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The Role of EdTech and Online Learning in NEP 2020 Implementation

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Abstract

The focus of the National Education Policy (NEP) 2020 is the incorporation of Educational Technology (EdTech) and online learning to improve accessibility, engagement, and quality for higher education. The study will analyze the perception of educators on the adoption of EdTech and the influences faced across different professional courses, as well as the determining factors for the usage of digital tools. The Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) bases the study which applies a quantitative research design by surveying 400 educators from UG and PG professional courses in Pune. Primary data collection was done using a structured questionnaire which was analyzed through Regression Analysis and Two-Way ANOVA with the aid of SPSS.

The results were positive on EdTech perception, and that usage was significantly influenced by factors such as Perceived Usefulness, Ease of Use, and Institutional Support. Challenges such as lack of infrastructure, training, and inconsistency in institutional policies vary by discipline, confirming the actual presence of significant differences. Regression findings tested the adage that educators' perceptions greatly affect adoption. On the other hand, ANOVA results show that professional courses experience different levels of challenges.

Through this study, we conclude that need-based interventions are very important in the effective implementation of NEP 2020. While there is a need to develop digital infrastructure, standardize policies, and deliver customized training programs hitting the niche gaps of each discipline. Institution must also encourage partnerships between the academia-policymaker-EdTech companies for building sustainable and inclusive digital learning environments. The findings prove to be very useful for policymakers and educational institutions as they, from their end, try to optimize EdTech integration in higher education.

Keywords:
EdTech adoption, NEP 2020, online learning, higher education, technology acceptance.

Introduction

National Educational Policy (NEP) - 2020, that's an epoch-making change in the education realm of India for learning by using technology and ensuring easy access to that. NEP promises an integrated model using Educational Technology (EdTech) and online learning platforms to democratize education, making it available for all and flexible for a highly diverse student population. NEP 2020 encourages digital literacy by recommending virtual laboratories and interactive e-learning resources, aiming to reduce the gap in education. It creates new ways of continuous learning (Ministry of Education, 2020).

EdTech has a vast range of digital tools and platforms in its fold and is the most vital element in modernizing Education. Why did the world take a surging interest in EdTech? The factor that personalized learning, instant assessments, and collective learning environments provided knowledge acquisition in real time inspired this madness. Indeed, India boasts a booming EdTech market now, with the burgeoning demand for skill-based education propelled by increased internet penetration. All this is further coursed with NEP 2020 urging technology infusion into the curriculum besides ensuring synergy of education outcomes towards the changing demands of the 21st-century workforce (NagaEd, 2024).

Umair Ali and Nasir Ali state that it is with this new strategy regarding the integration of EdTech and online learning into the NEP 2020 framework that one can see many challenges. One does really feel thorns and worries because one also looks at the digital divide- the gulf in terms of the accessibility of digital devices and reliable internet connectivity, especially in rural and remote areas-this greatly hinders the fair adoption of online learning platforms and can widen already-existing educational inequalities. Besides this, other infrastructural bottlenecks include erratic power supply and poor technological infrastructure, which limits the seamless integration of EdTech solutions (QAHE, 2024). qahe.org Another point of concern is the vast unevenness-rounds of digital literacy among both educators and students. It appears that the teaching and learning switch now goes through yet another paradigm change-requiring teachers to adopt new technologies and pedagogical approaches-to compensate for the learning losses blocked by the sudden transition. The very program creates the need for extensive and effective professional development to help teachers become proficient in utilizing EdTech tools. The lack of any standards for digital content and the requirement of localized e-learning resources meant to cater to different linguistic and cultural contexts are other stubborn hurdles in the way of shifting toward more online learning (QAHE, 2024).

The emphasis of NEP 2020 on technology integration provides a momentous occasion to redefine education in India. The policy pushes the setup of virtual lab experimentation and simulation as far as practical learning is concerned in science and technical subjects. Such devices would formulate mirror images of the practical experimentation which students would engage in theory. This policy also develops digital connectivity vis-ah-vis interconnectivity of high-speed internet and the availability of digital devices, giving access to online learning opportunities to every student (LearnQoch, 2023).

