HEAD**  
DEPARTMENT OF STATISTICS  
VIVEKANAND COLLEGE, KOLHAPUR  
(EMPOWERED AUTONOMOUS)



## ACKNOWLEDGEMENT

We take great pleasure in submitting this project report on “**IMPACT OF ONLINE TEACHING ON GRADUATE STUDENT**”. It is our foremost duty to express our deep sense of gratitude and respect to the supervisor **Asst. Prof. A.B. BHOSALE** for their up-lifting tendency and inspiring us for making of this project work complete and successful. We are indebted to the library personal for offering all the help in completing the project work. Last but not the least we are thankful to our colleagues and those helped us directly or indirectly throughout this project work.

Sincerely,

Project Team

## DECLARATION

We undersigned, hereby declare that the project report entitled “**Impact of online teaching on graduation students by Statistical Method**” Written and submitted to **Vivekanand college, Kolhapur** partial fulfilment of B.Sc. III(Statistics) under the guidance of **Asst.Prof. A.B.Bhosale Sir** are our original work. The empirical results in this project are based on the data collected by ourselves.

We understand that any copying is liable to be published as the authorities deem fit.

**Date:**

**Place: Kolhapur**

- 1) **Mr. Siddhesh Ravindra Lohar**
- 2) **Mr. Kedar Sanjay Kumathekar**
- 3) **Mr. Santosh Ananda Gurav**
- 4) **Mr. Uditanshu Sarang Prabhavale**
- 5) **Mr. Yogiraj Rajendra Killedar**

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## INTRODUCTION



The reason for this investigation was to lead an online study as respective instructors and understudy's perception and experience identified with online classes. Conveyance of classes with the assistance of online mixed mode has been a new adjustment brought out by the instruction framework in Kolhapur District. The wake of the current COVID - 19 condition. Subsequently, this review portrays the college students studying at graduation level.

The study involving 297 undergraduate students of colleges around Kolhapur city. Online review framework was utilized with the end goal of information gathering since the coronavirus outbreak, online classes have become the corner stone of modern higher education. While most universities, colleges or other educational institutions have made the complete transition to online teaching, teachers are still struggling with ways to engage students online.

During pandemic situations, studies were run online by the colleges and universities, but the situation for the students as well as for the teachers was new & undeveloped. So, the setups for the online learning were weak that caused various problems for students as well as for teachers. Such as network problems, lack of discipline, lack of concentration, lack of interaction between students and teachers and etc.

So, we are setting up a survey for getting the view of students on online education system as well as on offline education system. By taking some number of questions regarding their education systems run by colleges.

## **AIM & OBJECTIVES**

### **AIM:**

**Analysis of impact of online teaching on graduation students by statistical method.**

### **OBJECTIVES:**

- ▶ To study which method is suitable for student's i.e. Online V/s Offline.
- ▶ To check the dependency of starting online education in urban and rural area, before and after pandemic situation
- ▶ To check whether there is any network problem faced by students in urban and rural area.

## METHODOLOGY

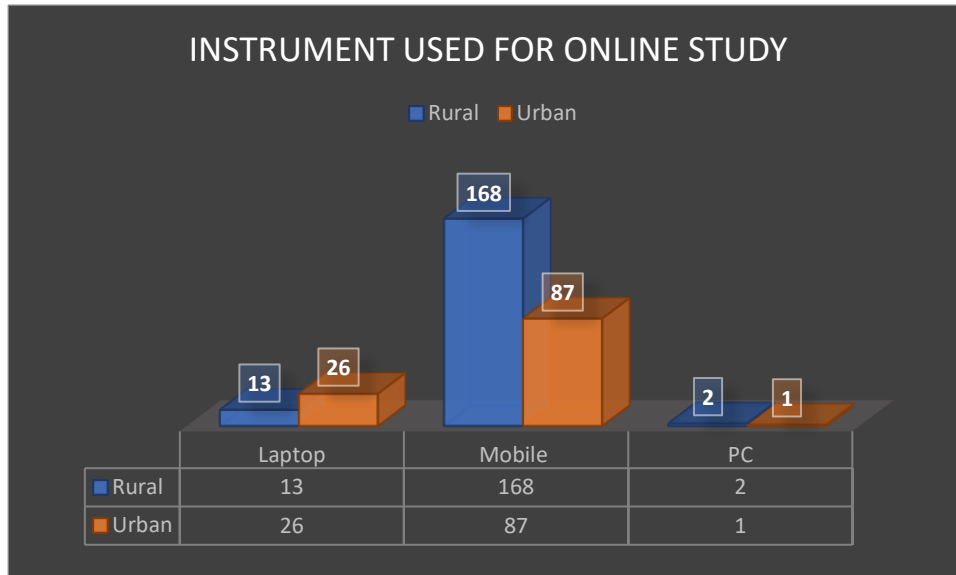
We carried out the questionnaire survey as from 26<sup>th</sup> of February until 10<sup>th</sup> of May 2022. The questionnaires were distributed among 297 students all of them did it on google form as of online survey, the questionnaire was distributed among the students around Kolhapur city studying at graduation level.

