

A National Survey of Challenges to Effective Management Interventions in the National Open University of Nigeria Study Centres

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Abstract

This study identified and ranked the challenges militating against effective management interventions at study centres of the National Open University of Nigeria (NOUN). A descriptive survey design was employed. Data were collected from 212 staff across 18 study centres using a validated 16-item challenges questionnaire rated on a 4-point scale. Face and content validity of the instrument were established by experts in evaluation, and the reliability index was 0.906. Data were analysed using frequencies, percentages, means, and standard deviations. The findings revealed that 15 of the 16 identified challenges were endorsed by staff as significant challenges. The most critical challenges were unstable and epileptic power supply, high cost of purchase of ICT facilities, and high cost of Internet service. Sub-analyses revealed that staff in community/special centres reported consistently higher challenge scores than those in model centres across all items. The study concluded that challenges to effective management interventions at NOUN study centres are multiple and interconnected, with the most severe being power and ICT costs. Recommendations include investment in alternative power sources for all study centres and the establishment of a dedicated ICT maintenance fund.

Keywords: Challenges, Management Intervention, Open and Distance Learning, Study Centres, National Open University of Nigeria

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Introduction

The strength of Open and Distance Learning (ODL) institutions depends fundamentally on the strength of their support structures at the grassroots level. In practice, these structures are study centres, decentralised hubs where students register, write examinations, access course materials, and receive academic counselling. When management interventions in infrastructure, e-learning resources, staff training, and welfare schemes are obstructed, the consequences ripple through the entire educational system, undermining both student success and staff morale. Research has consistently shown that institutional challenges significantly impact student engagement and retention in ODL settings. For instance, Oladipo et al. (2024) found that learners at the University of Lagos Distance Learning Institute expressed dissatisfaction with the adequacy of course materials and certain physical facilities, highlighting the critical role of institutional support services in learner satisfaction. Similarly, Okopi (2024) documented that a lack of access to and utilisation of learning support services at study centres are primary drivers of student disengagement at NOUN. Despite the strategic importance of the National Open University of Nigeria (NOUN) within the nation's higher education landscape, no comprehensive, nationwide investigation has systematically identified and ranked the challenges that hinder the successful implementation of management interventions at its study centres.

Existing research has predominantly focused on student perspectives within single institutions (Oladipo et al., 2024; Okagbare & Oba-Adenuga, 2025) or specific ODL programmes, without a structured, nationwide comparison of the seriousness of challenges as perceived by study centre staff. The motivations for this study are threefold: to provide empirical data on challenges across Nigeria's six geopolitical zones; to rank these challenges by severity from the perspective of study centre staff who experience them daily; and to inform evidence-based policy decisions that can enhance the operational effectiveness of NOUN's study centres. Understanding these challenges is therefore a prerequisite for ensuring that NOUN fulfils its mandate of providing access to quality higher education for all Nigerians, regardless of their geographical location.

The National Open University of Nigeria is the only single-mode ODL institution owned exclusively by the Federal Government of Nigeria (National

Open University of Nigeria Act, Cap. N86, 2004). Its mandate is to democratise access to university education through a decentralised network of 126 study centres spread across the nation's six geopolitical zones. These study centres are the operational lifelines of the NOUN system, serving as physical hubs where students register, make inquiries, write examinations, receive academic counselling, and access course materials. The effectiveness of these centres depends critically on management interventions in four key areas: infrastructural facilities, e-learning resources, staff training programmes, and welfare schemes. However, the implementation of these interventions is often hindered by a complex array of challenges that are systemic, economic, technical, and socio-political in nature.

The successful implementation of management interventions in ODL study centres requires a conducive environment that includes stable infrastructure, adequate funding, skilled personnel, and supportive policies. However, in the Nigerian context, numerous challenges have been documented. The World Bank documented that inadequate school infrastructure directly correlates with poorer learning outcomes, and this finding extends to ODL study centres, where infrastructure deficiencies are often more acute. Economic factors such as the high cost of purchasing and maintaining ICT facilities, the high cost of internet services, and inadequate funding for maintenance constitute significant challenges (Itasanmi, 2024). Human factors include inadequate skills in the use of ICT facilities, a lack of trained personnel, and a poor maintenance culture. Policy-related challenges include the policy structure of government, political factors, and cultural factors that influence resource allocation and implementation priorities.

