

A STUDY OF ACADAMIC CONSISTENCY OF UG STUDENTS BASED ON STATISTICAL TOOLS AND TECHNIQUES

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Abstract: Identifying the factors that influence academic performance is an essential part of educational research. Previous studies have documented the importance of personality traits, class attendance, and social network structure. Because most of these analyses were based on a single behavioral aspect and/or small sample sizes, there is currently no quantification of the interplay of these factors.

Here, we study the academic performance of 205 undergraduate students. Our work is based on data collected using questionnaire method. The overall conclusion is the maximum students use simple mobile phone and marks of boy's students are higher than girl's students in SSC class.

Keywords: Graphical representation, Z-Test, Chi-square Test, Level of Significance, Association.

INTRODUCTION

Today we are living in 21st century. We know that recently the competition is increased in every field of life. Therefore the students should get the ability to compitize the world. We know that every year 6.8 crores students complete their graduation in India. But how many of them are getting a good settled life is a more important question.

Here we introduced the student's marks with their standards like 10th, 12th, F.Y, S.Y, T.Y in any faculty. We can check how their study is related to their marks and how do the students get continued their performance from, 10th to second year. All these things of consistency in their marks should benefit to get the job. So this project gives an idea to us about the marks study combination of students.

In this article we studied the comparative academic results of third year students in our college. It is a view that how the students' results are correlated with their sex, facilities, teacher performance. If we overlook all these we know that third year is most important year. So in this study the marks of third year students and how their educational graph is changed from 10th standard to third year is increased or decreased or remains constant. So we have introduced a performance detected by the students or how it is correlated with their previous marks. That is why our study is very helpful to conclude that how their marks are continued with the standard.

We select 266 college students of third year are studied, in which we take 205 students to study their results. We have collected their data by taking questionnaire.

METHODOLOGY

For collection of data we use proper systematic questionnaire and the questionnaire includes the information about their address, use of phone, marks, parent occupation and annual income, family and also their view about teachers' performance. For this study we collect primary information of 41 students from B.A., 39 students from B.Com and 125 final year students from Science.

