

Determinants of needs-based funding allocation in tertiary institutions: evidence from universities in Niger State, Nigeria, during the COVID-19 pandemic

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ABSTRACT

This study examined the factors that influenced needs-based funding allocation and how effective it was perceived to be in public tertiary institutions during COVID-19 under Nigeria's Tertiary Education Trust Fund (TETFund). A cross-sectional survey design was used. Data were collected from students in selected public universities, polytechnics, and colleges of education using a structured questionnaire. Descriptive statistics were used to analyse perceptions of TETFund support in four areas: instructional materials, infrastructure, research and publication, and school facilities. The results showed that TETFund support was most visible in infrastructure and school facilities, especially in the construction and renovation of classrooms, lecture halls, and administrative buildings. Support for research, publication, and academic staff development was rated positively but differed across institutions, while support for instructional materials received lower ratings.

Keywords: *needs assessment, TETFund, Nigeria, higher education, funding support.*

INTRODUCTION

The COVID-19 pandemic disrupted economic and social systems worldwide and seriously affected education. Education, which supports national development, was interrupted by school closures and limits on physical contact. Many education systems adopted e-learning to continue teaching and learning during the pandemic, but the speed and extent of this change differed across countries. In developing countries such as Nigeria, tertiary institutions faced major difficulties shifting from face-to-face teaching to digital delivery. These included low institutional readiness, weak digital infrastructure, limited funding, and poor policy coordination in the education sector (Adeoye, Adanikin & Adanikin, 2020).

As the disruption continued, funding became even more central to the operation of tertiary institutions. In the twenty-first century, inadequate financing remains a persistent problem for tertiary education in Nigeria and across much of Africa. The shift to digital and remote learning during COVID-19 increased resource needs and widened existing funding gaps. Support from agencies such as TETFund became necessary to keep institutions operating. At the same time, TETFund needed substantial resources to address infrastructure gaps, staffing needs, and teaching and learning materials. In practice, planned spending often exceeded revenue, which reduced its ability to run priority programmes. Funding constraints therefore delayed, weakened, or stopped efforts to support tertiary institutions during the pandemic.

Despite these pressures, TETFund remains a major funding source for public tertiary education in Nigeria. The agency allocates and monitors intervention funds for universities, polytechnics, colleges of education, colleges of health, and related tertiary institutions. Although it supports some lower levels of education, its main role is to address funding gaps in tertiary education (Ogunde, 2011). It was created in response to long-standing infrastructure deficits and operates as an intervention mechanism to improve facilities, staffing, and academic resources in public institutions (Nairaland, 2013). Its funding comes from federal revenue sources, including statutory contributions collected by agencies such as the Central Bank of Nigeria and the Federal Inland Revenue Service. Access to TETFund support is largely limited to public tertiary institutions, which makes decisions about distributing scarce resources especially sensitive during periods of system-wide strain such as the COVID-19 pandemic.

Under fiscal pressure and pandemic disruption, needs-based funding has become a key policy approach for sustaining tertiary education. In Nigeria, TETFund was established mainly to support public tertiary institutions through targeted funding guided by needs assessment. Needs assessment is a structured process used to identify gaps between current institutional conditions and expected performance. In Nigeria's tertiary education sector, these gaps often involve infrastructure, instructional materials, research capacity, and human capital development. When done properly, needs assessment improves resource allocation and strengthens accountability in public spending (Kizlik, n.d.; Fulgham & Shaughnessy, 2008).

Needs assessment also supports governance. By stating problems and expected results clearly, it supports evidence-based decision-making and reduces fragmented or wasteful interventions (Altschuld & David, 2010; Watkins et al., 2011). This is especially relevant in systems with limited fiscal space and competing demands. In such settings, the effectiveness of intervention funding depends not only on the amount available, but also on whether allocations match institutional priorities and whether institutions can use the funds effectively.

Tertiary education in Niger State, like the wider Nigerian system, is provided mainly through universities, polytechnics, and colleges of education. These institutions face long-standing problems such as deteriorating infrastructure, shortages of instructional materials, limited research funding, and weak maintenance practices. Although TETFund was created to support government efforts to reduce these deficits, evidence suggests that interventions have not always produced clear improvements within institutions. In some cases, projects were incomplete or underused because of partial funding, delays in accessing funds, or weak implementation capacity. These outcomes reduced the value of intervention funding and raised concerns about the criteria used to guide allocation decisions.