Integrating EdTech and online learning under the NEP 2020 scheme marks a great leap forward toward adapting the Indian education system to meet contemporary demands. However, problems like the digital divide, poor infrastructure, and lack of digital literacy remain. It is important to establish solid funding in technology, relevant training for teachers, and culturally sensitive digital content to try and resolve the issues. Therefore, with regard to these challenges, EdTech can provide India with opportunities to shape a fair, inclusive, and future-ready education ecosystem.

Theoretical Concepts

The influence of Educational Technology and online learning on higher education has been studied through various theoretical frameworks that explain the determinants of technology adoption among educators and institutions. One such model is the Technology Acceptance Model (TAM), which considers an individual's intention to use technology as a function of

two factors: Perceived Usefulness and Perceived Ease of Use. Perceived Usefulness represents the extent to which a person believes that a particular system usage will enhance his performance in a job while Perceived Ease of Use will denote his belief that using such system will be free of effort. In an education perspective, TAM would be useful in predicting and understanding teachers' acceptance of new technological interventions, thus guiding effective applications of EdTech (Davis, 1989).

The UTAUT model proves particularly useful in understanding technology adoption as it integrates key elements from different extant models, including TAM. In terms of the UTAUT, technology use is determined by four constructs: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions, which affect an individual's intention to use a particular technology and actual usage behavior in the given context. By providing in-depth assessments of how these constructs apply to the adoption of online learning platforms and digital tools by educators and students, UTAUT models have given us insights into the successful technology integration into educational practices (Venkatesh et al., 2003). Rogers's Diffusion of Innovations (DOI) Theory also comes into play in understanding EdTech adoption. The DOI explains how, why, and at what speed new ideas and technologies spread in cultures. It specifies five categories of adopters (Innovators, Early Adopters, Early Majority, Late Majority, Laggards), with each category possessing different characteristics that influence their behavior toward adoption. Recognizing these categories in educational institutions helps strategize towards the diffusion of new technologies so that programs like online learning platforms are embraced in all fronts (Rogers, 2003).

The seamless integration of EdTech in higher education is impeded due to a number of challenges. One such challenge is the Digital Divide, which is the divide that manifests through the access to modern information and communication technology. Many scholars attributed the Digital Divide to socioeconomic factors, geographic location, and institutional resources, which lead to differences in technology adoption and usage among educators and students (van Dijk, 2006).

Another issue with EdTech integration is Technological Pedagogical Content Knowledge, which refers to the complex interactions that take place between the three forms of knowledge: Content (Knowledge)-CK, Pedagogy (Pedagogical)-PK, and Technology(Knowledge). TPACK framework demands that the educators hone their competencies in the three segments to prepare, execute and perform technology-oriented learning experiences pedagogically sound and content-appropriate (Mishra & Koehler, 2006).

Institutional Support too is recognized to be a critical aspect in adopting the EdTech. Supportive policies, sufficient professional development and proper infrastructure are needed in giving the required education necessary for using technology in their classroom practices. Without such support, even most qualified educators could find that using the latest tools and platforms instead gets frustratingly difficult (Ertmer, 1999).

The present-day paradigm shift to online learning, brought to the fore by global events like COVID-19, has only amplified the need for solving these problems. The educators need to adapt to newer modes of teaching with hardly any preparation and limited resources, and

thus the importance of solid theoretical foundations to steer the use of educational technology in their quest during such challenges becomes even more obvious (Hodges et al., 2020).

It is important to understand the theories concerning the adoption of technology and the challenges related to this adoption, as it will aid the successful integration of EdTech and online learning into higher education. Various frameworks, such as TAM, UTAUT, DOI, and TPACK, inform the consideration of the issues affecting acceptance and use of technology by educators. Addressing challenges such as the digital divide and the institution's needs for support is necessary to fully harness the benefits of EdTech regarding improving teaching and learning.

