

# Impact of Abandoned Infrastructure Projects on Educational Facilities in Federal Tertiary Institutions in Enugu State, Nigeria

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## ABSTRACT

The study examines the impact of abandoned infrastructure projects on tertiary education in Enugu, Nigeria. It focuses on federal institutions and examines factors such as project incompleteness, delays in access to education and research resources, and financial maladministration. Data was collected through a questionnaire distributed to 173 senior management staff of the Works Department of the tertiary institution and Data was analyzed using the Relative Importance Index (RII). The study found that stakeholder engagement was the most significant contributor to project abandonment in universities, with significant correlations found between project delays, access to resources, financial maladministration, and obsolescence of physical facilities. RII of 4.19 ranked 1st, inadequate financial resources (4.12), and changes in government policies and priorities (3.96) ranked 2nd and 3rd respectively were the main drivers of project incompleteness. Inadequate Learning Spaces such as libraries, classrooms, and laboratories ranked highest with an RII value of 4.52, followed by a disturbance in productivity; 4.42 and increased maintenance cost due to deteriorating state, 4.32 as 2<sup>nd</sup> and 3<sup>rd</sup> ranking respectively were the top issues. The study emphasizes the need for effective stakeholder engagement and improved partnerships with the private sector. The study uses a mixed-methods approach, combining quantitative data from surveys and qualitative insights from interviews with stakeholders.

**Keywords:** Abandoned, facilities, project incompleteness, tertiary institution

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## INTRODUCTION

The quality of education in tertiary education is significantly influenced by the successful implementation of projects and the availability of adequate infrastructure. These projects aim to increase student access and provide essential on-campus services like libraries, classrooms, and technology-related facilities [1]. However, there has been an increasing trend of project abandonment within these institutions, which can be attributed to factors such as rising construction costs, changes in government policies, inadequate financial resources, weak governance structures, lack of stakeholder engagement, and poor planning and coordination [2]. Project abandonment not only impacts the institution's commitment to providing quality education but also disrupts the smooth functioning of academic and administrative processes. Uncompleted projects can lead to a shortage of essential facilities,

hindering the overall learning experience for students and impacting their academic performance. Infrastructural facilities are crucial for attracting and retaining competent staff, effective teaching and learning, and enhancing students' overall experience. Their inadequacy has implications for stifling technology advancement, as most aging institutional structures lack access to updated systems that could boost efficiency [3,4]. For learning to be effective, efficient, and sustainable, requisite infrastructure should be available. Tertiary institutions are not just centers of education; they are hubs of innovation, research, and collaboration, pivotal to a nation's intellectual and socioeconomic landscape. Inadequate technology [5], limited access to research materials, and inadequate learning spaces can hamper the delivery of quality education and limit students' ability to acquire necessary skills and knowledge for

their future careers. The lack of modern infrastructure may deter potential students from enrolling, affecting the institution's reputation and enrolment rates. Research on project abandonment and infrastructure availability in tertiary institutions is crucial for addressing the challenges faced by these institutions [6,7]. However, there is a lack of research on the effect of abandoned projects on infrastructure availability at universities in developing countries. This study aims to fill the research lacuna in this area and provide empirically-backed insights for theoretical, practical, and policy considerations towards a more sustainable tertiary

education climate in Nigeria [8]. The infrastructure of tertiary educational institutions plays a crucial role in shaping the quality of education and overall student experience. In Enugu State, the impact of abandoned infrastructure projects is particularly pronounced, leading to overcrowded classrooms, inadequate laboratory facilities, and deteriorating campus environments [9]. This introduction sets the stage for examining how the abandonment of infrastructure projects influences the functionality of educational facilities in federal tertiary institutions in Enugu State.