Research on TETFund has mainly examined intervention results, including infrastructure provision, staff development, and research output. While useful, this work pays less attention to the factors that shape needs-based allocation across institutions and intervention areas. Concerns about bureaucratic delays, strict access conditions, weak internal controls, and uneven institutional capacity also suggest that funding decisions may not always reflect actual needs. These issues became more visible during COVID-19, when institutions faced higher resource demands under tighter fiscal conditions. This study addresses this gap by examining the determinants of needs-based funding allocation by TETFund in public tertiary institutions. It focuses on three intervention areas: infrastructure development, instructional materials, and research and publications. By examining how these areas are treated in funding decisions, the study provides evidence on whether needs assessment principles are reflected in allocation outcomes.

This study examines the determinants of needs-based funding allocation by TETFund in public tertiary institutions in Niger State, Nigeria. It considers how funding decisions address infrastructure deficits, support research and publication activities, and provide instructional materials in beneficiary institutions. By analysing these intervention areas, the study assesses whether TETFund allocations reflect identified institutional needs and the extent to which needs assessment guides funding priorities, especially during the COVID-19 period.

This paper makes three contributions to existing scholarship. First, it adds to the literature on tertiary education financing by shifting attention from funding outcomes to the factors that shape needs-based allocation. Second, it provides sub-national evidence from Niger State, which is rarely covered in Nigerian education funding research. Third, it offers policy insights for improving the design, targeting, and governance of intervention funds during periods of system-wide stress such as the COVID-19 pandemic.

METHODOLOGY

Research design

The study used a cross-sectional survey design to analyse the patterns, relationships, and perceptions among the variables. This design was suitable for assessing the goals of the study because of its advantages in optimizing time and resources especially in an unusual period such as the COVID-19 pandemic. It allowed the collection of standardised data from a relatively large sample and supported descriptive and inferential assessment of institutional funding interventions. It is worth noting that the study did not aim to establish causal effects, however, it focused on examining how TETFund interventions were perceived and assessed across key funding areas in public tertiary institutions in Niger State.

Population and sample size determination

The population comprised 12,263 students from eight public tertiary institutions in Niger State, Nigeria, including degree-awarding and non-degree-awarding institutions. Students were selected as respondents because they directly benefit from TETFund-funded infrastructure, instructional materials, and learning environments. A sample of 256 respondents was selected using multistage sampling. Thus, firstly, institutions were grouped by type (degree-awarding and non-degree-awarding). This was followed by a systematic sampling of targeted groups or institutional clusters and lastly, a simple random sampling of select individual respondents for the study. This ensured that each eligible student had an equal chance of selection, reducing

selection bias and improving representativeness.

Instrumentation

Data were collected using a structured questionnaire titled *Questionnaire on Tertiary Education Trust Fund Intervention (QTETFI)*. The instrument contained 25 items in two sections. Section A captured respondents' basic institutional characteristics whilst Section B contained 24 Likert-scale items measuring perceptions of TETFund interventions related to infrastructure, instructional materials, and research and publication support. The four-point Likert scale ranged from strongly agree to strongly disagree. The forced-choice format was used to limit neutral responses and improve response distribution.

Validity and reliability

Face and content validity were established through expert review. Two specialists in educational measurement and evaluation assessed the questionnaire for relevance, clarity, and alignment with the study objectives. Their feedback informed minor revisions to wording and structure. The content validity index was 0.89, indicating acceptable validity. Reliability was assessed through a pilot study involving 30 students from a public tertiary institution not included in the main study. Internal consistency was measured using Cronbach's alpha, which yielded a coefficient of 0.93, indicating high reliability.

DATA COLLECTION PROCEDURE AND ETHICAL CONSIDERATIONS

The questionnaire was administered in person after approval was obtained from the participating institutions. Participation was voluntary, and informed consent was obtained from all respondents. Respondents were assured of confidentiality and anonymity and were informed that the data would be used solely for academic purposes. Adequate time was provided for completion, and completed questionnaires were collected immediately to minimise non-response and prevent data loss.

DATA ANALYSIS

Data were analysed using descriptive statistics. Mean scores and standard deviations were computed to answer the research questions and to examine patterns in perceptions of TETFund interventions across the funding areas. This approach aligned with the study's exploratory and assessment focus nature.

