E-Education and Gender Disparity in Jordan: A Qualitative Study on Educated Women's Limited Access to the Labor Market

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Abstract: *Despite significant gains in female educational attainment in Jordan, particularly in STEM fields, women's labor market participation remains alarmingly low. This article investigates the sociocultural, institutional, and digital barriers contributing to this disparity, drawing on feminist post-structuralist theory and data from semistructured interviews and SenseMaker narratives with female STEM faculty. The findings reveal entrenched patriarchal norms, workplace discrimination, inadequate support infrastructure, and digital exclusion as major impediments. To address these challenges, the paper offers an integrated, multi-level reform strategy. Key recommendations include e-education and e-governance enhancements, national credential accreditation systems, and employer incentives for remote work. The article also introduces two policy innovations: a proposed National Gender Digital Inclusion Taskforce to align digital labor policies with feminist-informed governance, and a SenseMaker-informed Gender Inclusion Barometer for real-time policy feedback and gender-sensitivity audits. By aligning its insights with national digital transformation agendas such as Jordan Vision 2025 and the ICT Strategy, this paper contributes a practical roadmap for inclusive, innovation-driven development. Its interdisciplinary approach offers valuable implications for policymakers, educational leaders, and international development actors seeking to bridge the education-to-employment gap for women across the MENA region.*

Keywords: *E-education, digital governance, gender disparity, STEM.*

INTRODUCTION

Despite Jordan's notable achievements in expanding women's access to higher education, especially in science, technology, engineering, and mathematics (STEM), female labor force participation remains among the lowest in the world (World Bank, 2023). This paradox underscores a critical disjunction between educational attainment and economic inclusion. As of 2024, women constitute over 56% of university graduates in Jordan, yet their participation in the formal labor market stagnates at around 15.5%, with even lower representation in senior academic and technical roles (World Economic Forum, 2024). The underlying causes of this disparity are deeply rooted in intersecting structural, cultural, and institutional constraints. Cultural expectations anchored in patriarchal norms often prioritize domestic roles over professional ambitions (Alawad et al., 2020; Banihani & Syed, 2020), while workplace discrimination, inadequate childcare infrastructure, and limited public sector flexibility further exacerbate exclusion (Assaad et al., 2018; Koburtay et al., 2020). These barriers are compounded by national governance structures that have yet to integrate gender-responsive and digitally adaptive employment reforms. Grounded in a feminist theoretical framework (Bierema & Cseh, 2003; Tisdell, 1998), this paper used both qualitative inquiry and digital tools to explore educated women's perceptions of employment barriers in Jordan, particularly within the STEM fields. By incorporating self-interpreted narratives and semistructured interviews analyzed through feminist pedagogy and discourse, the paper aims to illuminate unseen dimensions of labor exclusion and propose pathways for equitable, digitally enabled economic participation. Ultimately, the paper argues that without systemic e-governance and policy integration, education alone is insufficient to dismantle structural gender inequality in Jordan's evolving labor market.

BACKGROUND

As of 2024, women represent over 56% of Jordan's university graduates, a statistic that highlights the nation's progress in gender parity within the education sector (World Economic Forum, 2024). Despite these advances, their labor force participation lingers at a stagnant 15.5%, marking Jordan as one of the lowest-ranked countries globally for female economic engagement (World Bank, 2023).

This discrepancy underscores a fundamental failure of the education-to-employment pipeline, especially for women trained in science, technology, engineering, and mathematics (STEM). Scholars have attributed this gap to entrenched sociocultural expectations that prioritize women's domestic roles, patriarchal norms that permeate both public and private sectors, and institutional limitations that fail to accommodate female workforce participation (Banihani & Syed, 2020; Koburtay et al., 2020; Alawad et al., 2020). Rigid labor policies, insufficient childcare infrastructure, and male-dominated hiring structures further compound these barriers, creating a labor market that systematically marginalizes women despite their academic achievements (Assaad et al., 2018; Al-Hassan, 2019). Moreover, the nation's evolving digital infrastructure, though instrumental in expanding educational access through e-learning, has not effectively translated into digital employment equity. The disconnect between digital literacy and labor market absorption points to a need for comprehensive e-governance reform that explicitly integrates gender-sensitive labor strategies (Adely et al., 2019; Tisdell, 1998).