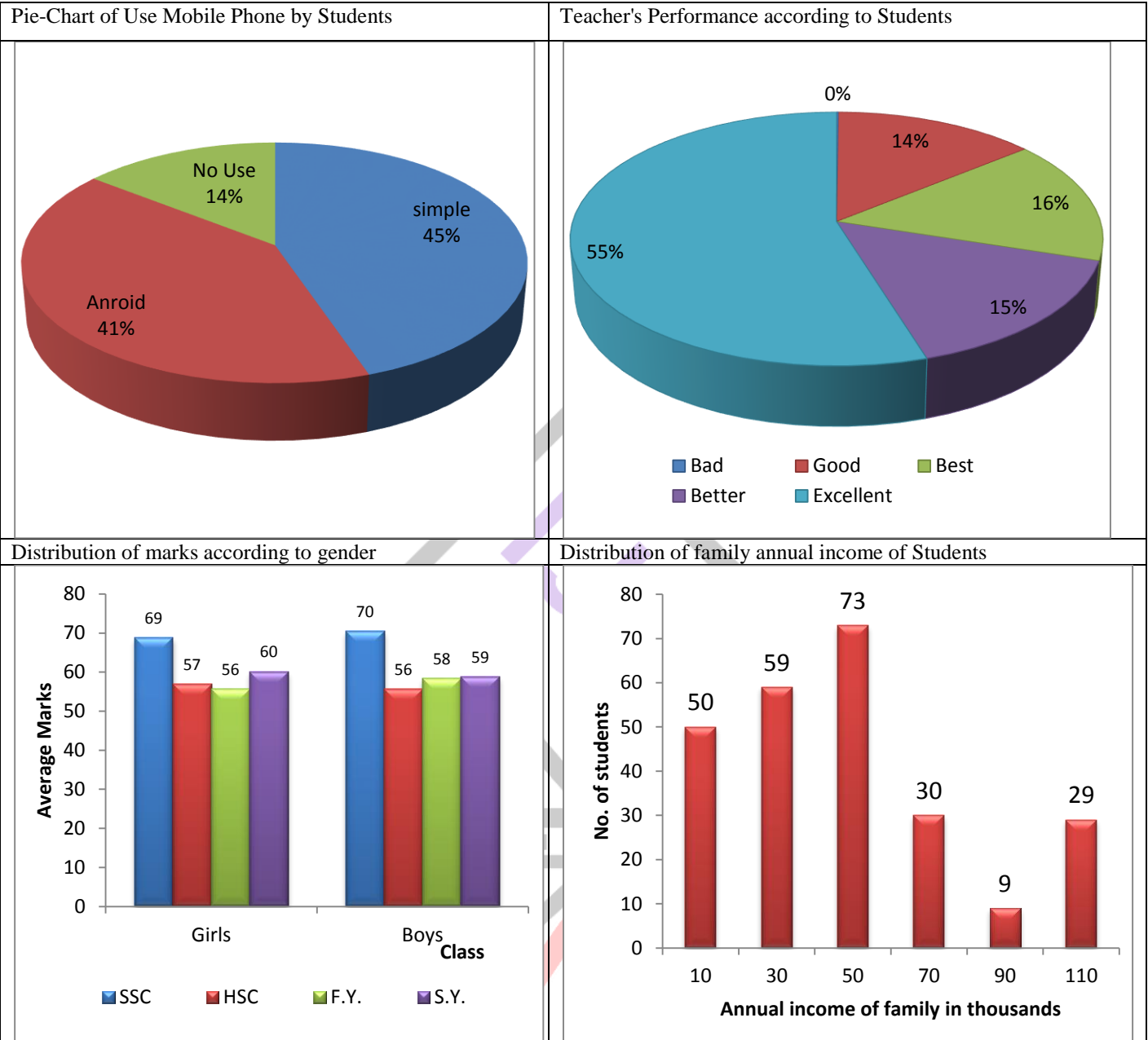
Statistical tools used:

1. Graphical representation
2. Theory of attribute
3. Testing of hypothesis

Software used:

1. Minitab
2. MS-Excel
3. R-Software

GRAPHICAL REPRESENTATION:



TESTING OF HYPOTHESIS:

a) The study of association and colligation between employment and gender

In this case the coefficient of association is,

$$Q = \frac{\{(AB)(\alpha\beta) - (A\beta)(\alpha B)\}}{\{(AB)(\alpha\beta) + (A\beta)(\alpha B)\}} = 0.7506$$

and coefficient of colligation is,

$$Y = \sqrt{\frac{\{(AB)(\alpha\beta) - (A\beta)(\alpha B)\}}{\{(AB)(\alpha\beta) + (A\beta)(\alpha B)\}}} = 0.8664$$

b) The study of association and colligation between literacy and gender

Then, Coefficient of association is,

$$Q = \frac{\{(AB)(\alpha\beta) - (A\beta)(\alpha B)\}}{\{(AB)(\alpha\beta) + (A\beta)(\alpha B)\}} = 0.3386$$

and Coefficient of colligation is,

$$Y = \sqrt{\frac{\{(AB)(\alpha\beta) - (A\beta)(\alpha B)\}}{\{(AB)(\alpha\beta) + (A\beta)(\alpha B)\}}} = 0.5818$$

c) Chi-square test for independence of employment and Gender.

The Hypothesis is

H₀: The gender and employment are independent V/S

H₁: The gender and employment are not independent

α = Level of significance = 5%

Test statistic:

$$\chi^2 = \frac{N \times (ad - bc)^2}{(a + b) \times (c + d) \times (a + c) \times (b + d)} \sim \chi_1^2$$

$$\chi_{cal}^2 = 77.7232$$

$$\chi_{tab}^2 = 3.841$$

d) Chi-square test for independence of Literacy and Gender.

