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Impact Of Online Learning On Academic Performance Of Ug Students

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Abstract: This paper is based on a survey conducted to assess the impact of online learning on the academic performance of undergraduate students. The majority of students reported attending online classes regularly and felt that it brought positive changes in their study habits. The survey revealed that most students observed an improvement in their academic grades during online learning. However, some students admitted experiencing stress or anxiety due to online education, while others found it helpful for managing their time and studies more effectively. The availability and quality of internet access emerged as significant factors influencing students' learning experiences. Most students relied on smartphones to attend online classes, indicating that access to suitable digital devices remains a major challenge. Students also acknowledged that online learning allowed them to maintain communication with their instructors. However, opinions were divided regarding the fairness of online examinations. The most notable finding of the survey was that the majority of students expressed a preference for adopting a blended learning model — combining online and offline education — in the future, as it offers both flexibility and the opportunity for personal interaction. Thus through this work we concluded that online learning has had a clear impact on students' study habits and academic performance. At the same time, it highlights the need for better technological resources, stronger self-discipline, and attention to students' mental well-being to ensure the success of online education.

Index Terms – Online education, Digital devices, Academic performance, Blended Learning model

I. INTRODUCTION

Online learning, also known as e-learning or digital education, refers to the process of acquiring knowledge through the internet using digital platforms. Unlike traditional classroom learning, online education allows students, professionals, and lifelong learners to access educational content remotely. It includes a variety of learning formats, such as virtual classrooms, recorded video lectures, interactive courses, and self-paced study materials. With the rise of technology and digital communication tools, online learning has transformed the education system, making it academic courses, professional training, or skill-based learning, e-learning provides opportunities for people across different age groups and backgrounds.

1.1 Evolution of Online learning:

The concept of online learning has evolved significantly over the years. In the year 2000s, online education was limited to simple text based courses and basic video lessons. However, with technological advancements, learning platforms have become more interactive, incorporating multimedia elements such as videos, animations, live webinars, virtual reality and artificial intelligence-based tutoring.

During the COVID-19 pandemic, online learning gained immense popularity as schools, colleges and universities shifted to digital platforms to continue education. This shift accelerated the adoption of e-learning technologies, leading to the development of new tools for collaboration, assessment and engagement.

1.2 TYPES OF ONLINE LEARNING:

Online learning can be categorized into different types based on the mode of instruction and interaction:

1.2.1Synchronous learning:

This type of learning takes place in real time, where students and instructors interact through live classes, webinars, or virtual meetings. It allows for direct communication and immediate feedback.

1.2.2Asynchronous learning:

In this mode, learners access pre-recorded lectures, study materials, and assignments at their convenience without real-time interaction. It provides flexibility for self-paced learning.

1.2.3Blended learning (Hybrid learning):

A combination of online and traditional face-to-face learning, where students experience both digital education and in-person instruction.

1.2.4Massive open online courses (MOOCs):

These are free or paid online courses available to a large number of learners globally. Platforms like Coursera, Udemy, and edx offer MOOCs on various subjects.

1.2.5Corporate and skills-based training:

Many organizations use online learning for employee training and skill development through specialized courses and certification programs.

1.3 ADVANTAGE OF ONLINE LEARNING:

Online learning has gained popularity due to its numerous benefits, including:

- **Flexibility:**

Students can learn at their own pace and schedule, making it ideal for working professionals and those with busy lifestyles.

- **Accessibility:**

It allows learners from remote areas to access quality education without the need to relocate.

- **Cost-Effectiveness:**

Online courses are often more affordable than traditional education, with fewer expenses on transportation, accommodation, and physical materials.

- **Diverse course selection:**

Learners can choose from a wide range of courses and subjects, often not available in local institutions.

- **Personalized learning:**

Adoptive learning technologies tailor content to individual needs, improving understanding and retention.

- **Global learning community:**

Online platforms connect learners from different countries, enabling cultural exchange and networking.

1.4 CHALLENGES OF ONLINE LEARNING:

Despite its advantages, online learning comes with challenges that need to be addressed:

- **Lack of face-to-face interaction:**

The absence of physical classrooms can lead to a lack of social engagement and communication skills.

- **Self-Discipline and motivation:**

Learners need strong time-management skills and motivation to stay engaged in online courses.

- **Technical issues:**

Reliable internet access and digital devices are necessary, which can be a barrier for students in underprivileged areas.

- **Assessment and credibility:**

Some online courses lack proper evaluation methods, and not all online certification are recognized by employers or institutions

1.5 FUTURE OF ONLINE LEARNING:

The future of online learning looks promising with advancements in artificial intelligence, virtual reality, and block chain technology for secure certification. Personalized learning experiences, gamification, and immersive digital classrooms are expected to enhance engagement and effectiveness. Hybrid models combining online and offline learning will continue to be widely adopted in schools, universities, and workplaces. As technology continues to evolve, online learning will pay a crucial role in shaping the future of education, making learning more inclusive, innovative, and accessible to people worldwide.

