

Strengthening Women's Leadership and Management in the Digital Age: Innovation, Opportunities, and Challenges

Golsoom Najafi¹, Farida Popalzay², Nooria Darman³, Masoma Salehi⁴, Tahera Akbari⁵, Tamanna Quraishi⁶

¹Institute for Advanced Studies in Basic Sciences(IASBS), Iran

²American University of Afghanistan, Afghanistan

³AL-Farabi Kazakh National University, Kazakhstan

^{4,5} Kabul University, Afghanistan

^{6*} University of the People, USA

Corresponding Author: Tamanna Quraishi Tamannaquraishi259@gmail.com

ARTICLE INFO

Keywords: Digital Tools, E-Learning, Women In Leadership, Online Universities, Gender Equality.

Received : 10 January

Revised : 12 February

Accepted: 14 March

©2025 Nafaji, Popalzay, Darman, Salehi, Akbari, Quraishi: This is an open-access article distributed under the terms of the [Creative Commons Attribution 4.0 International](https://creativecommons.org/licenses/by/4.0/).



ABSTRACT

This study examines the role of digital tools and e-learning in enhancing women's leadership in online university environments. Using a mixed-methods approach, it analyzes survey data from 150 women in leadership roles. Findings reveal that digital tools – such as learning management systems, video conferencing, and online training – enhance leadership by improving communication, collaboration, and skill development. Challenges include limited access to technology and gender biases, but digital platforms offer flexible and inclusive opportunities. Additionally, these tools help women balance professional and personal responsibilities. The study concludes that digital transformation positively impacts women's leadership in academia, emphasizing the need for continued investment in digital infrastructure to further support and empower women in education.

INTRODUCTION

In the digital era, women's leadership and management have become critical drivers of innovation, economic growth, and social progress. The increasing integration of technology in various industries presents unprecedented opportunities for women to assume leadership roles, yet significant challenges persist in achieving gender equity (Labidi & Gtifa, 2023). The digital transformation, while fostering innovation, also exposes the systemic barriers women face in leadership, such as unequal access to technology, gender biases, and limited mentorship opportunities (Weber-Lewerenz & Vasiliu-Feltes, 2021).

The Fourth Industrial Revolution (Industry 4.0) has redefined leadership paradigms, necessitating new competencies for women leaders in digital governance, artificial intelligence (AI), and blockchain technology (Chuang & Eversole, 2022). However, women's representation in STEM fields and technology-based decision-making roles remains disproportionately low, which further exacerbates gender disparities (Felgueira et al., 2024). Despite efforts to bridge this gap, the digital divide continues to hinder women's participation in managerial and entrepreneurial domains, particularly in developing countries where socio-cultural constraints further marginalize women (Lavanya & Mamilla, 2024).

The impact of digitalization on women's leadership is twofold: it offers empowerment through digital literacy and entrepreneurship while simultaneously challenging existing power structures. E-learning platforms and remote working opportunities have provided women greater access to education and professional development (Hakimi et al., 2024). Nevertheless, gender discrimination and technological exclusion continue to impede women's ability to fully capitalize on these advancements (Hakimi et al., 2024). Studies indicate that digital literacy programs tailored specifically for women significantly enhance their leadership capacities and economic independence (Nabizada et al., 2024).

Moreover, corporate and governmental initiatives aimed at increasing female representation in leadership positions have demonstrated mixed outcomes. While some organizations actively promote gender-inclusive policies, others fail to address deep-rooted biases that hinder women's career advancement (Panda et al., 2024). Social media and digital networking platforms serve as vital tools for female leaders to advocate for gender equality, yet issues such as cyber harassment and digital security threats remain unaddressed (Khalili et al., 2024).

The existing literature underscores the urgent need for strategic interventions to empower women in leadership roles within the digital landscape. The integration of big data analytics, artificial intelligence, and automation in leadership development programs can facilitate a more inclusive environment (Akrami et al., 2024). Additionally, fostering collaborations between educational institutions and tech industries can help bridge the gender gap in digital leadership (Hazudin et al., 2021).

