



Digital Divide and Girls' Education: The Influence of Social Media Access in Rural Kano State, Nigeria

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ARTICLE HISTORY

Received: 2 July 2026

Accepted: 30 September 2026

Published: October 2026

ARTICLE INFO



Vol. 1, No. 2 (2026), pp. 498–506

ISSN: 3141-6268 (Print)

3156-5077 (Online)

DOI: 10.67523/auijmss.v1i2.020

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HOW TO CITE

Ya'u, H. A. (2026). Digital divide and girls' education: The influence of social media access in rural Kano State, Nigeria. *Azman Univ. Int. J. Manag. Soc. Sci.*, 1(2), 498–506. <https://doi.org/10.67523/auijmss.v1i2.020>

ABSTRACT

This paper examines the relationship between the gender digital divide and girls' education in rural Kano State, Nigeria, focusing on the role of social media in supporting secondary school learning. Although social media has become an important educational resource, girls' access remains constrained by gender, socioeconomic status, and rural location. Additional barriers include dependence on family members for phone access, limited digital literacy, restrictive gender norms, parental control, early marriage, and inadequate infrastructure. The study adopts a conceptual approach, using document analysis of reports and scholarly literature on social media, digital inequality, and girls' education to examine the Kano State case. Guided by Digital Divide Theory, the study finds that while rural secondary school girls have limited access to social media, those permitted by parents use it for group discussions, sharing notes, completing assignments, preparing for examinations, and communicating with teachers on academic and moral issues. However, cultural stereotypes and parental concerns about immorality, cyberbullying, and other online risks continue to restrict access. The paper argues that addressing the gender digital divide through community-based digital learning centres, digital literacy programmes, affordable educational data plans, parental sensitization, and school-supported WhatsApp and Telegram learning groups can significantly enhance girls' educational opportunities and learning outcomes in rural Kano State.

Keywords: Digital Inclusion; Gender Digital Divide; Girls' Education; Rural Kano State; Social Media

1. Introduction

Digital media has become an integral part of modern education. Across the globe, the use of mobile phones, social media, and internet communication is transforming information access, student-teacher interactions, assignment submission, examination revision, and peer-to-peer learning. In Nigeria, the educational benefits of social media, including WhatsApp, Telegram, Facebook, YouTube, Instagram, and TikTok, are no longer in question, as many students use these technologies for informal learning, notices, interaction, and storing learning resources. Reliance on digital media for education becomes even more pronounced during closures, strikes, security crises, and other disruptions that hinder conventional learning (GSMA, 2023).

However, Hilbert (2011) contends that the benefits of social media for learning depend on phone ownership, control, affordability, electricity, network connection, digital literacy, and social conformity, all of which are

gendered. In many communities, especially in northern Nigeria, boys are relatively free to access mobile phones while girls' access is constrained by parental, spousal, or teacher consent. The issue this paper raises is whether girls have equitable access to social media for education in Kano State.

The Nigerian Communications Commission (2024) notes that Kano State is a useful case for this study because it represents Nigeria's North-West geopolitical zone. Although the state capital hosts extensive digital activity, including social media use, phone markets, cyber cafes, and internet businesses, many rural local government areas remain underdeveloped, with insufficient electricity, network coverage, and gender norms that limit girls' free access to social media. In local government areas such as Rano, Kibiya, Gwarzo, Bichi, Gezawa, Ajingi, Wudil, Kura, Garun Malam, Karaye, and Minjibir, girls may be enrolled in secondary school but remain unable to benefit fully from the educational potential of digital media and smartphones.

The problem with social media and education in this region is not obvious at a glance. When a teacher shares a class assignment in a WhatsApp group, students watch short YouTube videos to supplement their learning, a class representative circulates examination information through a Telegram group, and senior students follow scholarship and motivational Facebook pages, it is easy to assume that social media is supporting girls' education uniformly (Nigerian Communications Commission, 2024).

