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Research Article

Measuring the Challenges of Online Education and their Impact on the Academic Achievement and Employability of Higher Education Students.

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ABSTRACT

his study explores the challenges of online education and their impact on the academic achievement and employability of higher education students. As digital learning has become increasingly prevalent, particularly due to the COVID-19 pandemic, understanding its effect on students' academic performance and future career prospects is crucial. Key challenges identified include limited access to technology, lack of personal interaction, reduced motivation, and difficulties in self-regulation. These factors are examined in relation to students' academic outcomes, including grades, learning retention, and engagement with course material. Additionally, the research investigates how online education affects students' preparedness for the job market, with particular focus on the development of essential employability skills such as communication, problem-solving, and teamwork. The study uses a mixed-methods approach, combining surveys and interviews with students, faculty, and employers to gain a comprehensive understanding of the online learning experience. Findings suggest that while online education offers flexibility and access, it also poses significant barriers that can hinder both academic success and career readiness. The study concludes by recommending strategies for institutions to address these challenges, including improved technological infrastructure, enhanced student support services, and the integration of practical skills development into online curricula.

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

INTRODUCTION

The emergence of online education has fundamentally changed the way people use the internet for educational purposes, especially in the context of higher education. This transformation is not merely technological; it has reshaped the dynamics of learning, communication, and interaction among students, educators, and institutions worldwide. Social networking platforms, which are central to online education, offer opportunities for interpersonal interaction, knowledge acquisition, and socialization, all of which play crucial roles in creating a more open and interconnected society. As more individuals turn to digital platforms for educational resources, social media has begun to exert a profound influence on various aspects of life, including education, politics, and the economy. Social media platforms such as YouTube, Facebook, LinkedIn, Twitter, and others have become integral to daily routines, not only for professionals and the elderly but also for students, who now routinely use these platforms in their academic and personal lives. With over 90% of university students engaging with social media on a daily basis, these platforms provide opportunities for learning and communication that extend far beyond traditional classroom settings. For instance, YouTube has become a massive repository of educational videos, offering students easy access to tutorials, lectures, and discussions on a wide range of subjects. LinkedIn is often used for professional networking, while Facebook and Twitter offer forums for informal learning and sharing of ideas. However, the impact of social media on academic achievement is a double-edged sword. While it offers significant

advantages, such as access to vast amounts of information and the ability to connect with peers and experts, it also presents several challenges, particularly when it comes to students' academic performance. The overuse of social media can lead to procrastination, decreased focus, and academic disengagement. Many students find themselves spending more time checking their Facebook, Twitter, or Instagram feeds than concentrating on their studies. This tendency to prioritize social media engagement over academic responsibilities has led to a decline in productivity and, in some cases, poor academic outcomes. Research has shown that students who multitask by switching between studying and checking social media sites tend to perform worse academically. For example, platforms like YouTube, Facebook, and Twitter are known to be significant sources of distraction. According to studies, students who frequently engage with these platforms while studying struggle to maintain attention and concentrate on the material at hand. Multitasking, particularly in the form of jumping between academic tasks and social media, leads to cognitive overload, making it difficult for students to retain information and effectively complete assignments. This behavior is linked to lower grades, decreased academic achievement, and a higher likelihood of burnout and stress.

