Digital Disruptions in Education : Students' Perspective

Shruti Gill [1]
Aarti Sharma [2]
Daisy Mathur Jain [3]

Abstract

Purpose : We assessed the students' anticipations concerning the incorporation of technology in higher education. The study delved into multiple dimensions, encompassing students' familiarity with educational technologies, the consequences of heightened technology utilization, and strategies for enhancing its efficacy in classroom settings, particularly for cognitive learning.

Methodology : Primary deductive research used a survey questionnaire conducted among students from management institutions in Pune and Delhi, with a sample size of 158 respondents. The collected data were analyzed using statistical techniques such as one-sample *t*-test, paired comparison method, and qualitative analysis with SPSS version 22. The investigation was deductive.

Findings : The findings revealed that digital technology enhanced knowledge and learning experiences. However, the research also identified challenges related to technology adoption in educational institutions, primarily due to teachers' competence and their preference for traditional teaching methods.

Practical Implications : This research contributed to understanding how technology tools and facilities could bring about transformative changes and facilitate educators' and students' teaching and learning processes.

Originality : This study aimed to examine the consequences of digital disruption on traditional educational models and the possible opportunities and problems it brings. This study provided a comprehensive review of the topic while retaining originality in its analysis and insights by examining existing research, scholarly articles, and pertinent sources.

Keywords : **education, ICT tools, teaching and learning, blended learning, hybrid learning**

JEL Classification Codes : I2, I21, I23, I25

Paper Submission Date : September 30, 2022 ; Paper sent back for Revision : June 30, 2023 ; Paper Acceptance Date : July 25, 2023 ; Paper Published Online : September 15, 2023

Traditionally, teaching methods with limited student engagement have been standard in educational institutions. However, the COVID-19 pandemic accelerated the shift toward online platforms and highlighted the need for blended learning and practical educational tools. Integrating technology into professional education can bridge the digital and knowledge gaps between industry and academia. Still, higher education institutes (HEIs) face challenges in effectively applying technical skills to support academics. Therefore, e-pedagogy training and support in e-learning environments are crucial for future education.

[1] *Associate Professor,* IILM Institute for Higher Education, 3, Lodhi Institutional Area, Lodhi Road, New Delhi - 110 003. (Email : shruti0877@gmail.com) ; ORCID iD : https://orcid.org/0000-0003-3093-4632
[2] *Associate Professor (Corresponding Author),* Masters' Union School of Business, Tower C, DLF Cyberpark, Phase II, Udyog Vihar, Sector 20, Gurugram - 122 008, Haryana. (Email : aartisharmaphd@gmail.com)
ORCID iD : https://orcid.org/0000-0001-9132-5924
[3] *Professor,* IILM Institute for Higher Education, 3, Lodhi Institutional Area, Lodhi Road, New Delhi - 110 003.
(Email : daisy_mathur@yahoo.com) ; ORCID iD : https://orcid.org/0000-0003-1907-3755

DOI : https://doi.org/10.17010/pijom/2023/v16i9/173167

Incorporating digital tools and technologies in professional education involves leveraging educational videos, simulations, and web-based materials to enhance teaching and learning experiences. It is important to note that these technologies supplement educators rather than replace them, as they improve productivity, foster discussions, and facilitate idea exchange. The infusion of digital elements in education has a global reach. It provides hands-on experiences beyond traditional curriculums, promoting student-centered learning and strengthening the relationship between lecturers and students. Teachers play a vital role in utilizing digital tools and techniques, and educational leaders should proactively integrate technology-enhanced methods into curriculum development. Students and teachers benefit from technical skill development and career advancement opportunities by creating a learning-centric environment that embraces technology. However, research shows that teachers often need help to harness the potential of digital tools, highlighting a technology gap. This gap stems from inadequate training, lack of technical support, time constraints, and resistance to change. Understanding these challenges and their impact on teachers' ability to leverage digital tools for improved learning outcomes is crucial.

Additionally, exploring the systemic factors that influence teachers' adoption and use of digital tools, such as educational policies and institutional support, is necessary to develop comprehensive strategies that address the technology gap effectively. Existing research has focused on individual factors, neglecting the broader systemic factors and the impact of teachers' choices and preferences regarding digital tools on instructional practices and student engagement. This study bridges the abovementioned gap by investigating the multifaceted nature of the technology gap in classrooms, considering individual and systemic factors. By examining the challenges teachers face and the contextual factors influencing their adoption of digital tools, the study aims to develop evidence-based strategies and interventions that enhance the integration of digital tools in education.

The scope of the research study includes understanding prevalent pedagogy practices, computer competencies of educators and students, usage of educational technology tools during class lectures, incorporation of online open courses (MOOCs), presence of online evaluation and grading systems, students' expectations from educational systems, how millennials observe, adopt, and utilize technology in education.

Literature Review

The global COVID-19 pandemic led to lockdown measures and the temporary closure of academic institutions, resulting in a shift to remote work and virtual classes. The study by Arora and Srinivasan (2020) aimed to examine the impact of the lockdown on the teaching and learning process. The research collected responses from 341 teachers in the Ghaziabad region's HEIs. It focused on the adoption rate of virtual classes, benefits, challenges, and reasons for nonadoption. The study found that among teachers who adopted virtual classes, the actual benefits experienced were significantly lower than their expectations. The significant challenges reported by adopters included network issues, lack of training, and the need for more awareness.

