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Appraisal of Fixed-Sum Contracts on the Time Preference of Tetfund Sponsored Building Projects in Public Universities in South East Nigeria

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ABSTRACT

The construction industry faces significant delays, particularly in developing countries like Nigeria. Tertiary institutions, including universities and polytechnics, are often funded by various entities. A study evaluating the impact of fixed-sum building contracts on the time performance of TETFund-sponsored projects in Enugu State found that none of the specified project durations were completed within the stipulated time. This violation of TETFund guidelines allowed for nonchalance by all stakeholders involved in the projects. The study recommends that stakeholders in the building team take responsibility for ensuring projects are delivered within the specified duration, as previous intervention projects were not completed.

Keywords: Appraisal, Fixed-Sum, Contracts, Building Projects and Public Universities

INTRODUCTION

The issue of delay in the completion of projects in the construction industry is of global and common concern. Most projects are delivered behind schedule and the situation is even alarming in developing countries, of which Nigeria is not an exception. The building construction industry around the world as observed by [1] is witnessing continuous modification of building process, speed and complexity of work which has placed a greater demand on construction managers to deliver projects on time and within planned budget. Tertiary institutions comprise universities, polytechnics, colleges of education and monotechnics that are owned by either the Federal Government, State Governments, private organizations or individuals. Thus, in Nigeria, there are tertiary institutions which are publicly or privately funded. The Government is the major funder of public/government established tertiary institutions in the country and a characteristic of tertiary institutions funding in Nigeria is that both tiers of government (Federal and State) manage and fund their own institutions. On the whole, however, the Federal Government's shares in tertiary institution financing are greater than that of the State Governments [2].

A fixed-sum building contract is a contractual agreement with a predetermined value for the goods or services provided. Construction contracts usually take the form of an agreement that the works will be constructed for a certain sum of

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money, or at least specify the way in which that sum will be computed. In addition, all contracts include an agreement as to the length of time that the works will take to complete. Accordingly, either start and completion dates are stated or a set period is given. In either case, an end or contract completion date is established. In many cases, for various reasons, a job over-runs and finishes on a date later than that originally set. This later date is the actual contract completion date. The fact that the contractor has to spend longer on site than they contracted does not necessarily mean that the original contract completion date will be extended nor that they will be entitled to reimbursement in respect of direct loss and/or expense [3].

The establishment of the Tertiary Education Trust Fund (TETfund) remains one of the best things that has happened to the teaching and learning process being enjoyed by most public tertiary institutions in Nigeria. However, issues have never seized to evolved as beneficiary institutions still find it difficult to access allocated intervention funds and when they eventually access these funds delivering projects within the stipulated duration remains a major issue yet to be attended to. This study seeks to evaluate the impacts of fixed-sum building contracts on the time performance of TETFund-sponsored building projects in Enugu State.

This study therefore, seeks to evaluate the impacts of fixed-sum (TETFund-Sponsored projects contract type) building contracts on the time performance of TETFund-sponsored projects in Enugu State. The work thus aims to study the impacts fixed-sum building contractual arrangement has on the time performance of TETFund-Sponsored building projects in public institution in Enugu State.

The objectives include identifying fixed-sum contracts in the institutions; ascertaining reasons for delayed completion period and **the relationship between the adopted method and the scheduled period**.

LITERATURE REVIEW

CONCEPTUAL REVIEWS

Concept of Project Management

Projects are conceived, created, and managed because an individual or organization other than the project manager or project team identifies a need. As stated earlier, projects are always aimed at fulfilling organizational objectives and/or strategic needs such as market demand, customer request, technological advance, legal requirements, a social need (for non-profit organizations), crisis situation, and obsolete technology or equipment. The ultimate purpose of implementing project management practices is to achieve consistency in project success within time [4]. Yet, there is no agreed definition of project success, which only further complicates the achievement of such. Management has a huge role in success of projects in terms of time and cost performance. [5], highlight that project management has its role in achieving project success, but several other factors beyond the control of project management, also affect project success. [6], argue that project management does not possess the power to control time, cost or quality. These measures are traps, purely to be seen as either self-created or imposed, but rarely objective yardsticks. Some projects miss all three parameters and are still hugely successful. [7], highlight that traditional project success measures are incomplete and may be misleading. Although all three constraints are met as planned, a project may not meet the sponsor requirements.