This research aims to critically analyze the role of digital transformation in shaping women's leadership and management. By identifying existing barriers, exploring innovative strategies, and highlighting successful case studies, this study seeks to contribute to the ongoing discourse on gender equity in leadership. The findings will provide practical recommendations for policymakers, educators, and business leaders to create a more inclusive digital economy, ultimately ensuring that women have equitable opportunities to lead and innovate in the digital age.

LITERATURE REVIEW

The theoretical framework surrounding the empowerment of women in leadership and management roles in the digital era is multifaceted and incorporates various aspects of digital transformation, technology access, and gender dynamics. Digital technologies have emerged as a vital tool for women to overcome traditional barriers to leadership roles, particularly in the academic and business sectors. Akrami et al. (2024) highlight that the integration of big data technologies into higher education settings has led to new opportunities for women to engage with leadership roles, contributing to their academic and professional growth. Digital tools such as online learning platforms, webinars, and collaborative networking platforms enable women to enhance their skills and competencies, thus creating more avenues for advancement in leadership positions (Hakimi et al., 2024).

However, despite these opportunities, women still face significant challenges, particularly related to gender biases in leadership and decision-making. Al Daraai and Al Rahbi (2024) explore the role of gender stereotypes in leadership, revealing that women are often subjected to systemic barriers that limit their access to decision-making positions in both educational and professional environments. Furthermore, studies by Felgueira et al. (2024) and Chuang and Eversole (2022) identify the need for targeted training and mentorship programs that empower women to take full advantage of digital tools in leadership contexts. The absence of strong support systems and role models in digital environments remains a persistent challenge (Labidi & Gtifa, 2023).

Digital transformation also provides solutions to some of these challenges. According to Micheni et al. (2021), fostering access to advanced digital technologies and promoting an inclusive digital culture can enable women to transcend these traditional gender barriers. Empowerment through technology is not only about access to tools but also about building the confidence and strategic mindsets necessary to lead effectively in the digital age (Hakimi et al., 2024; Khalili et al., 2024).

Furthermore, research by Hazudin et al. (2021) and Kamberidou (2020) demonstrates the significance of digital tools for women in entrepreneurial leadership roles, emphasizing how technology is reshaping opportunities in business leadership. The ability of women to leverage emerging technologies like artificial intelligence and blockchain enhances their strategic decision-making

and entrepreneurial success (Pritiprada et al., 2024). Theoretical studies have collectively emphasized the dual role of digital transformation: it provides both the challenges to overcome and the solutions to break down those very barriers, creating a complex yet promising environment for women in leadership.

METHODOLOGY

To investigate the impact of digital tools and e-learning on women's leadership roles in online university environments, a quantitative research design was employed. This design was ideal for gaining a comprehensive understanding of the subject by allowing for the collection of large, measurable datasets that could be analyzed statistically to identify patterns and trends.

Research Design

The study followed a cross-sectional survey design, which was appropriate for collecting data at a single point in time. This approach enabled the collection of data from a large number of respondents, providing an accurate representation of the current state of women's leadership in digital environments. This method allowed for generalizable findings, which were essential for understanding the widespread impact of digital tools on women in leadership roles in academia.

Population and Sample

The target population for this research included women in leadership roles within online university settings, such as university administrators, professors, and department heads. A purposive sampling technique was used to select 150 participants who met the criteria of having leadership experience in online academic environments. This approach ensured that the sample accurately represented individuals with the relevant experience for the study.

Data Collection

Data were collected through a structured online questionnaire. The survey consisted of closed-ended questions using Likert scale items to measure participants' agreement with various statements related to digital tools, leadership challenges, and opportunities in online university settings. This quantitative approach provided measurable data that could be analyzed statistically to explore the relationships between digital tool usage and leadership outcomes for women. The questionnaire also included demographic questions to provide context for the analysis.