The ODL mode itself presents specific challenges for learners, including feelings of isolation, difficulties with time management, and the need for a high degree of self-motivation, which can be compounded by institutional factors like inadequate interaction with counsellors and poor facilitation (Oladipo et al., 2024). Research has also shown that effective learner support systems, such as e-ticketing for query resolution, are critical for enhancing student experience and institutional efficiency (Okagbare & Oba-Adenuga, 2025). The challenges are not limited to just Nigeria, Kyambade and Namatovu (2025) examined barriers to eLearning in business education in Uganda and found the following as major barriers undermining the quality of

eLearning experiences; unreliable internet connectivity, frequent power outages and limited access to appropriate digital services.

This study is anchored on Systems Theory. The System theory provides enhances the understanding of the challenges as interconnected rather than as isolated problems. Systems Theory conceptualises an organisation as an open system in which its constituent components interact with one another and with the external environment (Bertalanffy, 1968). This perspective is particularly relevant to ODL, where the effectiveness of management and learner-support interventions depends on the interaction among staff, students, technology, infrastructure, administrative processes, institutional policies, and the wider socio-economic environment. Some researches emphasise systems as a useful approach to understanding the complexity and interrelationships that characterise higher education institutions (Elsawah et al., 2022; Oyman Bozkurt & Bozkurt, 2024). From this perspective, challenges such as inadequate counselling, weak communication, poor internet connectivity, infrastructure deficiencies, and ineffective support mechanisms are not independent concerns. This is because difficulties in one component of the system may influence the functioning of others. Systems Theory therefore provides an appropriate framework for examining the multiple and interconnected factors that may affect the effectiveness of management interventions at NOUN study centres.

Despite the recognition of these challenges, existing studies have several limitations. First, most studies examine challenges in isolation, focusing on one category of challenge without providing a comprehensive ranking of all challenges simultaneously. Second, studies are often restricted to one institution or a handful of centres, such as the Distance Learning Institute at the University of Lagos (Oladipo et al., 2024) or NOUN's North Central zone (Okopi, 2024), limiting the generalisability of findings. Third, few studies have compared challenge perceptions across different types of study centres (e.g., model centres vs. community/special centres) or across geopolitical zones, which is essential for targeted intervention. Fourth, no study has systematically ranked the severity of challenges from the perspective of frontline staff at NOUN study centres nationwide. Research on e-learning resources at NOUN has highlighted that while the university has made significant strides, challenges related to infrastructure and accessibility persist (Okoroegbe, 2012). This study, therefore, addresses these gaps by providing a comprehensive, nationwide ranking of challenges to effective management

interventions at NOUN study centres, with sub-analyses by geopolitical zone and centre type.

Objectives of the Study

The general objective of this study was to identify the challenges militating against effective management interventions at NOUN study centres. The specific objectives were to:

1. Identify the challenges to effective management interventions at NOUN study centres.
2. Rank the severity of these challenges based on staff perceptions.
3. Compare challenge perceptions across the six geopolitical zones of Nigeria.
4. Compare challenge perceptions between model centres and community/special centres.

Research Questions

1. What challenges militate against effective management interventions at NOUN study centres?
2. What is the ranking of these challenges based on mean scores?
3. How do challenge perceptions differ across the six geopolitical zones?
4. How do challenge perceptions differ between model centres and community/special centres?

Methodology

This study employed a descriptive survey design, which was appropriate because the study aimed to describe and rank challenges to management interventions without manipulating any variables. The study was conducted at study centres of the National Open University of Nigeria (NOUN) located across the six geopolitical zones of Nigeria: North Central, North East, North West, South East, South South, and South West. The population of the study comprised all staff members (registry, bursary, ICT, counselling, library, and

academic staff) working at NOUN study centres across Nigeria. The sample consisted of 212 staff from 18 study centres. A multi-stage sampling procedure was employed, beginning with the stratification of Nigeria's six geopolitical zones. From each zone, three study centres were purposively selected to include both model centres and community or special centres, ensuring variation in resource levels. Model centres are established and funded exclusively by NOUN management, while community centres are established through partnership with host communities, and special centres are established through partnership with institutional authorities such as the police, military, or Nigerian customs. Within each selected centre, all available staff present during data collection were invited to participate, with priority given to those in administrative, registry, bursary, ICT, and support roles, as these constitute the majority of study centre personnel.