In reality, these educational benefits are available only to those with smartphones, data plans, social media literacy, and the social conformity needed to use the technologies for learning, and a significant proportion of rural secondary school girls in Kano lack these combined factors. The problem this paper addresses is therefore one of access, which shapes its research question and objectives: whether rural secondary school girls in Kano State can use social media for education, given the gender and regional challenges affecting their access to the technology. The significance of the research lies in the fact that digital media, including smartphones, is being used in many ways to facilitate teaching and learning across Nigeria, yet in many communities girls remain unable to access the educational benefits of social media as readily as their male counterparts. Understanding how access shapes rural secondary school girls' informal and formal education will provide insight into how social media can be used to support women's learning, and will add to the body of research on girls' education in a region where female participation in secondary education remains a growing concern.

2. Problem Statement

Girls in rural secondary schools are among the many groups that experience digital inequality. The use of digital media for education is increasing throughout Nigeria, but poverty, a lack of mobile phones, inadequate electricity, limited internet coverage, social conformity, and low digital literacy mean that girls in rural areas have fewer opportunities than their urban counterparts to access and use social media for learning. With regard to social media's influence on learning, girls in rural areas are disadvantaged compared with males, who more readily have access to phones, data plans, and the literacy needed to use the technology for educational purposes (Helsper, 2021).

Banyan Global (2023) notes that when a rural school recognises WhatsApp groups as useful for sharing study notes, only a few female students may be able to join, since they lack regular access to a mobile phone. Where a family owns a smartphone, the father or an elder brother may be its primary user. A girl may be permitted to use her mother's phone to access the internet in the evening, once her household duties are complete. Others stay away from online learning groups altogether because religious or cultural beliefs associate mobile phone use with immorality, infidelity, or disobedience to parents. In more conservative communities, girls may lack the autonomy to participate in social media learning groups at all. Restricted access to WhatsApp groups, YouTube videos, and Telegram channels undermines girls' engagement with learning materials that boys can access with ease (Van Dijk, 2020). Without access to shared notes, girls may submit assignments late, depend on friends for information, and lose interest in certain subjects. In Kano State, girls who cannot use social media for education also face poverty, domestic chores that compete with school attendance, insecurity, insufficient learning resources, and a shortage of female teachers (Hilbert, 2011).

The lack of access to digital tools and resources therefore creates a divide that prevents girls in rural Kano from participating in online education activities as fully as boys in urban centres, contributing to gender inequality in

learning. This problem can be framed as one of access: the paper examines the influence of social media access on girls' education in a region where most females are denied that access on grounds including poverty and gender discrimination.

3. Aim and Objectives of the Study

The aim of this paper is to determine the influence of access to social media on girls' education in rural secondary schools in Kano State. The objectives of the study are to:

1. examine the level of access to social media among secondary school girls in rural Kano;
2. assess the cultural and infrastructural limitations of using social media for learning;
3. explore the potential of social media in improving girls' education in rural Nigeria;
4. evaluate the relationship between girls' access to social media and their learning engagement; and
5. determine the community's views on girls' use of digital media for education.

4. Literature Review

4.1 Digital Divide and Education

Technology is an essential component of modern education. In the twenty-first century, the availability of mobile phones and other digital devices has improved access to knowledge, facilitated teacher-student interaction, enabled assignment submission, encouraged examination revision, and enhanced peer-to-peer learning in numerous ways. The Nigerian Communications Commission (2024) argues that technology supports social inclusion by enabling students to participate in a range of educational experiences, from reading digital books to completing online assignments and attending virtual classes. Selwyn (2016), by contrast, argues that education technologies do not eliminate social divisions but instead reproduce and intensify them, particularly when technology use is not accompanied by equality in access, resources, and skills. Scholars broadly agree that access is key to determining the extent to which students can use technology for assignments, revision, and general learning.

Across developing countries such as Nigeria, access to technology and education is limited by gender, poverty, and other infrastructural challenges. Because telecommunication networks are concentrated in urban centres, smartphones and internet connectivity remain expensive in many rural communities, and many people in developing countries cannot afford smartphones, data plans, and related costs (Yeboah et al., 2025). These issues contribute to a wide digital divide whose consequences are visible in the education sector. Although smartphone use for education has grown in Nigeria, the divide persists because a majority of women and girls live in poverty with limited access to smartphones, and gender-based discrimination makes it harder still for girls to use mobile phones for communication and education (Selwyn, 2016). The current paper focuses specifically on the influence of social media on girls' education, examining how access affects learning engagement among rural secondary school girls in Kano State.