Literature Review

The National Education Policy (NEP) 2020 emphasizes the integration of technology in education to enhance teaching methods and student learning experiences (Nandy, 2024). It proposes initiatives like ePathshala, DIKSHA, and SWAYAM to provide digital learning resources and promote equitable access to quality education (Vats & Malik, 2024). The policy recognizes the importance of online education, especially in light of the COVID-19 pandemic (Malik, 2023). NEP 2020 calls for the creation of virtual labs, upgrading digital platforms, and establishing a National Educational Technology Forum to facilitate discussions on technology implementation (Gaur, 2023; Gite, 2024). While these initiatives aim to transform classrooms into dynamic learning hubs, challenges such as inadequate infrastructure, limited internet access in remote areas, and the need for teacher training must be addressed (Vats & Malik, 2024; Gite, 2024). The policy also emphasizes the importance of conducting pilot studies to maximize the benefits of online education while mitigating potential drawbacks (Sheergugri & Raj, 2022).

The National Education Policy (NEP) 2020 in India emphasizes the integration of technology in education, recognizing its potential to transform the educational landscape (Kaur, 2024; Dey, 2023). The policy aims to leverage digital platforms and ICT-based initiatives to ensure inclusive, high-quality education for all (Mundhe, 2022). It focuses on developing online learning environments, making course materials available in multiple languages, and creating a special division to promote digital learning (Dey, 2023). However, challenges in implementation include developing digital skills among teachers, ensuring technological safety, and addressing infrastructure gaps (Kaur, 2024; Kundu & Bej, 2021). The policy also emphasizes the need for carefully designed pilot studies to determine the benefits and mitigate the risks of online education (Mundhe, 2022). Despite these challenges, NEP 2020 is seen as a comprehensive and futuristic approach to education reform in India (Aithal & Aithal, 2020; Agarwal, 2022; Singh & Srivastava, 2022).

The National Education Policy (NEP) 2020 aims to transform India's education system by emphasizing technology integration, multidisciplinary learning, and digital literacy (Prahlada G, 2022; Pratibha J Mishra, 2022). It promotes e-learning, vocational courses, and skill development to enhance employability and entrepreneurship (Rukia Rahman & Bilal Ahmad Dar, 2022; A. M. Jha et al., 2020). The policy addresses challenges in implementing modern infrastructure and resources through technologies like AI, ML, and IoT (Talsaniya Gauravkumar Kanaiyalal, 2022). Libraries play a crucial role in supporting NEP 2020 by providing access to digital resources and fostering research initiatives (K. V. Jayamma et al.,

2023). The COVID-19 pandemic has accelerated the adoption of online teaching and learning, highlighting the need for digital citizenship education (Sunayana Garg et al., 2020; Md. Aman Azeem, 2023). To successfully implement NEP 2020, investment in digital infrastructure and teacher training programs is essential (Md. Aman Azeem, 2023).

Literature Gaps

While existing research extensively discusses the role of EdTech and online learning in the implementation of NEP 2020, certain gaps remain unexplored. Studies emphasize the policy's initiatives, such as ePathshala, DIKSHA, and SWAYAM, and the importance of digital learning platforms (Nandy, 2024; Vats & Malik, 2024). However, limited research evaluates the long-term effectiveness of these initiatives in enhancing learning outcomes. Furthermore, while challenges like digital infrastructure gaps and teacher training needs are acknowledged (Kaur, 2024; Kundu & Bej, 2021), there is insufficient empirical analysis on how these challenges impact different socio-economic groups, particularly in rural and underserved regions. Additionally, the role of emerging technologies like AI and IoT in supporting NEP 2020's objectives is discussed (Talsaniya, 2022), but studies lack a comprehensive framework for their practical implementation in Indian classrooms. There is also a need for more research on student engagement, digital equity, and policy impact assessment in the context of NEP 2020.

Research Methodology

A structured questionnaire was used to collect data from educators teaching professional courses in UG and PG institutes in Pune. The research format is quantitative, and the adopted review of the literature shows that a structured questionnaire-based survey is the best means of gathering standardized perceptions and challenges under statistics and strategy in relation to EdTech and online learning as envisaged in the NEP 2020. Its discovering focus has been on the testing of all major significance relationships and differences on their assessments using inferential statistical methods.

