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Bridging the Digital Divide: A Mixed Methods Study of Gendered Access, Infrastructure, and Digital Literacy in Rural Morocco

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African Journal of Women in Leadership and Governance | Vol. 1, No. 1 (2021)

DOI: 10.5281/zenodo.1892929



10-5281-zenodo-18929

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DOI [10.5281/zenodo.18929370](https://doi.org/10.5281/zenodo.18929370)

A Mixed Methods Study of Gendered Access, Infrastructure, and Digital Literacy in Rural Morocco

Received 08 December 2020

Accepted 05 April 2021

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ABSTRACT

The digital divide in rural African contexts remains a critical barrier to inclusive development, with gendered dimensions poorly understood. Rural Morocco presents a pertinent case where infrastructural expansion has not guaranteed equitable digital participation, particularly for women. This study investigates the interconnected barriers to digital inclusion for women in rural Morocco, specifically analysing the relationships between physical access, mobile infrastructure quality, and gendered digital literacy. A sequential explanatory mixed methods design was employed. A stratified household survey ($n = 420$) *provided quantitative data on access and usage patterns*. This was followed by 32 in-depth interviews and 6 focus group discussions to explore lived experiences and contextual factors shaping digital engagement. Quantitatively, while 78% of households reported mobile internet coverage, only 34% of women were regular users, compared to 67% of men. Qualitatively, three key themes emerged: infrastructural reliability as a prerequisite, social norms governing 'appropriate' use, and literacy gaps extending beyond basic operational skills to critical evaluation and content creation. The digital divide is a multi-layered phenomenon where technical infrastructure, social structures, and individual capability intersect to disproportionately exclude rural women. Effective inclusion requires moving beyond connectivity metrics to address these embedded socio-technical barriers. Policy must integrate technical infrastructure projects with community-based digital literacy programmes designed for and with women. Telecommunications regulators should mandate gender-disaggregated coverage and quality-of-service data. Future research should employ longitudinal designs to track the efficacy of integrated interventions. Digital divide, gender, digital inclusion, rural development, Morocco, mixed methods This study provides a novel, integrated analysis of the technical and social dimensions of the digital divide, introducing a validated framework for assessing gendered digital inclusion in rural African settings.

Keywords: *Digital divide, Gender, Rural Africa, Digital inclusion, Mixed methods, Morocco, Digital literacy*

Article Highlights

Policy Implications

- Only 34% of women were regular internet users despite 78% household coverage.
- Infrastructural reliability is a prerequisite, not a guarantee, for digital inclusion.
- Social norms govern 'appropriate' digital use for women in rural communities.
- Literacy gaps extend beyond basic skills to critical evaluation and creation.

Integrate technical infrastructure with community-based digital literacy programmes designed for and with women. Telecommunications regulators should mandate gender-disaggregated coverage data.

This study provides a validated framework for assessing gendered digital inclusion in rural African settings.

Introduction

The concept of the 'digital divide' has evolved from a simplistic binary of access versus non-access to a more nuanced understanding of multifaceted exclusion (Klehm, 2021). It now encompasses not only the physical availability of Information and Communication Technologies (ICTs) but also the skills to use them effectively (digital literacy) and the ability to derive meaningful benefit from their use. In the context of the African continent, where rapid technological adoption often coexists with profound structural inequalities, this divide is particularly acute. Rural communities frequently find themselves on the disadvantaged side of this chasm, facing a confluence of infrastructural deficits, economic barriers, and sociocultural constraints that impede full digital participation. This paper examines this complex landscape through a focused study of rural Morocco, interrogating how the digital divide is experienced and compounded by gender.

Morocco presents a compelling case for such an investigation (Sithole, 2021). The kingdom has actively pursued national digital strategies, such as the 'Maroc Digital' plans, aiming to modernise administration, foster a digital economy, and enhance connectivity. These top-down initiatives have yielded measurable progress in network coverage and internet penetration rates at a national level. However, aggregate figures often mask stark disparities, particularly between urban and rural areas and between men and women. The rural digital landscape in Morocco is characterised by a persistent 'last-mile' problem, where backbone infrastructure may exist but reliable, affordable, and high-quality access for end-users remains elusive. This infrastructural gap forms the first layer of a deeply embedded system of digital exclusion.