On the other hand, among teachers who did not adopt virtual classrooms, a lack of awareness was identified as the primary reason, followed by a lack of interest and doubts about the usefulness of virtual classes. Drawbacks of virtual classes included reduced attendance, a lack of personal touch, and limited interaction due to connectivity issues. The research also provided suggestions for overcoming the challenges, drawbacks, and reasons for the nonadoption of virtual classes to enhance the effectiveness of virtual teaching and learning.

Jena (2020) examined the impact of the COVID-19 pandemic on higher education in India. The study highlighted that the pandemic has caused significant disruptions in education globally, leading to the closure of campuses and a shift to online learning. In India, around 320 million learners have been unable to attend schools or colleges, suspending educational activities. Despite these challenges, HEIs in India have responded positively by implementing tools and techniques to ensure uninterrupted teaching, learning, research, and service to society.

The article primarily focused on the significant impacts of COVID-19 on HEIs in India. It discussed the measures taken by HEIs and educational authorities to provide continuous educational services during the crisis. It highlighted that the pandemic has given rise to new learning modes, perspectives, and trends expected to shape the future of higher education in India.

Ahmad (2020) emphasized the significance of higher education in India for nurturing individuals and building a knowledge-based society. It highlighted the role of higher education as a catalyst for productivity, income growth, employment opportunities, and overall improvement in quality of life. The challenges faced by India's higher education system revolve around improving access and enhancing quality. The study acknowledged that the digital transformation that occurred in various sectors has also impacted higher education, providing opportunities to address these challenges. The Government of India has implemented digital initiatives aimed at higher education, recognizing their potential to increase access and improve quality. However, effective adoption and utilization strategies were crucial for HEIs to fully leverage the benefits of these digital initiatives and achieve sustainable change. The research paper provided an overview of the digital initiatives introduced by the Indian government in 2015 to enhance access and promote quality in higher education. It also suggested that HEIs adopt and utilize these digital initiatives to maximize their benefits.

According to Daimary (2020), online learning or e-learning became integral to education during the COVID-19 pandemic. However, shifting education to online mode in India raised technological and workforce readiness concerns, particularly in rural areas. This paper aimed to examine the effectiveness and challenges of e-learning in rural areas during the pandemic. The study utilized a descriptive survey method and collected data through a self-designed questionnaire. The research was conducted in 50 government high schools in the Baksa district of Assam, India. The findings revealed significant challenges faced by rural schools in implementing e-learning, including insufficient e-learning resources and a need for more skilled information, communication, and technology (ICT) teachers. The findings were consistent with the ones documented by Pradeepkumar and Panchanatham (2011).

The advent of the COVID-19 pandemic in 2020 led to a rapid transition from conventional teaching approaches to online learning. This unprecedented situation underscored the significance of readiness within the Indian education system to effectively tackle comparable challenges in the future (Arun Kumar, 2021). The research note was based on a review of existing literature on online learning, drawing from secondary sources. Through this research, several key issues and challenges faced by the Indian education system in the online teaching mode were identified. These included concerns about student enrolment, quality of education, infrastructure availability, technical and privacy issues, research and innovation, outreach and accessibility, and teachers' technical proficiency. Given the emergence of a new normal, this research note aimed to analyze perspectives on online education in India, providing valuable insights to inform decision-making processes. The note also emphasized that by implementing the suggested recommendations, the Indian education system would be better equipped to tackle similar situations.

In the research on adopting open learning systems and MOOCs during COVID-19 by academic libraries, Alamri (2022) highlighted the profound impact of the global pandemic on institutions and industries worldwide. Specifically, libraries emerged as vital sources of accurate information and knowledge for research during these challenging times. The research paper emphasized the significance of online learning platforms during the COVID-19 pandemic and shed light on the advocacy role assumed by libraries and library professionals. It discussed the availability of various digital platforms in India and showcased essential projects initiated by the Government of India to facilitate online learning. Additionally, the paper explored the challenges faced during the pandemic and highlighted how some were transformed into opportunities.

Aggarwal (2017) emphasized the significance of education as an indicator of economic development and its contribution to the Human Development Index. In the era of increased global competition, education was crucial

in attracting human capital and gaining a competitive advantage. Moreover, education is a crucial determinant of lifetime earnings. As technological advancements continue to reshape the landscape, individuals must enhance their skills and capabilities through education to adapt to these changes. Traditional learning approaches must be updated, leading to technology-enabled education or e-learning. E-learning offered several advantages over traditional methods, particularly in terms of flexibility. It allowed individuals to learn anytime and anywhere, resulting in faster and easier learning experiences. By creating a student-centered environment and introducing innovative teaching methods, e-learning has made the learning process more appealing (Kanojia et al., 2022). The primary focus of this paper was to discuss the role of e-learning in higher education in the digital age. Additionally, the paper examined the economic costs associated with traditional face-to-face learning compared to e-learning methods. The initiatives undertaken by the government and universities in India to promote e-learning were also reviewed.

