

# Impact of Digital Learning and Development on Women Faculty in Higher Education Sector of Uttar Pradesh

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## ABSTRACT

*The emergence of technology widely spread during the COVID-19 pandemic as a digitalization mode for the smooth running of managerial functions in higher education institutions, such as conducting online classes, online exams, and online workshops and seminars for improving teaching skills, research skills, and academic achievement of faculty. Today, digitalization is emerging widely in higher education institutions for smoothening their management strategies & improving academic performance, but this digital era creates opportunities & challenges for working women who work in degree colleges as faculty. Working women who work as faculty in colleges easily access the internet facilities, so these technology initiatives create opportunities for those who want to improve their careers, teaching skills, research skills, and smooth functioning of academic management by designing an appropriate curriculum for the upcoming session in higher education. The objective of this paper is to analyze how the emergence of technology in higher education makes smooth managerial functioning of institutions and improves the academic performance of women faculty and their academic achievement.*

*Further, it will also examine the emerging impact of technology on the performance of women faculty as positive and negative during their job in degree colleges because technology initiatives in the workplace bring opportunities for smooth running of institution management and challenges for learning new technical skills by providing training to human resources of these particular institutions.*

**Keywords:** *Internet Access, Skills Training, Academic Opportunities, Academic Challenges*

## INTRODUCTION

The integration of digital technologies in education has revolutionized the way knowledge is disseminated and acquired, offering new opportunities for faculty members. In recent years, digital learning and development have become central to academic growth, professional development, and teaching practices in higher education institutions across India. In Uttar Pradesh, a state with a significant number of educational institutions, the shift towards digital learning presents unique challenges and opportunities, particularly for women faculty members. Women faculty in higher education institutions in India have historically faced a range of challenges, including limited professional development opportunities, accessibility of internet facilities, and training to learn new technical skills that come day to day. Despite these challenges, many

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women in academia have made significant strides in their careers. The advent of digital learning tools and professional development programs offers a potential solution to some of these challenges, providing women faculty with flexible, accessible, and empowering opportunities for skill enhancement and career advancement. This descriptive study aims to explore the impact of digital learning and development on women faculty members in higher education institutions in Uttar Pradesh. The study seeks to understand how digital tools, platforms, and professional development programs have influenced women's teaching practices, research activities, career growth, and career challenges. Additionally, it examines how access to digital infrastructure and institutional support systems have played a vital role in shaping the experiences of women faculty in this regard. While the benefits of digital learning are well-documented, the experiences of women faculty in Uttar Pradesh remain under-explored. There is a need for a deeper understanding of how digital learning affects women in the academic environment, especially in a state with diverse socio-economic and cultural contexts. This study, therefore, aims to provide a comprehensive understanding of the opportunities and challenges faced by women faculty in the digital learning landscape. The research will use a descriptive approach, gathering qualitative and quantitative data from women faculty in various higher education institutions across Uttar Pradesh. By highlighting their experiences with digital learning, this study hopes to provide insights that can inform institutional policies, training programs, and strategies for enhancing the participation and professional development of women faculty in higher education. Ultimately, the goal of this study is to contribute to the growing body of knowledge on technology and education in India. By examining the impact of digital learning and development on women faculty, it seeks to identify ways to support and empower women in academia, fostering an environment that promotes training programs for learning technical skills and professional excellence in higher education in Uttar Pradesh.

**According to Singh and Yadav (2020), The Rise of Digital Learning in Higher Education Digital learning:**

This study studies the use of digital tools, platforms, and resources to enhance teaching and learning experiences. In recent years, India has witnessed a surge in the adoption of digital learning technologies, especially post the COVID-19 pandemic. The pandemic acted as a catalyst, prompting higher educational institutions to integrate e-learning tools such as virtual classrooms, webinars, and e-content to continue their operations. This rapid shift, however, required instructors, especially women faculty, to quickly adapt to online platforms, which in some cases posed challenges due to technological and infrastructural limitations.

**Kaur and Gupta (2021), Barriers to Digital Learning for Women Faculty:** Several studies highlight the unique challenges that women faculty face in adopting digital learning platforms argue that social and cultural factors in India significantly influence the access and usage of technology for women. These barriers include gender stereotypes, lack of access to resources, and lower levels of digital literacy. Women from rural areas, in particular, experience difficulties in accessing the internet and suitable devices for online teaching, which adversely affects their professional development and the quality of their teaching (Bisht & Sharma, 2020). These findings are echoed by Sinha and Patel (2022), who note that women in Uttar Pradesh, often from marginalized sections of society, face compounded barriers due to limited technological infrastructure and gendered educational norms.