II. LITERATURE REVIEW

Means et al., 2013[1] conducted a meta-analysis and found that students engaged in online learning often performed better than those in traditional classroom settings. The study suggested that the flexibility and availability to digital resources contributed to improved learning outcomes. Bernard et al., 2014[2] examined blended learning (a mix of online and face-to-face learning) and found that it significantly enhanced students' academic performance compared to fully face-to-face education. Bawa, (2016) [3] found that online courses have higher dropout rates because students struggle with maintaining motivation and self-discipline. Zimmerman, (2002) [4] found that self-regulated students manage their studies more effectively and perform better. Broadbent & Poon, (2015) [5] found that many undergraduate students struggle in online courses due to a lack of self-discipline. Van Dijk, (2020) [6] highlighted that students from low-income backgrounds often face barriers such as limited internet access and inadequate digital devices, which hinder their ability to engage effectively in online learning. Richardson et al., 2017[7] found that well-structured online courses, which include interactive elements and timely feedback, improve student engagement and academic performance. Arbaugh, (2014) [8] emphasized that faculty support and effective communication are essential for maintaining student motivation in online education.

Limited social engagement in online education can result in feelings of isolation, which negatively impacts students learning experiences (Kuo et al., 2014) [9].Sa & Serpa, (2020) [10] found that disparities in technological access create a "digital divide," where students with better technological resources perform better academically than those with limited access. Gupta, (2021) [11] found that one of the main aids of modern education is given by online learning platforms, which are developing rapidly. According to Moore, et al., such platforms include tools for edutainment creation, development, organization, and delivery; and interaction functionality through forums, chat rooms, or video-conferencing. According to Chen et al., (2012) [12] as developments continue to advance in ICT, online learning platforms offered via them are becoming more flexible, and inclusive, but diversified at the same time. This means that in the modern world a variety of multimedia, including different interactive components, are readily available to those who may need them-and this might entail something beneficial for learners who have different preferences and internal or external needs. In our country a technological revolution has just started and hence its impact on students' needs to be studied.

III. Research Design:

3.1 Significance of the study:

Online learning has significantly affected the academic performance of undergraduate students. It offers flexibility, access to digital resources, and skill development, but also brings challenges like lack of interaction, poor concentration, and unequal access to technology. This impact is important as it directly influences students' learning styles, outcomes, and self-discipline. If implemented effectively, online learning can make education more accessible and efficient.

3.2 Objectives of study:

The objectives of this study are as follows: -

- To evaluate the changes in study habits due to online learning.
- To investigate stress or anxiety caused by online learning.
- To analyze the change in grades during online education.
- To understand students' preferences for future learning models.
- To assess students' academic performance during online learning compared to traditional classroom learning.

3.3 Scope of the study:

This study aims to understand the impact of online learning on the academic performance of undergraduate students. It includes students from various disciplines such as science, commerce, and arts, belonging to both urban and rural areas. The scope focuses on key factors influencing online education, including access to digital devices, internet connectivity, student engagement, concentration, and academic outcomes. The study primarily considers the online learning environment after the COVID-19 pandemic. It seeks to offer suggestions to improve the effectiveness and inclusivity of online education in the future.

3.4 Research Methodology:

- **Participants**

The sample will consist of UG students of J V Jain College.

- **Instruments**

Data of students was collected with the help of questionnaire on online learning. The tool will include both closed and open items.

- **Procedure**

Before data collection, good Rapport was established with the students and their safety was ensured. To collect data, a questionnaire of 20 questions was created and then we converted it into google form. Through internet and whatsapp it was send to students group. The language of questions was kept simple and readable by everyone. With the help of google form we received responses.

Sampling technique: Survey method.

Hypothesis testing: The chi-square test is adopted for the most part alludes to Pearson`s chi-square and is otherwise called the chi-square decency of fit test or the chi-square test for freedom. We utilize this test when we have two all-out factors and need to decide if there is a critical relationship between the two factors.

a) Sample frame – 100

b) Sample size – 90

c)Sampling method – Random sampling method

3.5 Hypothesis:

Theory are the proposed suspicion to be demonstrated or opposed by the examination discoveries. An exploration examine comprises of two speculation i.e. invalid theory and elective speculation. For the above required objectives the following hypothesis testing were done.

Hypothesis-A

H_0: There was no change in study habits due to online learning.

H_1: There was a change in study habits due to online learning.