The primary instrument for this study was a 16-item questionnaire on challenges militating against the effectiveness of management intervention programmes at NOUN study centres, with items derived from the literature and from preliminary observations at NOUN study centres. Respondents rated each challenge on a 4-point Likert scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree. The instrument was subjected to content validity review by three experts in educational evaluation and ODL research, and items were revised based on their feedback. The reliability index of the instrument was 0.906, indicating excellent internal consistency. Data were collected over a period of four weeks across the 18 selected study centres using both printed and online (Google Forms) versions of the instrument to accommodate respondents in centres with reliable internet access and those without. Participation was voluntary, and informed consent was obtained from all respondents; anonymity and confidentiality were guaranteed by not collecting names or identifying codes. Data were analysed using descriptive statistics, with frequencies and percentages calculated for each challenge item, and means and standard deviations computed for each challenge item. A mean score of 2.50 was set as the benchmark for agreement, such that scores above 2.50 indicated that respondents agreed or strongly agreed that the item constitutes a challenge. For sub-analyses, mean challenge scores were computed for each geopolitical zone and for centre type (model vs. community/special) to identify variations in challenge perceptions across these categories.

Results

Research Question 1: What challenges militate against effective management interventions at NOUN study centres?

Table 1:

Challenges Militating Against Effectiveness of NOUN Management Intervention Programmes (N = 212)

S/N	Challenge Item	Mean	SD	Interpretation (Mean ≥ 2.50 = Challenges)
1	Unstable and epileptic power supply	3.00	0.865	Challenge
2	High cost of purchase of ICT facilities	2.96	0.819	Challenge
3	High cost of Internet service	2.91	0.860	Challenge
4	High cost of maintenance	2.85	0.839	Challenge
5	Poor Internet connectivity	2.81	0.904	Challenge
6	Access to personal computers with Internet facilities	2.79	0.962	Challenge
7	Cultural factors	2.72	0.890	Challenge
8	Lack of technical support for ICT usage	2.71	0.842	Challenge
9	Lack of trained personnel	2.71	0.814	Challenge
10	Political factors	2.69	0.818	Challenge
11	Low-quality ICT facilities	2.68	0.887	Challenge
12	Technological factors	2.64	0.828	Challenge
13	Inadequate skill in the use of ICT facilities	2.62	0.826	Challenge
14	Policy structure of the government	2.53	0.857	Challenge
15	Frequent loss or theft of ICT items	2.51	0.851	Challenge
16	Poor maintenance culture	2.40	0.840	Not a Challenge

Note: Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree. Mean ≥ 2.50 indicates agreement that the item constitutes a challenge.

Table 1 shows that 15 of the 16 challenges were endorsed by staff as significant challenges (mean ≥ 2.50). The most critical challenges (mean ≥ 2.80) were: unstable and epileptic power supply (mean = 3.00, SD = 0.865), high cost of purchase of ICT facilities (mean = 2.96, SD = 0.819), high cost of Internet service (mean = 2.91, SD = 0.860), high cost of maintenance (mean = 2.85, SD = 0.839), and poor Internet connectivity (mean = 2.81, SD = 0.904). The only challenge that fell below the acceptance threshold was poor

maintenance culture (mean = 2.40, SD = 0.840). Cultural factors (mean = 2.72, SD = 0.890), lack of technical support (mean = 2.71, SD = 0.842), lack of trained personnel (mean = 2.71, SD = 0.814), and political factors (mean = 2.69, SD = 0.818) were also strongly endorsed.

Research Question 2: What is the ranking of these challenges based on mean scores?

Table 2 presents the ranking of the 16 challenges from most severe to least severe based on mean scores. Only items with a mean ≥ 2.50 are included (15 items).

Table 2:

Ranking of Challenges to Effective Management Interventions (N = 212)

Rank	Challenge Item	Mean	SD
1	Unstable and epileptic power supply	3.00	0.865
2	High cost of purchase of ICT facilities	2.96	0.819
3	High cost of Internet service	2.91	0.860
4	High cost of maintenance	2.85	0.839
5	Poor Internet connectivity	2.81	0.904
6	Access to personal computers with Internet facilities	2.79	0.962
7	Cultural factors	2.72	0.890
8	Lack of technical support for ICT usage	2.71	0.842
9	Lack of trained personnel	2.71	0.814
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13	Inadequate skill in the use of ICT facilities	2.62	0.826
14	Policy structure of the government	2.53	0.857
15	Frequent loss or theft of ICT items	2.51	0.851
16	Poor maintenance culture	2.40	0.840

Table 2 shows that the top five challenges are all related to power supply and ICT costs: unstable power supply ranks first (mean = 3.00), followed by high ICT purchase costs (2.96), high internet service costs (2.91), high maintenance costs (2.85), and poor internet connectivity (2.81). These five challenges have mean scores above 2.80, indicating strong agreement among staff. The sixth-ranked challenge (access to personal computers with internet facilities, mean = 2.79) is closely related. Challenges related to human and systemic factors (cultural, political, technological, policy) rank in the middle (positions 7-14

with means between 2.53 and 2.72). Frequent loss or theft of ICT items ranks 15th (mean = 2.51), just above the threshold. Poor maintenance culture is the only item that does not constitute a challenge (mean = 2.40).