For our project, first we created a set of questions and created a google form of it. We have collected data using Simple random sampling without replacement. And we send it to many students through WhatsApp, telegram, Instagram, mail, messages & we also had live interaction with students to collect the data. And we also set a data limit, after reaching the limit / requirement of data we stopped data collection. After data collection we have taken data from google form to excel sheet, and in excel for representation of data we used pivot table and for conclusion we use statistical tools & various test.



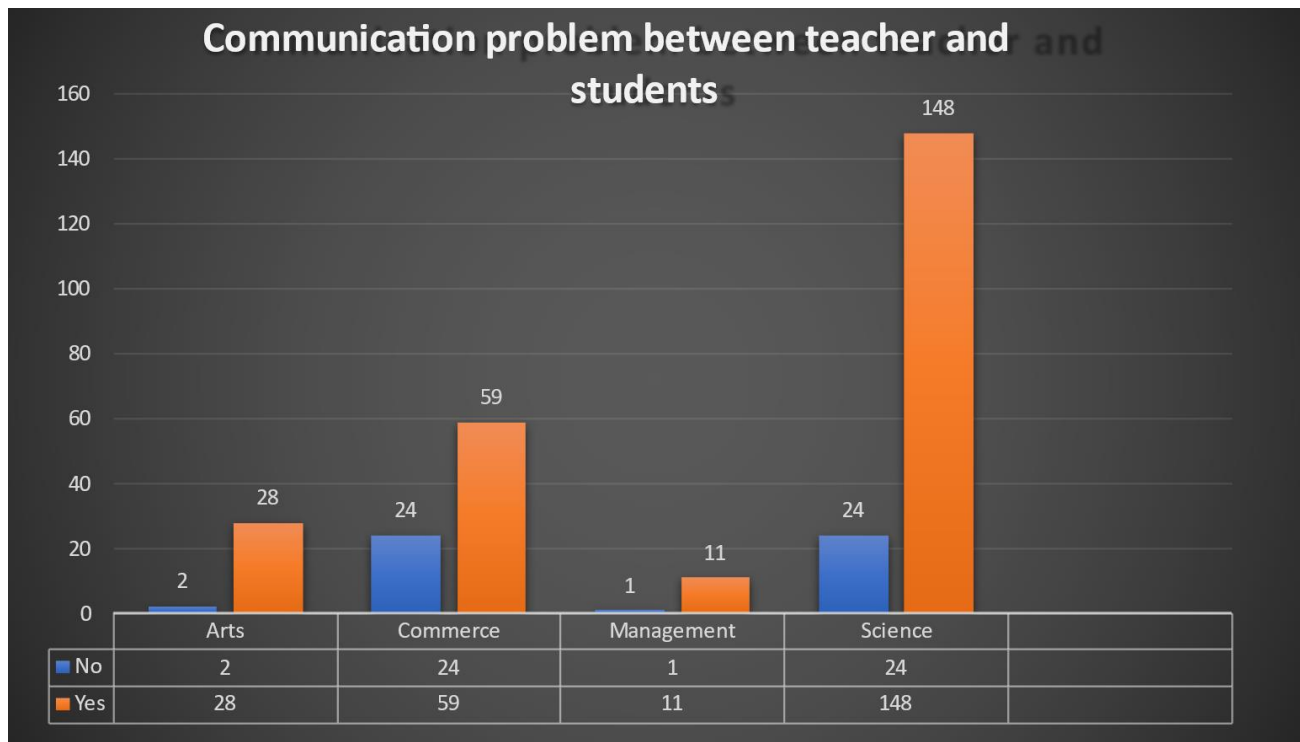
## GRAPHICAL REPRESENTATION

1.Bar graph showing count of various instruments used for online lecture compared with area