Particulars	**No. of Respondents**	**Percentage**
Yes, for the better	63	70
Yes, for the worse	27	30
Total	90	100

S. No.	**O_i**	**E_i**	**$O_i - E_i$**	**$(O_i - E_i)^2$**	**$(O_i - E_i)^2/E_i$**
1	63	45	18	324	7.2
2	27	45	-18	324	7.2
Total	90	90			14.4

Calculated value = 14.4 Degree of freedom 5% level of significance = no. of categories-1 = 2-1 = 1

Tabulated value = 3.841

Thus null hypothesis is rejected and we can accept the internal hypothesis i.e. 'H_1'.

Conclusion:

The computed value of chi square is 14.4. The table value of chi-square is 3.841, with the level of significance at 5% noteworthy level is since the ascertained esteem is more than the table value of the chi-square. Along these lines, H_0 is rejected and conclude that There was a change in study habits due to online learning.

Hypothesis-B

H_0: Online learning did not increase stress or anxiety.

H_1: Online learning increased stress or anxiety.

Particulars	No. of Respondents	Percentage
Yes	47	52.2
No	43	47.8
Total	90	100

S. No.	O_i	E_i	$O_i - E_i$	$(O_i - E_i)^2$	$(O_i - E_i)^2/E_i$
1	47	45	2	4	0.088
2	43	45	-2	4	0.088
Total	90	90			0.176

Calculated value = 0.176 Degree of freedom 5% level of significance = no. of categories-1 = 2-1 = 1

Tabulated value = 3.841

We can reject the internal hypothesis i.e. 'H_1'

Conclusion:

The computed value of chi square is 0.176. The table value of chi-square is 3.841, with the level of significance at 5% noteworthy level is since the ascertained esteem is less than the table value of the chi-square. Along these lines, H_0 is accepted and conclude that Online learning did not increase stress or anxiety.

Hypothesis-C

H_0: Students' grades did not increase due to online learning.

H_1: Students' grades increased during online learning.

S. No.	O_i	E_i	$O_i - E_i$	$(O_i - E_i)^2$	$(O_i - E_i)^2/E_i$
1	62	45	17	289	6.42
2	28	45	-17	289	6.42
Total	90	90			12.84

Particulars	No. of Respondents	Percentage
Yes	62	68.9
No	28	31.1
Total	90	100

Calculated value = 12.84 Degree of freedom 5% level of significance = no. of categories-1 = 2-1 = 1

Tabulated value = 3.841

We can accept the internal hypothesis i.e. 'H_1'

Conclusion:

The computed value of chi square is 12.84. The table value of chi-square is 3.841, with the level of significance at 5% noteworthy level is since the ascertained esteem is more than the table value of the chi-square. Along these lines, H_0 is rejected and conclude that Students' grades increased during online learning.

Hypothesis-D

H_0: Students prefer only traditional education.

H_1: Students prefer the blended model.

Particulars	No. of Respondents	Percentage
Yes	77	85.6
No	13	14.4
Total	90	100

S. No.	O_i	E_i	$O_i - E_i$	$(O_i - E_i)^2$	$(O_i - E_i)^2/E_i$
1	77	45	32	1024	22.75
2	13	45	-32	1024	22.75
Total	90	90			45.5

Calculated value = 45.5 Degree of freedom 5% level of significance = no. of categories-1 = 2-1 = 1

Tabulated value = 3.841

We can accept the internal hypothesis i.e. 'H_1'

Conclusion:

The computed value of chi square is 45.5. The table value of chi-square is 3.841, with the level of significance at 5% noteworthy level is since the ascertained esteem is more than the table value of the chi-square. Along these lines, H_0 is rejected and conclude that Students prefer the blended model.

Hypothesis-E

H_0: There is no significant difference in students' academic performance between online learning and traditional classroom learning.

H_1: There is a significant difference in students' academic performance between online learning and traditional classroom learning.

Particulars	No. of Respondents	Percentage
Yes	72	80
No	18	20
Total	90	100

S. No.	O_i	E_i	$O_i - E_i$	$(O_i - E_i)^2$	$(O_i - E_i)^2/E_i$
1	72	45	27	729	16.2
2	18	45	-27	729	16.2
Total	90	90			32.4

Calculated value = 32.4 Degree of freedom 5% level of significance = no. of categories-1 = 2-1 = 1

Tabulated value = 3.841

We can accept the alternative hypothesis i.e. 'H_1'

Conclusion:

The computed value of chi square is 32.4. The table value of chi-square is 3.841, with the level of significance at 5% noteworthy level is since the ascertained esteem is more than the table value of the chi-square. Along these lines, H_0 is rejected and conclude that there is a significant difference in students' academic performance between online learning and traditional classroom learning.