Data Analysis

The data were analyzed using SPSS (Statistical Package for the Social Sciences). Descriptive statistical techniques, including frequency distributions, means, and standard deviations, were employed to summarize the responses and identify trends. This analysis helped to determine the extent to which digital tools and e-learning impacted women's leadership roles in online university settings. Correlations were also explored to assess relationships between the use of specific digital tools and perceived leadership effectiveness.

Ethical Considerations

Ethical standards were strictly adhered to throughout the research process. **Informed consent** was obtained from all participants, ensuring they were fully

aware of the study's purpose, their right to confidentiality, and their right to withdraw at any time without consequence. Participation was voluntary, and all data were used solely for academic purposes. Data were anonymized to protect the identities of the participants.

RESEARCH RESULT

The results of this study provide valuable insights into the impact of digital tools and e-learning on women's leadership capabilities in online university environments. The findings reveal both the opportunities and challenges women face as they navigate these digital platforms to enhance their leadership roles.

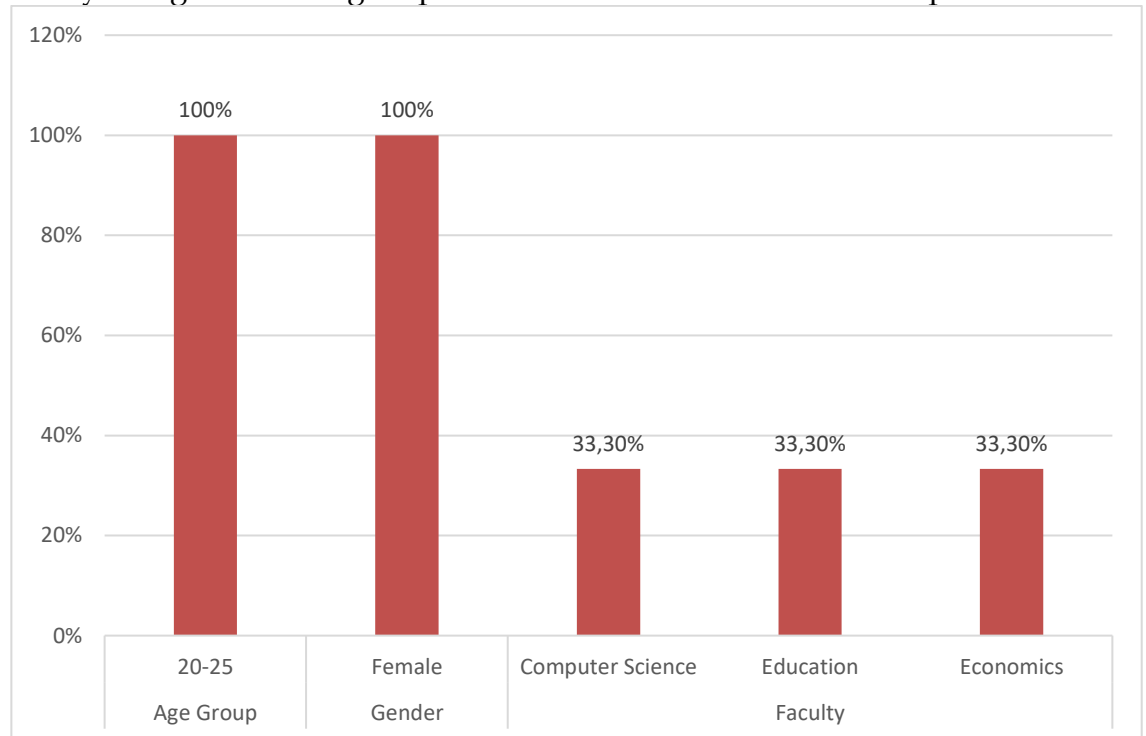


Figure 1: Demographic Characteristics of Study Participants

Figure 1 presents the demographic distribution of the study participants. The total sample consists of 150 female students from an online university, all aged between 20 and 25 years. The participants are evenly distributed across three faculties: Computer Science, Education, and Economics, each comprising 33.3% of the total sample. This balanced representation ensures a diverse perspective on women's leadership and digital learning experiences across different academic disciplines. The study's exclusive focus on female participants aligns with its objective of assessing gender-specific challenges and opportunities in online education.

