

Challenges that Influence Construction Project Designs in Rivers State, Nigeria¹

Godknows Chima Uchenduⁱ and Ibeawuchi Ifeanyi Echemeⁱⁱ

ⁱProject Monitoring & Supervision,
Niger Delta Development Commission, Rivers State, Nigeria.

ⁱⁱProject Management Technology,
Federal University of Technology, Owerri, Imo State, Nigeria

Abstract

This study analyzed the challenges that influence construction project designs in Rivers State Nigeria. The objectives are to: determine whether cost of design can significantly influence construction project designs; determine whether adherence to design codes can significantly influence construction project designs; ascertain the level of influence that skilled designers have on construction project designs; ascertain the extent to which regulatory agencies influence construction project designs; determine extent to which negligence of design influence construction project designs. Descriptive survey design technique was used and questionnaire was deployed in collecting data. The data collected were analyzed and presented using descriptive statistics, multiple regression analysis. T- test result indicate that unskilled designers is the most influential element in an effort to develop standard construction project designs in Rivers State. Hence, the study conclude that skilled personnel should be engaged in construction project design development. Also the high cost of designs can be minimized if the regulatory authorities are active in their responsibilities and policies made to create a conducive economic and social environment for enhancement of the well-being of the citizen of Rivers State and Nigeria in general. Among other recommendations, engagement of design experts to oversee the process of designing any project before implementation is very crucial.

Keywords: *construction project designs, cost of design, skilled designers, design codes, Rivers State.*

1.0 Introduction

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Construction project design is the first step towards achieving success or failure. This is because design provides a stepping stone for planning and implementing construction projects (Ricardo, 2020). There is no doubt that the nature of project design determines the ability to achieve success in the delivery of projects especially, construction projects. If designs are poorly designed, it makes it difficult to successfully deliver the project and vice versa. Many times construction projects witnessed failure or abandonment due to wrong designs; hence, it becomes impossible to achieve the set goal for the project and this adversely affect development. Hence, the construction industry worldwide is under great pressure to produce perfect designs that can deliver better value for money and a more sustainable built environment (Shabbab, 2010). According to Shabbab (2010), there are reoccurring calls to improve the performance of construction industry in line with other industries, such as the manufacturing industry.

However, studies have shown that the construction industry has not been performing to its expectation due to the global technological and financial challenges coupled with the development process of design and production (Ricardo, 2020; Alexey, 2022). The importance of project design and its concepts are increasing by the day. This has attracted global attention and has become the center of discuss among project practitioners and researchers on the best approach to adopt in order to achieve effective and efficient project designs that will assist in the planning and execution of projects for economic development. According to Lucy (2021), a project is considered to be successful if the goals of the project are achieved. Lucy (2021) further stated that having a skilled project manager with the capacity to develop and illustrate designs is the first step to realizing project objectives, but there are other major factors that contribute to the project success. To be successful, projects require careful designing, planning, effective communication, and attention to project details. This is because project design highlights goals, functionality, and any other information that is required for the developers to successfully complete the project (Alexey, 2022). According to (Rahman *et al.*, 2021), the role of specification in the design process is significant to project success. In the project specification document, the description of the desired outcome is described by a set of requirements. A clear description of the desired project outcome is critical because it will increase the chances of achieving an effective and efficient design. In order to have a clear description, the number of requirement statements must be sufficient to guide design engineers to proceed from the abstract to the concrete solution so as to realize the aim of the project. The project design specification defines the management plan of a project as a whole. It should list the needs, objectives, constraints, expected features, deadlines and budget as accurately as possible as these may be underlying factors affecting project completion (Ricardo, 2020).

Relevant authors have highlighted technological related factors, human and economic related factors as the key issues affecting the development of effective and efficient construction project designs (Alexey, 2022; Ricardo, 2020). Others have blamed high cost of designs, lack of skilled designers, negligence, low adoption of relevant technologies, poor monitoring and supervision by regulatory bodies, etc. (Lucy, 2021; Rahman *et al.*, 2021). Rivers State has suffered so many setbacks in the completion of construction projects due poor project designs and specification and the associated factors which will be reviewed and identified in the course of this study.

