



Evaluation of Quasi-Experimental Design in Assessing Adoption Rates of Off-Grid Communities Systems in Nigeria: A Physiological Perspective

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Abstract

Off-grid communities in Nigeria face challenges in accessing electricity due to geographical isolation and economic constraints. The adoption of off-grid systems such as solar-powered home kits is influenced by socio-economic factors, technical performance, and user engagement. A mixed-methods approach combining quantitative survey data with qualitative interviews was employed. The study utilised a logistic regression model to estimate the probability of adoption based on socio-economic indicators and system performance metrics. Analysis revealed that households with higher income levels were more likely to adopt off-grid systems (odds ratio = 1.5, CI: 1.2-1.9). The quasi-experimental design proved effective in identifying factors influencing adoption rates and can be a reliable method for future studies. Further research should explore the long-term impacts of off-grid systems on health outcomes and user satisfaction. Off-grid communities, Nigeria, Quasi-experimental design, Adoption rates, Physiological data

Keywords: *Sub-Saharan, off-grid, quasi-experimental, renewable-energy, evaluation, anthropology, sustainability*

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