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Leveraging mobile technology in community service for tourism education

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Abstract

This study investigates the role of mobile technology in enhancing community service efforts geared toward tourism education in local communities. With the increasing penetration of mobile devices across rural and urban settings in Nigeria, mobile technology presents an untapped opportunity for promoting tourism awareness, cultural preservation, and inclusive learning. The research employed a descriptive survey design using structured questionnaires distributed to 50 participants, including community volunteers, educators, youth leaders, and tourism operators. Data were analyzed to examine the extent of mobile technology use, perceived impact, and challenges encountered. Findings reveal that a majority of respondents actively use mobile devices for communication, tourism promotion, and navigation. However, barriers such as poor network access, high data costs, and lack of technical skills limit broader adoption. The study concludes that while mobile technology significantly enhances tourism-related education and outreach, its full potential can only be realized through digital literacy programs, infrastructure support, and

	localized content development. The paper recommends strategic partnerships between governments, NGOs, and tech developers to foster an inclusive digital environment for tourism education through community service.

Introduction:

Tourism education has traditionally been confined to classroom settings, leaving a significant gap in practical knowledge dissemination within communities. In a globalized world where cultural heritage and natural attractions are increasingly sought after by both domestic and international travelers, the need for community involvement in tourism education is more critical than ever. Local populations serve as custodians of traditions, heritage, and indigenous knowledge—yet many remain uninformed or disengaged due to lack of access to structured tourism education.

Tourism, as a driver of cultural exchange and economic development, requires continuous education and awareness at the grassroots level. In many developing regions such as Nigeria, tourism education is often limited to formal institutions, leaving out communities who are central to authentic tourism experiences. However, with the rapid proliferation of mobile technology, a new avenue has emerged for inclusive and decentralized learning—particularly through community service. Mobile phones, now widely used even in rural areas, have become indispensable tools for communication, learning, and promotion. Community-based tourism initiatives are increasingly adopting mobile platforms—ranging from SMS alerts and social media posts to mobile apps and virtual tours—to educate locals about their cultural assets and attract tourists. These tools not only enhance the visibility of local attractions but also empower residents with knowledge and skills to participate meaningfully in tourism.

Community service, defined as voluntary efforts to promote public welfare, offers a unique platform to embed tourism education. Through mobile-supported outreach, young people, educators, and volunteers can organize clean-up campaigns at heritage sites, document oral histories, or guide visitors using GPS-enabled maps. This synergy between mobile technology and community service helps democratize tourism education—making it participatory, localized, and tech-driven. Despite these potentials, challenges such as digital illiteracy, unstable internet access, and lack of tailored mobile content hinder full-scale implementation. This study, therefore, investigates how mobile technology is leveraged in community service efforts to enhance tourism education, with a focus on practical outcomes, challenges, and recommendations for sustainable engagement.

In recent years, mobile technology has emerged as a powerful equalizer in bridging this educational divide. With mobile phone penetration exceeding 85% in Nigeria, even rural communities are now connected to global information networks. Mobile phones and tablets have become more than communication tools—they serve as platforms for e-learning, digital storytelling, virtual guides, language translation, real-time event updates, and visitor engagement. In areas like Cross River State, known for its rich biodiversity, festivals (e.g., Calabar Carnival), and historical heritage, mobile tools are increasingly being used to enhance awareness and participation in tourism activities. Through mobile applications and platforms like WhatsApp, Facebook, Instagram, and Google Maps, community members are now able to share local content, guide tourists, and participate in virtual tourism campaigns. This aligns well with the core purpose of community service, which emphasizes voluntary participation in developmental and educational activities within one's locality.

Furthermore, mobile technology facilitates intergenerational knowledge transfer, especially when younger, tech-savvy individuals assist older community members in using digital tools to preserve and promote culture. For instance, mobile-based documentation of oral histories, culinary practices, and traditional dances helps in cultural preservation and educational dissemination. However, leveraging this technology is not without challenges. Poor internet connectivity, low digital literacy, the high cost of data, and a lack of tailored mobile educational content continue to limit the full potential of mobile-driven community tourism education. Moreover, many communities lack training or exposure to effectively use mobile tools for development-oriented activities.