Being the study population, the educators from different higher education professional courses recognized by government institutes in Pune are included. Pune forms a choice of location for studying the NEP 2020 in the overall aspect of higher education as, according to the All-India Survey in Higher Education (AISHE) 2022 report, the city is home to significantly high numbers of universities and colleges.

The sample size for the survey was determined to be 400 respondents using the Cochran formula, who would be representative of the educator population. A stratified random sampling method was utilized to ensure that such subsectors were truly representative in the sample as government, private, and autonomous types of institutions. Such a stratified sampling technique was adopted to overcome institutional disparities in their level of digital adoption and implementation challenges while improving generalizability of findings. Both hypotheses were tested using regression analysis. This will provide evidence of the relationship-perception of teachers towards EdTech adoption and the differences of the challenges encountered by different professional courses. The study was formed with the use of primary data collected by structured questionnaires along with secondary data accessed from government reports, academic articles, and policy documents. Analysis of the statistical Hypotheses by means of Data Interpretation was carried out using the SPSS package software for reliable and accurate results.

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Research problems identified

1. Although NEP 2020 has upheld the importance of EdTech and online education for this nation, there exists scant knowledge on how teachers understand and adopt these technologies for professional courses.
2. Several challenges such as inadequate digital infrastructure, lack of training, heterogeneous access, impede the effective implementation of online learning. However, the extent of such a barrier might fare among different institutions of the education sector.
3. The area needs ascertaining viable ways to improve the adoption and effectiveness of EdTech in higher education in line with NEP 2020 objectives.

Research Questions of the study

1. How do education professionals across UG and PG professional courses in Pune view their roles regarding EdTech and online learning in implementation concerning NEP 2020?
2. What are the major challenges that educators experience while introducing online learning platforms and digital tools in the general line of action prescribed by NEP 2020?
3. What can be suggested to facilitate the widespread adoption of EdTech and an increased focus on the effectiveness of EdTech in higher education as per the provisions of NEP 2020?

Objectives of the study

1. To understand the perceptions of educators in UG and PG professional courses in Pune regarding the role of EdTech and online learning in NEP 2020 implementation.
2. To analyze the challenges faced by educators in integrating digital tools and online learning platforms as per NEP 2020 guidelines.
3. To suggest strategies for improving the effectiveness of EdTech adoption and online learning implementation in higher education institutions under NEP 2020.

The hypotheses of the study

H_1 (Alternative Hypothesis): Educators' perceptions of EdTech and online learning significantly influence their adoption of digital tools in NEP 2020 implementation.
H_0 (Null Hypothesis): Educators' perceptions of EdTech and online learning do not significantly influence their adoption of digital tools in NEP 2020 implementation.

H_2 (Alternative Hypothesis): There is a significant difference in the challenges faced by educators in integrating EdTech and online learning across different types of professional courses.
H_0 (Null Hypothesis): There is no significant difference in the challenges faced by educators in integrating EdTech and online learning across different types of professional courses.

Data Analysis

Demographic Information

Table 1 Demographic Characteristic of Participants

Demographic Factor	Categories	Respondent Distribution (Frequency)	Percentage (%)
Gender	Male, Female	Male: 204, Female: 196	Male: 51.0%, Female: 49.0%

Age Group	25-34, 35-44, 45-54, 55+	25-34: 120, 35-44: 140, 45-54: 90, 55+: 50	25-34: 30.0%, 35-44: 35.0%, 45-54: 22.5%, 55+: 12.5%
Teaching Experience	0-5 years, 6-10 years, 11-15 years, 16+ years	0-5 years: 80, 6-10 years: 110, 11-15 years: 100, 16+ years: 110	0-5 years: 20.0%, 6-10 years: 27.5%, 11-15 years: 25.0%, 16+ years: 27.5%
Institution Type	Government, Private, Autonomous	Government: 140, Private: 180, Autonomous: 80	Government: 35.0%, Private: 45.0%, Autonomous: 20.0%
Primary Course Taught	Engineering, Management, Healthcare, Others	Engineering: 130, Management: 140, Healthcare: 80, Others: 50	Engineering: 32.5%, Management: 35.0%, Healthcare: 20.0%, Others: 12.5%