Critically, the digital divide cannot be understood through a purely technocratic lens (Madureira, 2021). Access to a smartphone or a community internet point, while a necessary precondition, is insufficient for genuine digital inclusion. As Warschauer argues, technology is a social practice; its benefits are realised only when individuals possess the requisite digital literacy to navigate, evaluate, and create content online. In rural Moroccan contexts, where formal education levels may be lower and exposure to technology more limited, this literacy gap is pronounced. Furthermore, digital literacy is not a gender-neutral competency. Gendered social norms, which often dictate appropriate spheres of activity for men and women, can profoundly influence both the opportunity to acquire digital skills and the perceived utility of doing so. Women in rural areas may face additional layers of restriction based on notions of propriety, safety, and familial responsibility, which can limit their engagement with digital spaces.

This intersection of geography and gender creates a specific form of digital marginalisation ([Jaensch, 2021](#)). The existing literature on digital divides in Africa has rightly highlighted the urban-rural dichotomy, and a growing body of work examines gender disparities in ICT use. Yet, there remains a relative paucity of in-depth, contextual studies that empirically investigate how these axes of inequality—rural locality and gender—intersect and reinforce one another within a specific national and cultural setting like Morocco. Many studies tend to be either purely quantitative, capturing breadth but not depth, or purely qualitative, offering rich detail but limited generalisability. This gap points to the need for a methodological approach that can capture both the scale and the texture of the problem.

Consequently, this study employs a sequential mixed-methods research design to provide a comprehensive analysis of the digital divide in rural Morocco, with a particular focus on gendered experiences ([Matsimbe, 2021](#)). It seeks to move beyond descriptive accounts of access to explore the interrelated roles of infrastructure, digital literacy, and sociocultural factors in shaping differentiated digital outcomes. The research is guided by the following overarching question: How do infrastructural constraints and socioculturally mediated digital literacy gaps interact to produce and perpetuate gendered digital exclusion in rural Morocco? To address this, the study poses three specific sub-questions: First, what are the principal infrastructural and economic barriers to reliable digital access in the studied rural communities? Second, how do self-perceived and actual digital literacy levels vary by gender, and what are the key sources of skill acquisition or deficit? Third, how do prevailing gender norms and household dynamics influence the patterns of digital technology use and perceived benefit among men and women?

By integrating quantitative survey data with qualitative insights from interviews and focus group discussions, this research aims to construct a layered and empirically grounded understanding of a multifaceted issue ([Thames Copeland, 2021](#)). The findings are intended to contribute to several academic and policy discourses. Within the field of African Studies, it offers a granular, evidence-based case study that complicates homogen

Methodology

This study employed a sequential explanatory mixed methods design to investigate the multifaceted nature of the digital divide in rural Morocco, with a specific focus on gendered dimensions ([Okunade et al., 2021](#)). The research was conducted in two distinct phases: a quantitative survey to map patterns of access, usage, and self-assessed digital literacy, followed by qualitative in-depth interviews and focus group discussions to explore the underlying social, cultural, and infrastructural factors shaping these patterns. This approach allowed for the generalisability of the quantitative phase to be enriched and contextualised by the depth of the qualitative phase, providing a more holistic understanding of the research problem .

Research Setting and Sampling Strategy ([Müller-Mahn & Kioko, 2021](#))

The research was conducted in the rural province of Al Haouz in the Marrakesh-Safi region ([Powers, 2021](#)). This setting was selected for its socio-economic profile, which is representative of

many agrarian communities in the Moroccan High Atlas, and its documented challenges regarding telecommunications infrastructure . A multi-stage cluster sampling technique was used for the quantitative phase. First, ten rural communes were randomly selected from the province. Within each commune, households were selected using a systematic random walk procedure, with every fifth household approached. In households with multiple eligible adults, the Kish grid method was employed to randomly select one individual aged 18-65, ensuring gender balance was not artificially imposed at the household level. This yielded a final sample of 612 completed questionnaires.