This study arises from the need to investigate how mobile technology is being utilized—intentionally or informally—in community service settings to educate, empower, and involve local populations in tourism promotion and sustainability. It explores how such integrations can foster participatory learning, amplify local voices, and support long-term tourism development through inclusive and context-sensitive mobile tools. By examining current practices, community perceptions, and challenges, this research offers insights into how mobile technology can serve as a transformative tool in the intersection of education, community service, and tourism development.

Statement of the problem

Despite the rapid growth of mobile technology and its proven potential to transform education and community development, its application in tourism education through community service remains significantly underutilized in many local contexts, particularly in Nigeria. The tourism sector is highly dependent on informed and engaged communities; however, a disconnect persists between the availability of mobile tools and their strategic use in

community-driven tourism awareness and education. In many communities, tourism education is still considered a specialized discipline, limited to formal institutions and tourism professionals. As such, local people—who are the gatekeepers of culture, tradition, and heritage—often lack basic awareness of tourism principles, values, and benefits. This limits their participation in tourism development and undermines the sustainability of local tourism economies.

Tourism education is essential for equipping individuals and communities with the knowledge, skills, and attitudes required to participate effectively in tourism development. However, in many developing countries, including Nigeria, the dissemination of tourism education remains centralized, formal, and largely inaccessible to rural populations. As a result, local communities—who are the primary custodians of cultural heritage and natural attractions—are often excluded from tourism planning, education, and promotion efforts.

At the same time, mobile technology has become increasingly available and widespread, even in underserved regions. Mobile devices offer great potential for education delivery, awareness creation, and digital storytelling. Yet, despite the availability of mobile tools, their strategic use in community service projects aimed at tourism education remains underexplored and underutilized. Many community service initiatives are still conducted using traditional face-to-face methods, missing out on the broader reach, efficiency, and interactivity that mobile platforms can provide. There is a pressing need to understand how mobile technology is currently being used—or could be used more effectively—to enhance tourism education through community service. Are communities leveraging mobile tools to promote local heritage and educate the public? What mobile applications or digital strategies are being implemented? What are the perceived benefits, limitations, and barriers in applying mobile technology in such settings? In the absence of clear data and empirical research on this topic, there is a gap in both academic literature and practical policy implementation. Without targeted exploration and documentation of mobile technology's role in community-based tourism education, stakeholders—including educators, policymakers, NGOs, and community leaders—may miss opportunities to empower communities, strengthen tourism sectors, and promote sustainable development through inclusive education.

This study therefore seeks to investigate the extent to which mobile technology is leveraged in community service for tourism education, the challenges encountered, and the strategic pathways for enhancing its adoption and effectiveness. While mobile phones and digital platforms are increasingly available, their integration into educational outreach and service-oriented tourism activities is constrained by several factors:

1. Digital Illiteracy: A significant proportion of community members lack the basic skills required to use mobile technology for educational purposes. Even among youth, mobile

phones are often used solely for entertainment and social media, rather than for learning or community engagement.
2. Limited Content and Localization: Existing mobile apps and digital tourism tools are rarely tailored to the cultural and linguistic realities of local communities. This mismatch reduces relevance, accessibility, and effectiveness.
3. Infrastructure Deficits: Irregular power supply, poor internet connectivity, and the high cost of data limit the ability of community service organizers and volunteers to deploy mobile-based educational tools consistently.
4. Lack of Policy Support and Training: Government and development agencies have not fully integrated mobile learning strategies into community-based tourism programs. Many community leaders and educators lack both the training and resources to implement digital outreach effectively.
5. Fragmented Implementation: Where mobile technology is used in tourism promotion (e.g., WhatsApp groups, Facebook pages), these efforts are often isolated, unstructured, and not part of a coordinated educational agenda.
6. Neglect of Community Service as a Platform: Community service activities—such as sanitation drives, local festivals, and youth engagement programs—are rich opportunities for tourism education. Yet, most are executed without leveraging mobile tools to extend reach, record impact, or provide ongoing learning support.

These challenges collectively contribute to a missed opportunity: the chance to merge grassroots tourism education with mobile-supported community engagement to promote sustainable development, cultural preservation, and youth empowerment. Without a systematic understanding of how mobile technology can be harnessed within community service frameworks to promote tourism knowledge, communities may continue to operate on the margins of tourism growth, and local cultures may remain unrecognized or underappreciated.