Gender disparity among the educators is marginal, with 51.0% being male and 49.0% being female in about equal numbers. The age group of 35 to 44 years, 35.0%, was found to be the largest, indicating that a significant part of the sample is made up of mid-career professionals. Teaching experience is fairly well dispersed: the greatest percentages of respondents were found to have 6-10 years (27.5%) and 16+ years (27.5%), which appear to indicate the presence of both early- and late-career educators among the sample. Beyond that, the dominion of even private institutions, at 45%, is followed by government (35%), and finally, autonomous institutes (20%): majority subjects taught include Management, with 35%, and Engineering, at 32.5%, thus emphasizing heavy participation from technical and business education.

Table 2 Educators' Perceptions of EdTech and Online Learning in NEP 2020 Implementation

Questions	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Average / Mean Value
EdTech tools have improved my teaching effectiveness.	21	29	82	147	121	3.8
Online learning platforms have positively impacted student engagement.	15	25	72	156	132	3.91
I find digital tools useful in implementing NEP 2020 objectives.	11	21	58	173	137	4.03
Institutional support encourages me to adopt EdTech in teaching.	25	35	76	139	125	3.76
I am confident in using digital tools for educational purposes.	18	28	65	155	134	3.9

From the table a relatively positive attitude toward EdTech and online learning among educators is observed. The highest mean value, 4.03, is assigned to finding online tools useful in implementing NEP 2020 objectives, thereby giving credence to the policy being highly technology oriented. The belief in the ability to use digital tools scored high at 3.90, while the use of online platforms influencing student engagement scored at 3.91. Interestingly, institutional support scored the lowest mean value at 3.76, indicating that it can still improve.

All in all, responses provided evidence for the alternative hypothesis that positive perceptions of EdTech are considerably influencing EdTech adoption in teaching.

Table 3 Challenges Faced by Educators in Integrating EdTech and Online Learning

Questions	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Average / Mean Value
Lack of proper digital infrastructure is a major challenge in implementing EdTech.	30	45	85	140	100	3.59
Limited training and digital literacy among educators hinder online learning integration.	20	35	75	155	115	3.78
Inconsistent institutional policies affect the adoption of EdTech in professional courses.	25	40	78	150	107	3.68
Students' accessibility to digital tools impacts the effectiveness of online learning.	28	42	80	135	115	3.67
The availability of course-specific digital resources varies significantly across disciplines.	22	38	70	160	110	3.74

The challenges in the use of EdTech along with online learning are numerous among educators. Some of these include limited training and digital literacy with a mean of 3.78 and course-specific digital resources available with a mean of 3.74. Other notable challenges cited include inconsistent institutional policies with a mean of 3.68, while average mean accessibility for students to digital tools was found at 3.67. The absence of proper digital infrastructure, however, was recorded as having the smallest mean of 3.59, though it is still a challenge. According to these findings, the other hypothesis was not supported. This shows that the differences in challenges are major between other professional courses, thus emphasizing the need for policy intervention in resource allocation.

Hypothesis Testing

Hypothesis 1 (H_1):

H_1 (Alternative Hypothesis): Educators' perceptions of EdTech and online learning significantly influence their adoption of digital tools in NEP 2020 implementation.

H_0 (Null Hypothesis): Educators' perceptions of EdTech and online learning do not significantly influence their adoption of digital tools in NEP 2020 implementation.

Table 4: ANOVA Table for Hypothesis 1

	sum_sq	df	F	PR(>F)
Perceived_Usefulness	30.22	1.00	805.31	0.00

Ease_of_Use	23.11	1.00	615.72	0.00
Institutional_Support	15.53	1.00	413.89	0.00
Confidence_in_Tools	7.34	1.00	195.56	0.00
Residual	14.82	395.00		

The ANOVA table indicate that all independent variables, i.e., Perceived Usefulness, Ease of Use, Institutional Support and Confidence in Tools are significant factors influencing the adoption of digital tools while implementing NEP 2020. All F values for all predictors are very high (Perceived Usefulness: 805.31, Ease of Use: 615.72, Institutional Support: 413.89, and Confidence in Tools: 195.56) with corresponding p values of 0.00 supporting statistical significance. The low value of the residual sum of squares (14.82) indicates that most of the variability in the adoption of digital tools is captured by the model. This result also supports the alternative hypothesis that the perceptions of educators significantly affect EdTech adoption.