4.2 Social Media as an Educational Platform

Social media has become a popular platform for formal, informal, and semi-formal learning. WhatsApp groups have become a primary channel of communication between teachers and students because they are inexpensive and easy to use; educators use the platform to send class notes, voice messages, audio recordings, links, and visual presentations, while learners use it to share and discuss past examination questions and remind each other of school-related tasks. Telegram is similarly effective for sending and receiving educational materials, YouTube is a rich source of video content for learning, and Facebook and Instagram give students access to educational resources and pages that share informative articles, scholarship opportunities, and motivational content.

Shittu and Yusuf (2023), studying the acceptance of WhatsApp for learning among Nigerian students, found that the platform's perceived usefulness is a strong predictor of students' intention to use it for academic purposes, alongside perceived ease of use and peer influence. Other researchers have identified challenges associated with using social media for learning, most commonly the ease of access to distracting, entertaining, or unsuitable

content. Although some studies find that social media has a positive influence on education, others suggest a negative impact, since it can encourage distraction. On the whole, the influence of social media on girls' education remains an aspect of educational technology that requires further investigation, particularly among rural secondary school students in Nigeria.

4.3 Gender, Culture and Digital Access in Northern Nigeria

Gender norms significantly affect digital access, as girls' use of mobile phones is often restricted by parents because of fears and prejudices surrounding sex, morality, safety, reputation, and disobedience. In northern Nigeria, such apprehensions are reinforced by religious sentiment, cultural beliefs about modesty, concern about pre-marital relationships, and the risk of cyber harassment, all of which encourage parents to limit girls' social media exposure for the sake of their education (Nigerian Communications Commission, 2024). However, restricting girls' phone use in this way is counterproductive, since it may also limit their access to scholarships, notes, and study materials; the desire to protect girls from social media's risks often overrides the need to allow them access to educational resources (Nigerian Communications Commission, 2024).

Evidence from communities in Kano suggests that cultural perceptions of gender are not fixed, and that parents can be encouraged to support girls' use of mobile phones once the use is clearly directed towards their studies. Many parents permit their daughters to use phones for reading, attending Qur'anic classes, and communicating with teachers and tutors, while restricting access to unsuitable content on social media, and are willing to extend this support further where there is adult supervision. Achieving gender-equitable digital access in northern Nigeria therefore requires that girls' education be encouraged alongside social media literacy, to counter the perception that technology promotes immorality.

Education in northern Nigeria faces a number of broader challenges, including poverty, early marriage, insecurity, insufficient educational infrastructure, distance to schools, and cultural bias. In rural communities, children, and girls in particular, are often expected to contribute to the household, care for younger siblings, engage in petty trading, and marry when considered appropriate, so that comparatively little attention is paid to their formal education. Where financial constraints allow only one child to attend school, the preference is often for a son over a daughter, and insecurity has further affected enrolment, especially for girls.

Kano State has nonetheless made efforts to protect girls' education through policies promoting girl-child access to free primary and secondary schooling. Access to digital media remains a challenge, however, given girls' restricted access to phones intended to prevent cyber harassment and social media overuse. If phones continue to be treated as a restriction rather than a resource, problems such as girls' inability to access notes and social media study groups are likely to persist. The issue of girls' access to phones may therefore need to be re-examined at community level, so that alternatives such as encouraging girls' participation in WhatsApp study groups and classes conducted through social media can be considered; where distance and a lack of infrastructure make regular school attendance difficult, online notes and videos could supplement girls' education if access to phones is not discouraged. The perception that social media promotes immorality also needs to be addressed through sensitisation that supports girls' education rather than treating phone use as synonymous with impropriety.

4.4 Community Perceptions of Girls' Digital Media Use

Social media use is subject to varying levels of restriction depending on gender across cultures and communities. The acquisition of a mobile phone and social media accounts by a male relative is often celebrated as a step toward engaging with technology, while the same step by a female relative invites disapproval and questions about morality. Consequently, there is often limited investment in providing a girl with a phone for educational purposes, since this is seen by many as time that could instead be spent socialising with the opposite sex. Parents may therefore need encouragement to reconsider some of their assumptions about social media's effect on their daughters' reputations, so that daughters can benefit from the educational opportunities mobile technology offers.