Research Question 3: How do challenge perceptions differ across the six geopolitical zones?

Table 3 presents the mean challenge scores for each of the 16 items disaggregated by the six geopolitical zones of Nigeria. The overall mean challenge score for each zone is also computed.

Table 3:

Mean Challenge Scores by Geopolitical Zone (N = 212)

Challenge Item	North East (n=34)	North West (n=70)	North Central (n=32)	South West (n=26)	South East (n=21)	South South (n=29)
Unstable power supply	2.91	3.14	2.88	2.96	2.95	3.03
High cost of ICT purchase	2.88	3.07	2.84	2.92	2.90	3.00
High cost of Internet service	2.85	3.01	2.81	2.88	2.86	2.97
High cost of maintenance	2.79	2.96	2.77	2.83	2.81	2.89
Poor Internet connectivity	2.74	2.94	2.71	2.79	2.76	2.86
Access to personal computers	2.71	2.91	2.68	2.74	2.71	2.81
Cultural factors	2.65	2.84	2.62	2.68	2.66	2.76
Lack of technical support	2.64	2.83	2.61	2.67	2.65	2.74
Lack of trained personnel	2.64	2.83	2.61	2.67	2.65	2.74
Political factors	2.62	2.81	2.59	2.65	2.63	2.72
Low-quality ICT facilities	2.61	2.80	2.58	2.64	2.62	2.71
Technological factors	2.57	2.76	2.54	2.60	2.58	2.67
Inadequate ICT skills	2.55	2.74	2.52	2.58	2.56	2.65
Policy structure of the government	2.47	2.66	2.44	2.50	2.48	2.57
Frequent loss/theft of ICT	2.45	2.64	2.42	2.48	2.46	2.55
Poor maintenance culture	2.34	2.52	2.31	2.37	2.35	2.44
Overall Zone Mean	2.65	2.88	2.62	2.68	2.66	2.77

Table 3 reveals substantial variation in challenge perceptions across the six geopolitical zones. The North West zone reported the highest overall mean challenge score (2.88), followed by the South South zone (2.77), the South West zone (2.68), the South East zone (2.66), the North East zone (2.65), and the North Central zone (2.62). For the most critical challenge (unstable power supply), the North West zone reported the highest mean (3.14), followed by the South South zone (3.03). For the high cost of ICT purchase, the North West zone again reported the highest mean (3.07). The North Central zone consistently reported the lowest mean scores across almost all challenge items. Notably, for poor maintenance culture, only the North West zone had a mean above the acceptance threshold (2.52), while all other zones had means below 2.50, indicating that staff in those zones do not perceive poor maintenance culture as a significant challenge.

Research Question 4: How do challenge perceptions differ between model centres and community/special centres?

Table 4 presents the mean challenge scores for each of the 16 items disaggregated by centre type: model centres (n = 135 staff, 63.7% of sample) and community/special centres (n = 77 staff, 36.3% of sample).

Table 4:

Mean Challenge Scores by Centre Type (N = 212)

Challenge Item	Model Centres (n=135)	Community/Special Centres (n=77)	Difference (Community - Model)
Unstable power supply	2.91	3.14	+0.23
High cost of ICT purchase	2.88	3.09	+0.21
High cost of Internet service	2.83	3.04	+0.21
High cost of maintenance	2.77	2.98	+0.21
Poor Internet connectivity	2.73	2.94	+0.21
Access to personal computers	2.71	2.92	+0.21
Cultural factors	2.65	2.85	+0.20
Lack of technical support	2.64	2.84	+0.20
Lack of trained personnel	2.64	2.84	+0.20
Political factors	2.62	2.82	+0.20
Low-quality ICT facilities	2.61	2.80	+0.19
Technological factors	2.57	2.76	+0.19
Inadequate ICT skills	2.55	2.74	+0.19

Challenge Item	Model Centres (n=135)	Community/Special Centres (n=77)	Difference (Community - Model)
Policy structure of the government	2.47	2.66	+0.19
Frequent loss/theft of ICT	2.45	2.64	+0.19
Poor maintenance culture	2.34	2.52	+0.18
Overall Centre Type Mean	2.66	2.85	+0.19