Project and Time management

A project is time-bound, i.e., it has definite beginning and definite ending; it is not an open-ended event. Every project is unique and has different characteristics from the other. However, it does not mean that project is of a short duration, project cost, time and quality vary from one project, site to the other. [8], opines that project team is certainly temporary and thus require to accomplish timely completion of the project and organizes it into six components, five of which occur during the planning phase of project lifecycles; such as definition; sequencing; resource estimating, activity duration and schedule development and control.

Identified scheduling tools include: Milestone charts and Flowcharts, Bar (Gantt) Charts and Network Diagrams. In this approach, uncertainties and unknowns may still exist but they may not be challenging or disruptive to the project deliverable [9]. However, the traditional or plan driven project management approach may be challenged if a project is complex and changes are major. Projects are associated with uncertainties and change. The client may reveal functional outcomes incrementally as the project makes progress and results are assessed. The project adapts change-driven approach and project team's immediate focus is on generating value to the client. The main difference between the plan-driven and change-driven approaches is that instead of freezing specifications early and developing a fixed plan, the Agile approach adapts flexibility to modify and alter project plans to address critical and changing business needs.

THEORETICAL FRAMEWORK

[10-11], came up with theoretical framework on the context of necessity of change and change logic in social, economic and construction. A logic model (results framework) is a tactical description of the process of delivering an outcome: it insists on, somewhat mechanistically, inputs and activities, the outputs they generate, and the connections between the outputs and the desired outcome. A theory of change on the other hand is a strategic picture of multiple interventions required to produce early and intermediate outcomes that are preconditions to a long-term change. The implications of these theories are that it enables organizations to think about their work more deeply. Once an outcome has been identified, a result framework can be drawn to explain how it will be achieved.

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Empirical review

Forms of contractual agreement

A contract is a legally binding agreement between two or more parties who agree to buy or sell goods and services from one another. [11], emphasized on different types of contracts. The three most common contract types are i. Fixed-price contracts ii Cost-plus contracts and iii Time and materials contracts. A contract provides legal protection for all parties involved in the transaction. It outlines the rights and responsibilities of all parties and helps reduce the risk of any party forfeiting their duties per the agreement. Contracts typically include details related to the scope of work of the project, quality control, legal jurisdiction, project schedules, and payment terms.

Factors in selecting contract types.

There are many factors that the contracting officer should consider in selecting and negotiating the contract type. They include the following:

(a) Price competition. Normally, effective price competition results in realistic pricing, and a fixed-price contract is ordinarily in the Government's interest. (b) Price analysis. Price analysis with or without competition, may provide a basis for selecting the contract type. The degree to which price analysis can provide a realistic pricing standard should be carefully considered (c) Cost analysis. In the absence of effective price competition and if price analysis is not sufficient, the cost estimates of the offeror and the Government provide the bases for negotiating contract pricing arrangements

(d) Type and complexity of the requirement. Complex requirements, particularly those unique to the Government, usually result in greater risk assumption by the Government (e) Urgency of the requirement. If urgency is a primary factor, the Government may choose to assume a greater proportion of risk or it may offer incentives to ensure timely contract performance. (f) Period of performance or length of production run. In times of economic uncertainty, contracts extending over a relatively long period may require economic price adjustment terms (g) Contractor's technical capability and financial responsibility (h) Adequacy of the contractor's accounting system. Before agreeing on a contract type other than firm-fixed- price, the contracting officer shall ensure that the contractor's accounting system will permit timely development of all necessary cost data in the form required by the proposed contract type (i) Concurrent contracts. If performance under the proposed contract involves concurrent operations under other contracts, the impact of those contracts, including their pricing arrangements, should be considered (j) Extent and nature of proposed subcontracting. If the contractor proposes extensive subcontracting, a contract type reflecting the actual risks to the prime contractor should be selected (k) Acquisition history. Contractor risk usually decreases as the requirement is repetitively acquired. Also, product descriptions or descriptions of services to be performed can be defined more clearly.