Perception plays a significant role in determining how far parents are willing to let their daughters use digital media, which makes it important for parents to be aware of how their own perceptions shape their behaviour toward their daughters' educational needs. While parents often perceive social media as a means of encouraging impropriety,

technology-supported education has proved a viable way to augment formal learning, and the challenge lies in persuading parents that social media use does not equate to impropriety. Positioning social media as a resource and educational tool, one that can widen girls' access to articles, books, journals, dictionaries, and other materials, and running community-level sensitisation campaigns, can help parents become more supportive of their daughters' educational use of social media.

5. Theoretical Framework

5.1 Digital Divide Theory

The paper is based on the digital divide theoretical framework developed by Van Dijk. According to Van Dijk (2020), there are four pillars of the digital divide: motivational access, material access, skills access, and usage access. The theory is applicable here because it can be used to evaluate the extent to which secondary school girls in rural Kano have access to mobile phones, the internet, and education through social media. Motivational access concerns the desire to use a technology, reflected in parents' attitudes toward allowing their daughters to use mobile phones. Material access refers to the availability of resources, such as smartphones, electricity, and internet connectivity, that girls need to access digital media. Skills access is an individual's ability to search for and use digital resources effectively to achieve specific goals, such as studying. Usage access concerns how digital resources are actually harnessed for educational purposes. These pillars help explain the situation in rural Kano, where girls are often denied access to technology because of the perception that it encourages immorality.

Digital divide theory also helps explain the effect of limited access to digital resources on girls' education in rural Nigeria. The inability to access smartphones and the internet limits girls' ability to participate fully in formal education, and restricted access to social media accounts limits their ability to use online resources such as study notes and learning groups. The theory therefore helps to explain the disparity between the extent to which boys and girls are able to use technology for educational purposes.

6. Methodology

The paper employs a qualitative document analysis design to examine the influence of social media on secondary school girls' education in rural Kano. Document analysis is suitable for this study because it enables the exploration of existing documentation, reports, and other relevant information. Rather than collecting data from participants through surveys or interviews, the paper reviews and critically examines existing documents to reveal the extent to which gender affects secondary school girls' use of social media in rural Kano (Wimmer & Dominick, 2013). The documents reviewed include reports, published material, policies, articles, and journals concerned with bridging the digital divide in Nigeria, together with research on social media use in Nigeria more broadly, to provide a basis for addressing the issue in Kano.

Document analysis is useful in qualitative research because it allows the researcher to engage closely with the material under study; this approach is appropriate when the researcher cannot participate directly in the research process because of challenges such as insecurity, restricted access to the community, or ethical issues associated with working with minors (Wimmer & Dominick, 2013). In addition to literature on the gender digital divide, the paper draws on published material such as online forums, WhatsApp study groups, social media channels, and YouTube content relevant to the use of the internet in education.

6.1 Sources of Data

The paper reviews secondary data sources, including policy documents, reports, journal articles, and other published materials relevant to the study, focusing on documents addressing:

- i. the digital divide in Nigeria and globally;
- ii. girls' education in Nigeria; and
- iii. the use of social media in education.

The paper adopts a thematic content analysis approach based on the four pillars of the digital divide and the study's objectives, following these procedural steps: becoming familiar with the selected documents through repeated

reading; identifying key themes and issues addressed in the documents; developing coding categories based on the research objectives and questions; finalising themes and analysis based on the coding; and reporting the findings in line with the research objectives and questions.

7. Results and Discussion of Findings

7.1 Extent of Access to Social Media

The document analysis indicates that secondary school girls in rural Kano have limited and mediated access to social media. The majority of students do not own personal mobile phones; where a household has a phone, it is often controlled by a parent, brother, or other relative, so the extent to which a girl can use it, let alone access the internet, depends on who owns the phone, whether the owner permits her to use it, and how often she is allowed to do so (Nigerian Communications Commission, 2024).

Access to the internet further depends on the availability of electricity and a network connection, and on whether a user can afford to buy data. The analysis suggests that most secondary school students in rural Kano have some access to WhatsApp, Telegram, YouTube, Facebook, Instagram, and other platforms, but not consistently or regularly, because most lack a personal mobile phone (Nigerian Communications Commission, 2024).