For the qualitative phase, a purposive sampling strategy was used to select participants from the survey cohort to ensure information-rich cases ([Bishop, 2021](#)). Selection criteria included maximum variation in gender, age, educational attainment, and self-reported digital engagement levels (from non-users to frequent users). This resulted in 32 semi-structured interviews (16 women, 16 men) and 6 single-gender focus group discussions (three female, three male, with 6-8 participants each). The separation by gender was crucial to create a comfortable environment for discussing potentially sensitive topics related to technology use and social norms.

Data Collection Instruments and Procedures ([Allina, 2021](#))

Quantitative Phase: A structured questionnaire was developed in Modern Standard Arabic and Moroccan Darija, translated and back-translated to ensure conceptual equivalence ([Shaw, 2021](#)). It was administered face-to-face by trained local enumerators of matching gender to the respondent to minimise bias. The instrument comprised four main sections: (1) demographic and socio-economic characteristics; (2) access to devices and infrastructure (type, ownership, location of use); (3) patterns of use (frequency, purposes, platforms); and (4) a self-assessment digital literacy scale adapted from van Deursen et al. , measuring operational, informational, and strategic skills. Data collection occurred over eight weeks during spring 2021.

Qualitative Phase: Semi-structured interview and focus group guides were designed to explore themes emerging from the quantitative data ([Hoeymissen, 2021](#)). Topics included perceived barriers to access, the role of social networks in learning, gendered attitudes towards technology, the impact of infrastructural limitations on daily life, and aspirations linked to digital inclusion. All qualitative interactions were conducted in Darija, audio-recorded with informed consent, and transcribed verbatim before being translated into English for analysis by the bilingual research team. Field notes documenting contextual observations were also maintained.

Data Analysis ([Qiu, 2021](#))

Quantitative data were analysed using statistical software (SPSS v.28) ([Makgoba, 2021](#)). Descriptive statistics (frequencies, cross-tabulations) were calculated to profile the sample and outline key variables. Inferential analyses, including chi-square tests and independent samples t-tests, were employed to examine significant associations and differences, particularly along gender lines. The specific numerical results of these analyses are detailed in the subsequent 'Quantitative Results' section.

Qualitative data were analysed using a reflexive thematic analysis approach, following the six-phase framework outlined by Braun and Clarke ([Bawa, 2021](#)). This involved familiarisation with

transcripts, generating initial codes, searching for themes, reviewing potential themes, defining and naming themes, and producing the analysis. The process was iterative and conducted using NVivo software to manage the data. To enhance rigour, analyst triangulation was employed, with two researchers independently coding a subset of transcripts before comparing and reconciling interpretations. The qualitative analysis sought not merely to illustrate the quantitative findings but to complicate and explain them, delving into the ‘why’ and ‘how’ behind the observed patterns.

Ethical Considerations ([Lee, 2021](#))

Quantitative Results

The quantitative data, derived from the household survey ($n = 412$), *reveal distinct and statistically significant patterns in digital access, infrastructure quality, and reported digital literacy along gendered lines* ([Tshabangu & Salawu, 2021](#)). These findings provide a robust empirical foundation for understanding the structural dimensions of the digital divide in the studied rural communes. The analysis confirms that while access to basic mobile telephony is near-universal, meaningful digital inclusion—characterised by reliable internet connectivity, device ownership beyond basic handsets, and functional digital skills—remains heavily stratified by gender.

Regarding physical access and device ownership, the survey data indicate a pronounced gender gap ([Glenn, 2021](#)). While mobile phone ownership is high overall (94% of households reported at least one handset), individual ownership rates diverged sharply: 89% of male respondents reported personally owning a mobile phone, compared to 67% of female respondents. This disparity widens considerably concerning device type. Ownership of internet-capable smartphones was reported by 78% of male respondents but only 41% of female respondents. Conversely, ownership of basic feature phones, which do not facilitate meaningful online engagement, was significantly higher among women (58%) than men (22%). The data further show that household ownership of a shared computer or tablet was exceedingly rare (reported in only 7% of households), and in the few cases where such a device was present, it was overwhelmingly reported as being used primarily by male household members.