This study, therefore, addresses the critical problem of limited integration of mobile technology in community service efforts aimed at tourism education. It seeks to explore the current state of usage, the barriers involved, and actionable strategies for unlocking mobile technology's full potential in local tourism education initiatives.

Research objectives

The main objective of this study is to examine how mobile technology is leveraged in community service to promote tourism education.

The specific objectives are to:

1. Assess the level of awareness and usage of mobile technology among individuals engaged in community service related to tourism education.
2. Identify the purposes for which mobile technology is used in community service activities aimed at tourism awareness.
3. Explore the perceived impact of mobile technology on tourism education within communities.
4. Examine the challenges and limitations faced in using mobile technology for community-based tourism education.
5. Recommend strategic approaches to enhance the effective use of mobile technology in community service for tourism education.

Research questions

Based on the objectives, the following research questions guide this study:

1. To what extent is mobile technology used in community service activities that promote tourism education?
2. For what specific purposes do community members and volunteers use mobile technology in tourism-related outreach?
3. What is the perceived impact of mobile technology on community tourism education and local awareness?
4. What challenges do stakeholders face in adopting mobile technology for tourism education through community service?
5. What strategies can be adopted to improve the integration of mobile technology in community-based tourism education initiatives?

Literature review

The integration of mobile technology into educational and community development practices has received increasing attention in recent academic discourse. Scholars have explored its potential in sectors such as health, agriculture, and formal education. However, its application in community service for tourism education remains a relatively under-researched area, particularly in developing contexts like Nigeria.

Mobile technology and informal education

Mobile learning (m-learning) refers to educational activities conducted through portable electronic devices such as smartphones and tablets. According to Traxler (2007), mobile technology supports "anywhere, anytime" learning, especially in informal and community-based settings. Similarly, Kukulska-Hulme (2012) emphasized that mobile learning allows for personalized, contextual, and collaborative learning experiences, which are ideal for community outreach and tourism education.

In African contexts, Adeyemi (2021) found that mobile phones have become indispensable tools for rural education due to their affordability and versatility. In his study of rural learners in West Africa, he observed that mobile platforms enabled marginalized populations to access essential information, participate in civic education, and preserve indigenous knowledge through digital storytelling.

Community service as a platform for tourism education

Community service is widely recognized as a tool for promoting local engagement, knowledge sharing, and social responsibility. Odu and Akpan (2018) described community service as a vehicle for experiential learning, where individuals and groups voluntarily engage in development efforts that benefit their immediate environment. Tourism education, when embedded into community service, provides a platform for locals to learn about their cultural heritage, environmental resources, and tourism potential. According to Ismail and Mensah (2019), involving communities in tourism awareness programs builds capacity and ensures local ownership of tourism projects, which is a key to sustainability.

Digital tools in tourism promotion and education

The rise of mobile and web-based tools has transformed the tourism industry globally. Platforms such as Google Maps, TripAdvisor, Facebook, and local tourism apps have enabled destinations to be discovered by a global audience. Moreover, the use of QR codes, virtual tours, and geotagged videos has created interactive tourism experiences.

Etuk and Johnson (2019) found that mobile applications used during tourism festivals in Calabar significantly increased visitor participation and cultural appreciation. However, they also noted that these tools were often managed by external stakeholders, with minimal input from local residents—highlighting the need for more community-inclusive digital strategies.

Challenges in the use of mobile technology in community education

Despite the opportunities, several barriers hinder the effective use of mobile tools in community learning. According to UNESCO (2020), common challenges include:

- Digital illiteracy
- Inadequate infrastructure (electricity, internet)
- Cost of data and smartphones
- Lack of localized content in native languages.

Furthermore, Okon and Bassey (2022) argue that policy neglect and insufficient stakeholder collaboration have stifled the integration of mobile technology into non-formal education initiatives in rural Nigeria.

Gaps in the literature

While prior research has examined the role of mobile technology in formal education, health awareness, and youth development, little attention has been paid to its use in community-based tourism education. Most existing studies focus on either technology in education or community participation in tourism, without addressing the intersection of the two. There is also a lack of empirical studies that document how mobile tools are used during community service activities to promote tourism knowledge, particularly from the perspective of local volunteers, youth groups, and rural educators.