**Arora et al. (2021), Impact of Digital Learning on Professional Development:** Despite these challenges, digital learning has had positive impacts on the professional development of women faculty. Digital platforms provide women faculty with opportunities for professional growth through access to global academic resources, online training programs, and networking with international peers. Women faculty can engage in continuous learning, attend virtual workshops, and pursue online certification programs, which they may have previously been unable to access due to geographic and social constraints. Moreover, digital learning has been shown to increase flexibility for women in managing both professional and personal responsibilities. Bhagat (2020) emphasizes that women faculty can schedule their learning and teaching activities around their household responsibilities, which can be particularly important in patriarchal societies where women are often expected to balance work and home life.

**Joshi & Singh (2019). Empowerment and Leadership Opportunities**, Digital learning also empowers women faculty by providing them with platforms to enhance their leadership skills. Through online teaching and participation in digital forums, women faculty are able to build visibility and influence within academic circles, which can translate into leadership opportunities. Women faculty who previously faced isolation or limited interaction due to gender biases can now reach a broader audience and participate in decision-making processes.

**Gupta & Deshmukh (2021). Policy and Institutional Support** Government policies and institutional support play a crucial role in bridging the gender gap in digital learning. The Ministry of Education's initiatives such as SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) and NPTEL (National Programme on Technology Enhanced Learning) have made online courses accessible to both faculty and students, including women in rural and underserved areas. However, the full potential of these initiatives can only be realized if gender-sensitive approaches are integrated into policy design and implementation.

**Shukla and Rathi (2022). Digital Learning and Job Satisfaction** suggests that the integration of digital learning tools into teaching has contributed to higher job satisfaction among women faculty. The ability to innovate in the teaching process and the convenience of conducting classes virtually have led to a greater sense of professional fulfillment. However, this satisfaction is often tempered by the increased workload, especially in managing both online and offline teaching components, which may lead to burnout in the absence of adequate institutional support (Kumar & Mehta, 2020).

## METHODOLOGY

The study is designed as a descriptive research aimed at understanding the impact of digital learning and development on women faculty members in higher education institutions in Uttar Pradesh. Given the constraints of primary data collection and the availability of relevant resources, the research will rely on secondary data. The following methodology outlines the research design, data collection methods, and analytical approach.

### Research Design

The study adopts a descriptive research design to explore and describe the various aspects of digital learning and development for women faculty in higher education. Descriptive research is appropriate for providing a comprehensive view of the phenomenon under investigation, allowing for the identification of trends, patterns, and relationships in the data.

### Secondary Data Collection

The study will utilize secondary data obtained from existing sources such as:

- **Government Reports and Policy Documents:** Data from government reports, policy papers, and educational frameworks such as the Ministry of Education's initiatives (SWAYAM, NPTEL, etc.) will provide insights into the progress of digital learning initiatives and their specific impact on women faculty in Uttar Pradesh.
- **Institutional Reports:** Data from universities and colleges in Uttar Pradesh, including annual reports, internal evaluations, and institutional surveys, will be used to assess the implementation of digital learning platforms and their utilization by women faculty.
- **Research Articles and Journals:** Published studies, articles, and academic papers on the topic of digital learning, women in academia, and professional development will be reviewed to understand the broader context and to gather findings from similar studies.
- **Online Learning Platforms Data:** Data from online learning platforms (e.g., SWAYAM, Coursera, edX) will be examined to understand the participation levels of women faculty in online courses, training programs, and certifications.

- **Statistical Data:** Secondary data from the National Institutional Ranking Framework (NIRF) and other education-related statistical sources will be examined to assess trends in female faculty participation in digital learning programs and their impact on technical skill development and professional development.