The specific objectives are:

- i. To determine whether cost of design can significantly influence construction project designs in Rivers State.
- ii. To determine whether adherence to design codes can significantly influence construction project designs in Rivers State.
- iii. To ascertain the level of influence that skilled designers have on construction project designs in Rivers State.
- iv. To ascertain the extent to which regulatory agencies influence construction project designs in Rivers State.
- v. To determine extent to which negligence of design influence construction project designs in Rivers State.

To achieve the stated objectives, the following hypotheses were formulated for testing;

H₀₁: Cost of design cannot significantly influence construction project designs.

H₀₂: Adherence to design codes cannot significantly influence construction project designs in Rivers State.

H₀₃: The level of influence that skilled designers have on construction project designs is not significant.

H₀₄: The regulatory agencies do not significantly influence construction project designs in Rivers State.

H₀₅: The negligence of design is not a significant influence on construction project designs in Rivers State.

Project design is the plan or process for creating the structures and functions of a project. According to Trenchless Construction (2023), a construction design specification is a detailed document providing the design requirements of a particular project; often prepared by client's representative after an exhaustive research. The design specification may include required dimensions, environmental factors, rework, design modification, project planning, maintenance that will be needed, etc. It may also give specific examples of how the design should be executed, helping others work properly (Trenchless Construction, 2023).

A typical project design specification includes the following, according Lucy (2021):

- a.) Introduction - description of project
- b.) Project Objectives
- c.) Site User Guide - what types of roles will site users have (supervisors, visitors, auditors, administration staff, etc.)

- d.) Functional Requirements for a site user
- e.) Design Specifications - how things should look and feel visually
- f.) Flow or Logic Diagrams
- g.) Success Criteria - how to know if the project will satisfy its purpose
- h.) Project Timeline - desired time for completion (may be in phases for large projects)
- i.) Budget - how much the organization has set aside for the project.

A lot of studies have been conducted in the past years on how projects and programs designs can contribute to the value creation process (Eskerod, 2019; Lechler & Cohen, 2019). However, not much has been conducted on the critical elements that influence construction design as a tool that deals with managing construction project execution.

Influential Barriers to Construction Project Standard Design Specification

The major influences of construction project designs include but not limited to;

a.) Lack of Skilled Personnel (Designers): Having skilled and productive labour has been pivotal to the construction industries' growth and performance (Chang-Richards *et al.*, 2021). In the construction industry, skilled designers comprise of architects, Civil Engineers, Project Managers, etc. where their services are most compulsory in designing and specifying construction projects (Alexey, 2022). The involvement of unskilled construction labour force cannot deliver an instant solution for the contemporary issues that may have occurred during design and execution or construction of the project, because they have lack of knowledge and expertise to solve such problems (Crowford *et al.*, 2023).

The effectiveness of staff training and re-training has a significant effect on higher project productivity (Wang *et al.*, 2018). Karimi *et al.* (2016) found that unavailability or lack of experienced skilled designers directly influence project designs and the performance of construction projects. There is a substantial relationship between the lack of recruiting skilled labor and the decrease in project delivery. Projects facing skilled labor scarcities usually suffer from poor designs, higher material and labor costs, project time overrun, scheduling, and lack of quality to meet the project timeline.

b.) Negligence of Design Codes and Standards: Codes and standards (both engineering and technical) are very important factors in construction project designs. These are legal requirements that are enforced by a governmental agency or regulatory bodies to ensure that construction designs follow and adopt the approved codes and standards stipulated by construction regulations and policies and other relevant values. According to Crawford *et al.* (2023), the typical examples are construction design codes, sanitary and health codes, fire codes, etc. These codes cannot be ignored when designing as well as during construction because it serves as mandatory requirements which are typically drafted or written by team of technical or engineering experts who sit on standardization committees. It is known that industry wide standards are usually formulated through national standard institutes, like the American National Standards Institute