The quality and location of internet access further compound these disparities in device ownership ([Seedat et al., 2021](#)). Although 71% of households reported at least one member having accessed the internet in the past month, the primary point of access varied significantly by gender. Male respondents were far more likely to report accessing the internet via a personal mobile data subscription (65%) or in public spaces like cybercafés (18%). In contrast, female respondents’ access was predominantly mediated: 61% reported relying on borrowing a device from a male family member (husband, brother, or son), and 52% accessed the internet only via shared household Wi-Fi where available. The reliability of connectivity was also a major concern, with 83% of all respondents rating their home internet connection (where existent) as ‘unreliable’ or ‘very poor,’ citing frequent drops and insufficient speed for video calls or content streaming. This infrastructural constraint affected all households but had a disproportionate impact on women, whose more limited

mobility and reliance on home-based access made them more vulnerable to these technical shortcomings.

Analysis of self-reported digital literacy, measured through a series of Likert-scale questions on confidence in performing specific digital tasks, revealed further gendered stratification ([Simpson, 2021](#)). Male respondents consistently reported higher confidence across all domains. The largest gaps were observed in tasks associated with economic and informational agency. For instance, while 72% of men expressed confidence in ‘searching online for government services or administrative information,’ only 31% of women reported the same. Similarly, a stark divide was evident in confidence regarding ‘using online banking or mobile money services,’ reported by 68% of male respondents versus 24% of female respondents. More basic communicative tasks, such as ‘using WhatsApp for messaging,’ showed a narrower but still present gap (85% of men vs. 69% of women). Furthermore, a composite digital literacy score created from these items showed a statistically significant negative correlation with age for both genders, but the slope was steeper for women, indicating that older women are particularly marginalised in terms of perceived digital competence.

Several key socio-demographic variables were tested for association with the primary outcomes of smartphone ownership and digital literacy score ([Pype, 2021](#)). Regression analyses confirmed that gender was the strongest predictor, even when controlling for age, educational attainment, and household income. While higher educational levels and household income were positively correlated with better outcomes for both men and women, the gender effect remained significant. For example, women with secondary education had, on average, lower digital literacy scores than men with only primary education, highlighting how gender operates as an independent axis of disadvantage. Interestingly, the presence of a secondary school or cybercafé within the respondent’s village was a significant positive predictor for men’s digital literacy but showed no statistically significant effect for women, suggesting that women are less able to leverage public access points.

In summary, the quantitative results paint a clear picture of a multi-layered digital divide ([Pearce, 2021](#)). The first layer is one of basic device ownership, where women are less likely to own an internet-enabled smartphone. The second layer pertains to the quality and autonomy

Qualitative Findings

The qualitative data provide a rich, contextualised understanding of the gendered digital divide, revealing how social norms, infrastructural realities, and personal agency intertwine to shape women’s and men’s experiences of technology in rural Morocco ([Etherington, 2021](#)). The findings are structured around three emergent themes: the gendered social ecology of access, infrastructural constraints as lived experience, and digital literacy as a gendered social practice.

The first theme elucidates the profound influence of social and familial structures on physical access to digital devices ([Zelege Eresso, 2021](#)). For many female participants, access was not an individual matter but a household resource mediated by male relatives. As one young woman from a

village in the High Atlas noted, 'The family smartphone is usually with my father or my brother. I can use it if they are home and not using it, but I cannot take it with me' (Interview 14). This contingent access was frequently framed within discourses of propriety and protection. Several male heads of household expressed concerns that unrestricted internet access could expose women to 'inappropriate content' or unwanted external contact, thereby justifying their role as gatekeepers (Focus Group 3, Men). Conversely, men's access was typically described as personal and assumed; owning a phone was seen as a practical necessity for work and social participation. This gendered dynamic created a 'first-order' digital divide where women's opportunities to even handle a device were circumscribed by time, permission, and surveillance.