Nath et al. (2019) aimed to demonstrate the effective use of innovative teaching methods in achieving better subject comprehension, promoting academic excellence, and enhancing students' overall quality of education. The research paper emphasized the necessity of innovative teaching approaches in the context of globalization and briefly explored how such methods could make learning more engaging and enjoyable. It also compared traditional teaching methods with modern approaches that place technology at the forefront. The article delved into an innovative pedagogical approach that incorporated teaching resources relevant to the current era while considering the varying creativity of individual students within a shared learning environment. The study sought to elucidate the quality of different teaching methods by developing an appropriate mathematical model. Hypothetically, this model was compared to the proposed innovative method, which considered the impact of students' creativity. Overall, the study aimed to highlight the benefits and efficacy of innovative teaching methods in enhancing learning outcomes and fostering a conducive educational environment.

Alenezi et al. (2023) emphasized the importance of schools and educational institutions prioritizing integrating digital technologies into their curriculum, aiming to prepare students for life in a knowledge society. In the current era of information, implementing an e-learning system has become a crucial priority for educational organizations to adapt to new changes. The dynamic nature of the e-learning system brings about fundamental transformations at all levels and aspects of the education system, known as systemic change. Therefore, management strategies were vital for successfully implementing systemic change, particularly in open and distance learning (ODL) institutions, to deliver and support flexible, cost-effective learning opportunities. This paper addressed the management strategies necessary to navigate the changes from implementing an e-learning system in an ODL institution. Through qualitative research, the data analysis revealed that planning, organizing, guiding, and monitoring were the key strategies the change management team employed to effectively steer the e-learning system's implementation.

Hatlevik and Arnseth (2012) investigated the relationships between teachers' experiences with ICT-supportive school leaders, the perceived usefulness of computers, perceived learning outcomes for students, and teacher's use in their teaching. The study involved 386 teachers from primary and lower secondary schools nationwide. Teachers with higher levels of ICT-supportive leaders reported greater perceived usefulness of computers, perceived learning outcomes for students, and more frequent use of computers, according to correlation analysis, than teachers with lower levels of ICT-supportive leaders. The regression analysis further revealed that two factors, namely ICT-supportive school leaders and perceived learning outcomes for students using computers, accounted for 25% of the variation in the perceived usefulness of computers. Moreover, these two factors explained 5% of the variation in the frequency of teachers' use of computers for reading and writing. These findings highlighted the significance of further studies to explore the factors that influence teachers' use of computers in their teaching.

Ghavifekr and Rosdy (2015) conducted a research study to explore incorporating ICT in education,

specifically focused on its potential to replace traditional teaching methods using technology-based tools and facilities. The study's primary objective was to evaluate teachers' perspectives on the effectiveness of ICT integration in supporting teaching and learning within classrooms. The researchers distributed a survey questionnaire to 101 teachers selected from 10 public secondary schools located in Kuala Lumpur, Malaysia. The collected data underwent quantitative analysis using descriptive and inferential statistics with SPSS software. The results revealed that ICT integration significantly positively impacted both teachers and students. The findings highlighted the importance of teachers' preparedness with well-equipped ICT tools and facilities for successful technology-based teaching and learning.

Additionally, professional development training programs for teachers enhanced the quality of students' learning experiences. Future studies should consider other aspects of ICT integration, particularly from a management perspective, such as strategic planning and policy-making. These areas warrant further investigation to ensure ICT's effective implementation and utilization in education.

Objectives of the Study

The emergence of disruptive digital technologies is causing a significant shift in the workplace ecosystem and global workforce dynamics. This shift necessitates integrating new skills and capabilities into the established education system to bridge the digital literacy gap in India. As per the India Skills Report 2023[1], while 15 million graduates enter the job market each year, a staggering 75% lack the essential soft and technical skills valued in today's market. Technological advancements, globalization, demographic changes, and digital transformation drive this skill gap.

Enhancing students' skill sets, including communication, critical thinking, decision-making, and technological proficiency, is crucial to address this issue. These skills will make students more confident, effective, and well-prepared for the competitive job market. Therefore, this research study aims to evaluate the current pedagogy in higher professional education and examine how the current generation perceives technology integration. The aim is to identify the gap between students' perceptions and the value digital integration creates in the educational system.

The research study also explores students' perceptions of the value of digital collaboration in classroom teaching. It investigates whether educational technology tools enhance knowledge, encourage participation and engagement, stimulate creativity, and boost imagination.

The paper focuses on understanding students' expectations from the current higher professional education system and addresses the following questions:

- What do students expect from today's professional education system? This question aims to understand students' needs for future market readiness and their criteria for selecting colleges that align with their career aspirations.
- Is educational technology incorporated into the curriculum and pedagogy, and are students exposed? This question examines the teaching pedagogy and curriculum at the institute level, comparing traditional and blended learning formats from the student's perspective.
- Does increased usage of technology result in improved knowledge and learning processes? This question investigates the impact of technology integration on students' overall productivity and learning outcomes.

[1] India Skills Report 2023, Published by Confederation of Indian Industry, available at https://www.cii.in/PublicationDetail.aspx?enc=XF2FtOKR1TnDFQ/BVpAZp2KoWPo5sapXv7+q7UwuUFs=,.

↳ How can educational institutions enhance the usefulness of technology by incorporating it into classrooms for better cognitive learning? This study explores the benefits of digital integration in teaching pedagogy, which can lead to more practical, experiential learning and prepare students for future job opportunities.