(ANSI). Failure to adhere to these codes and standard during construction design and execution will pose as a great setback to project delivery (Ayodele & Alabi, (2021).

c.) Cost of Construction Design: Researchers like Crawford, et al, (2023); Kathryn and Harvey (2021) have pointed the high cost of developing a detailed construction designs and fear that soon, clients will be considering construction projects without proper designs specifications. However, the bad economic situations in Nigeria has forced clients and most contractors to opt for any quick design they can lay hands on to plan and implement construction projects. This is the practical situation in Rivers State at the moment. And if this is allowed to continue unabated, it will result to delay of the projects, increasing of cost of the projects, abandoning of the projects, wastage of materials and conflicts between the parties as warned by Iliyas *et al.* (2021).

d.) Lack of or Weak Regulatory Authority: Most major projects fall under the scrutiny of at least one form of professional, local, state and/or federal regulatory agency regulations. This is especially true for projects in which its design and implementation, end product or service involves the safety or security of its stakeholders. For such projects, failure to design, plan for or meet regulatory requirements can result in a failure to meet the core requirements of the project; even litigation by stakeholders and enforcement actions (Baddam, 2021).

e.) Ignorance or Negligence of Clients: The client has a great influence on construction designs and activities, which determine the success or failure of a particular project. Hence, the client's goal is to attain the desired outcome through good design, good planning, and good construction. It has been suggested that success in construction project design is attributed to the knowledge and skills of the client (Alexey, 2022; Crawford et al. 2023). The client's perception of their role affects their decisions making capabilities in the early project phases. Furthermore, clients needed to understand the entire desired quality requirements to ensure full satisfaction. Unfortunately, Elonen and Arto (2023), opined that most clients appear to ignore or neglect their crucial role of ensuring accurate designs are produced due to one influence or the other thereby exposing the project outcome to risks of varying degrees. However, the client, as project owner has to ensure that the project is undertaken in a manner such that all risks are minimized. When clients are close and frequently participating in designing and managing a project they are mostly pleased with the outcomes (Ayodele & Alabi, 2021). Therefore, clients are considered to be the energetic force in the construction sectors as well as a central to the construction projects.

Conceptual Framework

The conceptual framework for this study is the one that believes that the realization of quality project design through the conceptual project design process (as shown in Fig. 1) are being influenced by the variables the study refers to as independent variables (cost of design, unskilled designers, regulatory agencies, adherence to design codes, negligence of design) while the dependent variable is quality project design. However, Nwachukwu (2019) described the independent variables as one that have direct or indirect effect on the dependent variable (objective function). Nwachukwu (2019) also mentioned that two or more independent variables must be included in a predictive model to provide an adequate description of the model under study or to yield sufficient precise inferences. Hence, the study conceptual framework is shown in Figure 1.

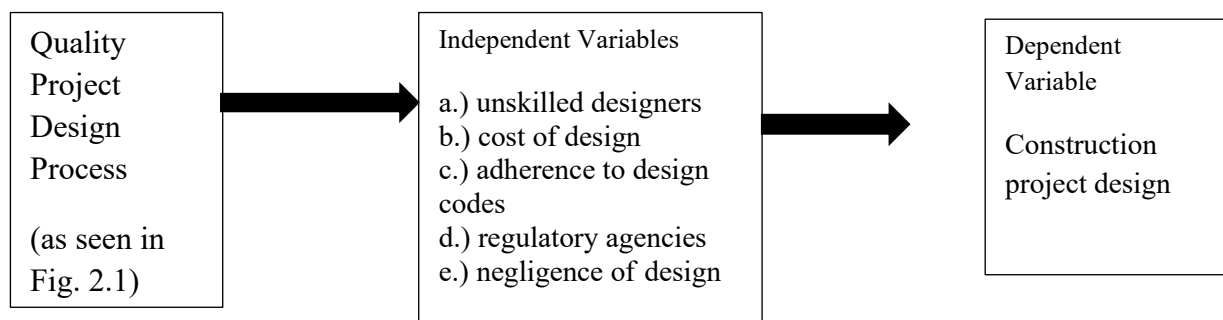


Fig 2: Conceptual Framework for the Study

Source: Research Content Analysis (2026)