RESULTS

Extent of TETFund intervention in the provision of institutional infrastructure

Table 1 presents the ratings of TETFund interventions in school infrastructure across public tertiary institutions in Niger State. The results show that the mean scores for all listed infrastructure indicators are above the criterion mean of 2.50, with a grand mean of 2.56. This indicates an overall positive assessment of TETFund's role in infrastructure provision in the sampled institutions. Respondents reported higher mean ratings for roadway construction, laboratory furniture, staff office buildings, staff quarters, and lecture halls, suggesting that TETFund support is more visible in these areas. Moderate agreement was recorded for classrooms, ICT facilities, hostels, and sanitation facilities. The standard deviation values were low across items, indicating little variation in responses and a consistent view among

respondents. Overall, the findings indicate that TETFund interventions contribute to the provision and improvement of physical infrastructure in public tertiary institutions in Niger State. Differences in mean scores across infrastructure types further suggest that the level and visibility of interventions vary by project type, consistent with needs-based funding allocation.

Table1: Score of TETFund intervention in the provision of institutional infrastructure

S/N	Statement	SA	A	D	SD	Mean	SD
4	TETFund intervention has contributed to the provision of infrastructure for effective teaching and learning in Niger State tertiary institutions	56	64	9	3	2.35	0.45
5	TETFund intervention has contributed to the construction of roadway projects	45	76	12	2	2.65	0.42
6	TETFund intervention has contributed majorly to the interlocking of administrative quadrangles in Niger State tertiary institutions	59	52	8	7	2.56	0.41
7	TETFund intervention has contributed to the construction of bathroom and toilet facilities in Niger State tertiary institutions	68	52	4	3	2.45	0.38
8	TETFund intervention has contributed to the provision of laboratory tables and chairs in Niger State tertiary institutions	57	69	8	2	2.62	0.32
9	TETFund intervention has contributed to the construction of academic staff office buildings for faculties in Niger State tertiary institutions	87	38	7	4	2.44	0.48
10	TETFund intervention has contributed to the construction of lecture rooms in Niger State	66	42	25	1	2.35	0.45
11	TETFund intervention has contributed to the construction of lecture halls in Niger State tertiary institutions	59	68	8	7	2.65	0.42
12	TETFund intervention has contributed to the provision of ICT facilities in Niger State tertiary institutions	68	61	4	3	2.56	0.41
13	TETFund intervention has contributed to the construction of hostels in Niger State tertiary institutions	57	69	8	2	2.45	0.38
14	TETFund intervention has contributed to the construction of staff quarters in Niger State tertiary institutions	87	38	7	4	2.62	0.32
15	TETFund intervention has contributed to the renovation of classrooms in Niger State tertiary institutions	66	42	25	1	2.44	0.48

16	TETFund intervention has contributed to the construction of demonstration studios for Mass Communication departments in Niger State tertiary institutions	45	76	23	4	3.20	0.32
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Source: from computation

Extent of TETFund intervention in the provision of instructional material

Table 2 presents respondents' ratings of TETFund interventions aimed at providing instructional materials in public tertiary institutions in Niger State. The mean scores for the three indicators range from 2.11 to 2.45. None of the items met the mean cut-off point of 3.00, indicating generally modest ratings of TETFund's support in this area. Among the items, the provision of textbooks for lecturers and students recorded the highest mean score ($M = 2.45$), suggesting that respondents noticed this support more than the others. On the other hand, lower mean scores were reported for the provision of science apparatus ($M = 2.13$) and white electrical boards ($M = 2.11$), indicating weaker perceived support. The relatively high standard deviation values across the items suggest considerable variation in respondents' experiences and views regarding instructional material support. Overall, the findings indicate that while TETFund support for instructional materials exists, respondents perceive it as less extensive than infrastructure-related interventions. This may imply that instructional materials receive lower priority in needs-based funding or that these interventions are less visible to students in the sampled institutions.

Table 2: Score of TETFund intervention in the provision of instructional material

S/N	Statement	SA	A	D	SD	Mean	SD
1	TETFund intervention has contributed to the provision of textbooks for lecturers and students in Niger State tertiary institutions	78	13	2	68	2.45	1.45
2	TETFund intervention has contributed to the provision of science apparatus for science lecturers and students in Niger State tertiary institutions	64	43	6	59	2.13	1.27
3	TETFund intervention has contributed to the provision of white electrical boards in Niger State tertiary institutions	93	39	2	28	2.11	1.16

Extent of TETFund intervention in research, publication and staff development

Table 3 presents respondents' ratings of TETFund interventions in research, publication, and academic staff development in the study area. The mean scores range from 2.28 to 2.86, with a grand mean of 2.56, which is above the criterion mean of 2.50. This indicates that respondents generally rated TETFund's support for research-related and capacity-building activities positively. Higher mean scores are recorded on items related to skill acquisition, access to intervention funds, provision of workshops, and the perceived link between capacity building and academic performance. This suggests that TETFund's interventions are more evident in staff development and professional training. Lower mean scores are observed for the adequacy of conference funding and the perceived contribution of TETFund to research output, indicating areas where support may be weaker or less consistently experienced. The

standard deviations are low across the items, showing limited variations in responses and a common view among participants. In all, the results suggest that TETFund supports research and publication largely through staff development, although the level of support varies across specific funding areas.