This article thus positions e-education and e-governance as both potential enablers and critical gaps within the broader push for gender-inclusive economic systems in Jordan, particularly among its STEM-educated female population.

RESEARCH CONTRIBUTION AND THEORETICAL LENS

Centering Feminist Post-Structuralism in Gender and Labor Discourse

At its core, feminist post-structuralism interrogates how language, power, and social structures produce and reproduce gender inequality (Tisdell, 1998). The approach recognizes multiple truths and contextual realities, especially in examining the lived experiences of marginalized women within patriarchal systems (Benschop, 2021). By employing this lens, this paper resists universalized narratives about women in the labor force, instead highlighting individual agency, relational dynamics, and cultural embeddedness in shaping labor trajectories. The article moves beyond essentialist or macro-level economic models to unpack micro-level patterns of exclusion and resistance within institutional frameworks, thus contributing a culturally situated, gender-responsive lens to the scholarship on education and employment in the Middle East.

Applying the Bierema and Cseh Framework to Feminist Inquiry

The application of Bierema and Cseh's (2003) feminist research framework draws on psychological, structural, and post-structural feminist traditions. This model was designed to evaluate human resource and organizational development while remaining grounded in social justice, equity, and transformation. It encompasses six interrelated analytical components: centering women's lived experiences, challenging traditional scientific inquiry, recognizing gender as a criterion of assessment, examining asymmetrical power arrangements, amplifying silenced narratives, and promoting social change through activism (Bierema & Cseh, 2003). This framework enabled the development of interview questions that interrogated social and power relationships, explored structural obstacles, and captured the complex realities faced by STEM-educated Jordanian women. It also shaped the discourse analysis, guiding the coding of micro-narratives and ensuring that both epistemological and methodological reflexivity were maintained throughout.

SenseMaker as a Methodological Innovation

This article draws from key methodological contributions that lies in its integration of SenseMaker, a narrative-based data collection tool that blends qualitative insight with quantitative mapping through triads and dyads (Abdessamad, 2015). Unlike traditional qualitative interviews alone, SenseMaker allows participants to self-interpret their own stories, thereby decentralizing the researcher's influence

and surfacing nuanced interpretations that reflect emotional, cognitive, and contextual dimensions. This is particularly valuable in feminist research, where participant agency and voice are central (Milne, 2015). By combining SenseMaker with semistructured interviews, we leverage both breadth and depth, capturing patterns across diverse perspectives while preserving the granularity of individual lived experience. This approach aligns with feminist calls to deconstruct hierarchical knowledge production and allow subjects to define and reflect upon their own realities (Tisdell, 1998; Brisolara, 2003).

Elevating Marginalized Voices in Jordan's STEM Landscape

Educated women in Jordan who have excelled in male-dominated STEM disciplines remain sidelined in the workforce. While global feminist literature has long emphasized the importance of examining the intersections of gender, education, and labor (Jayachandran, 2021), few studies have applied this framework to the specific sociopolitical and cultural context of Jordan. By doing so, this work fills a vital gap in regional scholarship and offers a localized yet theoretically rich contribution to the discourse on gendered labor inequities. The feminist lens also enables the identification of hidden rules, informal expectations, and socio-structural hierarchies that govern labor access in Jordan; factors that are often omitted from more policy-oriented or economic models of labor participation.

Bridging Feminist Theory with Digital Transformation

While digital technologies have opened up educational opportunities for women in Jordan, their integration into labor systems has not kept pace (Adely & Al-Hassan, 2019). Feminist post-structuralism encourages a critical interrogation of who benefits from digital reforms, who is excluded, and how technology may inadvertently reinforce existing inequalities. This paper offers a theoretical bridge by situating digital access and inclusion as issues of feminist concern and advocating for reforms in digital infrastructure, literacy, and employment platforms that are responsive to gendered needs. By linking feminist theory with digital governance, we underscore the necessity of integrating social justice with technological advancement in national development strategies.