Managing contractual agreements

Managing contracts is a multi-faceted process. It involves various stakeholders, which are generally the vendors, clients, partners, and employees. Many organizations experience business losses caused by inefficiently managed contracts. Automation can solve the various issues arising from poorly managed contractual agreements, specifically by software such as Ironclad's Contract Lifecycle Management (CLM). This software streamlines the eight characteristic steps involved in the contract lifecycle management process. The contract management process can be complicated, disjointed, and messy. Not only do contracts rack up overhead legal costs, but they're also time-consuming and painstakingly disordered. Each step of a contract's lifecycle is important, with intricacies that can be tedious yet significant to your organization. Many businesses regularly lose thousands of dollars due to misinterpreted technicalities and vague legal jargon. Digitizing contracts can help you and your business model remain up to date with the latest technology. It also makes your contracts adaptable to new tides in the business and legal world. Optimizing collaboration keeps all parties involved "in the know." It makes retrieving relevant information undeniably smooth, all the while minimizing costs and risks as you are handed more control over risk-related issues.

Time Performance of Construction Project

[10] classified the following as factors responsible for project delay, namely, poor contract management, financing and payment of completed work, changes in site conditions, weather, shortages of materials, mistakes and discrepancies in contract document, subcontractors and nominated suppliers, non-adherence to contract conditions, mistakes during construction, inaccurate estimates, delays, shortening of contract periods and design changes. [4] reported the following factors as causes of time overrun in construction projects in Nigeria. These are: non-compliance with conditions of contract, mode of financing and payment for completed work, improper planning, frequent changes in design and materials (variation), underestimation of time for projects, lack of coordination between contractor and design team, preparation and approval of variation orders, poor site management, relationship between management and labor, choice of materials not readily available, mistakes during construction, delays caused by subcontractors and suppliers, inadequate supply of labor, government policy, disputes on site, maintenance work on machinery/plant, inclement (severe) weather conditions, contractor handling work on more than one site, transportation of materials and plant to site, changing construction techniques to unfamiliar ones, lack of proper incentives to operatives, litigation, off-site manufacture of items/building components/ items. [5] presented the following factors as responsible for time overrun in public sector construction projects in Nigeria. These are contractors' difficulties in receiving interim payments from public agencies, contractors' financial difficulties, inadequate public agencies' budgets, deficiencies in contractors'

organizations, deficiencies in planning and scheduling, frequent variation/change orders, difficulties in obtaining construction materials, deficiencies in public agencies' organizations, contractors' unrealistic tenders, design-related, unrealistic, contract durations imposed by public agencies, large quantities of extra work, unexpected natural and social events, deficiencies attributed to construction plant and equipment, inadequacy of site inspection, shortage of qualified workers, disagreement related to interpretation of contract specification and clauses. [6] presented the following as major factors causing delays in construction projects. These are: inclement weather, labour shortage/ labour low productivity, poor subcontractors' performance, variation, unforeseen ground condition, materials shortage/ late materials delivery, inadequate construction planning, financial difficulties of contractor, delays in design work, poor site management, impractical design, poor communication, inappropriate type of contract used, lack of designer's experience, and inaccurate estimating. [7], identified the following as factors affecting the successful completion of some selected TETFund projects. These are increase in materials price, inadequate supply of materials, lack of quality control of material, difficulties in receiving progress payment from client, lack of technical skill of the project manager, lack of experience of the project manager, lack of managerial skills of the project manager, lack of motivating skills of the project manager, lack of commitment of project team members, and economic environment. Based on the previous works presented above, various factors affect time performance of construction projects, inclusive of TETFund sponsored projects. Although these factors are not exhaustive, they are the most common factors affecting project time performance cited in the literature. However, there is a missing link as none of the above stated literature addressed the issue of non-compliance with the TETFund guidelines and requirements on completion of previous intervention projects prior to accessing new intervention projects and the impacts this has on the time performance of the projects; hence this study.