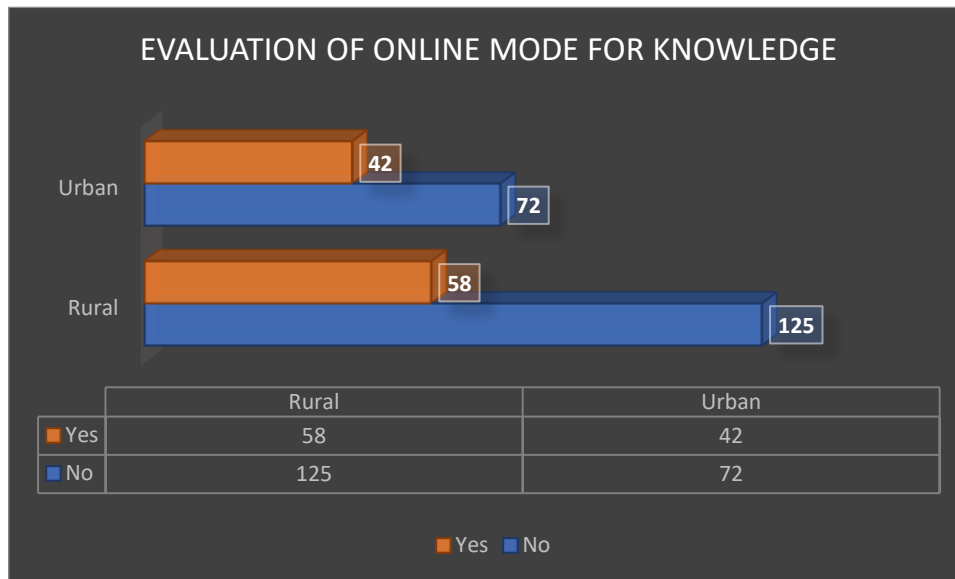
**Conclusion:** From the Bar graph we conclude that most of the students use mobiles for online study as compare to laptop & PC.

2. Bar diagram showing that there was a communication problem between teachers and students during online teaching



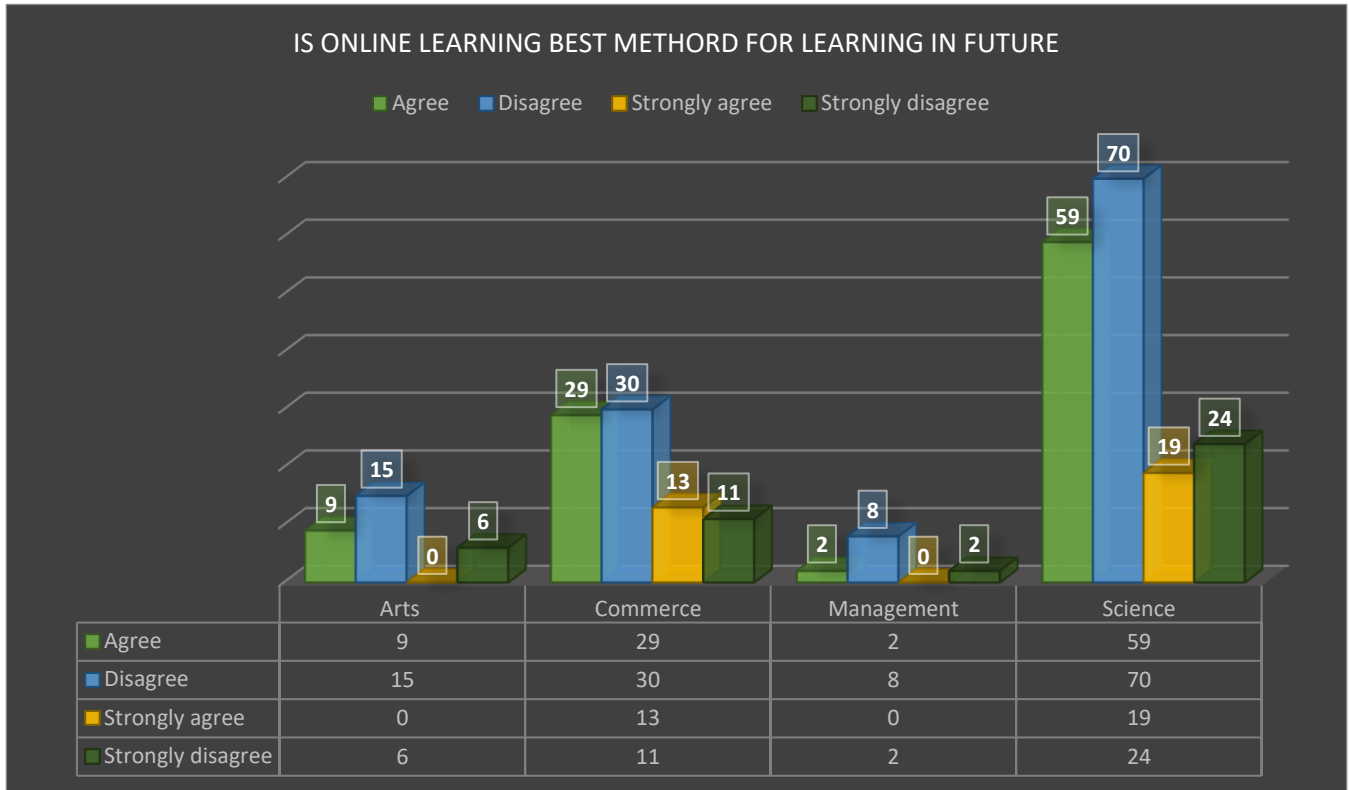
**Conclusion:** From above graph, we conclude that most of the students are facing communication problem between teacher & students.