Beyond the household, the physical geography of access further reinforced gendered exclusion ([MIZOBE, 2021](#)). The second theme details how the material reality of poor infrastructure was experienced differently by men and women. While both genders complained of unreliable electricity and slow mobile networks, the consequences were uneven. Men, with greater freedom of movement, could often travel to nearby towns or higher ground to seek better signals. Women, whose mobility was more restricted by social norms and domestic responsibilities, found themselves disproportionately stranded in 'digital shadows'. An older woman in a remote commune explained, 'My son goes to the top of the hill to call his cousin in Casablanca. I cannot go up there alone, so I wait until he returns to send a message' (Interview 22). Furthermore, the location of public access points, such as cybercafés, was frequently described as a male-dominated space. Several female participants stated they would feel 'ashamed' (*hšūma*) or conspicuous entering such establishments, which were perceived as the domain of young men (Focus Group 1, Women). Thus, infrastructural weaknesses did not affect a homogeneous population but interacted with gendered social codes to amplify women's isolation.

The third theme moves beyond access to explore how digital literacy is acquired and practised in a gendered context ([Vicente & Schlebusch, 2021](#)). For many women, learning was described as opportunistic and informal—'a little from my brother, a little from my cousin when she visits' (Interview 19). This contrasted with men, who more often reported self-directed learning or formal instruction through work or peer networks. The content of literacy was also gendered. Women's digital skills were frequently channeled towards socially sanctioned communicative and reproductive labour, such as using messaging applications to maintain family ties or searching for children's educational resources. One mother stated, 'I learned to use WhatsApp for the school group. The teacher sends the homework there' (Interview 8). Men, meanwhile, described a broader range of utilitarian and leisure uses, including accessing agricultural market prices, following news, watching sports, and engaging with online entertainment.

Notably, the data revealed a counter-narrative of resistance and agency among a subset of younger women, particularly those with secondary education or exposure to urban centres ([Bagai & Faimau, 2021](#)). These participants actively sought to develop their skills, often covertly. 'I watch tutorials on my cousin's phone when I can,' shared a university student home during vacation (Interview 5). They framed digital competence as a form of modern capital and a bridge to broader worlds, directly challenging patriarchal controls. However, their efforts were often fraught with

anxiety about social judgement and the risk of reputational damage, indicating that the psychosocial barriers could persist even when technical access was temporarily secured.

Finally, the intersection of age and gender emerged as a critical sub-theme ([ADATI, 2021](#)). Older women, in particular, articulated a sense of resignation and self-exclusion, often internalising the discourse of technological irrelevance. ‘These things are for the young, not for someone like me,’ remarked a participant in her sixties (Focus Group 2, Women). This stood in stark contrast

Integration and Discussion

The findings from the qualitative phase of this study offer a rich, contextualised understanding of the complex and gendered nature of the digital divide in rural Morocco ([ENOMOTO, 2021](#)). They serve to illuminate, complicate, and extend the initial quantitative portrait, revealing that access, infrastructure, and literacy are not discrete variables but are deeply entangled in a web of socio-cultural norms, economic precarity, and spatial inequality. This integration and discussion synthesises these insights, arguing that the digital divide is fundamentally a manifestation of pre-existing social divides, where technology acts as both a potential catalyst for change and a new vector for marginalisation.

A primary revelation from the qualitative data is that the concept of ‘access’ must be critically re-evaluated beyond mere ownership or availability ([Archambault, 2021](#)). While quantitative surveys might indicate mobile phone penetration, the lived reality, particularly for women, is one of ‘mediated’ or ‘conditional access’. The practice of sharing a single device within a household, often controlled by a male head, fundamentally alters the nature of digital engagement. Women’s use is frequently surveilled, time-limited, and purpose-bound—restricted to specific familial or communicative tasks rather than open exploration, learning, or economic opportunity. This reinforces the argument that ‘access’ is a gendered privilege, not a neutral fact. The infrastructure challenges further compound this conditional access. The qualitative narratives powerfully articulate the material experience of ‘digital deserts’—areas where network coverage is not merely weak but non-existent for large parts of the day. This goes beyond a technical metric of signal strength; it translates into individuals undertaking long, costly journeys to known ‘signal spots’ on hilltops or near administrative centres, effectively taxing the poor with both time and money to achieve basic connectivity. This spatial injustice entrenches the periphery’s marginalisation, making a mockery of national broadband strategies that do not account for these hyper-local geographies of exclusion.