METHODOLOGY

The research design employed in this research was a historical research design. Historic research design involves examining past events to draw conclusion and make predictions about the future. In this study, the population has been drawn from projects executed by TETFUND in South East Universities, from 2010-2020. A total number of ten (10) selected completed projects executed within the stated period, funded from TETFUND. The Purpose Random Sampling (PRS) was adopted for this research where each element of the frame has an equal probability of selection. This minimizes bias and simplifies of results particularly the variance between individual results which is a good indicator of variable in the overall population; this makes it relatively easy to estimate accuracy of results. In view of this the purpose random sampling was adopted. Data generated was subjected to descriptive statistical analysis and inferential analysis. It was analyzed using simple percentage, mean, E. views10 software was used for the regression analysis and SPSS version 20 tool was used for correlation coefficient analysis, also known as Pearson correlation. One-sample test was used to analyze the hypothesis. Micro soft excels 2013 was used for plotting of graph. The presentation of data was done using tables, graphs and charts.

Regression is used to determine the relationship between two or more variables and then it will be used for modeling the relationship between those variables in the future.

$Y = a + bX$

Where Y = dependent variable
X = Independent variable
a = Intercept
b = Slope

$$a = \frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{n(\sum x^2)-(\sum x)^2}$$

$$b = \frac{n(\sum xy)-(\sum x)(\sum y)}{n(\sum x^2)-(\sum x)^2}$$

The value of the coefficient ranges from 0 to 1.

0 = indicates that the independent variable does not explain the variation of the dependent variable, (no impact) and 1 = indicates that the independent variable perfectly explains the variation in the dependent variable, (great impact)

Correlation coefficient

The correlation coefficient also commonly known as Pearson correlation is a statistical measure of the dependence or association of two numbers. When two sets of members move in the same direction at the same time, they are said to be positive correlation. When one series of number moves up as the other move down, they are said to have a negative correlation. This will result in a negative correlation coefficient. Since the data collected were historical data, correlation coefficient is a good statistical tool that will help analyze the data. The formula for Pearson correlation coefficient is given as;

$$r = \frac{n\sum xy-(\sum x)(\sum y)}{\sqrt{(n\sum x^2-(\sum x)^2)(n\sum y^2-(\sum y)^2)}}$$

When $r < +0.5$, a weak positive relationship exist.
When $r \geq +0.5$, a strong positive relationship exist
When $r \leq -0.5$, a strong negative relationship exist.
When $r < -0.5$, a weak negative relationship exist.

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When r = + 1, a perfect positive relationship exist.
When r = -1, a perfect negative relationship exist.
When r = 0, no relationship exist.

DATA ANALYSIS AND PRESENTATION

The impact of the variation in the fixed sum contract on the time preference of TETFUND sponsored building project in public Universities in South East Nigeria were examined as detailed in table 2.