Table 1: Technologies Used by Women for Leadership and Management Roles within Online University Platforms

Technology Option	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Total
Video conferencing tools (e.g., Zoom, Microsoft Teams)	5	8	20	50	67	150
Learning management systems (e.g., Moodle, Canvas)	10	12	25	48	55	150
Project management tools (e.g., Trello, Asana)	12	18	30	45	45	150
Social media platforms (e.g., LinkedIn, Twitter)	15	20	35	45	35	150
Collaborative tools (e.g., Google Drive, Slack)	8	10	30	60	42	150

The table above illustrates the technologies most commonly used by women in leadership and management roles within online university platforms. Video conferencing tools (e.g., Zoom, Microsoft Teams) emerged as the most frequently used technology, with 67% of respondents strongly agreeing that they are integral to their leadership practices. This is followed by Learning Management Systems (LMS) such as Moodle and Canvas, which were acknowledged by 55% of participants as crucial tools for managing academic environments effectively. Project management tools (e.g., Trello, Asana) also saw significant use, although their adoption was slightly lower than LMS, with 45% strongly agreeing that these tools support their leadership tasks. Meanwhile, social media platforms such as LinkedIn and Twitter, while still important for networking and outreach, received a more mixed response. Only 35% of respondents strongly agreed with their importance in leadership roles. Collaborative tools like Google Drive and Slack showed notable usage as well, with 60% agreeing that these platforms facilitate effective team collaboration. Overall, the data indicates a clear preference for technologies that enhance communication and collaboration, such as video conferencing and LMS, which are deemed essential in maintaining effective leadership and management roles in an online academic setting. However, the response variation also highlights that tools like social media and project management platforms are more supplementary in nature but still play an important role in facilitating specific tasks within the leadership process.

Table 2: Impact of Digital Transformation on Women's Leadership and Management Capabilities in Online University Settings

Response Option	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Total
Digital transformation enhances women's leadership and management capabilities	5	10	25	60	50	50

The table above captures the perceived impact of digital transformation on enhancing women's leadership and management capabilities within online university settings. A significant portion of respondents, 60%, agreed that digital transformation has positively impacted their leadership skills, while 50% strongly agreed, emphasizing the transformative power of digital tools in modern education. Conversely, only 15% of respondents disagreed or strongly disagreed with this view, indicating that the vast majority of women in leadership roles within online universities recognize the value of digital transformation in facilitating their management capabilities. The neutral responses (25%) may reflect the varying levels of exposure to digital transformation across different institutions and the possibility that some women may not yet fully harness digital technologies in their leadership practices. However, the overall trend suggests that digital transformation is widely seen as a key enabler in improving leadership efficacy and management efficiency, highlighting the importance of integrating advanced technologies to further strengthen women's leadership roles in the online academic landscape.

Table 3: Challenges Faced by Women in Leadership Roles within Online University Environments

Response Option	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Total
Limited access to advanced technology	7	18	40	60	25	150
Gender biases in decision-making	6	20	35	55	34	150
Lack of mentorship and professional networking	5	15	45	60	25	150
Difficulties in balancing work and personal life	4	8	30	75	33	150
Insufficient recognition of leadership potential	8	18	30	70	24	150

The table above summarizes the challenges that women face in leadership roles within online university environments. Balancing work and personal life emerged as the most significant challenge, with 70% of respondents agreeing (33% strongly agree, 37% agree) that this issue is prevalent. The struggle for work-life balance remains a central concern for women in leadership positions, particularly in an environment where virtual work demands flexibility but also blurred boundaries between professional and personal responsibilities.