Based on the conceptual framework, the development of quality project designs through the quality project design processes (Project Design Requirements; Project Design Concepts; Detailed Design Products, and Project Design Evaluation) as developed by Ulrich and Eppinger (2012) is being influenced by cost of design, unskilled designers, regulatory agencies, adherence to design codes, negligence of design.

Identified Challenges Influencing Construction Project Designs

It is important to analyze the content of the study to enable the proper identification of the major variables that influence construction project designs.

Table 1: Content Study

S/N	Identified Factors	Associated Authors
1	Cost of design	Rahman <i>et al.</i> , (2021); Crawford et al, (2023); Iliyas et al, (2021); McDonald & Smithers (2022)
2	Unskilled designers	McDonald & Smithers (2022); Lucy (2021); Alexey, (2022); Crawford et al, (2023); Iliyas et al, (2021); Karimi, et al, (2016); Kathryn & Harvey (2021)
3	Weak Regulatory agencies	Rahman <i>et al.</i> , (2021); Crawford et al, (2023); Kathryn & Harvey (2021); McDonald & Smithers (2022); Baddam, (2021)
4	Non-Adherence to design codes	Crawford et al, (2023); McDonald & Smithers (2022); Iliyas <i>et al.</i> (2021); Ayodele & Alabi, (2021)
5	Negligence of design	Alexey, (2022); Lucy (2021); McDonald & Smithers (2022); Ayodele & Alabi, (2021); Iliyas <i>et al.</i> (2021); Crawford et al, (2023); Elonon & Arto, (2023)

Although a large number of studies has been done regarding construction project designs and its effect on construction project delivery. None has been able to explore the influential factors that

constrain construction project designs and specifications. However, there is little or no effort to identify and estimate the key factors that influence the development construction project designs in Rivers State, Nigeria.

Hence, this research intends to fill these existing gaps in literature with a view to developing model for the prediction of behavior and nature of identified influences on construction project designs for effective delivery.

Methodology

The type of research design adopted in this study is a descriptive survey design. This is because it assisted the researcher to observe the problem situation and collect reliable data for the analysis. According to Kothari and Garg (2014), a research design is the organization of conditions for the collection and analysis of data in such a way that it targets to combine significance to the objectives of the research in a more proficient manner. This forms the foundation upon which this study was conducted, and it specifies the basis upon which the data used in this study were collected, measured and analyzed.

To this end, structured questionnaire was design to collect data from the target respondents in the area of construction design and implementation. The data collected were analyzed using a modern multivariate analytical technique in order to obtain accurate result that will assist conclusion and recommendations.

However, the population of this study is four hundred (400) professionals and practitioners in construction project design and execution purposefully selected from various public and private construction firms in Rivers State. They comprise of the Architects (80), Civil Engineers (80), Contractors (80), Subcontractors and Consultants (80) and Clients (80). This is exclusive as the respondents are expected to be knowledgeable and experienced in the area of construction project design, planning and implementation in Rivers State.

The minimum sample size for the target population desired for this study was calculated using this formula:

$$n = \frac{Z^2PQ}{D^2}$$

Where: Z = Standard deviation = 1.96 (at 95% confidence level), Q = 1 – P (proportion or the probability of opposition P), D = Degree of accuracy =0.02, P = Prevalence in target population for the purpose of this work using the prevalence of 96.2% which is equal to 0.962. Using $P = 0.962$,

$$Q = 1 - 0.962 = 0.038,$$

using the stated sample size (n) formula, n is estimated at 351. The study, therefore, sampled three hundred and fifty-one (351) respondents using judgmental sampling technique.