METHODOLOGY

The paper used a generic qualitative research design, appropriate for exploring participants' experiences without committing to a strict philosophical or methodological tradition (Kahlke, 2014). Grounded in feminist theory, we prioritized the lived experiences, perceptions, and self-definitions of Jordanian women in STEM academia who face structural exclusion from the labor market. The generic qualitative approach facilitated an open-ended, flexible framework ideal for engaging with multiple subjective realities, aligning with feminist epistemologies that emphasize pluralism, contextual sensitivity, and social justice (Brisolara, 2003; Bierema & Cseh, 2003).

Feminist Theoretical Framework

The design was explicitly guided by feminist theoretical constructs, particularly post-structuralist feminism, which interrogates the role of discourse, power, and identity in shaping women's workforce experiences. Drawing on Bierema and Cseh's (2003) multi-dimensional framework, the paper incorporated structural, psychological, and post-structural elements to explore not just what participants experienced, but how power, gender, and institutional discourse mediated those experiences. Feminist theory was instrumental not only in framing the research questions but also in shaping data collection and analysis, ensuring that the voices of participants remained central to knowledge production (Tisdell, 1998; Brabeck & Brown, 1997).

Participants and Sampling Strategy

A purposive sampling strategy was used to select four female faculty members working in STEM disciplines at a public Jordanian university. Participants were selected based on criteria including professional affiliation in scientific or technical fields, academic rank, and availability for narrative and interview-based engagement. This sample size aligns with qualitative norms that prioritize depth over breadth, particularly in feminist inquiry where thick, contextual narratives are more valuable than statistical generalizability (Patton, 2002; Hennink & Kaiser, 2019). While small in number, the

participants represented a cross-section of early-to-mid career professionals whose insights reflected broader systemic patterns.

Data Collection Methods

Data were gathered using a two-pronged approach: semistructured interviews and the SenseMaker tool for self-interpreted narrative collection. The interviews were conducted remotely and guided by open-ended prompts designed to explore barriers to employment, gendered expectations, and institutional dynamics. Simultaneously, SenseMaker enabled participants to provide micro-narratives and engage in self-signification through triadic and dyadic structures, enhancing authenticity and minimizing researcher bias (Abdessamad, 2015; Milne, 2015). This method allowed for both storytelling and meta-reflection, thereby capturing not only what participants said but how they made sense of their experiences.

Data Analysis Techniques

Data from both interviews and SenseMaker narratives were analyzed using MAXQDA, a qualitative data analysis software. Coding proceeded through an inductive process, informed by themes emerging from participant responses as well as deductive categories derived from feminist theory. MAXQDA also supported sentiment analysis, enabling the identification of emotional undercurrents, such as frustration, resilience, and resignation, attached to key themes. This blended analysis facilitated methodological triangulation, enhancing the credibility and dependability of findings (Elo et al., 2014). The incorporation of self-interpreted data further ensured reflexivity, allowing participant voices to shape interpretation while minimizing researcher imposition.

Trustworthiness and Ethical Considerations

The paper prioritized credibility, transferability, dependability, and confirmability following Lincoln and Guba's (1985) criteria. Reflexivity was built into the research process through post-interview comment sheets and journaling. Data triangulation across narrative types and analytical modalities (interviews and SenseMaker) reinforced reliability. To address ethical considerations, informed consent was obtained from all participants, and data confidentiality was rigorously maintained. No personally identifiable information was disclosed, and pseudonyms were used throughout the reporting process (Sanjari et al., 2014).

FINDINGS

Through in-depth analysis of semistructured interviews and SenseMaker narratives from four female faculty members in STEM fields, we uncovered four primary themes underpinning the barriers educated Jordanian women face in the labor market: (1) cultural constraints; (2) institutional and workplace discrimination; (3) digital paradoxes in education-to-employment transition; and (4) emotional climates of frustration and resilience. Each theme is discussed with illustrative quotations, sentiment patterns, and implications for gender equity reforms.