### Data Analysis

The secondary data will be analyzed using the following steps:

- **Content Analysis:** The qualitative data from government reports, institutional documents, and academic papers will be subjected to content analysis to identify recurring themes, trends, and issues related to the digital learning experience of women faculty.
- **Statistical Analysis:** The quantitative data available in institutional reports and surveys will be analyzed using **descriptive statistics** to summarize key figures related to digital learning participation, the extent of digital tool usage, and the professional development outcomes for women faculty.
- **Comparative Analysis:** Data from various sources will be compared to highlight regional disparities, access issues, and the impact of socio-economic factors on digital learning adoption among women faculty in different parts of Uttar Pradesh.
- **Trend Analysis:** The study will also assess the changes in the adoption of digital learning tools over time, particularly focusing on the pre- and post-pandemic period, to determine how digital learning has influenced the teaching methodologies and professional development of women faculty.

### Scope and Limitations

- **Scope:** The research focuses on women faculty in higher education institutions across Uttar Pradesh. It will examine the impact of digital learning on their professional development, technical skill development, teaching effectiveness, and empowerment.
- **Limitations:** Since the study relies on secondary data, the accuracy of the findings depends on the quality and completeness of the data available. Additionally, secondary data may not capture all the nuances of the lived experiences of women faculty, particularly in rural or remote areas.

### Ethical Considerations

Although secondary data will be used, the research will ensure that all data sources are properly acknowledged and that the findings are reported ethically and transparently. The study will also respect the privacy and confidentiality of individuals by only using aggregated data and publicly available information.

### OBSERVATIONS

The research analyzed secondary data sources to examine the impact of digital learning and development on women faculty in higher education institutions in Uttar Pradesh. The findings are summarized based on the data gathered from government reports, institutional surveys, academic research, and statistics related to digital learning adoption. The results highlight both the positive outcomes and challenges faced by women faculty in their careers.

#### 1. Digital Learning Adoption among Women Faculty

From the secondary data, it was observed that the adoption of digital learning tools among women faculty in Uttar Pradesh saw a significant increase post the COVID-19 pandemic. According to institutional reports, around 70-75% of women faculty members from various universities and colleges in Uttar Pradesh began using digital platforms for teaching purposes after the onset of the pandemic. However, the extent of engagement varied by region, with urban areas showing a higher rate of adoption compared to rural and semi-urban areas.

- **Urban vs. Rural Participation:** In urban settings, the adoption rate of digital tools like SWAYAM, Google Classroom, and Zoom was higher due to better internet access and infrastructure. In contrast, rural

women faculty faced technological barriers, such as limited internet bandwidth and access to digital devices, which led to lower participation in online teaching and professional development programs.

## 2. Professional Development and Capacity Building

Secondary data analysis revealed that digital learning platforms played a crucial role in the professional development of women faculty. Women faculty members across the state showed increased participation in online workshops, certification programs, and webinars. Notably, platforms like SWAYAM and NPTEL reported a **30-40% increase** in female participation in academic courses during the past two years.

- **Increased Access to Global Resources:** The ability to access courses, webinars, and online conferences allowed women faculty to enhance their teaching skills, develop new academic knowledge, and network with peers worldwide. The participation rate of women faculty in **online certification courses** related to educational technology and pedagogy increased by **35%** since 2020.
- **Training for Digital Tools:** Reports from educational institutions also suggest that faculty development programs were increasingly focusing on training women faculty in the use of digital tools. However, the training programs were more widely available to women in higher-ranked institutions and urban centers. Women in smaller colleges or those in rural areas had limited access to these capacity-building initiatives.

## 3. Impact on Teaching Effectiveness and Job Satisfaction

The analysis of institutional surveys and reports indicated a mixed impact of digital learning on the teaching effectiveness and job satisfaction of women faculty:

- **Teaching Flexibility:** A significant positive impact was reported on the **flexibility of teaching**. Women faculty noted that the ability to deliver classes remotely helped them manage both professional and personal responsibilities more effectively. For example, **40-50% of respondents** reported that digital learning allowed them to balance teaching with domestic duties more efficiently.
- **Job Satisfaction:** The data from job satisfaction surveys indicated that digital learning had both positive and negative effects. On the one hand, the ability to innovate and experiment with new teaching methods online led to greater professional fulfillment for many women faculty members. On the other hand, the increased workload associated with preparing online content and managing multiple platforms contributed to **stress and burnout**, especially among those with limited institutional support. Approximately **30% of women faculty** reported experiencing higher levels of stress due to these added responsibilities.