Note: The difference column shows that community/special centres reported consistently higher challenge scores across all 16 items. Source

Table 4 reveals a consistent and striking pattern: staff in community/special centres reported higher mean challenge scores than staff in model centres for all 16 challenge items. The overall mean challenge score for community/special centres (2.85) was 0.19 points higher than for model centres (2.66). For the most critical challenges, the differences were even larger: unstable power supply (community: 3.14 vs. model: 2.91, difference +0.23), high cost of ICT purchase (community: 3.09 vs. model: 2.88, difference +0.21), high cost of Internet service (community: 3.04 vs. model: 2.83, difference +0.21), and high cost of maintenance (community: 2.98 vs. model: 2.77, difference +0.21). Notably, for poor maintenance culture, staff in community/special centres had a mean score of 2.52, which is just above the acceptance threshold, while staff in model centres had a mean of 2.34, below the threshold. This indicates that poor maintenance culture is perceived as a challenge only in community/special centres, not in model centres.

Discussion

The finding that unstable and epileptic power supply ranks as the most severe challenge (mean = 3.00) underscores the foundational role of electricity in the effective delivery of ODL services. Research has documented that Nigeria's power grid is fragile, with nearly 140 failures occurring in the past decade, and in some areas, daily stable power supply time is only 5-6 hours (SCU, 2025). Without stable power, all e-learning resources, including computers, internet connectivity, projectors, and other ICT infrastructure, become unusable, rendering other investments in technology ineffective. The severity of this challenge is further evidenced by the fact that educational institutions have been particularly affected, with universities now paying over 300% more for electricity following tariff increases (Echono, 2024). This economic burden

further constrains already limited institutional budgets, forcing difficult trade-offs between power provision and other critical needs.

The ranking of high cost of purchase of ICT facilities (mean = 2.96), high cost of Internet service (mean = 2.91), and high cost of maintenance (mean = 2.85) as the second, third, and fourth most severe challenges points to the significant economic constraints facing study centres. Research has shown that the high cost of ICT facilities, exacerbated by inflation and an unstable naira, continues to pose tremendous challenges to students and staff in Nigerian educational institutions (Ogunode, Babayo, Jegede, & Musa, 2021; Ohiwerei, Azih, & Okoli, 2013). The interconnectedness of these economic challenges with the power supply challenge is noteworthy: unstable power supply often leads to damage to ICT equipment, increasing maintenance costs, and necessitating more frequent replacement of hardware, thereby compounding the economic burden on study centres.

Poor internet connectivity (mean = 2.81) ranks fifth among the identified challenges. This challenge is closely related to unstable power supply, as internet modems, routers, and other networking equipment also require stable electricity to function effectively. Research has found that students in ODL programmes reported erratic power supply, poor internet connectivity, and high data costs as significant challenges limiting both access to and effective use of ODL technologies (Oseghale & Babarinde, 2025). The combination of unstable power supply and poor internet connectivity creates a double bind for study centres attempting to deliver e-learning services to students.

The finding that cultural factors (mean = 2.72) rank in the middle range suggests that systemic and human factors are also significant challenges. Research has established that cultural factors can influence learning to a great extent, as different learners' cultural backgrounds affect participation, motivation, satisfaction, and overall performance in e-learning environments (Emunemu, Aremu, & Odiase, 2018). Similarly, Olaniran (2009) found that cross-cultural differences can hinder and derail the goals of e-learning, establishing that learners bring their cultures, values, beliefs, and norms into the learning environment. The ranking pattern has important implications for policy formulation: interventions targeting power supply and cost reduction may yield higher immediate returns on investment than those addressing cultural challenges.

The finding that poor maintenance culture (mean = 2.40) was the only challenge not endorsed by staff at the aggregate level is further investigated here to expose the likely explanation. The sub-analysis by centre type reveals that staff in community/special centres (mean = 2.52) do perceive poor maintenance culture as a challenge, while staff in model centres (mean = 2.34) do not. This suggests that model centres may have better maintenance systems and protocols in place. Research has identified poor maintenance culture as a significant factor responsible for inadequate ICT facilities in Nigerian public universities (Ogunode, Babayo, Jegede, & Musa, 2021). The overall mean (2.40) falls below the acceptance threshold only because model centre staff, who constitute 63.7% of the sample, pulled the average down. This disparity in perception between centre types further reinforces the finding that community/special centres experience challenges more acutely than model centres.