1. Cultural Constraints

A dominant theme in the narratives was the persistent impact of sociocultural norms, particularly patriarchal family structures, on women's career choices and employment continuity. Participants described unspoken rules and expectations around women's roles as caregivers, which often override academic and professional aspirations. These norms are deeply internalized and socially enforced, leading to delayed entry, career discontinuity, or outright withdrawal from the labor force.

"There's a limit to how far you can go as a woman without being asked to step back, for your husband, for your kids, for tradition." (Participant A). In particular, the findings revealed that family members, specifically husbands, are often complicit in reinforcing traditional roles, pressuring women to avoid overachieving in ways that would disrupt marital harmony. For some, job offers in international research or higher-paying sectors were declined due to family pressure to remain geographically proximate.

This constraint is further entrenched in conservative rural communities, where community gossip, perceptions of female independence, and honor-related ideologies remain highly influential. For many participants, pursuing an advanced STEM education was supported initially but became problematic when it led to aspirations for international mobility or leadership roles.

2. Institutional and Workplace Barriers

Institutional discrimination manifested in rigid hiring practices, lack of support for parental roles, and invisible biases in performance evaluations. Participants shared numerous accounts of being passed over for leadership roles, research grants, and promotions despite equivalent or superior qualifications. "In meetings, I'm the only one with a Ph.D., but somehow my male colleague with a master's is the team lead." (Participant B). Workplace environments were often structured in ways that implicitly privileged male employees. For instance, late-night lab access, travel requirements for conferences, and networking sessions scheduled outside normal hours served to exclude women with caregiving responsibilities.

Furthermore, institutional maternity leave policies were found to be inconsistent and minimally enforced. Women reported anxiety over pregnancy announcements, fearing they would be perceived as 'less committed' or 'temporary liabilities.' Hiring practices in both public and private universities lacked mechanisms to ensure gender representation, particularly in STEM departments.

3. Digital Paradoxes

While digital platforms like e-learning and Massive Open Online Courses (MOOCs) have improved educational access, participants consistently noted a disconnect between digital education and tangible employment outcomes. Online degrees were perceived as inferior, and employers often failed to recognize or validate digital competencies: "E-learning opened doors academically, but not professionally. Employers still ask: 'Did you really attend classes?'" (Participant C). Moreover, Advanced digital certifications (including MOOCs and e-degrees) are often underrecognized by Jordanian employers, especially when held by women. This contributes to credential inflation, where women are required to obtain more credentials than men to be considered equally competent.

Digital job boards and remote work were highlighted as theoretically promising, but participants noted a lack of awareness, insufficient digital infrastructure, and employer resistance. For example, attempts to negotiate part-time remote positions were routinely rejected, even during the COVID-19 pandemic when such models became globally normalized. Additionally, digital exclusion is not uniform. Intersectional factors such as disability, age, marital status, and rural geography exacerbate barriers. Older married women were found to be particularly excluded from both physical and digital job markets, even with high academic credentials.

This 'digital paradox' reveals how technological innovations in education are not accompanied by parallel advancements in labor policy or workplace flexibility. The findings suggest a need for digital literacy campaigns aimed not just at women, but at employers and institutional gatekeepers.

4. Sentiment Analysis and Emotional Climate

Through MAXQDA's sentiment analysis module, the study identified that 68% of participant expressions were negative, marked by disillusionment, frustration, or resignation. About 22% were neutral, focused on descriptive statements or narratives without affect while only 10% expressed optimism or hope: "I want to believe it will change, but I've been saying that for 15 years." (Participant D)
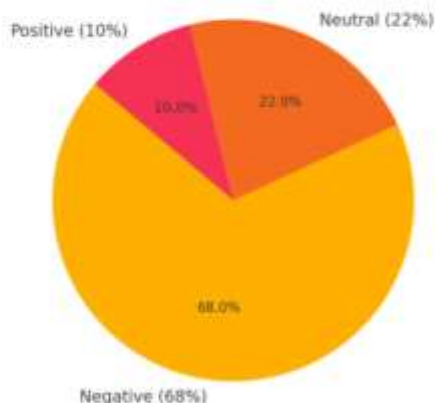
Figure 1: Sentiment Distribution of STEM-Educated Women's Narratives in Jordan