The mental health consequences of excessive social media use are also of concern. Constant exposure to the curated, often idealized lives of others can lead to feelings of inadequacy, anxiety, and depression among students. Additionally, spending excessive time online can interfere with students' sleep patterns, further contributing to fatigue and diminished academic performance. The impact of social media on mental well-being is especially concerning given the already high levels of stress and pressure experienced by students in higher education. As students become more engrossed in their online lives, they may also experience a sense of social isolation and disconnection from their peers, which can negatively impact both their academic and personal lives. The global COVID-19 pandemic has only magnified these challenges. As the virus spread across the world, many governments were forced to temporarily close educational institutions in an effort to contain the virus and protect public health. In response, educational institutions rapidly shifted to online learning platforms, relying heavily on digital tools and technologies to maintain the continuity of education. While this transition to online learning was necessary, it posed significant challenges for students, educators, and institutions alike. For students, the shift to online education during the pandemic created an environment of uncertainty and stress. The abrupt move to virtual classrooms, coupled with limited access to technology, disrupted students' academic routines and made it harder for them to focus on their studies. Many students lacked the necessary infrastructure, such as reliable internet access and appropriate devices, to fully participate in online learning. This digital divide created a significant gap between students who had access to the required technology and those who did not, exacerbating inequalities in educational opportunities. Additionally, the lack of face-to-face interaction with instructors and peers made it difficult for students to engage fully with the course material, leading to feelings of isolation and disconnection from the academic community.

The mental health impact of the pandemic on students was profound. The stress of adjusting to remote learning, combined with the fear and uncertainty surrounding the health crisis, placed additional strain on students' emotional well-being. Many students reported feeling overwhelmed, anxious, and depressed as they navigated the challenges of online education while coping with the broader effects of the pandemic. In particular, students who were already vulnerable to mental health issues found the shift to online learning to be particularly challenging. The lack of social support, reduced opportunities for extracurricular activities, and the absence of a structured academic environment contributed to a decline in mental well-being for many students. Moreover, the pandemic also disrupted the academic calendar and forced institutions to cancel or postpone in-person events, including conferences, student activities, and graduation ceremonies. This lack of social interaction and opportunities for networking limited students' exposure to professional and career-building experiences. Students missed out on valuable opportunities to engage with potential employers, attend career fairs, and build connections that are essential for securing internships and jobs after graduation. As a result, the employability prospects of many students were negatively impacted, as they struggled to develop the skills and networks necessary for a successful transition into the workforce.

Despite these challenges, there is hope that the current situation may lead to positive changes in the educational landscape. The widespread adoption of online learning during the pandemic has forced institutions to innovate and explore new ways of delivering education. These changes have the potential to make education more accessible, flexible, and inclusive in the long term. For instance, online learning allows students from diverse backgrounds and geographical locations to access quality education without the need to relocate or commute. This democratization of

education could have far-reaching implications for global education systems, making learning more equitable and affordable. Additionally, the pandemic has highlighted the need for institutions to invest in digital infrastructure, student support services, and mental health resources to better support students in an increasingly digital world. Moving forward, universities and colleges can integrate more comprehensive mental health support, digital literacy training, and career development programs into their online offerings, helping students not only succeed academically but also prepare for the job market.

In conclusion, while online education and social media have revolutionized the way students learn and interact, they also present significant challenges that can negatively impact academic performance and employability. The COVID-19 pandemic has further underscored the importance of addressing these challenges, particularly in terms of mental health, digital access, and career preparation. By adapting to the new realities of online education, institutions can leverage technology to create more inclusive, supportive, and flexible learning environments that enhance students' academic success and future employability.

REVIEWS OF LITERATURE

The primary positive consequence of COVID-19 is the integration and use of technology within the school system (Christopoulos & Sprangers, 2021). The ramifications of COVID-19 on schooling are mostly adverse, with little positive outcomes arising from the pandemic. The majority of educational institutions were compelled to adopt e-learning (Turnbull et al., 2021). Numerous colleges have used the online teaching platform to provide interesting and interactive courses to students (Ahshan, 2021; Ramkissoon et al., 2020). E-learning now functions as a temporary remedy to address the deficiency of face-to-face classroom instruction (Vrgović et al., 2022; Elumalai et al., 2021). During this conversation, we examined the advantageous impacts on students, educators, researchers, and non-academic personnel inside educational institutions, including schools, colleges, and universities.