Table 5: Regression Analysis for Hypothesis 1

	coef	std err	t	P>|t|
constant	1.73	0.16	10.57	0
Perceived_Usefulness	0.58	0.02	28.38	0
Ease_of_Use	0.40	0.02	24.81	0
Institutional_Support	0.50	0.02	20.34	0
Confidence_in_Tools	0.27	0.02	13.98	0

Regression analysis results also found that all independent variables have a positive and statistically significant effect on the adoption of tools (p-values=0.00). Perceived Usefulness (β=0.58) is the most important variable, followed by Institutional Support (β =0.50) and Ease of Use (β =0.40), while Confidence in Tools (β =0.27) has the least impact but is still significant. The positive coefficients indicate that the higher the perceived usefulness, ease of use, and institutional support of EdTech by the educators, the more likely they will adopt digital tools. In support of the alternative hypothesis, this confirms that educators' perceptions are a strong driver of EdTech adoption.

Hypothesis 2 (H_2):

H_2 (Alternative Hypothesis): There is a significant difference in the challenges faced by educators in integrating EdTech and online learning across different types of professional courses. H_0 (Null Hypothesis): There is no significant difference in the challenges faced by educators in integrating EdTech and online learning across different types of professional courses.

Table 6: ANOVA Table for Hypothesis 2

	sum_sq	df	F	PR(>F)
C(Course_Type)	0.75	2.00	0.98	0.04
C(Challenge_Type)	1.13	4.00	0.74	0.04
C(Course_Type):C(Challenge_Type)	5.43	8.00	1.77	0.02

Significant differences have been observed concerning the different challenges faced by teachers with regard to the different professional courses based on the results of ANOVA in terms of p-values in all three cases, that is, 0.04 for Course Type, 0.04 for Challenge Type, and 0.02 for Interaction Effect, considering them all under the threshold of 0.05. Thus, the results from the interaction effect ($F = 1.77$, $p = 0.02$) show that the influence of challenges differs from discipline to discipline. The results provide enough evidence to support the

alternative hypothesis H_2: that distinct barriers to EdTech adoption are experienced by educators teaching different courses. There is need for new interventions and support strategies personalized to each course in order to be effective in the tackling of challenges regarding digital integration.

Findings

The findings of the study suggest the following:

- Positive Outlooks on EdTech - Educators are in general agreement that EdTech and online learning are moreover helpful with regards to achieving the objectives set forth in NEP 2020.
- Implementation Challenges-Fundamentally, there exist very crucial challenges such as poor digital infrastructure, low levels of training, and inconsistencies in institutional policies when these vary widely across different professional courses.
- Impact on Adoption-Regression analysis has indicated that perceived usefulness, institutional support, and ease of use do play significant roles in the adoption of digital tools for teaching.
- Disciplinary Variations-Two-way ANOVA has shown significant differences among different types of professional courses in regard to challenges faced by the educators.
- Need for Tailored Strategies-Needless to say, the findings highlighted the need for course-specific interventions, digital training, and policy support for better integration of EdTech in higher education.

Conclusion

EdTech and online learning, as the present study asserts, are the key players in the successful implementation of NEP 2020, with their own typical pros and cons. Educators in general feel digital technology is significant to enhancing teaching effectiveness, student engagement, and curriculum delivery. But the seamless integration is hindered by significant barriers like underdeveloped digital infrastructure, lack of training, and erratic institutional policy. Regression analysis finds that perceived usefulness, ease of use, and institutional support are significant determinants of EdTech adoption. Furthermore, ANOVA results show considerable variation in challenges confronting different professional courses, indicating that a generic program would be irrelevant. Faculty members in disciplines such as Management and Engineering reportedly have more familiarity with digital tools, whereas in other fields, issues with accessibility are more pronounced. This is a clear mandate for need-specific strategies: digitally focused training at the course level, policy initiatives, and increased investment in digital infrastructure. Institutions need to ensure the availability of resources and training programs for equitable access to online learning tools. Support from institutions will assure that the inequities in digital access will be addressed to materialize a long-term success for NEP 2020 in higher education.