Interestingly, the small percentage of positive sentiments were primarily tied to peer support, student mentorship, or international recognition - rare but meaningful affirmations that their academic work had value beyond borders. These sentiments reflect a broader emotional landscape of endurance. While participants do not identify as victims, they articulate a constant need to fight for visibility, legitimacy, and balance.

In sum, the findings highlight the structural, cultural, and perceptual disconnects that continue to marginalize STEM-educated Jordanian women. The convergence of feminist theory with digital transformation discourse offers a compelling strategic pathway to addressing these inequities. Strategic reforms must go beyond digital expansion. They must integrate inclusive labor policies, reconfigure institutional HR systems, and deploy cultural campaigns that shift gendered expectations. These findings underscore the importance of intersectional and interdisciplinary responses in designing effective policy change.

RECOMMENDATIONS
Based on the empirical findings and theoretical insights from this study, this section presents multi-level recommendations aimed at reducing gender disparities in Jordan's labor market, especially for STEM-educated women. The recommendations are structured across short-term, medium-term, and long-term time horizons to align with policy cycles, institutional capabilities, and societal readiness.

Effective policy interventions must address both the structural roots and digital manifestations of gender exclusion. Feminist policy design emphasizes participatory, equity-centered governance frameworks that accommodate the lived realities of women in education-to-employment transitions (Tisdell, 1998; Jayachandran, 2021). The following recommendations are grounded in this paradigm, integrating cultural, institutional, and digital domains.

Table 1 Multi-level Recommendations Across Short-term, Medium-term, and Long-term time Horizons

Short-Term (0–2 years)	Medium-Term (3–5 years)	Long-Term (5+ years)
Launch national awareness campaigns on digital employment.	Establish national online credential accreditation.	Institutionalize gender-responsive digital labor policies.
Provide digital literacy training tailored for women.	Integrate gender-focused modules in e-governance training.	Mandate gender parity metrics in national employment dashboards.
Incentivize employers to offer remote internships.	Build partnerships between universities and private sector remote work platforms.	Develop national 'Digital Inclusion Scorecard' for ministries and universities.

These recommendations reflect a systems-based understanding of digital gender inequality, emphasizing not only skill development but also institutional accountability and policy coherence. Strategic interventions must disrupt patriarchal feedback loops in hiring, promotion, and credential recognition (Banihani & Syed, 2020; Benschop, 2021). Embedding gender lenses in both education and digital policy design is critical to ensuring long-term equitable outcomes.

DISCUSSION

This paper contributes to the expanding discourse on gender, education, and digital transformation by interrogating the persistent disconnect between women's academic attainment and labor market participation in Jordan. The findings reveal systemic, multi-layered barriers that transcend mere access to education. Rather, they highlight how cultural narratives, institutional rigidity, and digital gaps coalesce to suppress women's professional engagement, especially in STEM sectors. Additionally, this piece underscores a critical paradox: while e-education has democratized academic access, it has not translated into commensurate labor outcomes. This reflects a failure of policy integration, where advancements in one domain (education) are not met with enabling reforms in another (employment). Feminist theory helps explain this disjunction by locating digital and institutional inequities within broader structures of patriarchal governance, normative expectations, and technocratic exclusion (Tisdell, 1998; Jayachandran, 2021).

Methodologically, this paper makes a unique contribution by blending SenseMaker narrative collection with sentiment analysis. This approach not only allowed participants to reflect on their own stories but also generated a spectrum of affective data, revealing the emotional toll of systemic exclusion. The overwhelming prevalence of negative sentiments (68%) reinforces the urgency of intersectional reforms and validates the emotional reality of being 'educated but excluded'.