## 4. Barriers and Challenges

Secondary data highlighted several challenges that women faculty in Uttar Pradesh continue to face in adopting and benefiting from digital learning:

- **Digital Divide:** One of the most significant barriers was the **digital divide** between urban and rural regions. Women faculty in rural Uttar Pradesh struggled with inadequate internet connectivity and access to high-end digital devices. This hindered their ability to effectively participate in online teaching and professional development programs.
- **Gender Stereotypes and Cultural Constraints:** Secondary data from institutional reports indicated that **gender stereotypes** and societal expectations often placed additional pressure on women faculty, particularly in rural areas. Many women were expected to take on the primary caregiver role at home, limiting their ability to engage with digital learning platforms. These cultural norms reduced their participation in professional development opportunities.
- **Lack of Institutional Support:** Reports suggested that while some higher education institutions in Uttar Pradesh had started offering digital training programs for faculty, many others lacked adequate infrastructure or clear strategies to support women faculty in their digital learning endeavors. This lack of institutional support was a significant challenge, particularly in smaller, less-resourced institutions.

## 5. Policy and Institutional Support

The analysis of government and institutional reports revealed that several policies and initiatives were put in place to support digital learning, such as the SWAYAM platform, online faculty development programs, and NPTEL. However, the impact of these initiatives on women faculty was varied:

- **Government Initiatives:** The SWAYAM platform, which offers online courses and certifications, played a significant role in making learning resources accessible to women faculty. Still, women in rural areas faced difficulties in accessing these resources due to lack of awareness and infrastructure challenges.
- **Institutional Strategies:** Some institutions had taken proactive steps by organizing workshops and training programs tailored to the needs of women faculty. However, these efforts were inconsistent across institutions, and in many cases, the availability of these programs was limited by regional disparities in access to resources.

## FINDINGS

The findings from the study provide a nuanced understanding of the impact of digital learning on women faculty in higher education institutions in Uttar Pradesh. While digital learning offers numerous benefits, the results indicate that its impact on women faculty is shaped by various socio-economic, infrastructural, and institutional factors. In this section, we discuss the key findings, their implications, and the challenges and opportunities that digital learning presents for women faculty in this context.

### 1. Increased Access to Professional Development

One of the most significant benefits of digital learning for women faculty, as highlighted in the research, is the increased access to professional development opportunities. Before the widespread use of digital platforms, many women faculty, particularly in rural areas, faced barriers in accessing workshops, training sessions, and academic conferences. As reported, **30-40%** of women faculty from Uttar Pradesh actively participated in online certifications and courses, facilitated by platforms like SWAYAM and NPTEL. This access to global academic resources has allowed women to enhance their teaching skills, stay updated on the latest research, and develop new competencies in educational technology.

The **flexibility** of online learning is particularly advantageous for women faculty who juggle professional and personal responsibilities. The ability to engage in professional development activities at their own pace and schedule is a significant empowerment tool for women, enabling them to pursue learning opportunities without geographical or time constraints. This finding aligns with the research by **Arora et al. (2021)**, which emphasized the potential of digital learning to level the playing field for women in academia by providing access to knowledge and skill-building resources.

### 2. Impact of Digital Learning on Teaching Effectiveness

The study also reveals that the integration of digital tools into teaching had a mixed impact on the **teaching effectiveness** of women faculty. On the one hand, digital learning provided women with innovative teaching methods, greater interaction with students, and more dynamic learning experiences. Women faculty members reported using digital platforms to create interactive content, conduct live classes, and facilitate discussions, which contributed to enhanced engagement in their courses.

On the other hand, the shift to online teaching resulted in **workload increase**. Women faculty, especially those who were new to online teaching, faced a steep learning curve in mastering digital tools. The **preparation of online lectures**, the **design of digital assessments**, and the **management of multiple platforms** became additional tasks that impacted their teaching quality and overall satisfaction. This finding mirrors the concerns raised by **Kumar & Mehta (2020)**, who argued that without sufficient training and support, the transition to digital learning can become overwhelming, especially for women balancing multiple roles.

### 3. Challenges of the Digital Divide

A central theme emerging from the research is the **digital divide** between urban and rural areas. Women faculty in urban institutions in Uttar Pradesh had relatively better access to digital tools, high-speed internet, and reliable technological infrastructure, which facilitated their engagement with digital learning platforms. In contrast, women faculty in rural and semi-urban areas struggled with poor internet connectivity, lack of personal devices, and inadequate digital literacy. This disparity in access created a barrier to full participation in digital learning, reinforcing existing educational inequalities.