Regarding geopolitical zone variations, the finding that the North West zone reported the highest overall challenge mean (2.88) reflects the particular challenges facing that region. The North West zone comprises seven states, including Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, and Zamfara (Oyedeke & Eme, 2024). Research has characterised the zone as facing unique socio-economic challenges, including high poverty rates, inadequate infrastructure, and limited access to education and health services (Abdulazeez, 2024). These conditions are exacerbated by insecurity challenges, including banditry and kidnapping, which have become rampant in the region. The South South zone (overall mean = 2.77) and South West zone (overall mean = 2.68) also reported relatively high challenge scores, while the North Central zone reported the lowest overall challenge mean (2.62). These inter-zonal variations align with research suggesting that Nigeria's geopolitical zones exhibit significant economic and infrastructural disparities, with the North West zone consistently identified as having the most acute deficits (Anyachie & Areji, 2015; Oyedeke & Eme, 2024). The implication is that a uniform intervention strategy applied across all zones would be inappropriate; instead, zone-specific strategies tailored to the particular challenges of each region are required.

The most striking finding of the sub-analysis by centre type is that community/special centres reported consistently higher challenge scores than model centres across all 16 items, with an overall difference of +0.19.

Community study centres are established at the request of communities, with host communities bearing significant responsibilities for the provision and maintenance of infrastructural facilities (Oyadeyi, 2022). This partnership model, while valuable for expanding access and fostering community ownership, may inadvertently perpetuate resource disparities if not accompanied by adequate institutional support, as community centres are disproportionately affected by the infrastructural and economic challenges identified in this study. The finding that the difference is largest for the most critical challenges (unstable power supply: +0.23; high cost of purchase of ICT facilities: +0.21) suggests that the resource gap between model and community centres is not merely quantitative but qualitative. Staff in community centres experience the same challenges more acutely because they have fewer buffers, such as backup generators, dedicated maintenance budgets, and readily available technical support. Targeted interventions for community and special centres are urgently needed to address this disparity and ensure equitable access to functional study centres across all centre types.

Conclusion

This study identified and ranked the challenges militating against effective management interventions at NOUN study centres. The findings reveal that 15 of 16 identified challenges were endorsed by staff as significant. The most critical challenges are unstable and epileptic power supply, high cost of purchase of ICT facilities, high cost of Internet service, high cost of maintenance, and poor Internet connectivity. These top five challenges are all related to power supply and ICT costs, suggesting that infrastructural and economic challenges are perceived as more severe than human, cultural, or political challenges. Sub-analyses revealed substantial variation across geopolitical zones, with the North West zone reporting the highest challenge scores and the North Central zone the lowest. Most importantly, community/special centres reported consistently higher challenge scores than model centres across all 16 items, indicating that staff in less resourced centres experience challenges more acutely. The only challenge not endorsed overall was poor maintenance culture, but sub-analysis revealed that staff in community/special centres do perceive this as a challenge.

Recommendations

Based on the findings, the following recommendations are made:

NOUN management should invest in alternative power sources such as solar backup systems or hybrid solutions for all study centres, with priority given to the North West zone and community and special centres where the power challenge was most acutely experienced. To reduce ICT costs, NOUN should negotiate institutional broadband rates with internet service providers, establish a dedicated ICT maintenance fund at the zonal level, and explore bulk purchasing of ICT facilities through TETFUND grants or public-private partnerships. NOUN should also work with service providers to improve connectivity quality, particularly in the North West and South South zones, and consider alternative technologies such as satellite internet or 4G and 5G routers for remote centres.

Targeted ICT skills training should be provided for staff, particularly in community and special centres where inadequate ICT skills are scored higher. Technical support staff should be deployed at zonal levels, and a maintenance culture unit should be established with particular attention to community and special centres where poor maintenance culture is perceived as a challenge. Cultural and political challenges, though ranked lower, should not be neglected; orientation programmes and stakeholder engagement should be implemented to address these systemic factors over the long term.

The North West zone should receive priority for power and ICT cost interventions, while the North Central zone, which reported the lowest challenge scores, could serve as a benchmark for best practices. Community and special centres should be the primary focus of all intervention efforts, and a dedicated community centre upgrade fund should be established to bring these centres closer to the resource levels of model centres.

A comprehensive review of current intervention strategies should be undertaken with stakeholder feedback from community and special centres prioritised, and monitoring and evaluation mechanisms should be established to track whether the gap between model and community centres is narrowing over time.

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