Table 1: Cost Data of Selected Projects in the Study Area

S/N	Name of project	Commencement period	Completion Period	Initial contract sum (₦)	Variation (₦)	Final contract sum (₦)
Project 1	Classroom building A	November 2010	December 2011	107,643,010.15	2,905,358.34	110,548,368.49
Project 2	School of business	December 2010	January 2012	117,126,294.85	3,015,670.10	120,141964.95
Project 3	Lecture theatre	June 2011	January 2014	54,367,451.82	3,098,700.19	574,661,52.01
Project 4	Classroom building B	January 2011	February 2012	103,347,433.80	5,110,210.33	108,457,644.13
Project 5	Classroom building C.	September 2012	September 2013	17,181,667.65	3,432,339.05	20,614,006.70
Project 6	Environmental design building	November 2012	October 2013	270,486,174.00	5,097,899.75	275,584,073.75
Project 7	Ict complex	January 2012	July 2013	163,086,935.80	7,548,395,90	170,635,331.70
Project 8	New lecture theatre	April 2014	January 2015	248,903,625.60	9,309,795.55	258,213,421.15
Project 9	School of science phase A	March 2016	May 2019	235,826,209.50	8,764,100.07	240,044,310.50
Project 10	School of science phase B	November 2017	August 2018	220,008,896.90	4,218,101.00	224,226,997.90

Source: Researchers field survey, 2023

Table 2: Variation Increment Over the Initial Contract Sum in Tetfund (2010-2020)

S/N	Initial contract sum (₦)	Variation (₦)	Final contract sum (₦)
Project 1	117,126,294.85	3,015,670.10	120,141964.95
Project 2	235,826,209.50	8,764,100.07	240,044,310.50
Project 3	220,008,896.90	4,218,101.00	224,226,997.90
Project 4	54,367,451.82	3,098,700.19	574,661,52.01
Project 5	248,903,625.60	9,309,795.55	258,213,421.15
Project 6	270,486,174.00	5,097,899.75	275,584,073.75
Project 7	163,086,935.80	7,548,395.90	170,635,331.70
Project 8	107,643,010.15	2,905,358.34	110,548,368.49
Project 9	103,347,433.80	5,110,210.33	108,457,644.13
Project 10	17,181,667.65	3,432,339.05	20,614,006.70
Total	**1,537,977,700.07**	**52,500,570.28**	**1,827,819,297.53**

From table 2, the final cost was higher than the initial or contract sum. This is due to the variation arising at the course of construction over time.

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Table 3: Regression analyses aimed at estimating the impact of variation on TETFUND final cost of selected building projects in South East Universities

Dependent Variable: FCSBP
Method: Least Squares
Date: 07/19/23 Time: 14:27
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	56717944	1.70E+08	0.333723	0.7472
VAR	0.146672	0.947445	0.154808	0.8808

R-squared	0.602987	Mean dependent var	79979176
Adjusted R-squared	0.591640	S.D. dependent var	2.37E+08
S.E. of regression	2.51E+08	Akaike info criterion	41.69779
Sum squared reside	5.05E+17	Schwarz criterion	41.75831
Log likelihood	-206.4889	Hannan-Quinn criter.	41.63140
F-statistic	0.023966	Durbin-Watson stat	2.303105
Prob(F-statistic)	0.880807		

Source: EViews Computation

Where, VAR = Variation and FCSBP = Final cost of selected building project

Evaluation of Regression Results

The variables employed for the regression analysis are final cost of selected building project as the dependent variable, whereas variation as the independent variables. The estimated coefficient value for the parameters; β_o and β_1, from the result are 56717944, 0.146672 respectively. The constant term (b_0) is estimated at 56717944 which imply that the model passes through the point 56717944 mechanically, if the independent variables (Variations)is equal to zero, Final cost of selected building project would be equal to 56717944. The estimated coefficient for variation (b_1) is 0.146672 and this implies that if other variables affecting the final cost of selected building project are held constant, a unit increase in variation will bring about a 0.146672increase in the final cost of building project on the average. The result of coefficient of determination (R^2) is given as 0.602987. This implies that 60.2987% of the increase in the final cost of building project is as a result of variation in the cost of project.

