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Impact of Online Education on Academic Achievement of Higher Education Students: An Empirical Study at NCR Region



Abstract: - The global COVID-19 epidemic has had a significant impact on educational systems worldwide, resulting in the widespread closure of schools, institutions, and colleges. The COVID-19 pandemic has had several adverse effects on every sector worldwide. Currently, there is much discussion and emphasis on the losses and disadvantages caused by COVID-19. We must extricate ourselves from this dire predicament and adopt a constructive mindset. This report aims to demonstrate the beneficial effects of the pandemic on education for students, instructors, researchers, and non-teaching staff in schools, colleges, and universities. The primary objective of this work is to alleviate the sense of loss experienced by academics, students, research researchers, and others. COVID-19 has had many beneficial effects on education, the environment, human life, and business. This research elucidates the beneficial effects of the COVID-19 pandemic lockdown on schooling. Positivity leads to a decrease in despair and stress, resulting in increased energy and ambition. Optimism facilitates personal development and enhances our well-being.

Keywords: Online Education, Academic Achievement, Higher Education of Student, NCR region.

I. INTRODUCTION

The emergence of Online Education has significantly transformed the way the majority of people now use the internet for educational purposes. Social networking is centred on the dynamics of interpersonal interaction and the acquisition of knowledge about others. People are given the ability to communicate, with the goal of creating a more open and interconnected society. Social media exerts a substantial influence on various sectors of our lives, including politics, economy, and education. YouTube is a platform where billions of video snippets are viewed daily. Users often share video footage on an hourly basis. Over 90% of university students use a social media site on a daily basis. Individuals have incorporated LinkedIn and other technological platforms, such as Twitter, Facebook, and online gaming environments, into their daily routines. Not just professionals and the elderly, but also students in educational contexts routinely use social networks. Individuals who lack the ability to write their signatures and can only identify others via photographs possess unrestricted internet connectivity and often monitor their cellphones for updates on their social standing. Due to the instantaneous access it offers to a wide range of content, students often use social media for both educational and recreational purposes. Individuals' utilisation of social media varies, and it yields both advantageous and detrimental outcomes for society, notably among students. The students' academic performance has been negatively impacted by their usage of social media, particularly those who prioritise checking their Facebook and Twitter accounts above their studies.

They engage in a significant amount of non-instructional activities, which negatively impacts their mental well-being, leads to various health issues, and creates a disconnect within the family. Academically, students who engage in multitasking while studying, namely by surfing social networking sites, have low performance. According to Raut (2016), YouTube, Facebook, and Twitter are major sources of distraction that hinder individuals' capacity to concentrate and remain attentive to the task at hand.

The pervasive effects of the COVID-19 pandemic are seen across all sectors and domains of life. The majority of governments have chosen to temporarily close educational institutions and adopt localised closures in order to

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mitigate the spread of COVID-19. Many educational institutions around have opted to either cancel or postpone all student and campus events in an effort to minimise gatherings and mitigate the transmission of the sickness. Nevertheless, these actions result in increased economic, educational, medical, and social consequences for everyone. India implemented a nationwide lockdown of schools, colleges, and institutions on March 16th. The current situation in India, characterised by the presence of COVID-19 and the implementation of lockdown measures, has given rise to a difficult and demanding scenario. A survey result demonstrates the significant level of stress and limitation now faced by higher education institutions worldwide. The vast majority of institutions that participated in the poll have been impacted to varying degrees by the COVID-19 situation, resulting in disruptions to all institutional operations. Scientific demonstration has shown that the spread of an epidemic may be postponed by shutting down schools, however the efficacy of this measure is contingent upon the interactions children have outside of school. Given, that adversity often presents opportunities, it is optimistic that the current problems and circumstances may have a beneficial effect on education. Nevertheless, considering the current circumstances, it is also believed that it is imperative that we maintain an optimistic and hopeful outlook for a promising future.