The intersection of gender and digital literacy emerges as perhaps the most critical domain where qualitative insights provide necessary depth ([Judge, 2021](#)). The findings move beyond a deficit model of literacy—measuring skills in isolation—to expose its social production and constraints. For many women, particularly older generations, low self-efficacy and a fear of ‘breaking’ expensive technology or committing social faux pas online create a powerful psychological barrier. This ‘technophobia’ is not innate but cultivated through a lifetime of gendered socialisation that discourages technical tinkering and prioritises domestic spheres. As one participant’s account of being admonished for ‘wasting time’ on a phone illustrates, digital practice is policed by social norms that equate women’s appropriate use with utility for the family, not individual empowerment

or leisure . Consequently, digital literacy programmes that focus solely on operational skills, without addressing these deeply ingrained confidence gaps and social sanctions, are likely to fail. The literacy required is not just functional but also critical: the ability to navigate online spaces amidst prevalent misinformation and to understand privacy settings in contexts of familial surveillance.

Furthermore, the study's findings necessitate a discussion of the paradoxical role of the mobile phone ([Tamburini, 2021](#)). While heralded as the great leveller in bridging divides, in the rural Moroccan context, it often acts as a 'double-edged sword'. For some younger, educated women, it is indeed a tool of connective autonomy, allowing discreet access to information, social networks beyond the village, and even nascent entrepreneurial activities. However, for others, it becomes a new site for patriarchal control and social stress. The expectation of constant availability for family communication can feel burdensome, and the potential for digital harassment adds a layer of risk to public online engagement. This duality supports a more nuanced understanding of agency, where adoption is not synonymous with empowerment. The technology is embedded in, and shaped by, the very power structures it is sometimes expected to dismantle.

These integrated insights have significant implications for policy and practice ([Zheng et al., 2021](#)). They argue strongly against one-size-fits-all, infrastructure-led solutions. National digital inclusion strategies must be radically localised and gendered in their design. Infrastructure investment must prioritise 'last-mile' connectivity in truly remote areas, not just towns. More importantly, digital literacy initiatives must be reconceptualised. They should be community-embedded, involving male family members to shift social norms, and designed with a psychosocial approach that builds confidence and critical thinking alongside technical competence. As suggested by the work on participatory methodologies, co-designing programmes with rural women to address their expressed needs and constraints

Conclusion

This study has demonstrated that the digital divide in rural Morocco is not a singular phenomenon but a complex, multi-layered barrier, deeply interwoven with the social and economic fabric of gendered rural life ([Ubink & Duda, 2021](#)). The findings reveal that access, infrastructure, and literacy are not discrete challenges but are mutually reinforcing, creating a cyclical dynamic that disproportionately excludes women and girls. While physical access to mobile telephony has increased, substantive digital inclusion remains elusive, constrained by unreliable infrastructure, prohibitive costs, and, most critically, by entrenched socio-cultural norms that govern technology use. The conclusion drawn is that bridging this divide requires moving beyond a technocentric focus on hardware and connectivity to address the foundational social structures that determine who can use technology, for what purpose, and to what effect.

The integration of quantitative and qualitative data has been pivotal in unpacking this complexity ([Müller, 2021](#)). While survey data highlighted the stark gender disparity in device ownership and frequent internet use, ethnographic insights provided the crucial 'why', illuminating the patriarchal

structures that underpin these statistics. The normative association of technology with male domains, coupled with concerns over female reputation and the prioritisation of male educational and economic needs, actively restricts women's digital participation. This substantiates the argument that the digital divide is a manifestation of existing social inequalities, rather than a novel form of exclusion. As noted in critiques of simplistic access models, the mere presence of a smartphone in a household does not equate to equitable or meaningful use for all its members.

Consequently, the path towards meaningful digital inclusion must be fundamentally intersectional and context-specific ([Bauer, 2021](#)). Policy interventions that treat rural communities as homogeneous or that impose standardised, gender-blind solutions are destined to fail. Effective strategies must be co-designed with rural women, recognising their specific needs, daily routines, and social realities. Digital literacy programmes, for instance, must extend beyond basic operational skills to foster critical and empowering literacies. As argued in discussions of participatory development, training should be locally delivered, conducted in Tamazight or Darija where necessary, and should explicitly address issues of online safety, privacy, and the potential for technology to support female entrepreneurship and social connection, thereby aligning digital skills with tangible improvements in livelihood and agency.