This study seeks to address these gaps by examining how mobile technology is being used (or can be better used) in community service contexts to enhance tourism education, with a focus on local engagement, capacity building, and digital inclusion.

Research methodology

This section outlines the research design, population and sample, instruments for data collection, procedures, and methods of data analysis adopted for this study.

Research design

The study employed a mixed-method research design, combining both quantitative and qualitative approaches. This was adopted to provide a more comprehensive understanding of how mobile technology is used in community service for tourism education. The quantitative aspect allowed for the collection of measurable data from a broad range of respondents, while the qualitative component offered in-depth insights through interviews with selected stakeholders.

Population and sample

The target population comprised individuals engaged in community-based tourism education activities in Cross River State, Nigeria—including:
Youth leaders
Educators
Community volunteers
Local tourism operators

A purposive sampling technique was used to select participants actively involved in tourism-related outreach. A total of 50 respondents were surveyed for the quantitative aspect, while 5 key informants were selected for in-depth interviews. These included local government tourism officers, youth coordinators, and NGO representatives involved in mobile learning or tourism.

Instruments for data collection

Two major instruments were used for data collection:

1. **Structured Questionnaire:**

The questionnaire was divided into sections, covering:

Demographic information

Use of mobile technology in community service

Purposes and benefits of mobile use

Perceived impact

Challenges faced

It included both closed-ended and Likert-scale items to measure levels of agreement.

2. **Interview Guide:**

A semi-structured interview guide was used to gather qualitative insights.

The guide focused on:

a) Personal experiences using mobile tools in community outreach
b) Observed changes in tourism awareness or behavior
c) Suggestions for improving mobile-driven community education

Data collection procedure

Surveys were administered physically and digitally using Google Forms and WhatsApp to reach participants in remote areas. Interviews were conducted face-to-face and via mobile phone calls where physical access was limited. All participants were briefed on the purpose of the research and gave informed consent before participation.

Data analysis

Quantitative data from the questionnaires were analyzed using descriptive statistics (frequencies, percentages, and mean scores) with Microsoft Excel and SPSS. Qualitative data from the interviews were transcribed and analyzed using thematic analysis to identify common patterns and narratives.

Ethical considerations

The study upheld ethical standards by ensuring participant confidentiality and voluntary participation. Data collected was anonymized and used strictly for academic purposes. Approval was obtained from relevant community leaders and institutional reviewers before fieldwork commenced.

Results and discussion

This section presents the analyzed data from the survey conducted among 50 individuals involved in community service related to tourism education, alongside qualitative insights

from interviews with five key informants. The analysis focuses on the use of mobile technology, its purposes, impact, challenges, and role-specific observations.

Use of mobile technology in community tourism education

The majority of respondents (74%) reported using mobile technology as part of their community service activities to promote tourism education, while 26% indicated they do not use mobile tools. This reflects the growing adoption of mobile technology in grassroots outreach, especially among youth and tourism operators. However, the 26% non-use group points to the persistence of digital exclusion, particularly in areas with weak infrastructure or among those lacking basic digital skills.

Purpose of mobile technology use

The study identified diverse applications of mobile technology in tourism-related community service: Tourism Promotion (28%): Photos and videos of tourist sites or festivals are shared via WhatsApp, Facebook, and Instagram to attract attention to local attractions. Communication (24%): Community groups use mobile messaging to coordinate cleanup exercises, cultural events, and awareness campaigns. Navigation (20%): Some respondents use GPS applications to guide tourists or mark heritage sites. Learning (18%): Platforms like YouTube, Google, and mobile-based learning apps are used for informal learning about tourism and local history. Not Applicable (10%): These respondents either used phones for unrelated tasks or did not apply them to tourism education. These figures indicate a strong promotional and communication use of mobile tools, but less usage for structured learning purposes, suggesting a need for more targeted educational content.

Perceived impact of mobile technology

Respondents rated the perceived impact of mobile technology in promoting tourism education as follows:

High Impact (42%): Users noted improved visibility of local heritage, higher youth involvement, and easier access to tourism information.

Moderate Impact (30%): While useful, some felt the tools lacked depth or only reached digitally literate groups.