II. REVIEWS OF LITERATURE

When considering the beneficial effects of covid-19, the first thought that arises is the incorporation and use of technology in the education system (Christopoulos & Sprangers, 2021). The impact of COVID-19 on education has few good consequences, but several negative repercussions stemming from the epidemic. The majority of educational institutions had no alternative but to embrace e-learning (Turnbull et al., 2021). Many universities have used the online teaching platform to provide engaging and interactive classes to students (Ahshan, 2021; Ramkissoo et al., 2020). E-learning currently serves as a temporary solution to compensate for the lack of in-person classroom education (Vrgović et al., 2022; Elumalai et al., 2021). At this discussion, we explored the beneficial effects on students, teachers, researchers, and non-teaching staff members at educational institutions such as schools, colleges, and universities.

COVID-19 pandemic has expedited the teachers uses digital technologies for the purpose of delivering lectures (Lapitan et al., 2021; Maity et al., 2021). Educational institutions are transitioning to a hybrid method of learning (Turnbull et al., 2021; Bojović et al., 2020). The epidemic has compelled individuals to acquire and use digital technologies, leading to a rise in digital literacy (Udeogalanya, 2022; Martzoukou, 2021). It is strongly recommended that all students enhance their technological proficiency (Fan, 2024; Zhang & Zhou, 2023). Prior to the lockdown, students mostly used mobile devices for leisure activities such as conversing, gaming, viewing films, and consuming superfluous videos (Kitkowska, 2024; Ytre-Arne, 2023). However, their mindset and demeanour have now undergone a transformation. Presently, students mostly use mobile devices and technology to acquire new knowledge, such as attending lectures on platforms like Zoom, Google Meet, and Google Classroom. via addition, they acquire the skills to upload files and submit assignments via Google Classroom (Acharya & Rana, 2024; Choukaier, 2024). Students begin viewing several online lectures related to their course in order to understand the concepts (Bender, 2023; Rissanen & Costello, 2023). They enhanced their intelligence and heightened their awareness, diligently equipping themselves for online examinations by actively researching and completing multiple-choice problems for each subject. This represents a significant transformation amongst the students. College students also utilise their holiday time to complete online diploma courses in software such as MATLAB, C programming, R software, and Java, Scilab, etc. These courses will undoubtedly enhance their skills and increase their chances of securing job possibilities in the future. Even those who are studying for competitive examinations have the ability to access online crash courses. Postgraduate students are dedicating their attention to their studies and actively preparing themselves for competitive tests such as NET, SET, GAT, and others. By using technology in their learning, students are effectively utilising it and enhancing their personal growth. The range is from 6 to 8, inclusive.

On the other hand, teachers are the foundation of our system of education, and therefore, the capability of educators is crucial for ensuring a proper education (Khairani et al., 2023; Yao et al., 2023). Teachers has the capacity to embrace and incorporate new technology in order to enhance and elevate their skills and knowledge (Elmaadaway & Abouelenein, 2023; Shihab et al., 2023). They try to adapt themselves to the circumstances in order to enhance the quality of education for students. Therefore, in the midst of the epidemic, educators have adopted innovative instructional approaches such as using PowerPoint presentations, videos, video conferencing,

online lectures via platforms like Zoom and Google Meet (Nanda & Gupta, 2023; Singh, 2023). These are regarded as the most effective means of instruction. They compile their own comprehensive notes on each topic and provide them to pupils for their convenience (Kekana et al., 2024). The students are prepared for the online test via the provision of a question bank including multiple choice questions. Additionally, they are instructed on how to complete these questions efficiently. They develop a heightened awareness of their kids' well-being. Teachers often contact their students by phone or messaging to inquire about any issues they may be facing and offer assistance in resolving them. The instructors and mentors also provide guidance to their pupils on how to alleviate tension, promote relaxation, and effectively manage stress. This fosters a deep bond between students and instructors, bringing them closer together. Teachers enhance and refine their teaching prowess, they engaged in webinars focused on ICT, the COVID-19 pandemic, FDP on MOOCs, and creative pedagogical practices. They enhance their understanding by acquiring more knowledge in their respective fields, as well as staying updated on new teaching methodologies and information and communication technologies (ICT) (Hınız & Yavuz, 2024). In addition, instructors acquire various tools like as quizzes and Kahoot to enhance the engagement of students during quizzes. They create question papers using Google Forms to administer online exams. Teachers often participate in online refresher and orientation courses to enhance their academic credentials (Misliya et al., 2021; Ramírez-Montoya et al., 2021; Husband, 2020).