Table 3: Ratings of TETFund intervention in research, publication and staff development

S/N	Statement	SA	A	D	SD	Mean	SD
18	Academic staff in Niger State benefit from staff training and development through TETFund intervention	123	11	3	0	2.54	0.36
19	TETFund intervention has improved academic staff capacity building in Niger State tertiary institutions	57	65	1	0	2.41	0.43
20	Adequate funds are disbursed through TETFund intervention for conference attendance by academic staff	71	55	6	5	2.33	0.37
21	TETFund intervention plays a significant role in research and academic growth	84	41	8	5	2.28	0.45
22	TETFund intervention funds are accessed and utilised by lecturers in Niger State	68	43	10	7	2.67	0.42
23	Academic staff acquire better skills and knowledge through TETFund intervention	36	64	15	8	2.86	0.44
24	TETFund provides well-designed workshops for mentoring and orientation programmes	48	51	8	1	2.65	0.48
25	Capacity building of academic staff has improved through TETFund staff training and development funds	52	37	13	14	2.56	0.39
26	There is no positive impact of TETFund capacity building on staff development	123	11	3	0	2.54	0.36
27	TETFund should disburse more funds for lecturers to engage in research	57	65	1	0	2.41	0.43
28	Academic staff capacity building enhances staff productivity through TETFund intervention	71	55	6	5	2.33	0.37
29	Academic staff are frequently supported for training and conference attendance through TETFund	84	41	8	5	2.28	0.45
30	TETFund intervention has never contributed to research programmes for academic staff development	68	43	10	7	2.67	0.42
31	There is a positive relationship between TETFund capacity building and academic performance	36	64	15	8	2.86	0.44
32	Ease of access to TETFund funds enables more staff to receive support for publications and training	48	51	8	1	2.65	0.48
33	TETFund intervention has positively transformed teaching and learning through staff development programmes	52	37	13	14	2.56	0.39

Extent of TETFund intervention in the provision of school facilities

Table 4 presents respondents' ratings of TETFund interventions in providing school facilities in public tertiary institutions in Niger State. The mean scores for the eight items range from

2.28 to 2.86, with a grand mean of 2.56, which is above the criterion mean of 2.50. This indicates that respondents generally view TETFund's contribution to school facilities in the sampled institutions positively. The highest mean scores relate to basic learning facilities such as chairs, tables, and internet-enabled computer facilities, suggesting that these interventions are more visible or more widely experienced. Moderate mean scores were recorded for computer facilities, science laboratory apparatus, and specialised facilities such as demonstration studio equipment. Items related to academic staff performance received mixed ratings, reflecting differences in how respondents perceive the indirect effects of facility provision on staff productivity. The relatively low standard deviation values indicate little variation in responses, suggesting that respondents' views are fairly consistent. Putting all things together, the results show that TETFund interventions support the provision of school facilities in public tertiary institutions in Niger State, although respondents rate the level of intervention differently across facility types.

Table 4: Ratings of TETFund intervention in the provision of school facilities

S/N	Statement	SA	A	D	SD	Mean	SD
34	There is a positive impact on academic staff performance through TETFund intervention in Niger State tertiary institutions	123	11	0	3	2.54	0.36
35	TETFund intervention has contributed to the provision of computer facilities in Niger State tertiary institutions	57	65	14	1	2.41	0.43
36	TETFund intervention does not in any way have effect on academic staff performance	71	55	–	6	2.33	0.37
37	TETFund intervention has contributed to the provision of science laboratory apparatus in Niger State tertiary institutions	84	41	–	8	2.28	0.45
38	TETFund intervention has contributed to the provision of tables in Niger State tertiary institutions	68	43	9	10	2.67	0.42
39	TETFund intervention has contributed to the provision of chairs in Niger State tertiary institutions	36	64	14	15	2.86	0.44
40	TETFund intervention has contributed to the provision of computer internet facilities in Niger State tertiary institutions	48	51	28	8	2.65	0.48
41	Provision of demonstration studio equipment for Mass Communication departments in Niger State tertiary institutions	52	37	34	13	2.56	0.39

DISCUSSION

This study examined how well TETFund interventions addressed key needs in public tertiary institutions in Niger State, Nigeria, focusing on instructional materials, infrastructure, research and publication, and school facilities. The findings show that TETFund support exists in these areas, but the level of support and its perceived effectiveness differ across categories.