The data used in this study is the primary data as well as secondary data. The primary data were sourced through the use of structured questionnaire which was administered both online and offline to the target respondents in Rivers State. Also, personal discussions with some construction professionals and practitioners from the respondent group selected from public and private construction firms presently in Rivers State. The questionnaire comprised of statements and questions designed with the help of Likert’s 5-point scale. Nwachukwu (2016), claim that the Likert summated scale is a list of statements that relates to the nature of identified factors which the respondents are expected to indicate their degree of agreement or disagreement with each of the statements. Gujarati and Sangeetha (2007) posits that attitude is too complex and difficult to measure, and that individuals seem to make wrong judgment under difficult situations. Hence, a scale such as the Likert scale is ideal. This based on the fact that it has the capability of improving the measurement of attitude. Secondary data were sought through the review of some literatures related to the research topic. The reviewed materials include textbooks, magazines, workshops, conferences and seminar materials, as well as internet search.

The data collected in this study were analyzed and presented using descriptive techniques and statistical analysis. However, multiple regression analysis (MRA) model was used in analyzing and generating a predictive model of the highlighted construction design elements as they influence the quality of designs and specifications in construction project delivery in Rivers State. The t-test was applied in testing hypotheses 1 to 5 via the aid of SPSS Version 21 and Microsoft Excel.

As a decision rule, accept the null hypothesis (H_0) if the calculated values are more than the tabulated values. Otherwise, reject the null hypothesis (H_0).

Nevertheless, the following acronyms were adopted for the purpose of this study to represent the identified influential factors of construction project designs and specifications in Rivers State.

Table 2 Acronyms for Standard Design Specification

S/No.	Identified Influential Elements	Acronyms
A	Cost of construction design	E ₁
B	Adherence to design codes	E ₂
C	Skilled designers	E ₃
D	Regulatory agencies	E ₄
E	Negligence/ignorance	E ₅
F	Construction project designs	CPD

Result and Discussions

The researcher administered a total three hundred and fifty-one (351) questionnaire to the selected respondent group out of which 307 were returned and certified to be properly completed. Hence,

307 represents 87.5% of the total respondents, which implies high response rate and was used for all the analyses made in this study.

The multiple regression analysis was used to analyze the data collected on the elements that influence construction project designs in Rivers State.

Table 3 Multiple Regression Results for the Influence of Project Design

		Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
		B	Std. Error	Beta			
1	(Constant)	-.237	.304		-.778	.437	
	E1	.415	.011	.375	39.386	.000	
	E2	.398	.010	.326	37.704	.000	
	E3	.429	.008	.482	55.117	.000	
	E4	.393	.013	.318	31.098	.000	
	E5	.393	.009	.401	42.342	.000	

a. Dependent Variable: Y

The model generated was based on the unstandardized B coefficients because it shows the level of effect that each of the independent variables have on the dependent variable. The model is;
 $CPD = -0.237 + 0.415E_1 + 0.398E_2 + 0.429E_3 + 0.393E_4 + 0.393E_5 \dots\dots\dots$ Equation 1

The multiple regression model indicates that all the identified influential factors have positive influence on the level of construction project designs in Rivers State, Nigeria. This is seen in their positive coefficients in Table 3. Skilled designers ($E_3 = 0.429$) has the highest influence on construction project designs in Rivers State. This is followed by cost of construction design ($E_1 = 0.415$), adherence to design codes ($E_2 = 0.398$), while regulatory agencies ($E_4 = 0.393$) and negligence/ignorance ($E_5 = 0.393$) are the least influential constraints to construction project designs in Rivers State Nigeria. This finding implies that these construction project design challenges affect the output of construction designs in varying degrees and adequate attention should be given to these variables during the design phase to avert producing poor designs that will frustrate the delivery of construction projects in the area.