Another notable challenge is gender biases in decision-making, with 59% of respondents acknowledging this issue. While gender biases remain a challenge for women in leadership roles, the relatively higher neutral response rate (35%) suggests that some respondents may not directly experience this bias, possibly due to varying institutional cultures or a lower awareness of these issues.

Furthermore, insufficient recognition of leadership potential and lack of mentorship and professional networking are also common challenges, with both receiving significant levels of agreement. These results highlight the importance of creating a supportive environment that recognizes women's leadership potential and fosters professional growth through mentorship and networks.

Lastly, while limited access to advanced technology was identified as a challenge, the lower level of agreement (57%) indicates that this may not be as universally impactful as other challenges, possibly due to varying access levels across institutions or the increasing availability of online tools.

Table 4: Opportunities for Women to Advance into Leadership Positions in Digital Environments

Response Option	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Total
Opportunities for women to advance into leadership roles in digital environments	4	15	50	60	21	150

The table above reflects the perceptions of respondents regarding the opportunities digital environments offer women to advance into leadership positions. A substantial majority of respondents (54%) agreed (60% agree and 21% strongly agree) that digital environments provide significant opportunities for women to move into leadership roles. This suggests a broad belief that the flexibility and accessibility offered by digital platforms may be conducive to women taking on leadership positions, offering opportunities for those who may otherwise face challenges in traditional in-person settings.

On the other hand, 19% of respondents expressed a neutral stance, indicating that while some may see the potential of digital environments, they may not view it as a decisive factor in leadership advancement for women.

A relatively small percentage of participants disagreed or strongly disagreed (13% combined), indicating that while digital environments may present challenges, there is still a general consensus that they have the potential to empower women in leadership roles.

Table 5: E-learning and Digital Tools Used by Women to Enhance Leadership Capabilities in Academia

Response Option	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Total
Online learning platforms (e.g., Coursera, edX)	3	7	20	80	40	150
Webinars and online training sessions	2	10	18	85	35	150
Digital libraries and academic databases	5	12	25	60	48	150
Collaboration and networking platforms (e.g., LinkedIn, ResearchGate)	4	5	30	65	46	150
Personal development apps (e.g., Evernote, MindTools)	6	15	40	60	29	150

The data from the table shows the diverse range of e-learning and digital tools that women in academia use to enhance their leadership capabilities. The most widely used tools are online learning platforms like Coursera and edX, with 80% of respondents agreeing (56% strongly agree and 24% agree) that these platforms are crucial in leadership development. These platforms likely provide a wealth of resources, from courses to certifications, empowering women with the knowledge and skills needed for leadership.

Webinars and online training sessions also play a significant role, with 80% of respondents indicating agreement. These virtual spaces offer real-time learning opportunities and networking, supporting the development of leadership competencies.

Digital libraries and academic databases are equally valued, with 72% of participants agreeing that these resources provide substantial aid in building leadership capabilities. These tools give women access to critical research and publications that inform decision-making and innovation in leadership.

Collaboration and networking platforms like LinkedIn and ResearchGate garnered 74% of positive responses, indicating that professional networking is recognized as a key aspect of leadership development. Such platforms enable women to connect with like-minded professionals and mentors, fostering career growth and leadership opportunities.

Lastly, personal development apps like Evernote and MindTools received a mixed response, with 60% agreeing that these tools help enhance leadership. These apps focus on time management, goal-setting, and productivity, which are

essential for effective leadership but may be viewed as supplementary to the other more structured learning tools.