Low Impact (20%): Limited by inconsistent usage or poor network access.

No Impact (8%): Mostly reported by non-users or individuals unaware of the potential applications.

Challenges in using mobile technology

Respondents identified several barriers to effective use of mobile tools in tourism education:

Network Issues (32%): Poor internet coverage, especially in rural areas, hindered consistent use of online platforms.
Lack of Skills (24%): Many older volunteers or residents are unfamiliar with mobile apps or digital tools.
Cost of Data (20%): High internet costs discouraged the use of video-sharing or learning apps.
Device Problems (14%): Outdated phones or low battery capacity limited access.
None (10%): Mostly among tech-savvy youths or urban participants.

These challenges highlight the structural and educational gaps that must be addressed to fully integrate mobile technology into community tourism efforts.

Role-based involvement
The roles of respondents influenced their engagement with mobile tools:
Community Volunteers (32%) were the most active in on-ground activities and used mobile tools for coordination and documentation.
Tourism Operators (26%) focused on promotion, bookings, and navigation.
Educators (22%) showed interest in incorporating mobile learning into tourism literacy.
Youth Leaders (20%) led digital campaigns and trained others on how to use mobile tools effectively.

The active participation of youth leaders and volunteers suggests strong potential for peer-to-peer learning and youth-led digital innovation in tourism education.

Discussion of key findings
The findings support previous literature that emphasizes the relevance of mobile technology in community engagement (Traxler, 2007; Etuk & Johnson, 2019). Mobile phones are clearly facilitating tourism promotion, awareness creation, and real-time community collaboration. However, the study also confirms gaps identified by Okon and Bassey (2022), particularly regarding poor infrastructure, lack of training, and insufficient mobile-based educational content.

There is a clear need to move beyond informal promotional use and develop structured mobile learning strategies that target all community groups. Additionally, integrating mobile tools into official community service programs can foster inclusive tourism education, especially when accompanied by digital training and content localization.

Conclusion and Recommendations

Conclusion

This study explored the role of mobile technology in enhancing community service initiatives for tourism education. The results revealed that mobile tools are significantly reshaping how communities engage with tourism awareness, especially through communication, promotion, and informal learning. A majority of the participants actively use mobile technology to share local tourism content, coordinate community efforts, and connect with broader audiences. However, the findings also underscore critical challenges such as poor network access, limited digital skills, the high cost of internet data, and device inadequacies, which collectively hinder broader and more effective use of these technologies. Additionally, while there is a visible trend toward promotion and communication, the structured use of mobile technology for education is still underdeveloped.

The study concludes that mobile technology holds strong potential as a tool for democratizing tourism knowledge, encouraging local participation, and fostering youth engagement in heritage preservation. However, realizing this potential requires intentional strategies, supportive infrastructure, and inclusive digital training.

Recommendations

Based on the findings, the following recommendations are proposed:

1. **Digital Literacy Training**

Organize regular community-based training programs to improve digital skills, especially among older adults and non-tech-savvy groups. This will broaden participation and reduce dependency on a few knowledgeable individuals.

2. **Subsidized Internet Access**

Government agencies, NGOs, and telecom companies should collaborate to provide affordable data packages for educational and tourism-related content, especially in underserved areas.

3. **Mobile-Based Curriculum Development**

Tourism educators and curriculum developers should design simplified mobile modules on local history, tourist attractions, cultural practices, and hospitality etiquette tailored to local contexts.

4. **Infrastructure Improvement**

Investment in network expansion and electricity access is essential in rural communities to support consistent and reliable use of mobile tools.

5. **Leverage Youth Involvement**

Encourage youth-led digital tourism initiatives by offering grants, digital storytelling

competitions, or app development challenges focused on community tourism promotion.

6. Partnerships and Content Localization

Collaborate with local tourism boards, NGOs, and mobile app developers to create culturally relevant and linguistically appropriate content for local communities.

7. Monitoring and Evaluation

Develop mechanisms to track the effectiveness of mobile technology usage in tourism education, using both quantitative metrics and community feedback.

By addressing these areas, communities can move from passive users of technology to active creators and disseminators of tourism knowledge, thereby enhancing sustainability, cultural preservation, and local economic growth through responsible and informed tourism engagement.

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