Table 4 the relationship between the cost of variation and final contract sums on selected completed building project in South East Universities

	Mean	Std. Deviation	N
initial contract sum	153797770.0070	87197615.39475	10
Variation	79979176.4380	237132971.42053	10
Final contract sum	158593227.1280	88357518.48791	10

The result of the descriptive statistics in Table 4 shows that the mean value of the initial contract sum is 153797770.0070 whereas the standard deviation is 87197615.39475. More so, the result indicates that the mean value of variation is 79979176.4380 whereas the standard deviation 237132971.42053. Finally, the result further reveals that the mean value of final contract sum is 158593227.1280 whereas the standard deviation is 88357518.48791.

Table 5 Correlation Analyses

		initial contract sum	**Variation**	**Final contract sum**
initial contract sum	Pearson Correlation	1	.044	1.000**
	Sig. (2-tailed)		.904	.000
	N	10	10	10
Variation	Pearson Correlation	.044	1	.055
	Sig. (2-tailed)	.904		.881
	N	10	10	10
Final contract sum	Pearson Correlation	1.000**	.055	1
	Sig. (2-tailed)	.000	.881	
	N	10	10	10

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

The result of the correlation analysis shown in Table 5, indicates that cost of variation has positive relationship on final contract sum in the selected building project such that an increase in the cost of variation will lead to 0.881 increase in final contract sum in the selected building project on the average. More so, the result further reveals that initial contract sum equally has positive relationship on the final contract sum.

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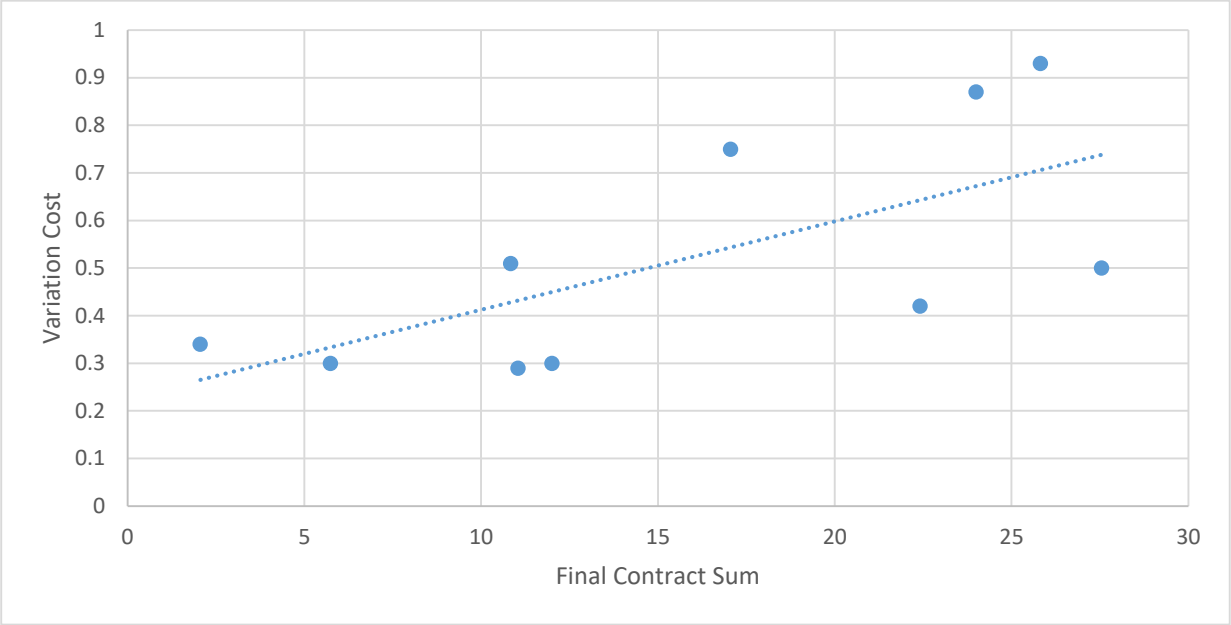

Fig 1: Scatter graph showing the relationship between the cost of variations and final contract sum.
A scatter plot in Figure 1 shown approximate idea of relationship between the two variables of variation on the initial sums resulting into the final values gotten. Scatter plot was obtained by plotting the pairs of observations i.e of variations on y-axis and the other on y-axis.

