

Analytics Report

On

“Impact of Covid-19 on Student’s Education”

Done by:

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RESEARCH PROCESS:

Research Topic:

Perception of Indian Students on the impact of online learning on their studies because of Covid-19.

Research Problem:

Determine the effect of different external factors on the concentration level of students in studies in an online learning environment.

Research Objectives:

1. To determine if external factors that are not related to studies affect a student's concentration in studies
2. To determine the leading cause of loss of concentration of students in studies

Research Questions:

1. Does the place of residence affect a student's concentration in studies?
2. Does the gender of a student at a particular place affect their concentration?
3. What effects does the annual income of the student's parent and the internet connection have on the student's performance in their studies?
4. What living conditions a student lives in based on his family's annual income?
5. Whether the healthcare provided to students by their institutes, gender-biased or not?
6. Whether the internet connection that a student has related to the location where they are living?

Overview of the Topic of Research

Our research is concerned with the concentration of students in studies during online classes. We chose this topic because the pandemic that affected our lives for the past few years changed our lifestyle drastically and also brought about serious changes in the education system - one of these major changes was the introduction of online learning. This custom of online learning, which had become the norm for the past 2-3 years has brought both positive as well as negative responses and reviews from many parents and students.

Due to these varying comments on this solution brought about by the educational system, our group wanted to understand the effect of various external factors that affected the educational situation of various students. The factors on which our research analysis was majorly focused were the effect different factors had on the concentration of students in studies during the online mode of education; and how other factors such as the location of residence, internet service and also learned if the situation favourability was gender-biased or not and also what was the effect of a family's annual income on the academic performance of a student. This survey and analysis were done on 50 different students from different institutions.

1. The analyses on which this research questionnaire was verified and conducted to understand the performance of students in studies due to external factors were the ANOVA test and Chi-Square Test. Throughout our analysis, we are going to assume a confidence level of 90%.

About Chi-Square Test

The Chi-Square test is a statistical procedure for determining the difference between observed and expected data. This test can also be used to determine whether it correlates to the categorical variables in our data. It helps to find out whether a difference between two categorical variables is due to chance or a relationship between them.

About ANOVA Test

Analysis of variance (ANOVA) is an analysis tool used in statistics that splits an observed aggregate variability found inside a data set into two parts: systematic factors and random factors. The systematic factors have a statistical influence on the given data set, while the random factors do not. Analysts use the ANOVA test to determine the influence that independent variables have on the dependent variable in a regression study.

Questionnaire used in our Research

1. Gender

- Male
- Female
- Prefer not to say

2. Annual family income

- Below 1 lac
- 1- 5 lac
- 5 - 10 lac
- 10 - 15 lac
- 15 - 20 lac
- Above 20 lac

3. Place of residence

- Rural
- Semi urban
- Urban
- Metro

4. How much were you able to concentrate on studies in the home environment

	1	2	3	4	5	6	7	8	9	10	
Least	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Most

5. How comfortable were you sitting in front of the screen while attending classes?

- Didn't sit for more than 10 minutes
- Maximum for 45 mins
- Had a sitting for 2hrs on average
- Could sit for 3-4 hours straight

6. Was internet speed a major issue for you?

- Yes
- No

7. How comfortable were you in interacting with the teachers/institute authorities?

- Minimal to zero interaction
- Just some formal interaction (meets and all)
- Shared some problems (informal sessions)
- Openly discussed everything

8. What do you think were the benefits of the online mode of learning?

- ☐ Got more time to explore your interests
- ☐ Got to know about new technologies
- ☐ Found various new sources of learning like online communities
- ☐ Focused on more important things in life
- ☐ Developed new skills (technical or soft or any other)
- ☐ None

9. What harm did Covid do to your learning skills?

- ☐ Due to poor lifestyle interest in studies/academics has been descending
- ☐ Due to online exams, your written skills have decreased
- ☐ Referencing through the pdfs has decreased your memorization skills
- ☐ Due to excessive surfing on the Internet your problem-solving skills have decreased
- ☐ None

10. Overall how would you rate your online learning experience?

1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. What help did your institute provide in terms of resources for the students who were facing any difficulties?

