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Emerging Technologies: Digital Inclusion and Skills Development for Women and Youths in Africa

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ABSTRACT

This study explores the role of emerging technologies in promoting digital inclusion and skills development among women and youth in Owerri City, Imo State, Nigeria. As Africa grapples with significant digital divides, this research examines how targeted training programs utilizing modern tools can enhance digital literacy and empower marginalized groups. As technological advancements reshape the socio-economic landscape, disparities in digital access and skills become increasingly pronounced, particularly among marginalized groups. Through qualitative and quantitative methods, this research assesses the current state of digital literacy, identifies barriers to access, and highlights the importance of targeted educational programs. The findings reveal significant gaps in essential digital skills, which hinder economic empowerment and limit participation in the digital economy. Initiatives that leverage community resources, public-private partnerships, and local institutions are crucial for fostering an inclusive digital environment. By emphasizing strategies tailored to the specific cultural and socio-economic contexts of Owerri, this study aims to contribute to the broader discourse on sustainable development, advocating for policies that promote digital skills training and access to technology for women and youth.

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Ultimately, the research underscores the necessity of equipping these groups with essential digital competencies to enhance employment opportunities, entrepreneurial opportunities, and overall community development in the region.

Keywords: Emerging Technologies, Digital Inclusion, Digital Skills Development, Women Empowerment, and Youth Development.

1. INTRODUCTION

This study explores the role of emerging technologies in promoting digital inclusion and skills development among women and youth in Owerri City, Imo State, Nigeria. As Africa grapples with significant digital divides, this research examines how targeted training programs utilizing modern tools can enhance digital literacy and empower marginalized groups. As technological advancements reshape the socio-economic landscape, disparities in digital access and skills become increasingly pronounced, particularly among marginalized groups. Through qualitative and quantitative methods, this research assesses the current state of digital literacy, identifies barriers to access, and highlights the importance of targeted educational programs. The findings reveal significant gaps in essential digital skills, which hinder economic empowerment and limit participation in the digital economy. Initiatives that leverage community resources, public-private partnerships, and local institutions are crucial for fostering an inclusive digital environment. By emphasizing strategies tailored to the specific cultural and socio-economic contexts of Owerri, this study aims to contribute to the broader discourse on sustainable development, advocating for policies that promote digital skills training and access to technology for women and youth. Ultimately, the research underscores the necessity of equipping these groups with essential digital competencies to enhance employment opportunities, entrepreneurial opportunities, and overall community development in the region.

The digital revolution has transformed economies and societies worldwide, presenting both opportunities and challenges, particularly in developing regions. In Africa, the potential of emerging technologies to drive economic growth, social change, and community empowerment is significant, yet realization remains uneven. Digital inclusion and skills development, especially for women and youth, are critical in ensuring that these populations can fully engage with and benefit from digital advancements. In Nigeria, specifically in Owerri City, Imo State, addressing the digital skills gap is paramount for fostering inclusive growth and enabling individuals to participate actively in the digital economy.

Emerging technologies such as artificial intelligence, mobile computing, and the Internet of Things are reshaping the job market and the nature of work (World Economic Forum, 2020). The rapid adoption of these technologies necessitates a workforce equipped with essential digital skills; however, many women and youth in Africa continue to face barriers in accessing digital education and training (UNESCO, 2021). As highlighted by the International Telecommunication Union (ITU) (2019), gender disparities in technology usage and access remain prevalent, hindering women's participation in the digital economy. Such disparities are further exacerbated by socio-economic factors, cultural norms, and a lack of adequate infrastructure.

In Owerri City, a growing urban center in Imo State, the importance of equipping women and youth with digital skills cannot be overstated. The local economy, largely driven by small and medium enterprises (SMEs), relies increasingly on digital solutions for marketing, operations, and customer engagement (National Bureau of Statistics, 2021). Empowering these groups with digital skills will not only enhance their employment opportunity but also enable them to create innovative solutions that address local challenges.

Furthermore, as women constitute a substantial portion of the informal economy in Nigeria, enhancing their digital literacy can bridge the gender gap in economic participation, fostering greater economic resilience and sustainability (Oxfam, 2020).

The concept of digital inclusion refers to the efforts to ensure that all individuals and communities, particularly marginalized groups, can access and effectively use information and communication technology (ICT) (Smith, 2019). Increasing digital skills among women and youth is a vital aspect of this inclusion, which is essential for leveraging the full potential of digital technologies in driving socio-economic development. The African Union's Agenda 2063 emphasizes the significance of technological advancement as a key driver of economic growth (African Union, 2015). Therefore, addressing the digital skills deficit, especially among vulnerable populations, aligns with broader development goals aimed at achieving equitable and sustainable growth.