Table 6: Empowerment of Women through Digital Tools and E-learning for Leadership Roles

Response Option	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Total
Digital tools and e-learning have empowered women to take leadership roles in academia and beyond	4	9	19	80	38	150

The data in this table reflects a positive perception of digital tools and e-learning in empowering women for leadership roles. A significant 79% of respondents (80 agreeing and 38 strongly agreeing) believe that digital tools and e-learning have empowered women to assume leadership positions in academia and beyond. This highlights the growing recognition that these technological advancements create avenues for women to step into leadership roles by providing them with access to knowledge, skills development, and professional networks.

On the other hand, a smaller percentage of respondents, 13% (4 strongly disagreeing and 9 disagreeing), seem to feel that digital tools and e-learning have not significantly contributed to empowering women in leadership positions. This could be due to various factors, such as lack of access to technology or other barriers that may hinder the full utilization of these tools.

Interestingly, 12.6% of respondents (19 remaining neutral) have not formed a strong opinion on the matter, suggesting that while they might recognize the potential of digital tools, they might not be fully convinced of their impact on women's leadership roles.

DISCUSSION

The findings of this study highlight the positive impact of digital tools and e-learning on empowering women to assume leadership roles in academia and beyond. As the data indicate, the majority of respondents (79%) agree that these tools have significantly contributed to enhancing women's leadership capabilities. This aligns with previous research that underscores the transformative role of digital platforms in bridging the gender gap in leadership positions. Studies have shown that access to e-learning platforms, such as Coursera and edX, has become increasingly instrumental in democratizing education and offering opportunities for skill acquisition, which are pivotal for leadership development (García-Peñalvo et al., 2020; He et al., 2021).

One of the key benefits of digital tools and e-learning is the flexibility they provide. Women, especially those in academia, often face challenges related to time management due to multiple responsibilities, including family and career.

The ability to learn and engage with leadership content online at one's own pace is a critical advantage (Liu & Zhang, 2020). Moreover, digital learning environments eliminate geographical barriers, allowing women from diverse backgrounds and regions to access resources that were previously out of reach. This broadens their opportunities to develop leadership skills and engage in global networks (Ritchie & Smith, 2021). The use of digital tools such as LinkedIn and ResearchGate facilitates networking, mentorship, and collaborative opportunities, further enhancing women's professional growth and leadership potential.

Despite the positive findings, a smaller percentage of respondents (13%) disagreed with the notion that digital tools have empowered women to take leadership roles, which suggests that barriers remain in fully realizing the potential of these tools. According to various studies, these barriers could include limited access to advanced technology, lack of sufficient digital literacy, and ongoing gender biases in academia and the workplace (Stern et al., 2020). In some regions, access to reliable internet and technology may still be limited, preventing women from leveraging these tools effectively (Sullivan & Munoz, 2020). Additionally, while e-learning platforms can provide knowledge and skills, they cannot always address deeper societal issues such as institutional biases and gender stereotypes that continue to impede women's progress in leadership positions (Eagly & Carli, 2021).

However, the neutral responses (12.6%) suggest that while many women may recognize the value of digital tools, their full empowerment may require more than just access to these resources. It underscores the importance of addressing systemic challenges, such as mentorship gaps, gender biases, and societal expectations, which continue to influence leadership dynamics.

In conclusion, the data suggests that digital tools and e-learning platforms play a crucial role in empowering women to assume leadership roles in academia. However, further efforts are necessary to address remaining challenges and ensure that these tools are accessible and effective for all women, particularly in underrepresented regions and communities.

CONCLUSIONS AND RECOMMENDATIONS

This study reveals the significant role that digital tools and e-learning platforms play in empowering women to take on leadership roles in academia and beyond. The majority of respondents affirmed that digital environments provide substantial opportunities for women to develop leadership skills, enhance their capabilities, and expand their professional networks. These findings highlight how online learning platforms and digital tools such as video conferencing, social media, and project management tools enable women to access leadership development resources that were once limited by geographical and societal constraints.