This research focuses on students' viewpoints from major educational centers in India. It aims to understand students' expectations from the higher professional education system and how educational institutions address the demands of education in a changing world. The paper emphasizes the importance of technology tools and facilities in classrooms and their integration into teaching pedagogy to bring about transformative changes in the learning process. By upgrading digital infrastructure and increasing internet capacity, learning can become more dynamic and engaging, increasing productivity, and potentially attracting more students to enroll in educational programs.

This research will impact policy decisions, educational reforms, and the development of guidelines such as the New National Educational Policy of 2020. Understanding digital disruptions' benefits, challenges, and potential risks helps policymakers and educational institutions make informed choices to improve educational outcomes.

Hypotheses

↳ **H01 :** There is no significant impact of digital technology in the professional education system from the student's perspective.

↳ **Ha1 :** There is a significant impact of digital technology in the professional education system from a student's perspective.

↳ **H02 :** There is no significant impact on knowledge enhancement and the learning process using digital technology in the educational system from the student's perspective.

↳ **Ha2 :** There is a significant impact on knowledge enhancement and the learning process using digital technology in the educational system from a student's perspective.

↳ **H03 :** There is no significant difference in the student's perspective on the use of digital and traditional tools for teaching.

↳ **Ha3 :** There is a significant difference in the student's perspectives on the use of digital and traditional tools for teaching.

↳ **H04 :** The use of technology is not considered an essential factor in choosing colleges from the student's perspective.

↳ **Ha4 :** The use of technology is considered an essential factor in choosing colleges from the student's perspective.

↳ **H05 :** There is a significantly slow shift in technology adaptation by educational institutes.

↳ **Ha5 :** There is a significant shift in technology adaptation by educational institutes.

Data, Sample, and Methodology

Sample and Data Collection

Data were collected in two phases in Delhi and Pune, the prominent educational centers in India. In-depth

interviews were conducted with 158 university students, aged between 16 and 30 years, with computer proficiency and a good understanding of educational digital tools. The data from interviews were collected between November 2020 and February 2021. This research's primary data collection method involved developing a structured questionnaire. The questionnaire consisted of different sections, including gathering demographic information in Section A, exploring students' perceptions of technology integration in professional education in Section B, and examining students' perceptions of teachers' knowledge about technology use in Section C. Most questions were multiple-choice, providing predetermined response options with assigned codes for analysis. The questionnaire used in this study was adapted and modified from a previous questionnaire by Ghavifekr and Rosdy (2015) to suit the specific needs of this research.

Moreover, we added extra items to address the research questions effectively. The questionnaire was designed using concise language and incorporating concepts like "blended learning" and "flipped classroom teaching." The questionnaire was distributed by uploading it on Google Docs and sharing the link with the target audience. Participants completed the questionnaire, and their responses were recorded.

The Likert scale, a rating scale, was used in the questionnaire to measure respondents' agreement or disagreement with specific statements. Response options such as "*strongly agree*," "*agree*," "*neutral*," "*disagree*," and "*strongly disagree*" were provided, each associated with numerical values for analysis purposes. The survey aimed to explore participants' perspectives on using digital tools in education, allowing them to express their level of agreement or disagreement. The collected responses provided valuable data for analysis, enabling a comprehensive understanding of participants' viewpoints and perceptions regarding the research topic.

Methodology

A quantitative research technique was used to analyze the data. Initially, a pilot study assessed students' satisfaction with their institutes' current educational technology implementation. Tables 1 and 2 present the results of our pilot study. Table 1 presents respondents' satisfaction level with the current education system. A total of 62% of the students were moderately or slightly satisfied with the current professional education system at their respective institutes, and this led to the research study to find out the expectations of the students, why they are not happy with the current education system, and what kind of technology integration would they prefer.

Table 2 presents the level of satisfaction with technology integration in classrooms. Approximately 57% of the students were moderately or slightly satisfied with integrating educational technology tools into the classrooms today. This indicates that most colleges still need to adapt to the digital interface in their teaching pedagogy and follow the conventional teaching method.

Our research proposal on integrating digital technology into teaching pedagogy and how it leads to knowledge sharing and enhancement, making teaching and learning more impactful, is supported by the above statistical

Table 1. ***Level of Satisfaction of the Respondents with the Current Educational System***

Respondent Particulars	Variables	Number of Respondents	Percentage (%)
Parameter			
Level of Satisfaction	*Completely Satisfied*	15	9
	Very Satisfied	34	21
	Moderately Satisfied	62	39
	Slightly Satisfied	36	23
	Not at all Satisfied	11	8
	Total	**158**	**100**

Table 2. ***Level of Satisfaction with Technology Integration in Classrooms***

Respondent Particulars	Variables	Number of Respondents	Percentage (%)
Parameter			
Level of Satisfaction	*Completely Satisfied*	22	14
	Very Satisfied	32	20
	Moderately Satisfied	59	37
	Slightly Satisfied	31	20
	Not at all Satisfied	14	9
	Total	**158**	**100**

inputs and previous literature evaluations. Skewness and kurtosis tests were used to check whether the data were normally distributed. One sample *t*-test was conducted to understand the students' perspective on using digital technology and its impact on knowledge enhancement and learning. Also, the parameters responsible for the pace of technology adaptation by educational institutes were evaluated. A paired *t*-test was used to understand further the difference between traditional and digital tools for teaching from the student's perspective.