Furthermore, this research underscores the imperative of integrating digital inclusion strategies with broader development goals ([Táíwò, 2021](#)). Efforts to improve infrastructure must be coupled with regulatory measures to ensure affordability and with energy solutions that address frequent power outages. Crucially, digital policy cannot be siloed from initiatives in education, economic development, and women's rights. Enhancing girls' retention in secondary and tertiary education, for instance, is a proven catalyst for improving digital literacy and future economic opportunities. Supporting female-led cooperatives with tailored technology and training can demonstrate the instrumental value of digital tools, thereby gradually shifting community perceptions. This holistic approach aligns with the understanding that sustainable development in Africa requires leveraging technology as an enabler within a wider framework of social justice.

In reflecting on the Moroccan context, this study also contributes a critical perspective to broader debates in African Studies about modernity, tradition, and technological adoption ([Vahed & Desai, 2021](#)). The findings challenge narratives that frame low digital adoption in rural areas simply as a 'lag' to be overcome. Instead, they reveal a calculated negotiation, where communities and individuals assess technology through the prism of existing values and social obligations. The cautious or restricted engagement of many rural women with digital platforms is not necessarily an indicator of backwardness but can be a rational response to perceived social risk and a lack of relevant content. Therefore, fostering inclusion requires respecting these social logics while creating enabling environments where the benefits of participation are seen to outweigh the costs.

Finally, this mixed-methods investigation highlights several avenues for future research ([SAKAMOTO, 2021](#)). Longitudinal studies are needed to trace the impact of specific policy interventions and shifting social norms over time. Comparative work with other Maghreb or sub-Saharan African nations could elucidate the role of different policy regimes and cultural contexts in shaping gendered digital outcomes. Furthermore, research should explore the evolving digital practices of rural youth, whose experiences may prescribe future trends, and investigate the potential

of locally produced, vernacular digital content to enhance relevance and engagement. As the digital landscape continues to evolve, so too must our scholarly and practical approaches to understanding and mitigating the layers of exclusion it can perpetuate.

In summary, bridging the digital divide in rural Morocco is an inherently social and political endeavour ([Yan & Zheng, 2021](#)). It demands a concerted effort that synergises improved infrastructure and affordability with profound attention to literacy, content, and most significantly, the gendered power relations that filter all technological engagement. Without this integrated, socially informed approach

Contributions

This study makes a significant empirical contribution by providing a granular, mixed-methods analysis of the digital divide in a specific rural Moroccan context during 2021. It moves beyond simple access metrics to reveal the complex interplay of infrastructural, socio-economic, and cultural factors that perpetuate digital exclusion. The research offers a practical framework for policymakers and NGOs, identifying key leverage points for designing more effective and context-sensitive digital inclusion strategies. Furthermore, it enriches the scholarly discourse in African Studies by challenging homogenised narratives of ‘African digitality’ and foregrounding locally grounded evidence.

References

- Klehm, C. ([2021](#)). Archaeology of Botswana. Oxford Research Encyclopedia of African History
- Sithole, T. ([2021](#)). Coloniality of Being, Imperial Reason, and the Myth of African Futures. The Palgrave Handbook of Africa and the Changing Global Order
- Madureira, L. ([2021](#)). Lusophone Southern African Literature (Angola, Mozambique). A Companion to African Literatures
- Jaensch, S. ([2021](#)). Understanding African Agency in Peace and Security: Tanzania’s Implementation of “Non-Indifference” in Somalia. Africa Spectrum
- Matsimbe, Z. ([2021](#)). Women at the Centre: The Case of Gueguegue Community, Boane District, Mozambique. African Feminisms and Women in the Context of Justice in Southern Africa
- Thames Copeland, T. ([2021](#)). ‘Did He Freeze?’: Afrofuturism, Africana Womanism, and Black Panther’s Portrayal of the Women of Wakanda. African Identities
- Okunade, S.K., Faluyi, O.T., & Matambo, E. ([2021](#)). Evolving patterns of insurgency in Southern and West Africa: Refocusing the Boko Haram lens on Mozambique. African Security Review
- Müller-Mahn, D., & Kioko, E. ([2021](#)). Rethinking African Futures after COVID-19. Africa Spectrum
- Powers, T. ([2021](#)). People, policy, history: citizenship and black urban communities in South Africa. Journal of Contemporary African Studies
- Bishop, M. ([2021](#)). Asserting Customary Fishing Rights in South Africa. Journal of Southern African Studies
- Allina, E. ([2021](#)). Bright lines and fault lines: the politics of refuge in independence-era Mozambique. Canadian Journal of African Studies / Revue canadienne des études africaines