### 3. Bar graph of online evaluation mode for knowledge evaluation



**Conclusion:** From above graph both areas students said that the method of online teaching is not good for knowledge evaluation.

#### 4. Faculty wise bar graph of mode for learning in future



**Conclusion: We conclude that most of the faculty students disagree with method of online learning in future**

## STATISTICAL ANALYSIS

### 1. Chi square test of attributes in case of 2\*2 contingency table

**Hypothesis:**

H<sub>0</sub>: There is no significant difference between urban and rural area, before and after pandemic for online study.

H<sub>1</sub>: There is significant difference between urban and rural area, before and after pandemic for online study.

$\alpha$  = Level of significance = 5%

**Formula :**

$$\chi^2 = \frac{N(ad-bc)^2}{(a+b)(a+c)(c+b)(b+d)} \sim \chi_{d.f}^2$$

Table:

Area Period	Rural	Urban	Total
After	132	94	226
Before	51	20	71
Total	183	114	N=297

Here,

a= No of students starting online study after pandemic = 226

b= No of students starting online study before pandemic = 71

c= No of students starting online study in rural area = 183

d= No of students starting online study in urban area = 114

N=Population size=297

$$\chi^2 = 7.25868$$

$$\text{Critical value} = \chi^2_{1,0.05} = 3.841$$

$$P \text{ value} = 0.007056$$

The result is significant at  $p < 0.05$

i.e chi-square calculated is greater than chi-square tabulated at 1 d.f. at 5% level of significance.

Then we reject  $H_0$

**Conclusion:** There is dependency between urban and rural area, before and after pandemic for online study.

## 2. Test for Proportion

### Hypothesis:

$H_0$ : There is no significant difference in the proportion of students of rural area and urban area facing network problem

$H_1$ : There is significant difference in the proportion of students of rural area and urban area facing network problem

### For 1<sup>st</sup> Sample :

$n_1$  = no of students in rural area = 183

$x_1$  = students facing network problem in rural area = 111

$p_1$  = proportion of students facing network problems in rural area =  $x_1/n_1$

### For 2<sup>nd</sup> Sample :

$n_2$  = no of students in urban area = 114

$x_2$  = students facing network problem in urban area = 59

$p_2$  = proportion of students facing network problems in urban area =  $x_2/n_2$

By using R software

$p_1 = 0.6065574$

$p_2 = 0.5175439$

$p_1 > p_2$

**Conclusion :** By proportion test we conclude that students in rural area mostly face network problem than students in urban area

Q). Would you buy new accessories for online studies?

**Hypothesis:**

$H_0$ : Proportion of persons buying new accessories during pandemic is 0.5

$H_1$ : Proportion of persons buying new accessories during pandemic is different from 0.5

**Observation table**

buying new accessories	Frequency	Probability
No	140	0.4714
Yes	157	0.5286
Total	297	1

We assume that  $p_0=0.5$

Using test statistic

$$|Z| = \frac{|P - P_0|}{\sqrt{\frac{P_0Q_0}{n}}}$$

$$|z| = 0.9872$$

$$z_{\frac{\alpha}{2}} = 1.96$$

P value is 0.323545

The result is not significant at  $p < 0.05$

$\therefore$  Proportion of persons buying new accessories during pandemic is 0.5

**Conclusion:** Proportion of persons buying new accessories during pandemic is 0.5



## CONCLUSION

1. Students prefer offline learning as compared to online learning.
2. There is significant difference between urban and rural area for online study before and after pandemic situations.
3. Students in rural area mostly face network problems than students in urban area.
4. Students haven't bought new accessories for online learning during pandemic.

Therefore, we conclude that offline learning is better than online learning

IMPACT OF ONLINE LEARNING

## BIBLIOGRAPHY

### Method of data collection:

For the project work we have collected primary data from the students of different or various streams (Arts, Commerce, Science)

### Statistical tools used:

Graphical representation

Theory of attributes

Testing of hypothesis

### Software used:

MS-EXCEL

R-Software

### References books used:

R for everyone by Jared. P. Lander

Introduction of R by Ross Ihaka & Robert Gentleman

Fundamental of mathematical Statistics by S. C. Gupta & V. K. Kapoor

Fundamental of Applied statistics

Programmed Statistics by B. L. Agarwal

Google