Analysis and Results

This research is a descriptive quantitative questionnaire-based exploratory study that aims to investigate the expectations of the students from today's professional educational system. The findings are presented in three parts. The first part highlights the respondent's profile regarding demographic factors like age, gender, education, and occupation. The second part of the study covers the student's perception of technology integration in the professional education system, and the third part highlights the teacher's familiarity with the integration of technology in the classrooms again from the student's perspective.

Profile of the Respondents

Demographic Factors

Every variable concerning the respondents' profile is independent: age, gender, educational status, and occupation status. Descriptive analysis has been performed to evaluate the respondent's profile using Excel. All these independent variables are easily measurable as they are cardinal or ordinal. For instance, the age group was ordinal, and the gender was cardinal.

Gender

Table 3 shows the distribution of individual respondents by gender. Out of 158 respondents interviewed, an equal percentage are male and female. This shows that the data are equally collected, bringing diversity to our analysis.

Table 4 shows the distribution of individual respondents by age. The percentage of ages between 16–18 years is 6%, 18–20 years old is 58%, 20–25 is 31%, and 25–30 is 6%. The age group from 18–20 and 20–25 shows that the respondents were students pursuing undergraduate and graduate courses in different universities in Pune and Delhi. The majority of the data were collected from the students' profile, which is the right target segment for this research work.

Table 3. ***Distribution of Individual Respondents by Gender***

Respondent Particulars	Variables	Number of Respondents	Percentage (%)
Parameter			
Gender	Male	79	50
	Female	79	50
	Total	**158**	**100**

Table 4. ***Distribution of Individual Respondents by Age***

Respondent Particulars	Variables	Number of Respondents	Percentage (%)
Parameter			
Age	16 – 18	9	6
	18 – 20	91	57
	20 – 25	49	31
	25 – 30	9	6
	Total	**158**	**100**

Education

Table 5 shows the distribution of individual respondents by level of education. The percentage of undergraduates is 68%, followed by graduates at 24%, and postgraduates at 8%. The high concentration of undergraduates indicates that our respondents are young, educated students who had completed high school and are current seekers of the professional educational system.

Table 5. ***Distribution of Individual Respondents by Education***

Respondent Particulars	Variables	Number of Respondents	Percentage (%)
Parameter			
Level of Education	Under Graduate	107	68
	Graduate	38	24
	Post Graduate	13	8
	Others	0	0
	Total	**158**	**100**

Table 6. ***Distribution of Individual Respondents by Occupation***

Respondent Particulars	Variables	Number of Respondents	Percentage (%)
Parameter			
Occupation	Businessman/Industrialist	14	9
	Self-employed Professional	11	7
	Executive	18	11
	Middle-Level Management	7	4
	Others	108	68
	Total	**158**	**100**

Occupation

Table 6 shows the distribution of individual respondents by occupation. Nearly 68% of the respondents were undergraduate and postgraduate students or professionals seeking higher education while pursuing their work.

The second part of the study covers the student's perception of technology integration in the professional education system.

The descriptive data are shown in Table 7. Tables 8 and 9 show the same results from a sample *t*-test to measure students' contentment and comfort with utilizing digital tools in class, using online resources for studying, and attempting assignments online.

The data are generally distributed as assessed by a skewness and kurtosis value of .251 and –.414. The mean students' impact score (2.89 ± 0.56) is lower than the population "*neutral*" impact score of 3.0, a statistically significant difference of 0.102 (95% CI, 0.192 to 0.014), $t(157) = -2.288$, $p = .023$. This implies that students are experiencing a change in pedagogy through digital technology in teaching methods. However, looking at the data, students were moderately satisfied with the technology and possibly were still not completely comfortable using it. There is a statistically significant difference between means ($p < .05$). Therefore, we accept the alternative hypothesis (Ha1).

The descriptive data are shown in Table 10. One sample *t*-test is conducted to examine the impact of digital

Table 7. ***Descriptive Statistics***

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
							Std. Error		Std. Error
Students' Digital Tools	158	1.50	4.50	2.897	.565	.251	.193	–.414	.384
Valid *N* (listwise)	158								

Table 8. ***One-Sample Statistics***

	N	Mean	Std. Deviation	Std. Error Mean
Students' Digital Tools	158	2.897	.565	.0449

Table 9. ***One-Sample Test***

	Test Value = 3					
	t	*df*	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Students' Digital Tools	–2.288	157	.023	–.103	–.1917	–.0140

Table 10. ***Descriptive Statistics***

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
							Std. Error		Std. Error
Learning Enhancement	158	2.17	5.00	4.0485	.67387	–.260	.193	–.514	.384
Valid *N* (list-wise)	158								

Table 11. *One-Sample Statistics*

	N	Mean	Std. Deviation	Std. Error Mean
Learning Enhancement	158	4.049	.6738	.0536

Table 12. *One-Sample Test*

	Test Value = 3					
	t	*df*	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Learning Enhancement	19.558	157	.000	1.0485	.9426	1.154

technology on knowledge enhancement and the learning process. Tables 11 and 12 show the outcomes of the same.