Several further challenges compound this limited access. Network coverage, electricity, and data packages remain expensive in rural areas. Many students are unable to use social media for educational material because parents restrict unsupervised use to prevent interaction with the opposite sex. Girls generally have less time to access social media than boys because of domestic duties. Some parents restrict access because of fears about impropriety associated with social media use, even while acknowledging social media's potential to support formal education, and others are additionally constrained simply by a lack of resources, such as smartphones, electricity, network coverage, and data plans.

7.2 Cultural and Infrastructural Barriers

Several cultural barriers limit girls' ability to use social media for educational purposes. These include parental anxiety about a daughter's reputation and the belief that social media encourages pre-marital relationships, which leads parents to limit girls' access to technology; concern that social media exposes children to inappropriate content, such as pornography, which is seen as counterproductive to their education; and concern that mixed-gender educational groups on social media create opportunities for interaction with the opposite sex. These concerns are heightened by media reports of online harassment, cybercrime, and abuse.

A second set of cultural barriers concerns girls' domestic responsibilities, which leave them with less time than boys to use social media for educational purposes, particularly where girls are expected to help with household chores or petty trading. Girls are also often expected to marry at a young age, which can curtail their studies altogether. Where parents cannot see the need for their daughters to use social media for educational purposes, they often see no reason to permit access at all.

Infrastructural barriers compound these cultural constraints and include limited access to smartphones, unreliable electricity, poor network coverage, and insufficient digital skills, all of which significantly constrain girls' ability to use social media for education.

7.3 Potential of Social Media for Girls' Education

Social media has considerable potential to improve girls' education in rural Nigeria by providing access to educational resources and enabling formal and informal discussion of issues relevant to girls' lives. Used to support studies, it can help bridge gaps created by inadequate formal-learning infrastructure, and it can host online forums, discussions, and talks on issues affecting girl-child education, including domestic violence, sexual harassment, early marriage, and parental pressure, through which girls can share their views and propose solutions.

That potential is nonetheless constrained in practice. Social media is often used primarily for leisure or commercial purposes, which limits its use for academic purposes; poor network coverage and electricity, and the cost of smartphones, laptops, and data plans, further constrain its use; and digital literacy among girls often extends to

recreational rather than academic use of the technology. A further constraint is the perception, among some parents and guardians, that social media use promotes impropriety and should therefore not be used for educational purposes.

7.4 Relationship between Access and Learning Engagement

The relationship between girls' access to and use of social media for academic purposes and their level of learning engagement is mixed. Girls' academic engagement tends to be higher, in at least five respects, where their use of social media is regular and guided, though the relationship is conditional, since unguided access can also distract learners from their studies.

First, social media gives girls access to notes and past examination questions, since classmates and teachers can share notes, diagrams, audio, and video recordings, and a girl who is unwell, at home, or occupied with chores can request notes by WhatsApp. Second, girls can engage in peer-to-peer tutoring and collaboration through social media, which particularly helps students who find classroom interaction difficult; a girl struggling with a mathematics concept, for instance, can clarify doubts by WhatsApp. Third, teachers can use social media to remind learners of assignments, examinations, and other important dates, and to share lecture recordings when class time is limited. Fourth, girls can gain exposure and encouragement through social media, since the online presence of professionals in various occupations, scholarships, and other opportunities can motivate learners to value education; girls who follow female doctors, engineers, news anchors, teachers, and successful businesswomen on social media may be encouraged to remain in school and pursue qualifications. Fifth, WhatsApp and Telegram tutorials can help learners prepare for examinations such as WAEC, NECO, and JAMB, since girls with regular internet access can draw on materials shared through these platforms more readily than those without.

7.5 Community Perception of Girls' Digital Media Use

Social media users in rural communities hold mixed perceptions of girls' use of social media for education. While many believe that access to social media would encourage indiscipline among female learners, others are supportive of girls using it for learning. The way forward on community perception appears to lie in working with religious and traditional leaders to address and change negative perceptions of girls' use of social media for educational purposes.