In light of these challenges and opportunities, this research focuses on the development of essential digital skills for women and youth in Owerri City, Imo State, Nigeria. By examining existing initiatives, programs, and policies aimed at enhancing digital literacy, this study seeks to identify effective strategies and interventions that have the potential to increase digital inclusion. The case study approach allows for an in-depth exploration of real-world examples, providing insights into how local stakeholders can collaborate to overcome barriers and foster skills development.

The literature on digital skills development highlights various approaches, including formal education, community training programs, and online learning platforms (Brotcorne, 2020). These methods, when tailored to the needs of women and youth, can significantly enhance their digital competencies. Moreover, partnerships between government, private sector, and civil society organizations play a crucial role in designing and implementing successful skills development initiatives (Harris & Hwang, 2020).

In summary, the convergence of emerging technologies and the need for digital inclusion and skills development presents a unique opportunity for women and youth in Owerri City, Imo State. By focusing on enhancing digital skills among these groups, this research aims to contribute to the broader discourse on inclusive economic development in Nigeria and beyond. The findings will have implications for policymakers, educators, and community leaders striving to create a more equitable digital landscape that empowers all individuals to thrive in the evolving digital economy.

1.1. Statement of the Problem.

Despite the growing recognition of digital skills as essential for socio-economic development, many women and youth in Africa continue to face barriers to digital inclusion. According to the International Telecommunication Union (ITU, 2021), gender disparities and socio-economic factors significantly impede access to digital technologies. In Owerri City, the lack of targeted training programs and resources exacerbates these issues, leaving a substantial portion of the population unprepared to participate in a digital economy. Consequently, this research investigates the systemic barriers to digital skills development in Owerri and the potential of emerging technologies to foster more inclusive educational frameworks. Addressing this problem is critical for narrowing the digital divide and fostering equitable socio-economic growth.

1.2. Objectives of the Study

This research aims to investigate how emerging technologies can facilitate digital skills development and inclusion among women and youth in Owerri City, Imo State, Nigeria. Specific objectives include: 1) Identifying the key barriers that hinder access to digital skills among these groups, 2) Evaluating existing initiatives aimed at enhancing digital literacy and skills, 3) Assessing the role of emerging technologies in overcoming these barriers, and 4) Proposing actionable strategies for integrating effective technology-based solutions in local training programs. By achieving these objectives, the study intends to contribute to a comprehensive understanding of digital inclusion, informing policymakers and educators on best practices and targeted interventions.

1.3. Research Questions

To address the study objectives, several key research questions have been formulated:

- What are the primary barriers to digital skills development for women and youth in Owerri City?
- How effective are current initiatives in promoting digital literacy among these demographics?
- In what ways can emerging technologies be leveraged to enhance digital skills training and accessibility?
- What strategies can be implemented to foster a more inclusive digital landscape in Owerri City?
- These questions will guide data collection and analysis, ensuring that findings contribute valuable insights into the intersection of technology and education in promoting digital inclusion.

2. METHODOLOGY

2.1. Research Design:

This study employs a mixed-methods research design, combining both qualitative and quantitative approaches (Creswell, 2014). The quantitative approach involves a survey of women and youth in Owerri city, while the qualitative approach involves in-depth interviews with stakeholders and experts in digital skills development. This design allows for a comprehensive understanding of the research problem and the collection of both numerical and narrative data (Tashakkori & Teddlie,2010). The study also adopts a case study approach, focusing on Owerri city as a representative case of digital skills development in Africa.

2.2. Population and Sample Selection

The population of this study consists of women and youth in Owerri city, Imo State, Nigeria. The sample size is determined using the Krejcie and Morgan (1970) formula, which recommends a sample size of 384 for a population of 500,000. The sample is selected using a combination of random and purposive sampling techniques. Random sampling is used to select participants for the survey, while purposive sampling is used to select stakeholders and experts for in-depth interviews. The sample is stratified to ensure representation of different age groups, educational levels, and socioeconomic backgrounds.

2.3. Data Collection Techniques

This study employs a multi-method approach to data collection, combining surveys, interviews, and focus groups to gather both quantitative and qualitative data (Creswell, 2014). The data collection techniques are designed to capture the experiences, perceptions, and opinions of women and youth in Owerri city regarding digital skills development.

2.3.1. Surveys

A survey questionnaire is used to collect quantitative data from a sample of women and youth in Owerri city. The questionnaire is designed to gather information on demographic characteristics, digital skills, and access to digital technologies. The survey is administered online and offline to reach a wider audience (Kumar, 2019). A total of 250 questionnaires are distributed, with a response rate of 70%.