III. METHODOLOGY

The predictors for the updated model, namely effort expectancy (EE), performance expectancy (PE), social influence (SI), facilitating conditions (FC), behavioural intention (BI), and academic performance (AP), are assessed using scale items that have been adapted from previous studies using similar methodologies. The questionnaire employed in the survey includes demographic information in the first portion, whereas part B focuses on questioning the numerous buildings indicated in the sample sequence. Pilot research with 25 participants was conducted to assess the appropriateness of the questionnaire. The pilot analysis is employed to depict contextual modifications.

The research census comprised of individuals who utilised online educational resources in specific main cities of India, thereby representing the urban population of the country. They were selected based on their age range, technological proficiency, and expertise with mobile and internet usage. The poll included items that measured theoretical notions using a 5-point Likert scale, with response options ranging from "strongly disagree" (1) to "strongly agree" (5). The table provides a detailed description of the scale items utilised in the investigation.

Table-1: Overview of constructs with scale items

Factors	Scale items	SPSS Code
Performance Expectancy	Using online education will help me achieve better grades in my courses	PE_1
	online education will improve understanding of course material	PE_2
	Online education will allow learning at my own pace and improving my academic performance.	PE_3
	Using online education platforms will give me a competitive advantage in my studies compared to traditional methods.	PE_4
Effort Expectancy	Online education platforms easy to use and navigate.	EE_1
	Confidence in ability to learn effectively using online education resources.	EE_2
	it will be difficult to stay focused and motivated while learning online.	EE_3
	Using online education platforms requires less effort compared to traditional learning methods.	EE_4
Social Influence	[My friends and family encourage me to use online education resources.	SI_1
	[My teachers recommend using online education for supplemental learning.	SI_2
	[Pressure from others to use online education is felt.	SI_3
Facilitating Condition	Reliable access to technology (computer, internet) needed for online education.	FC_1

Factors	Scale items	SPSS Code
	The technical skills and knowledge required to use online education platforms effectively	FC_2
	Enough time in my schedule to participate in online education activities.	FC_3
	Learning environment is conducive to using online education platforms effectively.	FC_4
Intention to use online education	Intention to use online education platforms for future learning endeavors	Int_use_1
	Planning to continue using online education platforms even after completing this course/program	Int_use_2
	Online education platforms are recommended to others who are interested in learning similar topics.	Int_use_3
Academic Achievement	Confident on my ability to achieve better academic results through online education	AA_1
	Using online education will improve my academic performance	AA_2
	Use of online education has improved my grades in my courses	AA_3