The COVID-19 epidemic has accelerated instructors' use of digital technology for lecture delivery (Lapitan et al., 2021; Maity et al., 2021). Educational institutions are adopting a mixed learning model (Turnbull et al., 2021; Bojović et al., 2020). The pandemic has necessitated the adoption and use of digital technology, resulting in an increase in digital literacy (Udeogalanya, 2022; Martzoukou, 2021). All students are highly advised to improve their technical skills (Fan, 2024; Zhang & Zhou, 2023). Before the lockdown, students mostly used mobile devices for recreational purposes, including communication, gaming, watching films, and engaging with extraneous videos (Kitkowska, 2024; Ytre-Arne, 2023). Nonetheless, their mentality and comportment have lately experienced a metamorphosis. Currently, students mostly use mobile devices and technology to get new information, including participating in lectures on platforms such as Zoom, Google Meet, and Google Classroom. via addition, kids get the ability to upload files and submit assignments via Google Classroom (Acharya & Rana, 2024; Choukaier, 2024). Students commence examining many online lectures pertinent to their course to comprehend the principles (Bender, 2023; Rissanen & Costello, 2023). They improved their intellect and increased their awareness, methodically preparing for online tests by studying and solving multiple-choice questions for each topic. This signifies a substantial change among the kids. College students also use their vacation periods to finish online diploma courses in software such as MATLAB, C programming, R, Java, and Scilab, among others. These courses will surely augment their talents and elevate their prospects of obtaining employment opportunities in the future. Individuals preparing for competitive tests might access online crash courses. Postgraduate students are focusing on their studies and diligently studying for competitive examinations such as NET, SET, GAT, and others. Students are efficiently using technology in their studies, hence augmenting their personal development. The range is inclusive of 6 to 8.

Conversely, educators are the cornerstone of our educational system, making their competence essential for delivering an effective education (Khairani et al., 2023; Yao et al., 2023). Educators has the ability to adopt and integrate new technologies to augment and advance their abilities and knowledge (Elmaadaway & Abouelenein, 2023; Shihab et al., 2023). They endeavor to adjust to the conditions to improve the quality of education for pupils. Consequently, throughout the pandemic, instructors have used novel educational methods, including PowerPoint presentations, videos, video conferencing, and online lectures using platforms such as Zoom and Google Meet (Nanda & Gupta, 2023; Singh, 2023). These are considered the most effective methods of education. They create detailed notes on each subject and provide them to students for their convenience (Kekana et al., 2024). The pupils are prepared for the online examination via the supply of a question bank including multiple-choice questions. Furthermore, students get guidance on how to answer these questions effectively. They cultivate an acute

awareness of their children's welfare. Teachers regularly contact their students via phone or text to ask about any challenges they may be encountering and offer support in addressing them. The teachers and mentors provide advise to their students on alleviating tension, promoting relaxation, and managing stress efficiently. This cultivates a profound connection between students and teachers, enhancing their proximity. Educators improve and develop their instructional skills by participating in webinars centered on ICT, the COVID-19 pandemic, FDP on MOOCs, and innovative teaching methodologies. They deepen their comprehension by obtaining further knowledge in their specific domains and remaining informed about contemporary pedagogical methods and information and communication technology (ICT) (Hınız & Yavuz, 2024). Furthermore, educators get numerous resources such as quizzes and Kahoot to augment student participation throughout assessments. They use Google Forms to generate question papers for conducting online examinations. Educators often engage in online refresher and orientation courses to improve their academic qualifications (Mislia et al., 2021; Ramírez-Montoya et al., 2021; Husband, 2020).

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

Category	Percentage
Gender	
Male	56%
Female	44%
Age	
<18 years	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	
Graduate	58%
Post Graduate	42%

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.

Objective 1: Challenges in Adoption of Digital Tools in Education

The adoption of digital tools in education faces several challenges, including limited access to technology and internet connectivity, which disproportionately affects students in underserved regions. Additionally, there is often a lack of training and support for educators to effectively integrate digital tools into their teaching practices, leading to inconsistent implementation. Resistance to change from traditional teaching methods and concerns over data privacy and security further complicate adoption efforts. Moreover, the rapid pace of technological advancements can create a gap between the latest tools and the ability of educational institutions to keep up, exacerbating disparities in educational outcomes and access to high-quality digital resources.