The data are generally distributed as assessed by a skewness and kurtosis value of –.26 and –.51. Mean students' knowledge enhancement impact score (4.04 ± 0.67) is higher than the population "neutral" impact score of 3.0, a statistically significant difference of 1.04 (95% CI, 0.94 to 1.15), t (157) = 19.55, p = .0005. This implies that technology has led to considerable knowledge enhancement for students. Students leverage lectures through power points, educational videos, experiential learning, and more. There is a statistically significant difference between means ($p < .05$). Therefore, we accept the alternative hypothesis (Ha2). Tables 13–16 show the data's descriptive statistics and paired t-test findings.

Table 15 reveals a correlation of 0.365, indicating a positive association of weak to moderate strength. According to these figures, students perceived a moderate difference between traditional and digital tools. This can imply that using digital tools could be more optimal and require further promotion for the students to gain in

Table 13. *Descriptive Statistics*

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
							Std. Error		Std. Error
Traditional	158	1.00	5.00	2.014	.758	.847	.193	.757	.384
Digital	158	1.00	5.00	2.194	.821	.586	.193	.527	.384
Valid *N* (list-wise)	158								

Table 14. *Paired Samples Statistics*

		Mean	*N*	Std. Deviation	Std. Error Mean
Pair 1	Traditional	2.014	158	.758	.060
	Digital	2.194	158	.821	.065

Table 15. *Paired Samples Correlations*

		N	Correlation	Sig.
Pair 1	Traditional and Digital	158	.365	.000

Table 16. ***Paired Samples Test***

		Paired Differences					*t*	*df*	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Traditional - Digital	–.179	.890	.0708	–.319	–.039	–2.539	157	.012

their learning. The result can be presented as t (degrees of freedom) = t-value, p = significance level. In our case, this would be t (157) = –2.539, $p < 0.0005$. Due to the means of the two jumps and the direction of the t-value, we can conclude that there is a statistically significant difference in the students' perspective on the use of digital and traditional tools for teaching 2.01 ± 0.75 to 2.19 ± 0.82 ($p < 0.0005$); an improvement of 0.06 ± 0.06. Hence, the alternate hypothesis (Ha3) is accepted.

Figure 1 presents that in the wake of educational digitalization and students adapting to more educational applications for enhancing their learning process, it has been observed through the research paper that 74% of the students did consider the integration of technology in the higher educational system as an essential factor for their choice of college.

Figure 2 presents that with the increased usage of smartphones by students in tier II and tier III cities, as well as the Central government's initiatives of building a hundred intelligent cities, the younger generation is exploring

Figure 1. ***Digitalization is a Deciding Factor for Choosing College***

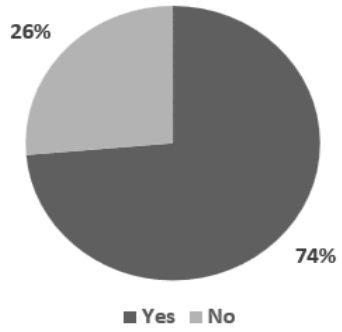

Figure 2. ***Educational Applications Used for Learning Purposes by Students***

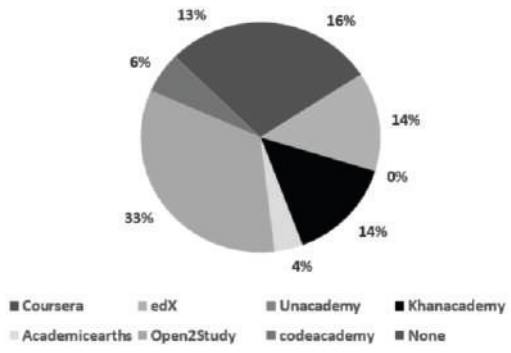

Table 17. *Descriptive Statistics*

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
							Std. Error		Std. Error
Technology Adaptation	158	2.17	5.00	3.786	.635	.173	.193	–.623	.384
Valid *N* (list-wise)	158								

Table 18. *One-Sample Statistics*

	N	Mean	Std. Deviation	Std. Error Mean
Technology Adaptation	158	3.786	.635	.0506

Table 19. *One-Sample Test*

	Test Value = 3					
	t	*df*	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Technology Adaptation	15.545	157	.000	.78586	.6860	.8857

new means of education. Through this research paper, we have found that students have been using various online educational applications besides regular college teachings for their learning. Our research delved deeper into the various applications to determine which ones were popular among the students. We observed that 33% of the students used Open2Study, which is a multidisciplinary platform for students pursuing undergraduate and postgraduate studies. Other platforms like Coursera, edX, and Khan Academy are rapidly gaining popularity among students. Hence, the alternate hypothesis (Ha4) is accepted.

The third part highlights the teacher's familiarity with integrating technology in the classrooms again from the students' perspective. The descriptive data are shown in Table 17. A one-sample *t*-test determines the slow change in educational institutes' technological adaptability. The results are shown in Tables 18 and 19.

