Examining Project Execution on Time, Quality, and Budget within the Ghanaian Construction Industry

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ABSTRACT

In many developing countries, it is estimated that 60% of project management professionals appear to pay less attention to the project success factors of timely completion, budget fidelity, and high quality, considered the critical success factors for successful completion of construction initiatives and projects. The purpose of this correlational study was to examine the relationship between project budget and the independent variables of time and quality in the Greater Accra Region of Ghana, in Africa. The theories of iron triangle, scientific management, and strategic management represented the theoretical underpinning and constituted the theoretical framework for this study. In this study, one hundred and sixteen project managers were randomly selected from the population of construction professionals in the Greater Accra Region of Ghana. The project managers recruited for this study, completed the survey entitled the Six Key Performance Indicators developed by Ngacho and Das (2014). The results of this study involving multiple linear regression analysis, indicated that a weak positive correlation exists between the independent variables (time and quality) and project budget, \( F (1,114) = 37.08, p<0.001 \). Time recorded the highest beta (\( \beta = 0.50 \)) and quality (\( \beta = 0.06 \)). Attention to key the project management performance indicator of time could improve project outcomes in the Ghanaian construction sector. From a social welfare and positive change standpoint, this study findings could be useful to improve the quality of projects and the knowledge from it in some way could contribute to ameliorating the lives of project management professionals and community members in the area.

Introduction and Background

The Ghanaian construction industry is experiencing growth, as are many parts of Africa. Mir and Pinnington (2014) observed, that researchers have conducted studies to conceptualize and determine what constitutes project success. Project managers and leaders in construction companies often lack the knowledge in understanding successful project outcomes. This apparent knowledge deficit may affect the ability of construction companies to improve business performance and increase revenues with successful contract bids (Lu & Hao, 2013). The findings of the current study could serve to gain a better understanding of the implications of project success in the building construction companies of Greater Accra, Ghana. We used the research instrument known as the Six Key Performance Indicators developed by Ngacho and Das (2014) for this study and examined project success in the construction sector of Greater Accra Region, Ghana.

The Problem Studied

Undertaking successful projects require management skills and awareness of other factors which may influence project success. The application of project management strategies and principles may differ by geography. In developing countries, arguably 60% of project management professionals display, inadequate knowledge (Mousa, 2015) on the imperatives of completion of projects within scheduled timelines, allocated budgets, and per quality specifications represent the criteria for designating a project of having achieved successful completion (Drury-Grogan, 2014). An estimated 87% of construction projects in Africa experience time overruns (Ngacho & Das, 2014). The general business problem is the lack of consistent standards by project managers and leaders cause variations in performance, adversely affecting successful project outcomes (Ngacho & Das, 2014). The specific business problem is that in Ghanaian construction companies, the low rate of optimal project outcomes may possibly lie in the inadequate focus by projects managers on the relationship between time and quality, within planned and approved budgets.

Purpose of the Study

The purpose of the quantitative correlational study was to examine from the perspectives of project managers, the relationship between project execution on time and quality, within allocated budgets. The predictor variables were time and quality. The dependent variable was budget. The target population for the study were 158 registered building construction building companies in the Greater Accra region of Ghana. The findings from the study may contribute to increasing awareness of project professionals in construction companies on the imperatives for project success. The findings of this study may also serve to increase the knowledge and project managements skills of construction companies and consequently with improved project outcomes, advance capabilities in offering quality homes for local residents.
The Nature of the Study

Examining the relationship between budget, the dependent variable, and time and quality, representing the predicting variables respectively in Ghana was the important purpose of this study. The use of the quantitative method aided in assessing the relationship between the predicting variables and the dependent variable, using an instrument developed by Ngachó & Das (2014). The correlation design served to examine the strength of the relationship between the predicting variables of time and quality, and the dependent variable budget respectively. In quantitative studies, the invocation of statistical technique of regression and correlation are widely accepted for testing a null hypothesis and in examining the relationship between the dependent variable and predictive variables (Nimon & Oswald, 2013). In this study, the choice made in respect of research and design led to evaluating the rationale for various options. We finally chose correlation over regression as suitable for undertaking the study. The use of a correlational design made it feasible to calculate the relevant coefficient and measure the degree and extent of any possible linear association between the dependent variable and the predicting variables, consistent with the suggestions of Puth, Neuhauser, and Ruxton (2014). Estimating and assessing cause and effect relationships often require quasi-experimental and experimental designs (Orcher, 2014). The objective of this study was to determine any possible relationships between the studied variables, and therefore the aim was not to evaluate cause and effect; quasi-experimental and experimental designs were hence inappropriate for the study.

The Study and the Ghanaian Construction Industry

The findings of the study may hold some value, importance and significance to project managers and leaders in construction companies, and potentially advance the understanding of project outcomes and success relevant to Ghanaian construction industry project professionals. The results of the study may contribute to successful project execution and meet the classic outcomes of project performance within budgets, time and per customer specifications. The overarching research question for the study was to answer the research question: What is the relationship between time and quality, with budget? The findings from the study could potentially aid in elevating performance and reducing the inefficiencies in construction project management in Ghana. Construction companies could improve project execution and delivery and increase revenue generation, by improving performance.

The findings from the study could also contribute to the field of project management and advance knowledge on the importance and imperatives for achieving project success. From a business perspective, construction companies could improve the quality and costs of housing, optimizing financial and other resources consequent to improvement in the project track record, which is low in Africa, as cited. The findings from the study could also contribute to bringing about positive social upliftment in the region, as the financial implications of successful projects would likely improve the prosperity and quality of life as well of building contractors.

Research Question

The overarching research question for the study was: What is the relationship between time and quality with budget?