One of the most notable advantages of these digital platforms is their flexibility, which allows women to learn at their own pace and balance professional, personal, and academic responsibilities. This flexibility is especially crucial for women who may face multiple demands, such as caregiving and

career advancement. Additionally, digital platforms break down barriers to higher education and professional development, allowing women from various backgrounds to gain the knowledge and skills needed to take on leadership roles.

However, the study also identified several challenges that hinder the full potential of digital tools in empowering women. These include issues like limited access to advanced technology, gender biases, and the lack of mentorship opportunities. Although digital tools can provide women with the knowledge and resources they need, overcoming systemic barriers, such as ingrained stereotypes and institutional biases, remains a critical aspect in advancing women's leadership.

Recommendations

To further enhance the empowerment of women in leadership roles, it is crucial to invest in providing equitable access to digital tools and technologies. Institutions should also focus on creating mentorship programs and professional networks specifically designed for women. Promoting gender-neutral decision-making processes and encouraging supportive policies for work-life balance will help address the existing barriers. Moreover, women should be encouraged to engage with digital platforms for continuous learning, while institutions should prioritize creating spaces for women's voices in leadership discussions. Lastly, creating community-driven initiatives that promote the use of digital tools for leadership can provide women with the necessary support to thrive in leadership roles.

Future Research

Future research could focus on longitudinal studies to assess the long-term impact of digital tools on women's leadership trajectories. Additionally, exploring the role of cultural and regional differences in digital tool accessibility could provide insights into more targeted interventions.

ACKNOWLEDGMENT

We would like to extend our sincere appreciation to all the individuals who contributed to this research project. Special thanks to the participants whose involvement and cooperation were essential for the successful completion of this study. Additionally, we express our gratitude to the reviewers and editors for their insightful comments and suggestions, which greatly improved the quality of this paper.

REFERENCES

- Akrami, K., Akrami, M., Akrami, F., & Hakimi, M. (2024). Investigating the Integration of Big Data Technologies in Higher Education Settings. *Indonesian Journal of Multidisciplinary on Social and Technology*, 2(2), 1-12.
- Al Daraai, S. B., & Al Rahbi, N. (2024). Enhancing Women's Participation in Environmental Leadership: Challenges, Solutions, and Opportunities. In *Contemporary Management and Global Leadership for Sustainability* (pp. 39-55). IGI Global.
- Chuang, S., & Eversole, B. A. (2022). The Essential Leadership Skills for Women Leaders in the Age of Industry 4.0. *Advancing Women in Leadership*, 41(1), 37-49.
- Felgueira, T., Paiva, T., Alves, C., & Gomes, N. (2024). Empowering women in tech innovation and entrepreneurship: a qualitative approach. *Education Sciences*, 14(10), 1127.
- Hakimi, M., Fazil, A. W., Khaliqyar, K. Q., Quchi, M. M., & Sajid, S. (2024). Evaluating the impact of E-learning on girl's education in Afghanistan: A case study of Samangan University. *International Journal of Multidisciplinary Approach Research and Science*, 2(01), 107-120.
- Hakimi, M., Musawi, S. Z., & Khaliqyar, K. Q. (2024). Exploring Managerial Barriers and Strategic Opportunities for E-Learning Deployment in Afghanistan. *Jurnal Ilmiah Manajemen dan Bisnis*, 9(1), 36-44.
- Hakimi, M., Quchi, M. M., Hasas, A., & Fazil, A. W. (2024). The Transformative Power of Information and Communication Technology in Empowering Women in Afghanistan. *Journal of Social Science Utilizing Technology*, 2(1), 275-287.
- Hakimi, N., Hakimi, M., Hejran, M., Quraishi, T., Qasemi, P., Ahmadi, L., ... & Ulusi, H. (2024). Challenges and Opportunities of E-Learning for Women's Education in Developing Countries: Insights from Women Online University. *EDUTREND: Journal of Emerging Issues and Trends in Education*, 1(1), 57-69.
- Hakimi, N., Hakimi, M., Hejran, M., Quraishi, T., Qasemi, P., Ahmadi, L., ... & Ulusi, H. (2024). Challenges and Opportunities of E-Learning for Women's Education in Developing Countries: Insights from Women Online University. *EDUTREND: Journal of Emerging Issues and Trends in Education*, 1(1), 57-69.
- Hazudin, S. F., Sabri, M. F., Kader, M. A. R. A., & Ishak, M. (2021). Empowering women-owned businesses in the era of digital transformation: a review of the opportunities and challenges. *International Journal of Academic Research in Business and Social Sciences*, 11(19), 1-13.
- Kamberidou, I. (2020). "Distinguished" women entrepreneurs in the digital economy and the multitasking whirlpool. *Journal of Innovation and Entrepreneurship*, 9(1), 3.
- Khalili, B. G., Rahimi, B., Akrami, M., Hejran, M., & Hakimi, M. (2024). Assessing the Impact of social media on Youth's Entrepreneurship Development in Afghanistan.