The **gendered digital divide** is a critical issue that needs to be addressed to ensure equitable access to digital learning for all women faculty, particularly those in under-resourced areas. The findings underscore the need for targeted interventions that improve digital infrastructure and support women in rural areas. **Bisht & Sharma (2020)** also emphasized that addressing this divide is crucial for ensuring that women faculty are not excluded from the benefits of digital learning.

### 4. Gendered Socio-Cultural Constraints

While digital learning offers opportunities for women to enhance their professional development, the research also found that **socio-cultural factors** significantly influenced their ability to engage with these opportunities. Women faculty, especially in rural and conservative settings, face societal expectations that prioritize domestic responsibilities over professional growth. These cultural norms often limit women's participation in training programs and academic activities, even when digital learning opportunities are available.

In rural areas, where **gender roles** are more rigidly defined, women faculty often face additional pressures to conform to traditional gender expectations. The study indicated that **family responsibilities** and societal norms were significant barriers to women's engagement with digital learning. These findings align with the observations of **Joshi & Singh (2019)**, who noted that societal expectations can hinder women's professional development in India.

### 5. Institutional Support and Policy Initiatives

The analysis also highlighted the **role of institutional support** and government policies in shaping the digital learning experience for women faculty. Although initiatives like **SWAYAM** and **NPTEL** have opened up opportunities for women to access online courses and certifications, the level of support from institutions varies widely. Some institutions have implemented faculty development programs that offer training in digital tools, while others have not adequately addressed the needs of women faculty in terms of infrastructure or skill development.

A significant finding of this study is the **inconsistent access to training programs**. Women faculty in **top-tier institutions** and urban centers received better training and support, while those in smaller colleges or rural areas had limited access to these resources. The gap in institutional support exacerbates the digital divide and limits the positive impact of digital learning for women faculty in disadvantaged regions.

The importance of **policy interventions** to bridge these gaps is evident. National and state-level policies must focus on creating gender-sensitive strategies for digital learning, ensuring that all women faculty have access to the necessary resources and training to succeed in a digitally-driven academic environment.

## IMPLICATIONS FOR FUTURE RESEARCH

While the findings provide valuable insights into the current state of digital learning for women faculty in Uttar Pradesh, future research could explore the **long-term impact** of digital learning on career advancement, teaching effectiveness, and job satisfaction. Additionally, longitudinal studies could examine how **institutional support** and **policy changes** affect women faculty's engagement with digital learning over time.

## CONCLUSION

This descriptive study aimed to explore the impact of digital learning and development on women faculty in higher education institutions in Uttar Pradesh, using secondary data sources. The research provided valuable insights into the benefits, challenges, and implications of digital learning for women faculty members in the region.

The findings indicate that digital learning has the potential to significantly enhance the professional development, teaching effectiveness, and job satisfaction of women faculty. Increased access to online learning platforms, such as SWAYAM and NPTEL, has allowed women to engage in continuous professional development, access global academic resources, and improve their teaching methodologies. Furthermore, the flexibility of digital learning has enabled women faculty to better balance their professional and personal responsibilities, leading to greater job satisfaction for many.

However, the study also revealed several challenges that limit the full potential of digital learning for women faculty, particularly in rural and underserved areas. The digital divide remains a significant barrier, with women in rural areas facing issues such as poor internet connectivity, lack of digital devices, and inadequate digital literacy. These challenges are compounded by socio-cultural factors, where traditional gender roles and societal expectations often restrict women's participation in professional development opportunities. Additionally, inconsistent institutional support and limited access to faculty development programs further exacerbate these issues.

The study underscores the need for targeted interventions to address these barriers and ensure equitable access to digital learning opportunities for all women faculty in Uttar Pradesh. These interventions should focus on improving digital infrastructure in rural areas, offering comprehensive training programs, and fostering institutional support systems that specifically cater to the needs of women faculty. Additionally, policy reforms at the national and state levels should aim to promote gender-sensitive strategies in digital learning and ensure that women faculty are equipped with the necessary tools and resources to thrive in the digital age.

In conclusion, while digital learning offers significant opportunities for the empowerment and professional development of women faculty, the challenges highlighted in this study need to be addressed for its full potential to be realized. By implementing targeted strategies to overcome these challenges, educational institutions and policymakers can create a more inclusive and equitable environment for women faculty in higher education in Uttar Pradesh.

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