TEST OF HYPOTHESES

Table 6: One-sample test of the first hypotheses;

H_0: Variation does not have any impact on the final cost of building project.

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Variation does not have any impact on the final cost of building project.	0.049	9	.014	17373.02000	16007.8096	18738.2304

From the test of hypothesis above using one sample test t-statistics, based on the decision rule, accept null hypothesis if the value of the t-statistics is greater than 0.05, from the result; the value of the t-statistics (0.049) is below 0.05 hence we reject the null hypothesis and conclude that variation have impact on the final cost of building project.

CONCLUSION

Variations account largely for wide disparity between the original/initial contract sum and the final construction cost. This is often a source of frustration of panning by investment managers. As variations are changes from a known data base which escalate cost of building project due to just a normal increase in price of material, labour, wages and plant. The effect of variation has already been established in earlier chapters and there is specific need for all concerned to channel attention towards reducing or where possible eliminating the variation in building projects. Projected. It was revealed that variation has an effect on cost of building projects.

RECOMMENDATIONS

Based on this study, some recommendations are given as follows in order to reduce variations in building contract.

1. It is essential that detailed and continuous planning including costing of a project should be carried out right from the inception of the project to the demise or practical completion of the project.
2. Involvement of contractor at planning and scheduling process helps in developing better plans and schedules, major variations which would otherwise be severe will be ultimately prevented in the later stages of the project.
3. Involvement of professional at initial stage of projects will help to develop better designs by accommodating practical and creative ideas hence by reducing the design discrepancies and changes in design.

REFERENCES

1. Akabuike A. (2008). Advancing and Integrating Construction Education, Research & Practice. International Conference on Construction in Developing Countries.

Open Access
ISSN: 2992-5487

2. Chan, D.W.M., & Kumaraswamy, M. M. (2002). Compressing Construction Durations: Lessons Learned from Hong Kong Building Projects. International Journal of Project Management, 20: 23-35.
3. David, C., & Andrew, W. (2010). *The Architect in Practice* (10th Edition). Wiley-Blackwell.
4. Dlakwa, MM. & Culpin, M. F. (1990). Reasons for Overruns in Public Sector Construction Projects in Nigeria. Project Management, 8(4): 237-241.
5. Elinwa, A. U., & Joshua, M. (2001). Time Overrun Factors in Nigerian Construction Industry. Journal of Construction Engineering and Management, 127(5): 419-425.
6. Gambo, S., Ibrahim, K., Iliyasu, M.A., Winston, M.W., & Ibrahim, M.L. (2017). Stakeholders' Perception of the Success of Tertiary Education Trust Fund Construction Projects. ATBU Journal of Environmental Technology, 10(2): 117-128.
7. Nnadi, E (2017). Cost Implication of Time Overrun on construction projects in Nigeria. Proceedings of The Fourth Research Conference held in Federal University of Technology, Akure.
8. Omoregie, A. and Radford, D. (2006). Infrastructure delays and cost escalation: Causes and effects in Nigeria. Proceedings of The Sixth International Postgraduate Research Conference held in Delft University of Technology, Netherlands.
9. Onuoha, L. N. (2013). Financing Higher Education in Nigeria: The Role of Internally Generated Revenues and How University Managements Can Maximize the Sources. Canadian Social Science, 9 (1), 9-14.
10. Tertiary Education Trust Fund Guidelines for Accessing TETFund Intervention Funds (2015).
11. Wong, J., Toe, M. & Cheng, Y. K. (2010). Cultural determinants of stress in the construction industry. Proceedings of 2010 International Conference on Construction and Real Estate Management, 1–3 December, 2010, Brisbane, Queensland.

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