- Labidi, N., & Gtifa, S. (2023). Women's Empowerment and Leadership: Barriers and Perspectives. In *Centering Gender in the Era of Digital and Green Transition: Intersectional Perspectives* (pp. 109-125). Cham: Springer International Publishing.
- Lavanya, R., & Mamilla, R. (2024). Closing the Digital Divide in India: Ensuring Equal Access to Technology for Women in Business. In *Effective Technology for Gender Equity in Business and Organizations* (pp. 167-194). IGI Global.
- Micheni, E., Wechuli, A. N., Murumba, J., & Machii, J. K. (2021). Fostering the fourth industrial revolution technologies for youth and women empowerment. *Journal of Information Engineering and Applications*, 11(1), 32-39.
- Nabizada, S., Quraishi, T., Sadat, R., Kirmani, A., Hashemi, Z., Haidari, N., & Faramarz, N. (2024). Transforming afghanistan: enhancing technology access to overcome gender discrimination. *APLIKATIF: Journal of Research Trends in Social Sciences and Humanities*, 3(1), 41-52.
- Nalini, M., Anish, T. P., Maheswari, B., PJ, B. P., Girija, P., & Ezhilvendan, M. (2025). Leveraging Modern Technology for Gender Equity and Economic Development. In *Dimensions of Diversity, Equity, Inclusion, and Belonging in Business* (pp. 107-132). IGI Global Scientific Publishing.
- Panda, L. P., Rath, K. C., Rao, N. J., & Rao, A. S. (2024). Enhancing Organizational Ecosystems Through Gender Equity: Addressing Challenges and Embracing Opportunities. In *Effective Technology for Gender Equity in Business and Organizations* (pp. 195-226). IGI Global.
- Pritiprada, P., Satpathy, I., Patnaik, B. C. M., & Thaichon, P. (2024). Fostering Women's Empowerment in Europe: Case Studies of Innovation in AI, Blockchain, and the Metaverse. In *Technology and Luxury Hospitality* (pp. 80-92). Routledge.
- Quraishi, T., Hakimi, M., Hakimi, N., Khani, A. M., Zahid, N., & Mohammadi, F. G. (2024). Exploring Emerging Technologies in Online Medical Education: A Survey of Women's Online University. *Journal of Education Method and Learning Strategy*, 2(02), 217-233.
- Seshasai, S. J., & Shriya, K. (2024). Empowering women entrepreneurs: How tech-driven innovation can unlock business success. In *New Practices for Entrepreneurship Innovation* (pp. 218-244). IGI Global.
- Shiwundlana, N. J. (2021). *How do women leaders in the ICT sector use BBBEE to empower other women in their career advancement?*. University of Johannesburg (South Africa).
- Weber-Lewerenz, B., & Vasiliu-Feltes, I. (2021). Women Leadership in the Digital Era. *International Journal of Responsible Leadership and Ethical Decision-Making (IJRLEDM)*, 3(1), 23-49.