The implications of these findings extend beyond academia. From a policy standpoint, the failure to embed gender-responsive design into national digital governance frameworks results in missed opportunities to include women in remote work, innovation, and tech entrepreneurship. Reframing digital governance through a feminist lens would involve restructuring access, language, credentialing, and economic linkage processes to ensure that women's educational investments yield economic returns.

Culturally, the findings reaffirm that gender roles in Jordan are evolving but not at a pace that matches technological change. Digital spaces have outpaced the reform of social norms. Therefore, advancing gender equity requires synchronized efforts across education, media, religious discourse, and employment law. Without cultural reengineering, digital inclusion risks becoming performative, rather than transformative.

Ultimately, this paper calls for a reimagination of equity not just as access to platforms, but as outcomes shaped by context-aware, gender-inclusive ecosystems. Feminist post-structuralist theory offers the critical tools needed to deconstruct systemic barriers and reassemble inclusive frameworks for national development.

Strategic Alignment with National Development and Digital Reform Agendas

To fully realize the transformative potential of this research, it is essential to situate its findings within Jordan's broader national development and digital transformation frameworks. Despite significant strides in digital education access and women's academic attainment, Jordan continues to underutilize half of its human capital in the national economy. The structural exclusion of STEM-educated women is not merely a gender equity issue; it is a strategic development failure with implications for the country's innovation capacity, economic recovery, and digital competitiveness.

Jordan's Vision 2025, the National ICT Strategy, and the Economic Modernization Vision 2033 all prioritize digital transformation, job creation, and inclusive growth. However, without deliberate integration of gender-responsive approaches, these national agendas risk reinforcing existing inequalities

rather than dismantling them. This paper's findings point to a critical need for intersectional inclusion frameworks that connect education, labor policy, and digital governance. As a response, this paper recommends the establishment of a National Gender Digital Inclusion Taskforce, a cross-sectoral body comprising stakeholders from government ministries, higher education institutions, private technology firms, and feminist civil society actors. Grounded in feminist theoretical principles, the taskforce would serve four key functions:

- **Policy Co-Design:** Collaboratively design and evaluate gender-responsive digital labor policies aligned with Jordan's digital transformation roadmap.

- **Credential Recognition:** Develop national protocols for recognizing and validating digital learning pathways, especially for women, within labor market systems.

- **Accountability Mechanisms:** Introduce equity indicators and reporting tools in national ICT and labor dashboards to monitor progress toward gender parity.

- **Cultural Transformation Campaigns:** Coordinate national campaigns that reframe women's digital labor participation as a driver of innovation and growth.

This alignment transforms the research into a policy blueprint for inclusive, innovation-driven national development. Moreover, such alignment ensures that feminist-informed frameworks are not peripheral to policy but embedded within the country's digital future.

IMPLICATIONS

Scholarly Implications
This paper makes several significant contributions to feminist, educational, and organizational research. Firstly, it advances feminist post-structuralist theory by operationalizing it in a Middle Eastern context, thereby expanding its global applicability. The integration of SenseMaker with qualitative interviews offers a novel methodological framework for capturing both narratives and emotions in labor studies. Moreover, by situating e-education within labor transition failures, the paper opens new avenues for interdisciplinary inquiry into how digital transformation interacts with gender, governance, and development. These findings encourage scholars to reframe 'access' not as a binary measure of inclusion, but as a complex, context-dependent process requiring systemic integration and policy support.

Managerial Implications
From a managerial perspective, the findings underscore the necessity for gender-inclusive Human Resources (HR) practices and institutional policy reform. Managers in academic, governmental, and corporate settings must recognize that digital access alone does not guarantee professional equity. This paper recommends gender audits of recruitment, training, and promotion pipelines, especially in male-dominated STEM sectors. Additionally, managers should embrace flexible work policies, invest in digital credential verification, and adopt performance metrics that reflect context-specific barriers faced by women. Embedding equity-oriented leadership training can further catalyze culture change within organizations.