Table-2: Scale Items - Challenges

Scale Items	Variable Name
It is difficult to stay motivated and engaged during online learning sessions.	Chlng1
Lack of interaction with instructors and classmates in online learning environments is a major drawback.	Chlng2
Online education platforms often lack the practical aspects of traditional learning methods.	Chlng3
Technical glitches, such as internet outages, software malfunctions, or device failures, can disrupt the learning experience and impede progress.	Chlng4
Balancing work, family, and other commitments alongside online coursework can be challenging.	Chlng5

This section of the study entails the descriptive statistics and one sample ‘t’ test to identify the major challenges for usage of online education. For the present analysis, we test the data with middle value of likert scale i.e. ‘3’ = No Idea.

Table-3: ‘t’ test result

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Chlng1	304	2.44	1.113	.064

Chlng2	304	3.13	1.130	.065
Chlng3	304	2.37	1.115	.064
Chlng4	304	3.37	1.203	.069
Chlng5	304	3.20	1.267	.073

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Chlng1	-8.712	303	.000	-.556	-.68	-.43
Chlng2	2.031	303	.043	.132	.00	.26
Chlng3	-9.821	303	.000	-.628	-.75	-.50
Chlng4	5.338	303	.000	.368	.23	.50
Chlng5	2.760	303	.006	.201	.06	.34

The table provides the results of a one-sample t-test conducted on five challenges associated with online education. The test compares the mean scores of each challenge against a neutral point on a Likert scale, where '3' represents "No Idea." The results indicate whether the perceived challenge is significantly different from this neutral point. For instance, "Chlng1" (motivation and engagement) has a mean score of 2.44, significantly lower than 3, with a t-value of -8.712 ($p < .001$), indicating that students generally disagree with the statement, suggesting a notable lack of motivation and engagement. Similarly, "Chlng3" (lack of practical aspects) has a mean score of 2.37, also significantly lower than 3, suggesting that students perceive online education as lacking in practical experiences.

On the other hand, "Chlng2" (lack of interaction) and "Chlng5" (balancing commitments) have mean scores close to 3, but with t-values of 2.031 and 2.760, respectively, indicating that while these challenges are acknowledged, they are not strongly skewed in either direction from the neutral point. Notably, "Chlng4" (technical glitches) has a mean score of 3.37, significantly higher than 3, with a t-value of 5.338 ($p < .001$), suggesting that technical issues are a common and significant challenge in online education. These results imply that while motivation, engagement, and practical experiences are generally lacking in online education, technical issues are a prominent challenge that students face.

Objective 2: To examine the impact of Online Education on the academic achievement of higher education students.

To address Objective 2, which is to examine the impact of online education on the academic achievement of higher education students, Structural Equation Modelling (SEM) was utilized. The results of this analysis are presented in the following table:

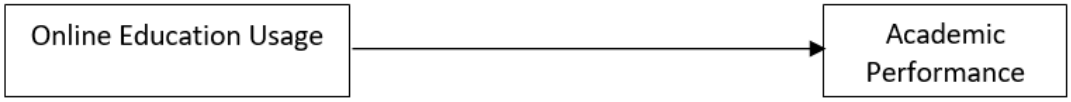

Table-4: Hypothesis Testing

Hypothesis	Relation	Estimate	S.E.	C.R.	P
H5: There is a positive relation between behavioral intention to use	Academic_Perf <---	.156	.059	2.637	.008

online education and academic performance.	Online_Education_Usage				

The hypothesis testing table examines the relationship between the behavioural intention to use online education and academic performance. Hypothesis H5 posits that there is a positive relationship between online education usage and academic performance. The estimate of this relationship is 0.156, with a standard error (S.E.) of 0.059. The critical ratio (C.R.), which is the estimate divided by the standard error, is 2.637. This value is above the common threshold of 1.96, indicating statistical significance. The p-value associated with this relationship is 0.008, which is less than the conventional alpha level of 0.05. Therefore, we can conclude that there is a statistically significant positive relationship between the intention to use online education and academic performance, suggesting that as students' behavioural intention to use online education increases, their academic performance tends to improve.