## REVIEW OF RELATED LITERATURE

Project abandonment is a significant issue that affects the development and growth of organizations, cities, and tertiary institutions. It is used to deliver services such as classroom blocks, research facilities, laboratories, administration blocks, accommodation for students and staff, roads, and other infrastructure for convenience [10]. In Nigerian tertiary education, projects lead to the delivery of classroom blocks, research facilities, laboratories, administration blocks, accommodation for students and staff, roads, and other infrastructure for social cohesion and wellbeing. Common reasons for project abandonment include inadequate funding, mismanagement of resources, corruption, and political interference. These factors often lead to delays, budget constraints, and ultimately abandonment [11,12]. The consequences of project abandonment in tertiary institutions are far-reaching, undermining the credibility and reputation of the project beneficiary, such as a tertiary institution, as it hampers their ability to achieve their goals. This can erode trust and confidence in the institution among stakeholders, including prospective students, parents, and potential collaborators [13]. Infrastructure availability plays a crucial role in the overall development and success of tertiary institutions. State-of-the-art facilities such as laboratories, libraries, classrooms, and research centers provide a conducive learning environment, allowing students to engage in hands-on practical experiments, access a wide range of academic resources, and participate in collaborative learning experiences [14,15]. Without proper infrastructure, students may be limited in their ability to explore and apply their knowledge effectively. In Nigerian tertiary education institutions, these facilities are either not well maintained or already obsolete and abandoned [16]. Abandoned infrastructure projects are defined as construction or renovation works that are started but left incomplete, often due to financial constraints, administrative failures, or political instability. The impact of abandoned projects on educational facilities

can be profound, leading to overcrowded and inadequately equipped educational spaces. Case studies in Nigeria reveal that many federal tertiary institutions suffer from incomplete infrastructure projects, which affect their operational capabilities and educational outcomes [17]. The effects of project abandonment in Nigerian tertiary education institutions is huge ranging from overcrowded lecture halls, strikes, poor teaching and research program implementation, an uncondusive working environment, and poor international ranking [18]. The challenges faced by tertiary education in Nigeria, include underfunding, inadequate academic staff, corruption, strike actions, leadership crisis, poor planning, inadequate infrastructure facilities, brain drain, and poor planning. Projects abandoned in Nigerian public tertiary institutions include faculty/departmental buildings/complexes, libraries, institutes, and students' accommodation/hostels [19]. These infrastructure facilities have been abandoned in all six geo-political zones across the country. Education plays a vital role in progress, raising awareness among the inclusive community and stimulating creative thinking [20]. Nigeria's inadequate preparation is attributed to factors such as low educator ability, lack of homeroom-based teacher support, lack of systems to evaluate understudy learning outcomes, uneven supervision, lack of resources for necessary teaching and learning materials, and a weak organizational structure [21, 22]. The government is planning to expand the open plan of basic guidance to improve the country's preparation. The problem lies in the underlying framework and existing guiding systems, which hinder high-quality preparation. To increase or maintain student achievement, planning for change should consider various factors, including the state of school buildings and the state of school systems [23]. Public schools, also known as state schools, are no-fee institutions funded and operated by the government. They have historically performed worse

on standardized examinations than private schools, charging minimal monthly fees and lacking infrastructure and educational facilities [24, 25]. Addressing these challenges requires a comprehensive approach involving improved project management, financial oversight, and policy reforms to ensure that educational infrastructure supports rather than hinders the quality of education [26]. Infrastructure availability also impacts research and innovation, as well-equipped laboratories, research centers, and technology infrastructure enable faculty and students to push the boundaries of knowledge,

contribute to scientific advancements, and develop practical solutions to real-world problems. The Resource Dependency Theory (RDT) is used to examine how organizations are affected by their dependence on external resources [27, 28]. In federal tertiary education institutions in Enugu, Nigeria, the study aims to determine if external sources were responsible for the abandonment of projects in federal tertiary education institutions and how their administrative input led to the current maintenance state of facilities in the institutions.