To test the significance or reliability of the generated model, the analysis of variance (ANOVA) was deployed.

Table 4 Analysis of Variance

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5217.658	5	1043.532	3219.591	.000 ^b
	Residual	97.560	301	.324		
	Total	5315.218	306			

a. Dependent Variable: Y

b. Predictors: (Constant), E5, E2, E1, E3, E4

The F-value in Table 4 is 3219.591 at 0.000 level of significance. The implication is that at 5% critical test level, the model is significant for predicting the quality of construction project designs in Rivers State. It also indicates that influential design factors can collectively influence the output of construction project designs. Hence, construction project operators in Rivers State should adopt the model generated to ensure the development of quality construction designs for enhanced success in project delivery.

To test the hypotheses, the t-values in column 5 of Table 3 were used.

H₀₁: Cost of design cannot significantly influence construction project designs.

From Table 3, the t-value of 39.386 implying that cost of designs is a significant variable to construction project designs in Rivers State. The study accepts the alternative hypothesis and conclude that cost of design can significantly influence construction project designs. This finding reflect the true situation in the study area. This is because the perilous economic condition of Nigeria has made the cost of goods and services to skyrocket and poverty level is high. Hence, it has become almost impossible to afford the high cost of quality designs for construction project planning and implementation. With this, the output of construction planning and implementation can only be imagined. Crawford et al (2023) complained that the inflation in Philippine has made the cost of project designs expensive to the extent that most clients, contractors and subcontractors appear to execute construction based on previous made designs. Rahman et al. (2021) and Iliyas et al (2021) also agree with this finding in Malaysia and India. The situation is not different in Nigeria and Rivers State in particular.

H₀₂: Adherence to design codes cannot significantly influence construction project designs in Rivers State.

The t-value of 37.704 implies that at 0.05 asymptotic level, adherence to design codes is critical to producing quality construction project designs in Rivers State. The study accepts the alternative hypothesis with a conclusion that adherence to design codes significantly influence construction project designs in Rivers State. This finding is in line with the studies conducted by Ayodele and Alabi (2021); Crawford et al (2023) and Iliyas et al (2021) in Nigeria, Philippine and India. Non-adherence to standard design codes has been pointed by numerous scholars in construction projects as critical factor that results to poor design output and construction project failure and abandonment in most developing countries (Alexey, 2022; Crawford et al 2023; Rahman et al 2021). Unfortunately, in Nigeria most clients and contractors are not even aware of these design codes. A situation that makes it difficult to adhere to unknown design codes. Effort must be made by various government agencies, professional bodies and other stakeholders in construction industry to create enough awareness on the need for strict adherence to approved and regulated design codes for various construction projects.

H₀₃: The level of influence that skilled designers have on construction project designs is not significant.

Table 3 show a t-value of 55.117 which indicates that skilled designers are critical in an effort to develop a quality construction project designs in Rivers State. The study accepts the alternative hypothesis with a conclusion that the level of influence that skilled designers have on construction project designs is significant. So, design experts are critical to achieve standard construction project designs for effective delivery of construction projects. This depicts reality because lack of skilled designers in the construction sector is hampering the effort to develop standard construction designs that will assist smooth planning and implementation construction projects in Rivers State. Lucy (2021); Alexey (2022); Kathryn and Harvey (2021) and; Iliyas et al (2021) corroborate with this finding that lack of skilled designers is a key challenge to producing standard project design for construction works. In Rivers State, every craftsman and technician is “a designer”. Project designs are even produced and displayed for sale in various market at cheaper price tempting clients to purchase and use for construction. This ugly situation has been worrisome as most construction works are repeated severally due incoherencies and inconsistencies witnessed during construction phase. As a result, resources are wasted which may lead to abandonment. Nevertheless, Akpan and Chizea (2007) posits that projects are unique with unique challenges. In this regard, Crawford et al (2023) has advocated for training and retraining of project designers to keep them abreast of modern techniques and codes for standard design production and successful construction project delivery.