The data are generally distributed as assessed by a skewness and kurtosis value of –.17 and –.62. Mean impact score (3.78 ± 0.63) is higher than the population "neutral" impact score of 3.0, a statistically significant difference of .78 (95% CI, 0.68 to .88), t (157) = 15.54, p = .0005. The results imply a significant change in technology adaptation by educational institutes. There is a statistically significant difference between means ($p < .05$). Therefore, we accept the alternative hypothesis (Ha5).

Additional Analysis

We study the impact on teachers' competency in using digital tools for class delivery from the student's perspective as a complementary analysis to our findings.

Figure 3 presents that technology adaptation by educational institutes is a big challenge and has seen a slow shift mainly because of teachers' competency and inclination toward old teaching methods. Although teachers value the potential of digitalization in education, they need to effectively use digital tools to contribute to the quality of learning environments in the current wave of digitalization. Still, today, teachers find it convenient to verbally share assignments in the classroom.

Figure 3. ***Teacher's Competency with Digital Tools***

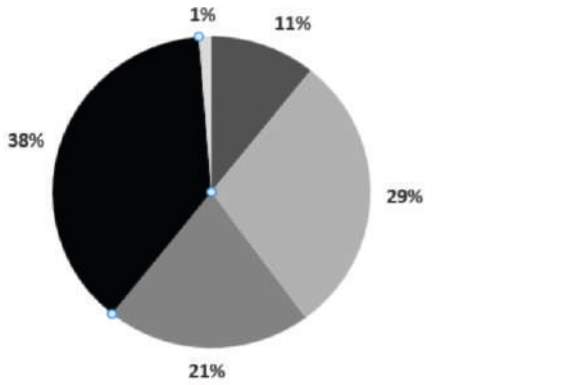

Figure 4. ***Mode of Communication Between Students and Faculty***

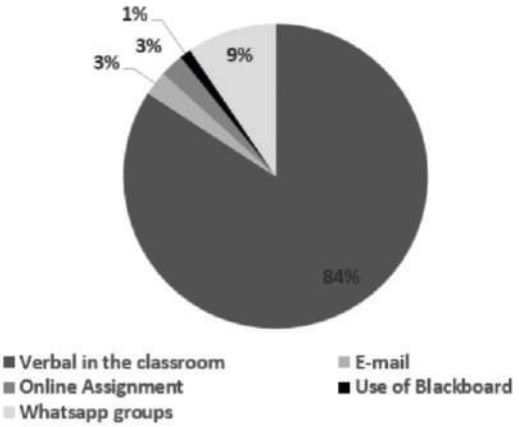

Figure 4 presents that 84% of the students said that the mode of communication for teacher assignments in classes is verbal communication. Apart from this, 9% said that WhatsApp groups are being used. The remaining 7% accounted for the use of Blackboard, emails, and online assignments. As a result, this study looks into the reasons for the nonadoption of digital tools and technologies. The reasons given are convenience and response, and that the teachers found this simple.

Conclusion and Recommendations

The study's findings demonstrate the significant influence of digital technology on students in professional education. According to the survey, students extensively utilize various educational applications and regarded technology integration in higher education as crucial when selecting a college. Notable apps included Open2Study, Coursera, edX, and Khan Academy. Students recognize technology integration as vital for a progressive and practical learning experience in higher education.

However, the study also highlights the need for more adequately equipped and trained teachers who can effectively incorporate digitalization into their teaching methods. This limitation impeded the potential impact of technology on the quality of the learning environment. Consequently, educational institutions must invest in

proper training and support for teachers, encouraging the use of digital tools and applications in the classroom. In conclusion, the study underlines the importance of educational institutions investing in technology, teacher training, and the promotion of digital tools and applications in regular classroom activities. By doing so, the total learning experience can be improved, and this factor may become necessary in future students' selection of institutes.

Managerial and Theoretical Implications

Educational institutions have recognized the importance of digital disruptions in education and have actively embraced digital transformation by adopting online learning platforms, educational apps, and digital tools. However, a significant gap exists between traditional educational practices and student expectations, leading to ineffective talent acquisition. Collaborating with industry experts and stakeholders is crucial to staying updated with the latest trends and innovations in the business world. To improve student learning outcomes, educational institutions should provide faculty development programs to enhance teachers' skills in utilizing digital tools. This training and support will enable educators to incorporate technology into instruction effectively. Investing in reliable internet connectivity and providing devices to students and faculty members is also necessary to address infrastructure challenges and create an inclusive digital environment.

The study on the impact of digital disruptions in education from a student's perspective contributes to the field by examining students' unique insights and perspectives, which have yet to be explored in previous research. The study introduces enhanced scales to measure students' perceptions, expectations, and preferences regarding integrating digital tools, providing a more comprehensive assessment. It also investigates the relationship between digital disruptions and student outcomes, such as engagement, academic performance, and overall learning experience. Overall, this study enhances our understanding of the theoretical implications of digital disruptions in education and the complex dynamics involved. By considering these recommendations, educational institutions can effectively leverage digital disruptions in education and maximize their potential.

Limitations of the Study and Scope for Future Research

The study's limitations include focusing on a specific group of students from a particular geographic location or educational institution, limiting the generalizability of the findings. The reliance on self-report measures and questionnaires introduces potential response biases and limitations. Future studies could incorporate additional data collection methods for a more comprehensive understanding. The study was conducted during a specific period, potentially influenced by contextual factors, and future longitudinal studies could provide insights into long-term effects. Finally, the study primarily considered the students' perspective, and examining the viewpoints of other stakeholders could provide a more holistic understanding.