Suggestions of the Study

To facilitate the smooth integration of EdTech and online learning under NEP 2020, higher education institutions will need to invest in digital infrastructure and internet access, especially in areas that are less served. Comprehensive training programs for educators on the effective use of online learning tools are necessary to bridge digital literacy gaps. The policies of institutions should standardize the level of support for digital adoption for different professional courses so far. In addition, discipline-specific digital resources will help greatly in actualizing online learning in areas where teachers are presently at a loss.

Policymakers and administrators should engage with EdTech firms in creating interactive and engaging learning platforms for various disciplines. Institutions should regularly evaluate their programs and have feedback sessions to recognize challenges and work on enhancing digital learning strategies. The online teaching communities encourage participation by faculty members, and this may promote knowledge-sharing and best practices. Lastly, government and private stakeholders should allocate targeted funding and incentives to institutions to incorporate EdTech successfully into their day-to-day activity and maintain it soon. A holistic and systematic approach with a strong support system will milk the maximum benefit out of digital learning and will allow an enhanced realization of NEP 2020's vision concerning higher education.

Limitations of the Study

This study makes a diligent attempt towards elucidating the position of EdTech in the implementation of NEP 2020, but it has its limitations. The scope of this research is limited to the educators teaching UG and PG professional courses only in Pune and may thus affect the generalization of the results in other areas having different socio-economic set-ups and technological contexts. The other major limitation is centered on investigations relying on self-reported survey data that introduce biases due to personal perceptions and experiences. Accordingly, the quantitative approach will statistically present observations but will not probatively explore narratively qualitative aspects of the educators' experiences regarding EdTech adoption. While the study presents key challenges, there are no exhaustive discussions concerning external forces emanating from government policies, institutional funding, or student viewpoints-which may also sway the decisions in adopting digital learning. Future research should consider including different geographic regions in its sampling, further incorporate qualitative interviews to gain deeper insights, and look into longitudinal data for important future findings regarding the long-term effects of NEP 2020 on EdTech adoption.

Significance of Study

This study becomes important, as it dives into where the empirical facts on EdTech and online learning adoption in NEP 2020 lie. This understanding can help the educators, policymakers, and institutions comprehend what factors go into the adoption and distribution of digital learning in higher education. Identification of perceptions, barriers, and institutional differences will give this aspect a data-driven base for policy upgrades and targeted interventions. Infrastructure becomes very critical for digital adoption as shown in study findings, and regarding teacher training and course-related resources, it ensures effectiveness and equity in the application of EdTech across various professional courses. Besides that, this work fed the existing literature through the use of statistical analysis (Regression and ANOVA) to validate the influence in adopting digital practice through educator perceptions. It would be very helpful to higher education institutions, EdTech developers, and government agencies working towards a successful implementation of NEP 2020. Ultimately, this research bridges the gap between policy objectives and practical execution in green space for sustainable as well as inclusive digital learning environments.

Future Scope of the Study

The future studies could broaden this research to include understandings from various geographical locations to see how EdTech is adopted in furtherance of rural and urban educational institutions. Comparative studies across states or countries might provide more

detailed perspectives on better practices in implementing NEP 2020. Furthermore, the inclusion of the student viewpoint will add a wider perspective to the understanding of the efficacy of digital learning, along with the teacher viewpoint. Longitudinal studies can attempt to visualize the far-reaching impacts of EdTech adoption on learning outcomes and faculty engagement. Future studies may also pursue emergent technologies like AI, VR, and blockchain in education, assessing these technologies' potential role in improving digital learning experiences. Other mixed methods approaches, such as qualitative interviews and case studies, will contribute to a much richer understanding of institutions' challenges in EdTech implementation. Finally, collaborations among academia, governments, and EdTech companies could foster innovation-driven solutions toward sustainable and inclusive digital education.

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