**METHODOLOGY**

The study aimed to explore the relationship between project abandonment and infrastructure availability in federal tertiary education institutions in Enugu State, Nigeria. A mixed-methods research design was employed, combining quantitative and qualitative techniques to provide a comprehensive analysis of the issue from multiple perspectives. The target population included 139 administrators, faculty members, and students from five federal educational institutions in the state. A stratified random sampling technique was used to select institutions and participants, with questionnaires distributed to administrators, faculty members, and students. Quantitative data was collected through structured questionnaires distributed to administrators, faculty members, and students. The questionnaires were developed based on a literature review and pilot-tested for clarity and reliability. Semi-structured interviews were conducted with key stakeholders to

gain insights into the reasons behind project abandonment and its management. Document analysis was conducted using institutional records, project reports, and maintenance logs [29]. Data analysis involved descriptive statistics, inferential statistics, and thematic analysis to identify common patterns, themes, and insights related to the impact of abandoned projects. NVivo or similar qualitative analysis software was used to assist in coding and organizing qualitative data. Ethical considerations included informed consent, confidentiality, and approval from the relevant institutional review board or ethics committee. Limited limitations include sampling bias, data accuracy, and generalizability [30, 31]. However, this methodology provides a comprehensive approach to understanding the impact of abandoned infrastructure projects on educational facilities in federal tertiary institutions in Enugu State.

**RESULTS AND PRESENTATIONS**

**Factors and consequences**

Project incompleteness is a major issue influenced by several drivers as shown in Table 1. These could be financial, management, technical, regulatory,

organizational, political, and environmental factors. Understanding these drivers is crucial for successful outcomes.

**Table 1: Drivers of Incompletion of Projects**

S/N	Implemented barriers	SA-----SD					TOTAL	EW	RII	Rank
		5	4	3	2	1				
1	Rising cost of construction	62	48	25	2	2	139	583	4.1942	1 <sup>st</sup>
2	Inadequate financial resources	58	51	18	6	4	137	564	4.1168	2 <sup>nd</sup>
3	Changes in government policies	54	48	22	11	4	139	554	3.9856	3 <sup>rd</sup>
4	Lack of stakeholder engagement	49	44	19	19	8	139	524	3.7698	4 <sup>th</sup>
5	Poor planning and coordination	47	41	23	18	10	139	514	3.6978	5 <sup>th</sup>

Source: Researcher, 2024

The study found that rising construction costs with an RII of 4.19 ranked 1st, inadequate financial resources (4.12), and changes in government policies

and priorities (3.96) ranked 2nd and 3rd respectively. Others are lack of stakeholder engagement, and poor planning and coordination within tertiary institutions

are the main drivers of project abandonment in universities. These factors contribute to the overall decline of projects.

waste, material waste, loss of neighborhood and community aesthetics, weakening of structural components, loss of tax income, and decreased value of real estate holdings.

There are lots of consequences of incomplete building projects in Tertiary institution projects as shown in Table 2 which are not limited to: financial

**Table 2: Effect of Uncompleted Project on academic and Research Resources in tertiary institutions**

S/N	Implemented barriers	W	SA-----SD					TOTAL	EW	RII	Rank
			5	4	3	2	1				
1	Inadequate Learning Spaces such as libraries, classrooms, and laboratories	F	85	42	12	0	0	139	629	4.5252	1 <sup>st</sup>
2	limits researchers' ability to conduct experiments, thus affecting productivity	F	76	51	8	3	1	139	615	4.4245	2 <sup>nd</sup>
3	The lack of essential facilities due to incomplete projects can disrupt academic programs	F	72	49	8	9	1	139	599	4.3094	3 <sup>rd</sup>
4	increased maintenance cost due to deteriorating infrastructure	F	68	38	18	9	6	139	570	4.1007	4 <sup>th</sup>
5	Affect the social image of the school due to visible scatters of uncompleted project	F	69	31	20	10	9	139	558	4.0144	5 <sup>th</sup>
6	Result in poor collaboration with other institutions	F	59	32	23	15	10	139	532	3.8273	6 <sup>th</sup>

Source: Researcher, 2024

Table 2 shows the effect of uncompleted projects on the overall performance of the academic institutions in the state. Inadequate Learning Spaces such as libraries, classrooms, and laboratories ranked highest

with an RII value of 4.52, followed by a disturbance in productivity; 4.42 and increased maintenance cost due to deteriorating state, 4.32 as 2<sup>nd</sup> and 3<sup>rd</sup> ranking respectively.