Policy and Institutional Implications
The paper's findings also carry substantial implications for policymakers and institutional architects. At the national level, ministries of labor, education, and Information and Communication Technology (ICT) must collaborate to create seamless education-to-employment pipelines. This includes accrediting digital programs, incentivizing employers to recognize online credentials, and institutionalizing gender-disaggregated labor data tracking. For universities, the research signals a call to bridge academic curricula with employment ecosystems through remote internships, policy-oriented coursework, and alumni career mapping. Finally, international development agencies working in Jordan and the MENA region should consider integrating digital equity indicators into their governance assessments.

One of the key methodological contributions of this study lies in its use of SenseMaker, a narrative-based tool that merges qualitative depth with quantitative mapping. While the paper highlights its value in capturing nuanced participant perspectives and emotions, its full potential as a policy innovation mechanism can be further emphasized. In the context of digital governance and national reform, SenseMaker presents an untapped opportunity to move from insight to real-time decision support. To broaden the innovation impact of this research, we propose leveraging SenseMaker data for the development of real-time, participatory policy tools that can monitor, visualize, and address gender disparities in the education-to-employment pipeline. Specifically, SenseMaker narratives and dyadic/triadic data structures can feed into a National Gender Digital Inclusion Barometer, a dynamic dashboard used by ministries, donor agencies, and NGOs to: i) Track shifts in sentiment and lived experience related to digital labor access across regions and demographic groups, ii) Identify emergent themes and systemic bottlenecks that disproportionately impact women in STEM and other digital sectors, iii) Conduct gender-sensitivity audits of public and institutional policies, based not only on statistical data but on lived, emotionally coded narratives, and iv) Facilitate rapid feedback loops between affected communities and policy actors, ensuring more responsive, data-informed governance.

This policy-facing application aligns with Jordan's push for smarter, citizen-centric governance under the National ICT Strategy. By treating participant-generated stories as real-time social data, policymakers can better understand the human dimensions of digital exclusion and adapt interventions accordingly. Furthermore, embedding SenseMaker as a tool within ministries of labor, ICT, and higher education can democratize knowledge production, amplify marginalized voices, and integrate feminist principles into data-driven reform. In doing so, the paper advances an innovative, participatory model of digital governance that positions Jordan not just as a reforming nation but as a regional leader in gender-sensitive digital policymaking.

CONCLUSION

This paper explored the intersection of e-education and gender disparity in Jordan, focusing on STEM-educated women's limited access to the labor market. Despite significant strides in female academic participation, particularly through digital education platforms, systemic barriers continue to hinder equitable labor integration. These barriers include persistent cultural norms, discriminatory workplace structures, and a policy landscape that has not evolved in step with technological advances. The integration of feminist post-structuralism, SenseMaker narratives, and thematic sentiment analysis provided a multidimensional view of these inequities, revealing not only the structural roots but also the emotional toll of exclusion.

The findings challenge the assumption that access to education alone is sufficient to guarantee labor equity. Without deliberate institutional, policy, and cultural interventions, digital education can become a hollow promise for marginalized groups. Jordan's current education-to-employment pipeline remains fragmented, requiring an ecosystemic overhaul grounded in feminist-informed policy design and gender-responsive digital governance.

This paper holds significant implications for multiple stakeholders. Scholars are encouraged to further explore digital methodologies in non-Western contexts. Practitioners and managers must implement HR and organizational policies that reflect inclusive, digitally competent, and gender-sensitive values. Policymakers must integrate gender perspectives into national ICT strategies, ensuring that digital transformation benefits all citizens equitably. Future work could extend this analysis to other marginalized groups or investigate sector-specific dynamics across different Middle Eastern and North African (MENA) countries.

In closing, education is not a stand-alone lever for empowerment. It must be paired with structural opportunity, institutional flexibility, and cultural transformation. Only then can the promise of digital equity translate into tangible economic and social inclusion for women in Jordan and beyond.

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Appendix

Figure 1. Sentiment Distribution of STEM-Educated Women's Narratives in Jordan

Table 1 Multi-level Recommendations Across Short-term, Medium-term, and Long-term time Horizons