Negative perceptions of girls using social media rest on the belief that it encourages interaction with the opposite sex and exposure to indecent content, leading to indiscipline and damage to a family's reputation; in such communities, a girl who is frequently on her phone may be regarded as shameful. Such views can discourage girls from engaging in social media-based learning even with parental supervision, because of the stigma involved, and some girls respond by concealing their learning activities to avoid accusations of impropriety. Generational differences also shape community perceptions: most parents did not grow up with social media and are less likely to recognise how it can support learning, often treating WhatsApp- or Telegram-based study as a purely recreational activity with no academic merit, whereas teachers and young people are more likely to view social media as a useful learning resource.

8. Implications of Findings

These findings carry several implications. First, digital inclusion policies need to incorporate a gender perspective if they are to address the gender digital divide effectively, since policies that ignore the social dimensions of technology use, such as parental supervision and cultural expectations, are unlikely to succeed; a policy framework that actively encourages parental involvement in girls' use of digital technologies and social media is needed.

Second, the findings point to an inequality risk in relying on social media for learning: teachers should not assume that all learners can access or share notes on WhatsApp, and schools should ensure that alternative modes of learning are available to students without regular internet or smartphone access.

Third, community involvement is vital to addressing the challenges associated with girls' use of social media for education. Traditional and religious leaders carry particular influence within communities and are well placed to advise on parental involvement in girls' use of digital technology for education, and on changing negative

perceptions of girls' internet use more broadly.

Fourth, digital literacy and social-media-use education for girls need to be encouraged, including training in searching for resources such as notes, textbooks, tutorial videos, and assignments, and in digital safety and etiquette, covering the privacy and security of personal information, blocking contacts, and avoiding scams. Parents also need to be included in such training so that they can monitor their daughters' activities without unnecessarily restricting access to online educational resources.

Finally, social media can support girls' retention and engagement in education where it is combined with other factors, such as parental involvement, digital literacy, and access to learning resources, but it cannot by itself resolve poverty, gender inequality, or poor infrastructure. Girls therefore also need access to other resources, including scholarships, books, and adequate learning environments.

9. Conclusion and Recommendations

This paper set out to examine the influence of social media access on girls' education in rural secondary schools in Kano State, through a document analysis of reports and scholarly literature on the digital divide, gender, and girls' education. The analysis indicates that rural secondary school girls in Kano face numerous, mutually reinforcing challenges in using social media for education, including unequal access to phones and data within the household, cultural and religious concerns about impropriety, domestic responsibilities that limit their time online, and persistent infrastructural gaps in electricity and network coverage. Where girls are permitted to use social media, however, it supports their learning in concrete ways, including access to notes, peer tutoring, teacher communication, and examination preparation, which suggests that closing the gender digital divide could meaningfully improve girls' educational outcomes in the region.

Based on these findings, the study makes the following recommendations. First, digital inclusion policies for girls' use of technology in education should be developed at state and local government level, with explicit attention to the gendered barriers identified in this paper. Second, community awareness campaigns, conducted with the involvement of religious and traditional leaders, should be run to change negative perceptions of girls' use of the internet and social media for educational purposes. Third, communities and schools should encourage parental involvement through measures such as community-based digital learning hubs, school-regulated WhatsApp and Telegram learning groups, and digital literacy programmes for girls and their parents together. Fourth, government and development partners should work to reduce the cost of data and improve electricity and network infrastructure in rural areas, since cultural sensitisation alone cannot close a digital divide that is also infrastructural.

10. Limitations and Direction for Future Research

This paper is a conceptual, document-based analysis rather than an empirical study of rural Kano schoolgirls themselves; its claims about girls' access, barriers, and engagement are drawn from secondary reports and prior scholarship rather than from interviews, surveys, or observation in the communities named, and should be read accordingly. The underlying document corpus is not fully specified, which limits readers' ability to assess how representative or current the reviewed material is. Because the analysis is qualitative and interpretive, its findings reflect the authors' thematic reading of the literature rather than a verifiable count or measure of access, and cannot establish the prevalence of the patterns it describes across rural Kano State as a whole. Future research should complement this review with field-based studies, such as surveys or interviews with rural secondary school girls, their parents, and teachers, to test whether the access patterns and barriers identified here hold empirically, and should track how affordability, network coverage, and parental attitudes change as mobile and data costs shift over time.

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