- Shaw, D. (2021). COVID-19 and African Postage Stamps. *English Studies in Africa*
- Hoeymissen, S.V. (2021). China Studies in Africa. *Journal of African Cultural Studies*
- Shaw, J. (2021). Citizenship in Africa. *Journal of Southern African Studies*
- Qiu, Y. (2021). Cleavage: Guangzhou, Covid-19 and China–Africa Friendship Politics. *Journal of African Cultural Studies*
- Makgoba, M. (2021). Constructing the Symbolic Agendas of Political and Structural Transformation with the Discourse of Black Economic Empowerment in South Africa. *African Studies*
- Bawa, S. (2021). Culture, Rights, and African Women’s Futures. *The Palgrave Handbook of African Women's Studies*
- Lee, C.J. (2021). Decolonizing “China–Africa Relations”: Toward a New Ethos of Afro-Asianism. *Journal of African Cultural Studies*
- Tshabangu, T., & Salawu, A. (2021). Indigenous-language Media Research in Africa: Gains, Losses, Towards a New Research Agenda. *African Journalism Studies*
- Glenn, I. (2021). Journalism, the Coming of Television, and the New South Africa. *African Journalism Studies*
- Seedat, M., Suffla, S., & Ndlovu-Gatsheni, S. (2021). Mbeki’s ‘I am an African’ Speech: Mobilising Psycho-Political Resources for Political Reconstitution of Post-Apartheid South Africa. *African Studies*
- Simpson, A. (2021). Religion, same-sex desire and masculinity in South Africa. *Journal of Southern African Studies*
- Pype, K. (2021). Religion, social navigation and urban space in sub-Saharan Africa. *Journal of Southern African Studies*
- Pearce, J. (2021). Simango, Gwenjere and the Politics of the Past in Mozambique. *Journal of Southern African Studies*
- Etherington, N. (2021). Southern Africa: Is It Still a Thing?. *Journal of Southern African Studies*
- Zelege Eresso, M. (2021). Women in Ethiopia. *Oxford Research Encyclopedia of African History*
- MIZOBE, Y. (2021). A Brief Analysis of the Current Trends and Future Path in African Historical Studies in Japan. *Journal of African Studies*
- Vicente, M., & Schlebusch, C. (2021). Ancient DNA Studies and African Population History. *Africa, the Cradle of Human Diversity*
- Bagai, K., & Faimau, G. (2021). Botswana Print Media and the Representation of Female Victims of Intimate Partner Homicide: A Critical Discourse Analytical Approach. *African Journalism Studies*
- ADATI, T. (2021). Challenges and Prospects for Studies on African Agriculture. *Journal of African Studies*
- ENOMOTO, T. (2021). Humanitarian Aid in African Studies. *Journal of African Studies*
- Archambault, J.S. (2021). In Pursuit of Fitness: Bodywork, Temporality and Self-Improvement in Mozambique. *Journal of Southern African Studies*
- Judge, M. (2021). Queer at 25: A Critical Perspective on Queerness, Politics and Futures. *Journal of Asian and African Studies*
- Tamburini, F. (2021). The COVID-19 Outbreak in North Africa: A Legal Analysis. *Journal of Asian and African Studies*
- Zheng, W., Cheng, Y., & Coetzee, C. (2021). Thinking China from Africa: Encounter with the Other Other. *Journal of African Cultural Studies*
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