To ensure flawless execution, educational institutes must adapt to technology-driven blended learning tools and classroom approaches. Furthermore, the National Education Policy 2020, which was released after a 34-year hiatus, is poised to transform India's educational landscape. As a result of the implementation of this initiative, the young people of India will be future-ready and have an innovative approach to work and life. This approach will develop a more marketable, skilled, and enterprising generation, and this study's findings will give us essential insights into the revolutionary transition.

Authors' Contribution

Shruti Gill carried out the idea conception, methodology design, and data collection. Aarti Sharma did the editing,

revising the paper as per reviewer comments, formatting, proofreading, and resubmission of the manuscript. Daisy Mathur Jain conducted the data analysis.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

Funding Acknowledgement

The authors received no financial support for the research, authorship, and/or for the publication of this article.

References

Aggarwal, R. (2017). Economics of e-learning in higher education: The Indian case. *Prabandhan: Indian Journal of Management, 10*(6), 40–48. https://doi.org/10.17010/pijom/2017/v10i6/115374

Ahmad, S. (2020). Digital initiatives for access and quality in higher education: An overview. *Prabandhan: Indian Journal of Management, 13*(1), 9–18. https://doi.org/10.17010/pijom/2020/v13i1/149944

Alamri, M. M. (2022). Investigating students' adoption of MOOCs during COVID-19 pandemic: Students' academic self-efficacy, learning engagement, and learning persistence. *Sustainability, 14*(2), 714. https://doi.org/10.3390/su14020714

Alenezi, M., Wardat, S., & Akour, M. (2023). The need of integrating digital education in higher education: Challenges and opportunities. *Sustainability, 15*(6), 4782. https://doi.org/10.3390/su15064782

Arora, A. K., & Srinivasan, R. (2020). Impact of pandemic COVID-19 on the teaching – learning process: A study of higher education teachers. *Prabandhan: Indian Journal of Management, 13*(4), 43–56. https://doi.org/10.17010/pijom/2020/v13i4/151825

Arun Kumar, A. (2021). Research note on online learning in India – Issues and challenges. *Prabandhan: Indian Journal of Management, 14*(8), 40–46. https://doi.org/10.17010/pijom/2021/v14i8/165678

Daimary, P. (2020). E-learning in schools during the COVID-19 pandemic in rural areas. *International Journal of Management, 11*(10), 659–664.

Ghavifekr, S., & Rosdy, W. A. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science (IJRES), 1*(2), 175–191.

Hatlevik, O. E., & Arnseth, H. C. (2012). ICT, teaching and leadership: How do teachers experience the importance of ICT-supportive school leaders? *Nordic Journal of Digital Literacy, 7*(1), 55–69. https://doi.org/10.18261/ISSN1891-943X-2012-01-05

Jena, P. K. (2020). Impact of pandemic COVID-19 on education in India. *International Journal of Current Research, 12*(7), 12582–12586. https://doi.org/10.24941/ijcr.39209.07.2020

Kanojia, M., Shukla, B., & Wali, A. (2022). Critical factors to technology development in Indian academia: An ISM-MICMAC approach. *Prabandhan: Indian Journal of Management, 15*(5), 8–26. http://doi.org/10.17010/pijom/2022/v15i5/169578

Nath, A., Behura, A. K., Kumar, R., Kanak, T., & Sundararajan, M. (2019). Technology advancement, teachers' efforts and know-how as key factors to improve students' creativity for excellence in education management. *Prabandhan: Indian Journal of Management, 12*(11), 7–20. https://doi.org/10.17010/pijom/2019/v12i11/148408

Pradeepkumar, J. E., & Panchanatham, N. (2011). Amazing impact of e-learning education in rural India. *Prabandhan: Indian Journal of Management, 4*(5), 43–49. https://doi.org/10.17010/pijom/2011/v4i5/62453

About the Authors

Dr. Shruti Gill is an Associate Professor at IILM Institute for Higher Education, New Delhi. She has worked in education management for the past 13 years and in business for over 10 years. She is a powerful management specialist with a Ph.D. in marketing and an MBA in international business and information technology. Education, marketing management, job placement, student counseling, and industry-academic collaboration are among her areas of specialization. She has also led Employee Training Workshops for prominent organizations on developing sales and marketing skills, as well as a guest lecture series on interview preparation skills and marketing-related themes at various management universities.

Dr. Aarti Sharma is an Associate Professor of Finance and Master-in-Residence at Gurugram's Masters' Union School of Business. She has a Ph.D. in Finance from Shiv Nadar University and has taught at the postgraduate and undergraduate (international program) levels for over 10 years. She has presented her research findings at prestigious international conferences hosted by IIMs, IITs, the World Finance Conference, and the New Zealand Finance Meeting.

Dr. Daisy Mathur Jain is a Professor of Technology and Entrepreneurship. She has nearly 21 years of diverse technological consulting expertise as an entrepreneur, academician, customer relationship lead, and program manager. She has been a Professor for 10 years, the Entrepreneurship Development Centre Director, and the Area Chair of Entrepreneurship and Family Business at IILM.