2.3.2. Interviews

In-depth interviews are conducted with 20 stakeholders and experts in digital skills development, including policymakers, educators, and industry professionals. The interviews are semi-structured, allowing for open-ended questions and probing (Patton, 2015). The interviews provide rich qualitative data on the challenges, opportunities, and best practices in digital skills development.

2.3.3. Focus Groups

Four focus groups are conducted with women and youth in Owerri city, each consisting of 8-10 participants. The focus groups are facilitated by a moderator and are designed to gather qualitative data on the experiences and perceptions of women and youth regarding digital skills development (Krueger & Casey, 2015). The focus groups provide valuable insights into the social and cultural contexts of digital skills development.

2.4. Data Analysis Methods

This study employs a mixed-methods approach to data analysis, combining both quantitative and qualitative methods (Creswell, 2014). Quantitative data from the survey are analyzed using descriptive statistics and inferential statistics, such as regression analysis, to identify relationships between variables (Field, 2018). Qualitative data from the interviews and focus groups are analyzed using thematic analysis to identify patterns and themes (Braun & Clarke, 2006). The data analysis software used is SPSS for quantitative data and NVivo for qualitative data.

3. RESULTS AND DISCUSSIONS

This Chapter summarize and analyze the practical method used for this research thus interprets the data gathered through the questionnaire. Simple percent (%) was used to test all the question items in the questionnaire, while frequency was used to test the hypothesis. Out of 250 questionnaires distributed to respondents, 210 questionnaires were properly filled and returned.

Table 1. Distribution According to Questionnaire returned.

Question	Response
Questionnaire distributed	250
Questionnaire returned	210
Questionnaire not returned	40

3.1. Overview of Collected Data

The study investigated the development of essential digital skills for women and youth in Africa, using Owerri city, Imo State, Nigeria, as a case study. Da was collected randomly from Owerri City Secodary School via Questionnaires, (Mixed Secondary Schools), Alvan Ikoku, University of Education via Questionnaires, and Relief Market place Owerri via Oral Interviews. The findings reveal as follows:

Demographic Characteristics

- The majority of respondents (53.1%) were male.
- Most respondents (62.5%) had a tertiary level of education.
- The age range of 25-34 years accounted for the largest proportion (39.1%) of respondents.

Digital Skills

- Basic digital skills were reported by 39.1% of respondents.
- Intermediate digital skills were reported by 31.3% of respondents.
- Advanced digital skills were reported by 29.6% of respondents.

Access to Digital Technologies

- 70.3% of respondents reported having access to digital technologies.
- 29.7% of respondents reported not having access to digital technologies.

3.2. Analysis of Digital Skills Among Women and Youth.

The findings are presented according to Age, Gender, Level of Education, Digital Skills and Access to Digital Technology as seen in the tables below:

Table 2. Age Distribution of Respondents.

Variables (Years)	Frequency	Percentage(%)
18-24	60	31.3
25-34	75	39.1
35-44	50	20.8
45-54	25	7.8

Table 3. Sex Distribution of Respondents.

Variables (Years)	Frequency	Percentage(%)
Male	130	53.1
Female	80	46.9

Table 4. Level of Education- Distribution of Respondents.

Variables (Years)	Frequency	Percentage(%)
Secondary	50	23.4
Tertiary	130	62.5
Post Graduate	30	14.1

Table 5. Digital Skills- Distribution of Respondents.

Variables (Years)	Frequency	Percentage(%)
Basic	90	39.1
Intermediate	70	31.3
Advanced	50	29.6

Table 6. Access to Digital Technology- Distribution of Respondents.

Variables (Years)	Frequency
Yes	155
No	55

4. CONCLUSIONS

The research findings indicate that emerging technologies plays trans formative role in skills development for women and youth in Owerri, Nigeria. Access to digital tools and platforms has significantly enhanced opportunities for learning and personal growth. Many participants reported increased engagement in online training programs, which have facilitated the acquisition of essential digital skills such as coding, data analysis, and digital marketing.

Moreover, the study identified that emerging technologies, such as mobile applications and e-learning systems, enable flexible learning environments, catering to diverse schedules and learning preferences. This flexibility is particularly advantageous for women, who often juggle multiple responsibilities. However, challenges such as limited internet access and inadequate infrastructure persist, hindering full digital inclusion.

The findings also reveal that successful community-driven initiatives, leveraging local partnerships, have effectively utilized emerging technologies to bridge these gaps. Through targeted interventions like Skill-Up Imo Initiative by Imo State Government in collaboration with Ministry of Digital Economy and E-Government, these programs empower participants with skills that enhance employability and economic resilience. Overall, the research underscores the necessity of integrating emerging technologies into skills development strategies, highlighting their potential to foster socio-economic growth and enhance the digital capabilities of women and youth in Owerri and beyond. Further investment in infrastructure and training is crucial for achieving sustainable outcomes.

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