Ho4: The regulatory agencies do not significantly influence construction project designs in Rivers State.

The t-test result in Table 3 shows that the calculated t-score is 31.098. The implication is that regulatory agencies and their level enforcement activities is critical at 0.05 asymptotic level. It therefore, indicates that regulatory agencies are significant in the realization of standard construction project designs. The study conclude that regulatory agencies significantly influence construction project designs in Rivers State.

So poor enforcement of standard design specifications by the necessary regulatory (government and professional) agencies inhibits the achievement of quality and standard construction project designs for effective implementation of construction projects. In line with this finding, Rahman et al (2021) have lamented in the weak regulatory framework operated by weak regulatory agencies both in the public and private construction sectors. Crawford et al (2023) and Kathryn and Harvey (2021) mentioned that corruption and insincerity has engulfed most regulatory officers to the extent that they recklessly approve construction designs based on the amount paid rather than the standard criteria set for design approvals. However, Baddam (2021) complain that poor enforcement of standard design specifications by the necessary regulatory (government and professional) agencies negatively affect the realization of quality and standard construction project designs for successful implementation of construction projects. Regulatory agencies in the construction sector should step up to their statutory responsibilities by ensuring that quality and standard construction designs are enforced and sanctions meted to erring practitioners and professionals. This will enhance the realization of construction project objectives and national development.

Hos: The negligence of design is not a significant influence on construction project designs in Rivers State.

The t-value of 42.342 is significant at 0.05 asymptotic level, indicating that negligence or ignorance is significant to producing quality construction project designs. Hence, the study accepts the alternative hypothesis and conclude that the negligence of design is a significant influence on construction project designs in Rivers State. Elonen and Artto (2023); Ayodele and Alabi (2021) and; Lucy (2021) agree that ignorance and negligence of standard design is one of the reasons for poor delivery of construction projects. Alexey (2022) warn that ignorance should not be an acceptable excuse for poor or lack of standard construction designs. Lucy (2021) blamed clients and unqualified contractors for the negligence and ignorance of standard designs for construction projects. However, Ayodele and Alabi (2021) described this negligence and ignorance as deliberate as a means of saving cost or making profits.

Based on the above findings and discussion, this study has empirically justified the lingering concern and the need for accurate and standard construction project designs and specification for enhanced delivery of construction projects. The study has also awakened the call for adequate training of project designers, proper monitoring and approval of project design before implementation to avoid the incidence of failed or abandonment of projects due to low quality or inaccurate construction designs and specifications. Conclusion and recommendations are made based on the findings and discussions made in this study.

2.0 Conclusion

This study is based on the challenges that influence design of construction projects in Rivers State. Five major influential challenges were identified that influence standard and quality construction project designs in the State. From the findings and discussions, the following conclusions can be drawn;

The highlighted five factors have significant influence on construction project design specifications and successful implementation of construction projects in Rivers State Nigeria.

However, the cost of designs is a critical variable to construction project designs in Rivers State. This is because the harsh economic situation in Nigeria has made the cost of goods and services to go up astronomically and poverty level is high. So, developing quality designs for construction project planning and implementation is extremely expensive and unaffordable by many construction project owners and operatives. Government should make policies that will improve the poor economic condition and inflation that is ravaging the nation. This is because, conducive economic environment and reduced inflation will empower the clients and contractors to engage expert designers and afford the cost of construction designs.

Construction designs with uniform codes allow easy understanding and implementation. Unfortunately, most project designers produce designs with different design codes, hence making it difficult to properly understand and implement them. Appropriate design codes as approved by the necessary authorities must be adhered to by any project designer. Project designs without

proper or standard design codes must be cancelled and the designer sanctioned. This will curtail the menace associated with poor designs in the implementation of construction projects. Effort must be made by various government agencies, professional bodies and other stakeholders in construction industry to create enough awareness on the need for strict adherence to approved and regulated design codes for various construction projects and defaulters must be penalized.