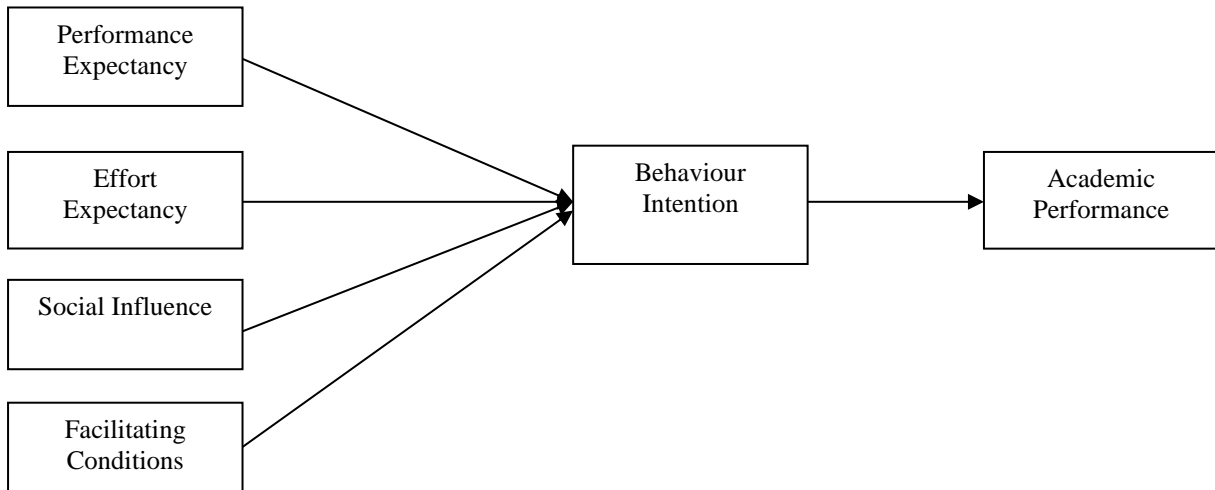


Figure1: Research Model

Table-2: Respondents details

• Category	• Percentage
• Gender	•
• Male	• 56%
• Female	• 44%
• Age	•
• <18 yrs	• 23%
• 18-25 yrs	• 38%
• 25-above yrs	• 39%
• Type of Institute	•
• Public	• 55%
• Private	• 45%
• Experience in using the Online Resources	•
• 0-2 years	• 65%
• 3- 5 years	• 23%
• >5 years	• 12%
• Education	•

• Category	• Percentage
• Graduate	• 58%
• Post Graduate	• 42%

IV. RESULT

A total of 300 questionnaires were distributed online, and 240 of them were subsequently evaluated. Regarding demographic profiles, 56% of the participants in the study are males, while 44% belong to different age groups. The demographic data represents a diverse group with a slight majority being male (56%) compared to female (44%). The age distribution shows that 23% are under 18 years, 38% are between 18-25 years, and 39% are over 25 years. Most individuals are affiliated with public institutions (55%) while the rest are from private institutions (45%). In terms of experience with online resources, the majority have 0-2 years of experience (65%), followed by 3-5 years (23%), and more than 5 years (12%). Educationally, 58% are graduates and 42% have postgraduate degrees.

The initial stage of analysis involves testing the validity of the measurement model. All the factor loadings above the threshold value of 0.5, indicating that these variables converge on a single point of a latent variable. It demonstrates the house's integrity. A composite reliability (CR) value higher than 0.7 indicates exceptional safety of the factor structure, as it demonstrates that all the observed variables are reliable. The internal reliability was assessed by calculating Cronbach's alpha. The Alpha Cronbach values of the factors surpassed a threshold of 0.7, indicating that the variable may be reliably assessed in subsequent evaluations. To evaluate the discriminant validity of each dwelling, the average vector extraction (AVE) is used. The model is compatible with indices that are employed to assess the performance of the data..

Table-3: Measurement Model

Constructs	Items	Loading	AVE	CR	Cronbach Alpha
Performance	PE1	0.702	0.873	0.817	0.897
Expectancy (PE)	PE2	0.826			
Effort Expectancy (EE)	PE3	0.880	0.516	0.873	0.893
	EE1	0.863			
	EE2	0.757			
Social Influence (SI)	EE3	0.724	0.634	0.783	0.786
	EE4	0.858			
	SI1	0.897			
Facilitating Condition (FC)	SI2	0.812	0.636	0.927	0.792
	SI3	0.730			
	FC1	0.825			
Self Efficiency (SE)	FC2	0.714	0.685	0.813	0.816
	FC3	0.820			
	SE1	0.743			
Behavioural Intention (BI)	SE3	0.734	0.678	0.741	0.833
	BI1	0.901			
	BI2	0.595			
Actual Performance (AP)	BI3	0.732	0.743	0.811	0.767
	UB1	0.622			
	UB2	0.669			
	UB3	0.575			

To examine the correlation between the components in the research model, the structural model was constructed. At this second stage of the research, the route coefficients were calculated to evaluate the impact of each element on the dependent variable. The route coefficients, which represent parameter estimations, were utilised to evaluate the strength and direction of associations, as well as to test the research hypotheses. The AMOS 22 software was used to estimate the structural model, which describes the relationships between observed and unobserved

variables using path diagrams. The higher value of R2 indicated superior model quality. The findings indicated that all of the hypotheses are statistically significant. The results indicate that there is a positive and significant link between PE and BI ($B= 0.297, p<0.05$); EE and BI ($B= 0.252, p< 0.05$); SI and BI ($B= 0.355, p < 0.05$); FC and BI ($B= 0.213, p < 0.05$); FC and BI and AP ($B= 0.381, p < 0.05$). In addition, the path coefficient between TR and BI ($B= -0.078, p> 0.05$) is not statistically significant. Thus, most of the hypotheses generated to examine the relationship are statistically significant.