There was strong evidence of TETFund intervention in infrastructural development. Respondents reported higher levels of support for constructing and renovating classrooms, lecture halls, administrative buildings, roads, sanitation facilities, and staff offices. This

supports earlier studies that identify infrastructure provision as a major focus of TETFund activities and as a factor that improves teaching and learning environments (Abdulaziz et al., 2020). This focus also reflects long-standing structural gaps in Nigeria's tertiary institutions and helps explain why physical projects are more visible than less tangible forms of support.

Support for instructional materials was present but relatively modest. Respondents reported moderate assistance with textbooks, science apparatus, and instructional equipment. This aligns with studies showing that instructional and audio-visual materials improve teaching and student engagement (Wales, 2009; Savoury, 2017; Emma & Ajayi, 2017). The lower mean scores suggest that instructional materials may receive less attention than other funding areas. This raises concerns about whether funding priorities are balanced enough, given the close link between instructional resources and learning outcomes.

The findings also show generally positive views of TETFund's role in research, publication, and academic staff development. Respondents reported benefits from staff training programmes, workshops, mentoring, and conference support. This supports the view that research and publication support knowledge growth and help address wider challenges in higher education (Umoru, 2010; Okeke, 2004). Differences in mean scores across items, however, suggest unequal access to research funding and capacity-building opportunities. This points to possible administrative barriers and differences in institutions' ability to access available funds.

The study also found that TETFund interventions in school facilities – such as computer systems, laboratory equipment, furniture, internet access, and specialised teaching facilities – were generally present but uneven across institutions. These facilities affect staff performance and student learning in indirect but important ways. Mixed responses suggest that provision has improved, but problems of adequacy, use, and long-term maintenance remain. Overall, the findings indicate that TETFund's needs-based interventions have reduced structural gaps in Niger State's public tertiary institutions, while also showing continuing imbalances in funding priorities and implementation problems that limit expected outcomes.

CONCLUSION

This study assessed the determinants and perceived effectiveness of TETFund's needs-based interventions in public tertiary institutions in Niger State. The findings show that TETFund has supported infrastructural development, staff capacity building, and the provision of school facilities, while support for instructional materials and research funding was relatively weaker. Ongoing challenges linked to skills shortages, infrastructure adequacy, and uneven use of funds still affect institutional performance. The evidence suggests that TETFund has addressed some long-standing weaknesses in Nigeria's tertiary education sector, but outcomes depend on balanced allocation, institutional capacity, and governance arrangements. Addressing these issues is necessary to improve teaching, research, and learning outcomes, and to create conditions that attract and retain skilled academics, including those in the diaspora. Stronger needs-based funding practices and closer alignment between interventions and institutional priorities would increase TETFund's contribution to the quality and sustainability of tertiary education in Nigeria.

LIMITATIONS AND RECOMMENDATIONS

Based on the findings, the study makes the following recommendations:

- i. TETFund should use a more balanced needs-based approach to funding allocation. While infrastructural development remains necessary, more funding should go to instructional materials and research support, especially in science and technology disciplines where skill gaps are most visible.
- ii. The Federal Government should introduce policies that expand TETFund's funding base and improve administrative efficiency and transparency. Easier access procedures and stronger institutional support structures may improve fund use and reduce delays in project delivery.
- iii. Tertiary institutions should be supported to set up dedicated units for staff development and diaspora engagement. These units could coordinate short-term teaching and research visits, joint research projects, mentoring programmes, and curriculum development, using the expertise of Nigerian scholars abroad.
- iv. TETFund should prioritise sustained investment in staff development, with attention to long-term training such as doctoral and postdoctoral programmes. This would strengthen academic capacity and help institutions meet changing qualification standards in higher education.
- v. TETFund should place more emphasis on maintaining facilities provided through intervention programmes. Adding maintenance plans to funding frameworks would improve sustainability and protect public investment.
- vi. Future studies should examine the issue using the views of a wider range of stakeholders beyond students and should use inferential analytical tools.

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