Objective 3: To investigate the effect of online education on employability of higher education students. To investigate the effect of online education on the employability of higher education students, Structural Equation Modelling (SEM) was used. The results are presented in the following table:

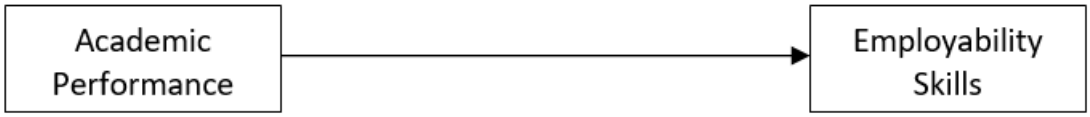

Table-5 : Hypothesis Testing

Hypothesis	Relation	Estimate	S.E.	C.R.	P
H6: There is a positive relation between academic performance and employability skills enhancement by use of online education tools.	Emp_Skills <--- Academic_Perf	.417	.081	5.156	***

The hypothesis testing table examines the relationship between academic performance and employability skills enhancement through the use of online education tools. Hypothesis H6 posits a positive relationship between these two variables. The estimate for this relationship is 0.417, indicating that an increase in academic performance is associated with a 41.7% increase in employability skills enhancement. The standard error (S.E.) of 0.081 suggests a relatively small variability in this estimate. The critical ratio (C.R.), which is the estimate divided by the standard error, is 5.156, and the p-value is indicated as *** (typically denoting $p < 0.001$). This highly significant p-value implies that the relationship between academic performance and employability skills enhancement is statistically significant. Thus, the data strongly support the hypothesis that using online education tools positively impacts both academic performance and the enhancement of employability skills.

CONCLUSION

This research emphasizes the complex problems and substantial effects of online education on the academic performance and employability of higher education students. The integration of digital instruments in education has faced several significant obstacles, as detailed in Objective 1. Students and educators encounter challenges include restricted access to technology and internet connection, particularly in underprivileged areas, as well as inadequate training for instructors on the appropriate integration of digital resources. These challenges often result in inconsistent use of online education platforms and resistance to changing traditional teaching methods. Moreover, apprehensions over data privacy and security exacerbate the shift to online education. Among the most pressing issues, technical glitches, lack of interaction, and balancing family or work commitments were identified as major obstacles, with students noting the negative impact of these factors on their learning experience. Notwithstanding these limitations, the research indicates that online education may provide favorable academic results when students demonstrate a robust desire to interact with digital learning systems. The findings from Structural Equation Modelling (SEM) in Objective 2 demonstrate a statistically significant positive correlation

between the desire to use online education and academic success. This suggests that as students are more motivated to use online education tools, their academic performance improves, albeit with a strong need for addressing the barriers to full engagement. Moreover, Objective 3 illustrates that online education not only improves academic achievement but also favorably influences the cultivation of employable skills. The SEM analysis reveals a substantial positive correlation between academic achievement and the improvement of employability skills facilitated by online educational resources. This substantiates the idea that successful online education fosters academic achievement and enhances career readiness, as students cultivate vital skills such communication, problem-solving, and self-management.

Although online education has significant advantages, its efficacy depends on addressing the stated problems. The study's results underscore the need of enhancing technological access, providing superior training for instructors, and resolving technical challenges. Furthermore, schools must enhance interaction and participation in online settings to alleviate the absence of personal connection experienced by many students. Furthermore, synchronizing academic and professional development initiatives with the changing dynamics of online education might enhance students' preparedness for future work. Through sustained innovation and focus on these difficulties, online education has the capacity to markedly enhance academic results and employment opportunities for higher education students.

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