3.6 Limitations:

- One of the limitation is the expenses and time spent on gathering the data because collection of primary data involves much cost and requires time.
- Feasibility and accessibility of research is limited. The study is limited to UG. students of J.V. Jain College only.
- Responses that are generated are neither completely genuine not fake, its left to one`s conscience. i.e. participants bias is an issue.
- The study specifically provides detailed insides into impact of online learning on academic performance of UG students but do not offer a comprehensive over view of the students.

Findings:

- The majority of participants acknowledged that their study habits changed for the better during online learning.
- The majority of participants admitted that online learning has increased their stress or anxiety.
- The majority of participants agreed that their grades improved during online learning.
- The majority of participants expressed their preference for adopting a blended learning model (online + offline) in the future.
- The majority of students reported that their academic performance during online learning was slightly better compared to traditional classes.

Conclusion:

- A majority of students stated that their academic performance during online education was "significantly better" compared to traditional classroom learning. This indicates that the overall experience of online learning was largely positive among the respondents, and most students found it beneficial for their academic growth. It can be concluded that with the right resources and a supportive environment, online education can effectively contribute to improving students' performance.
- During online learning, most students experienced a positive change in their study habits. This indicates that studying through digital platforms helped students organize themselves better and make their study patterns more effective.
- More than half of the students experienced increased stress or anxiety during online learning. This suggests that while digital education has certain benefits, it may also have adverse effects on students' mental health. The findings highlight the need for providing emotional support to students during online learning so they can better manage their stress and anxiety.
- The majority of students (68.9%) reported that their grades improved during online learning. This clearly indicates that online learning had a positive impact on students. Most students found it to be a medium through which they could manage their time according to their convenience and study at their own pace. This helped improve their understanding and led to better academic performance.
- 85.6% of respondents favored the blended learning model. This clearly indicates that students find a combination of online and offline learning more suitable, as it offers a balanced mix of flexibility, convenience, and personal interaction

Recommendation:

- Since a majority of students reported improved academic performance through online learning, institutions should consider implementing a hybrid learning model (a combination of online and offline learning). Moreover, additional academic support and guidance should be provided to students who reported a decline in performance.
- Since most students have acknowledged that online learning has brought positive changes in their study habits, educational institutions should adopt teaching strategies that further promote time management, self-study, and self-discipline. This will help students maintain their positive habits and ensure their continuous academic growth.
- Since many students have reported experiencing stress and anxiety due to online learning, educational institutions should focus on providing counselling sessions, stress management workshops, and a healthy learning environment. These measures will help strengthen students mentally and make them feel more comfortable with online education.
- Since most students observed an improvement in their grades during online learning, educational institutions should continue to integrate online learning methods with traditional teaching. They should focus on enhancing the quality of online resources, adopting innovative teaching strategies, and

providing continuous academic support to ensure that students maintain or further improve their academic performance.

- Since most students have shown a positive inclination toward the blended learning model, educational institutions should take concrete steps to implement it. They should strengthen technological resources and adopt teaching strategies that combine the best aspects of both online and offline education, ensuring students receive a quality and flexible learning experience.

References

[1] Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. Teachers College Record, 115(3), 1-47.
[2] Bernard, R. M., Borokhovski, E., Schmid, R. F., Tamim, R. M., & Abrami, P. C. (2014). A meta-analysis of blended learning and technology use in higher education. Journal of Computing in Higher Education, 26(2), 87-122.
[3] Bawa, P. (2016). Retention in online courses: Exploring issues and solutions. Online Learning Journal, 20(2), 1-12.
[4] Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. Theory into Practice, 41(2), 64-70.
[5] Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies and academic achievement in online higher education learning environments: A systematic review. Internet and Higher Education, 27, 1-13.
[6] Van Dijk, J. (2020). The Digital Divide. Polity Press.
[7] Richardson, J. C., Maeda, Y., & Swan, K. (2017). Adding a community of inquiry to the analysis of online learning outcomes: Results of a meta-analysis. The International Review of Research in Open and Distributed Learning, 18(3), 1-17.
[8] Arbaugh, J. B. (2014). What makes online teaching effective? Academy of Management Learning & Education, 13(4), 545-559.
[9] Kuo, Y. C., Walker, A. E., Schroder, K. E., & Belland, B. R. (2014). Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education. Internet and Higher Education, 20, 35-50.
[10] Sá, M. J., & Serpa, S. (2020). The COVID-19 pandemic as an opportunity to foster the sustainable development of teaching in higher education. Sustainability, 12(20), 8525.
[11] Gupta, S. (2021). Students' Perception towards Learning Platforms – A Comparative Analysis of Online and Offline Learning. SSRN Electronic Journal.
[12] Chen, H., Chiang, R. H. L., & Storey, V. C. (2012). Business Intelligence and Analytics: Forms Big Data to Big Impact. MIS Quarterly, 36(4), 1165-1188.