Table-4: Result of the structural model and model fit indices

Hypothesis	Path	Estimate	C.R.	P	Hypothesis
H1: There is a positive relation between performance expectancy and behavioral intention to use online education.	PE → BI	0.297	5.752	***	H1 (support)
H2: There is a positive relation between effort expectancy and behavioral intention to use online education.	EE → BI	0.252	6.069	***	H2 (support)
H3: There is a positive relation between social influence and behavioral intention to use online education.	SI → BI	0.358	5.296	0.022	H3 (support)
H4: There is a positive relation between facilitating condition and behavioral intention to use online education.	FC → BI	0.213	6.769	***	H4 (supported)
H5: There is a positive relation between behavioral intention to use online education and academic performance.	BI → AP	0.381	5.983	***	H5 (supported)
Model Fit indices					
$\chi^2/df= 2.659$; GFI= 0.912; CFI= 0.913; NFI = 0.925; AGFI = 0.934 and RMSEA = 0.049.					

***Significant at $p<0.001$ level

The hypotheses testing results indicate that various factors positively influence the behavioral intention to use online education and, consequently, academic performance. Performance expectancy (PE) has a significant positive impact on behavioral intention (BI) to use online education (estimate = 0.297, C.R. = 5.752, $p < 0.001$), supporting H1. Effort expectancy (EE) also positively affects BI (estimate = 0.252, C.R. = 6.069, $p < 0.001$), supporting H2. Social influence (SI) has a significant positive relationship with BI (estimate = 0.358, C.R. = 5.296, $p = 0.022$), supporting H3. Facilitating conditions (FC) positively influence BI (estimate = 0.213, C.R. = 6.769, $p < 0.001$), supporting H4. Finally, BI positively impacts academic performance (AP) (estimate = 0.381, C.R. = 5.983, $p < 0.001$), supporting H5. The model fit indices suggest a good fit, with $\chi^2/df = 2.659$, GFI = 0.912, CFI = 0.913, NFI = 0.925, AGFI = 0.934, and RMSEA = 0.049, indicating that the model adequately describes the data and the relationships between the constructs.

V. CONCLUSION

The Covid-19 pandemic has persisted beyond our initial expectations, lingering as an unexpected and unwelcome presence. The Covid-19 pandemic has prompted several advancements in the education sector. We deliberated on the consequences that educational institutions have on learners, instructors, researchers, and staff members. This study has provided a concise overview of the beneficial effects of the COVID-19 lockout on students, teachers, researchers, and non-teaching personnel, who are integral components of the educational system. Students embraced several novel methodologies and recognised the significance of Information and Communication Technology (ICT). The instructors are becoming adept at using technology and acquiring new knowledge to enhance their teaching abilities. Research scholars also took use of this chance to achieve their research goals. The

convergence of education and technology has been further accelerated by the Covid-19 epidemic. Indeed, when new technologies are used appropriately, they provide increased opportunities for both educators and learners. This research assists individuals in the education field to cultivate a positive mindset, which is crucial in today's circumstances. Positive thinking enhances one's energy and ambition. The result of the study proves that the Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Condition are necessary to develop Intention to use online education which then leads to get the Academic Achievement of the students of higher education students: an empirical study at NCR region. Furthermore, the Positive thinking serves as a remedy for sadness and stress. Positivity fosters personal growth, enhances our well-being, boosts life satisfaction, and ultimately leads to happiness, a universal aspiration. Therefore, it is imperative that we consistently direct our attention towards the favourable aspects of all situations.

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