**Test of hypothesis**  
**Table 3. Logistic regression analysis**

	Detail	Estimate	Std. Error	Wald	Df	Sig.	95% confidence intervals	
							Lower Bound	Upper Bound
<b>Threshold</b>	☐Infrastructure =1	-30.424	18.681	2.652	1	0.103	67.039	6.191
	☐Infrastructure =2	-20.535	14.239	2.08	1	0.149	-48.442	7.373
	☐Infrastructure =3	-11.161	10.584	1.112	1	0.292	-31.906	9.584
	☐Infrastructure =4	1.243	0.131	89.964	1	0	-1.5	-0.986
<b>location</b>	Abandonment = 1	40.432	48.664	0.69	1	0.406	-135.812	54.948
	Abandonment = 2	31.235	18.686	2.794	1	0.095	-67.858	5.389
	Abandonment = 3	-20.883	14.24	2.151	1	0.143	-48.793	7.027
	Abandonment = 4	-11.055	10.586	1.091	1	0.296	-31.803	9.692
	Abandonment = 5	0 <sup>a</sup>				0		

An investigation of the factors of project abandonment in federal tertiary education institutions in Enugu, Nigeria, using ordinal logistic regression is shown in Table 3. An intriguing finding from the study is that nearly every potential driver that was found did not cause or predict the

institutions' project discontinuation. The only factor that stayed below the  $p < 0.05$  criterion was the absence of stakeholder participation. This suggests that the implementation of building projects at universities did not involve the appropriate internal and external stakeholders in an effective manner.

**Table 4: Hypothesis 2.**

			Delays	Resources
Spearman rho	Delays	Correlation coefficient	1	.713'
		sig 2 – Tallied		000
		N	139	139
	Resources	correlation coefficient	1	.713'
		sig 2 - Tallied		000
		N	139	139

Correlation is significant at the 0.01 level (2-tailed)

The correlation matrix for the impact of building project delays on research and educational resources accessible at federal tertiary institutions in Enugu, Nigeria, is presented in Table 4. With a correlation coefficient of 0.713, it can be concluded that there is

significant association at the 0.00 level (2-tailed). Therefore, there is a substantial ( $r = .713$ ;  $p < .001$ ) impact of building project delays on access to research and educational resources in federal tertiary institutions in Enugu, Nigeria.

#### DISCUSSION OF FINDINGS

The study aimed to identify the drivers of project abandonment in tertiary education institutions in Enugu, Nigeria. The findings showed that the main driver was insufficient engagement of internal and external stakeholders, which contradicts previous research by [32, 33]. The study also found a significant correlation between project delays and access to education and research resources, which aligns with previous studies by [34, 35]. The study

by [36] also confirmed the significant effect of finance maladministration on physical facility obsolescence, which is consistent with previous research in Ghana. The study also found that finance is a crucial contributor to project management inefficiencies, but no studies directly aligned their views with the maintenance of physical facilities, especially in tertiary education institutions. The institutions [37]. Hypothesis two states that the

effect of delays in completing construction projects on access to education and research resources in federal tertiary institutions in Enugu, Nigeria is significant. This suggests that the right internal and

external stakeholders were not effectively engaged in the implementation of construction projects in the universities.

### CONCLUSION

The study reveals that insufficient stakeholder engagement is the main driver of project abandonment in federal tertiary institutions in Enugu, Nigeria. It contradicts previous research suggesting other factors like payment delays and leadership instability. The study also found a significant correlation between project delays on access to education and research resources, with time

overrun, cost overrun, and arbitration being the most significant effects. Financial maladministration was also found to contribute to physical facility obsolescence. The findings underscore the need for better resource management and coordination to prevent physical facility obsolescence and ensure long-term success.

### RECOMMENDATION

To mitigate the negative impact of unfinished infrastructure projects on academic and research resources, recommendations include improved project management, financial planning, resource allocation, governance, public-private partnerships, contingency

plans, and phased implementation. These measures ensure transparency, accountability, collaboration, communication, and stakeholder engagement while minimizing disruptions and ensuring the longevity of existing infrastructure.

### Contribution to knowledge

The study on abandoned infrastructure projects in Enugu State highlights financial constraints and political instability as factors causing project

abandonment, emphasizing the need for improved management and policy reforms.

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