The Hypothesis is

H_0 : The gender and Literate are independent V/S

H_1 : The gender and Literate are not independent

α = Level of significance = 5%

$$\chi_{cal}^2 = 18.7005$$

$$\chi_{tab}^2 = 3.841$$

e) Test for proportion of users of mobile phone among male in rural and urban area.

p_1 : Sample proportion of male users of mobile phone in Rural = 0.5572

p_2 : Sample proportion of male users of mobile phone in Urban = 0.3378

Hypothesis:- $H_0: P_1=P_2$ against $H_1: P_1 \neq P_2$

Calculation:

$$\hat{p} = (n_1 p_1 + n_2 p_2) / (n_1 + n_2) = 0.4780 \text{ and } \hat{q} = 0.5220$$

The test statistic is,

$$Z_0 = \frac{p_1 - p_2}{\sqrt{\hat{p} \cdot \hat{q} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} = 3.02220$$

Let the l.o.s be $\alpha = 5\%$

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

f) Test for proportion of users of mobile phone among female in rural and urban area

p_1 : Sample proportion of female users of mobile phone in Rural = 0.3511

p_2 : Sample proportion of female users of mobile phone in Urban = 0.4459

Hypothesis:-

$H_0: P_1=P_2$ against $H_1: P_1 \neq P_2$

Calculation:

$$\hat{p} = (n_1 p_1 + n_2 p_2) / (n_1 + n_2) = 0.3853 \quad \hat{q} = 0.6146$$

The test statistic is,

$$Z_0 = \frac{p_1 - p_2}{\sqrt{\hat{p} \cdot \hat{q} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} = 1.3396$$

the l.o.s be $\alpha = 5\%$

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

g) Test for male and female proportion of users of mobile in Urban :

p_1 : Sample proportion of male users of mobile phone = 0.2525 and p_2 : Sample proportion of female users of mobile phone = 0.3113.

Hypothesis:- $H_0: P_1=P_2$ against $H_1: P_1 \neq P_2$

Calculation:

$$\hat{p} = (n_1 p_1 + n_2 p_2) / (n_1 + n_2) = 0.2829 \quad \hat{q} = 0.7170$$

The test statistic is,

$$Z_0 = \frac{p_1 - p_2}{\sqrt{\hat{p} \cdot \hat{q} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} = 0.9341$$

Under H_0 , at $\alpha = 5\%$

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

h) Test for male and female proportion of users of mobile in Rural :

p_1 : Sample proportion of male users of mobile phone in rural = 0.7373

p_2 : Sample proportion of female users of mobile phone in rural = 0.4339

Hypothesis:-

$H_0: P_1=P_2$ against $H_1: P_1 \neq P_2$

Calculation:

$$\hat{p} = (n_1 p_1 + n_2 p_2) / (n_1 + n_2) = 0.5804 \quad \hat{q} = 0.4195$$

The test statistic is,

$$Z_0 = \frac{p_1 - p_2}{\sqrt{\hat{p} \cdot \hat{q} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} = 4.4034$$

Under H_0 , at $\alpha = 5\%$

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

Conclusion:

From our study we conclude that, the maximum students use simple mobile phone. According to students the maximum number teacher's performance are excellent. The marks of boys are higher than girls in SSC class. There are many students having family annual income 40,000 to 60,000. There is positive association between employment and gender. There is positive colligation between employment and gender. There is positive association between literacy and gender. There is positive colligation between literacy and gender. The gender and employment are not independent that is dependent. The proportion of male users of mobile phone in Rural is not equal to the proportion of male users of mobile phone in Urban There is equal proportion of female which are uses mobile phone in Rural and Urban area. The proportion of male users of mobile phone in urban is equal to proportion of female users of mobile phone in urban. The proportion of male users of mobile phone in rural is not equal to proportion of female users of mobile phone in rural. The regression coefficient is significant. The 54.26% of the variation of second year marks around its mean is explained

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