Project designers has should able to develop quality project designs that will aid proper planning and implementation of projects, but this is not the case with most project designers in Rivers State. However, unskilled designers have the tendency to create designs carelessly without proper codes and specification, thereby endangering the success of the project delivery. Engagement of design experts to oversee the process of designing any project before implementation. Strict policies and laws must be made and monitored by the Government and relevant professional bodies to ensure that all project designs must meet a certain standard and must be produced by a registered and qualified design personnel. Also, regular training and retraining of project designers has been advocated to keep them abreast of modern techniques and codes for standard design development.

Proper regulation of construction project designs is necessary for successful project delivery. However, it has been observed and highlighted that the regulatory bodies and agencies are weak and are not living up to expectation in delivering their duties. Efforts are needed to upscale their activities to ensure creation of quality and standard construction project designs. Judicious monitoring and enforcement of the necessary policies and laws that guide construction project designs by the relevant authorities have become critical to improve the rate project success and minimize project failure and abandonment. Necessary punitive measures must be evoked and enforced on any erring designer, contractor, consultant or client.

Negligence/ignorance of designs in construction project delivery has been a critical factor that influence success. High cost and unskilled designers have been blamed for this ugly situation. Rule of thumb and old similar designs are mostly used for planning and execution of construction projects in Rivers State. Awareness on the need for standard construction project design specification must be created using any medium available by the relevant authorities. Clients, contractors, consultant and construction experts must be given adequate orientation regarding the importance of standard designs for improved implementation of construction projects so as to guide them against project failure and abandonment.

Finally, unskilled designers have the tendency to ignore the approved design codes while developing designs for construction projects. This ugly act may not be discovered since there is no monitoring and approval of designs by the necessary regulatory authorities in charge of certifying project designs before implementation. The resultant effect can be seen in numerous failed and abandoned construction projects littered all over Rivers State.

Therefore, to be able to realize successful implementation of construction projects, standard design specification is very important to avoid scope creep and other negative tendencies that may frustrate its successful achievement. However, failure to implement these recommendations may mean failure to achieve quality construction designs and success in construction project planning and implementation.

However, the study has made the following contributions to the body of existing knowledge on construction project designs and delivery;

- a.) The predictive model for predicting the realization of quality and standard construction designs which will aid successful delivery of construction projects given the highlighted influential elements of design.
- b.) Contrary to the findings of past related studies, this study was able to establish that unskilled designers of construction project design are the most influential factor that constrain the creation of standard designs in Rivers State Nigeria.

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About the Authors



Godknows Chima Uchendu

Rivers State, Nigeria



Engr. Godknows Chima Uchendu is a staff of Niger Delta Development Commission (NDDC), Port Harcourt Rivers State in the Department of Project Monitoring and Supervision. He is an indigene of Rumuakunde Emohua, in Emohua Local Government area of Rivers State, Nigeria. He was born in late 70s and had his primary and secondary school in Emohua. Uchendu studied Civil Engineering at the University of Nigeria, Nsukka. An MSc. candidate in the Department of Project Management Technology, Owerri. He is happily married with children.



Ibeawuchi Ifeanyi Echeme

Imo State, Nigeria



Ibeawuchi Ifeanyi Echeme is a lecturer in the department of Project Management Technology, Federal University of Technology, Owerri. Echeme has a B.Tech, MSc, and PhD in Project Management Technology and has published more than fifty (50) articles in both international and national reputable journals. Dr. Echeme has published a textbook on Project Time, Cost and Quality Management. He is a Chartered member of Chartered Institute of Project Managers Nigeria (CIPMN), Chartered member, Association of Practicing Project Managers of Nigeria (APPMON), Certified Project Director (CPD) and a member of International Project Management Professionals (IPMP). Dr. Echeme has presented papers in conferences and workshops within and outside Nigeria. He can be contacted through; ibeecheme@yahoo.com