- ☐ Provided any kind of compensation for internet packs
- ☐ Provided some kind of compensation for buying devices like laptops
- ☐ Changed time-table/curriculum to reduce the technical subjects or accumulate them on single days with special facilities
- ☐ No support given

Analysis

ANOVA Tests:

Place of Residence (POR) to Concentration of Students on Studies

	Df	Sum Sq	Mean Sq	F-Value	Pr (>F)
POR	3	15.55	5.185	0.797	0.502
Residuals	46	299.27	6.506		

Place of Residence (POR) to Concentration of Students on Studies on the basis of Gender

	Df	Sum Sq	Mean Sq	F-Value	Pr (>F)
POR	3	15.55	5.185	0.797	0.502
gen	2	6.07	3.036	0.456	0.637
Residuals	44	293.19	6.663		

Effect of Annual Family Income(AFI) and Internet Service(IS) on Concentration

	Df	Sum Sq	Mean Sq	F-Value	Pr (>F)
AFI	5	51.95	10.389	1.576	0.19
IS	1	3.49	3.491	0.53	0.471
AFI:IS	4	2.29	0.087	0.087	0.986
Residuals	39	257.1	6.592		

Institute support (Support) to Concentration of students on studies

	Df	Sum Sq	Mean Sq	F-Value	Pr (>F)
Support	2	29.49	14.743	2.429	0.0992

Chi-Square tests:

Range	Metro	Rural	Semi-Urban	Urban
1-5 lac	2	1	4	6
10-15 lac	2	0	3	2
15-20 lac	1	0	0	3
5-10 lac	0	1	4	10
Above 20 lac	1	1	1	2
Below 1 lac	0	4	2	0

Pearson's Chi-squared test (*Place of Residence vs Income*)

X-squared = 26.856, df = 15, p-value = **0.02994**

Gender	No help	Not Satisfactory	Satisfactory
Female	2	4	2
Male	15	19	5
Other	1	1	1

Pearson's Chi-squared test (*Gender vs Institute Help*)

X-squared = 1.7005, df = 4, p-value = **0.7906**

Speed Issues	Metro	Rural	Semi-Urban	Urban
No	5	1	9	15
Yes	1	6	5	8

Pearson's Chi-squared test (*Speed Issues vs Place of Residence*)

X-squared = 7.8244, df = 3, p-value = **0.04978**

Conclusions

From the above conducted series of analysis on a dataset of 50 responses, we can conclude the following observations:

- From the ANOVA tests,
 - The place of residence does not affect the concentration of students in studies (as the p-value is greater than the significance level of 0.05)
 - The effect of change in concentration does not vary across gender.
 - Further we analyzed to check if the internet problems that different students might be facing is due to their family's income situation which can be safely concluded as false as whether a student has a proper internet connection is not related to the economical situation of their family.
 - Finally we also saw if the Institute support had any role in the student's concentration and found no relation between them.
- From the Chi-Square tests,
 - The place of residency a student is living in is directly dependent on the annual income of their family (as the p-value obtained from the chi-square test is less than the significance level)
 - The analysis conducted on health services provided by their institute to the students shows that the health services are provided equally irrespective of the gender.
 - Lastly, we have concluded from the analysis that the place of residence and the internet service provided there are directly related, i.e., the students living in rural areas have lower internet connectivity while the students living in urban areas have better internet connectivity.
- Some general observations from the form responses,
 - More than 50% of the students believe that their written skills, memorization skills and problem solving skills have decreased as a result of the online mode of learning.
 - Also, more than 60% students have developed new skills, found new communities and learnt new technologies despite the challenges.
 - From the normally distributed rating for the online learning experience we use t-estimation (sample size - 13) and found the range for population liking for the online mode to be **[5.334, 7.589]** (on a scale of 1-10).