Hypotheses

Null hypothesis (H0): There is no relationship between time and quality with budget.

Alternative hypothesis (H1): There is a relationship between time and quality with budget.

Theoretical Framework

The framework for this study included the application of pertinent theoretical propositions, pertinent to the variables under the study, and facilitated holistic data analysis. Barnes’s (1956) theory of the iron triangle, Taylor’s (1911) theory of scientific management, Drucker’s (1954) theory of strategic management, and Edward’s (1984) stakeholders’ theory constituted the theoretical foundation. The different propositions of these theories helped in a deeper understanding of project process in various organizational systems. Barnes proposed the iron triangle as consisting of time, cost, and scope or quality as a useful model to illustrate the consequences of change to key project stakeholders. Project time refers to the scheduling and duration of the project with time bounded by the completion agenda. Cost represents the budget and resources of the project. Project cost is bounded by the scheduling of the expenditure. Project scope entails the extent of project requirements and work of the project. Project quality constitutes an integral dimension of project management and is supported by the iron triangle.

Taylor’s (1911) scientific management theory helped to improve labor productivity. The four principles of scientific management enunciated by Drucker (1954) included a systematic way of performing a task. The principle of scientific management is grounded on management strategies and principles in optimizing employee performance using rewards and punishment. Astute application of scientific management entails division of labor, judicious planning; controlling, and deriving results from modern management practices. Barnes (1956), Taylor, Drucker, and Edward drew from theoretical and practitioner insights in deducing and formulating management in the quest to optimize and simplify job performance enhancement strategies. Barnes’s theory of the iron triangle. The aim in invoking these theories was to supplement the quantitative data analysis and use the theoretical propositions to understand from the vantage point of theory and project professional insights, a deeper understanding of successful project outcomes vis-a-vis, the building construction companies in Greater Accra, Ghana.

The objective of this research was to also acquire an innate understanding of the challenges project leaders in the construction businesses face when undertaking construction projects. We used a quantitative approach and a correlation design, while the interpretation of the data analysis with a theoretical lens, contributed to a greater depth in analysis and interpretation of the findings. The findings from the study could contribute to the existing body of knowledge, which appears sparse, on the Ghanaian building construction and potentially advance understanding of the project manager estimations of project success in the building construction sector.

Explanation of Terms

Some terms are defined to explain these in the context of this study:

Project outcome: measurement in terms of unit cost, construction speed, delivery speed, cost growth, schedule growth, and several quality metrics including owner’s satisfaction and administrative burden (Ma & Ling, 2014).

Project success: Completion of projects on time, within budget, meeting quality and specifications, therefore customer and stakeholder satisfaction (Chou & Yang, 2012).

Theoretical Grounding of Study Literature

Appropriate theoretical postulations relevant to the variables in the study served to underpin the study and helped
to analyze with the results from a practitioner and theory-based evaluation and thus facilitated deeper analysis. The propositions of Barnes’s (1956) theory of the iron triangle, Taylor’s (1911) theory of scientific management, Drucker’s (1954) theory of strategic management served to underpin the study. Barnes (1956) proposed the iron triangle as consisting of time, cost, and scope or quality as a useful model, which also helped to illustrate the consequences of change to key project stakeholders. Project time refers to the scheduling and duration of a project as it is usually bounded by a specific completion agenda. Cost represents the budget and resource allocated and attributed to a project. Project cost is typically bounded by the scheduling of the anticipated and determined expenditure. Project scope entails the extent of project requirements and work involved in execution of a project. Project quality constitutes an integral dimension of project management and is supported by the iron triangle. Taylor (1911) proposed the scientific management theory to improve labor productivity. The four principles of scientific management proposed by Taylor, is about determining and implementing a standardized and systematic approach in performing a task. The principles of the scientific management theory extend to selecting, training, and developing each employee scientifically, directing and motivating the workforce by instituting rewards and punishment, dividing work between managers and workers and applying the scientific method of planning, and controlling systems to perform the task. Drucker (1954) as we may recall, introduced the discipline of modern management practices of effective time management. Drucker’s postulations indicated that the invocation of strategic decision-making can contribute to the growth of an organization. That strategic decision as postulated by Drucker involves acquiring knowledge and understanding of where and how to mobilize strength to achieve optimal results, which often necessitates setting the right priorities, and demonstrating an ability in inking of management variables together with effective decision-making also constituted the theoretical propositions, which helped to ground this study. The extensive invocation of Barnes’s, Heinrich’s, Taylor’s, Drucker’s, and Edward’s theories and peer-reviewed articles has often helped researchers and practitioners to find ways to optimize and simplify job performances and have advanced the cause and purpose of this study as well.

Discussion on Variables

A brief discussion on the variables examined in this study may be critical for the understanding of the reader and is the focus in the subsequent paragraphs.

Iron Triangle (Time, Cost, and Quality)

Project managers have traditionally measured project success using the iron triangle criteria of time, cost, and quality. The approach to assessing project success has evolved substantially over the past three decades (Davis, 2014) from the primary iron triangle of cost, time, and scope/quality (PMI, 2013). Various researchers have focused on new dimensions of project success (Carvalho & Rabechini, 2015). Carvalho and Rabechini (2015) noted that project success is a multidimensional construct, and different stakeholder groups often have a diverse and varied personal understanding of project success (Davis, 2014). In recent years, customer satisfaction and client relationships have emerged as additional criteria for assessing project success (Williams, Ashill, Naumann, & Jackson, 2015). Gemunden (2015) cited the value in the explicit recognition of project success when viewed from the perspective of various stakeholders.

The most valuable of these stakeholders is the client (William et al., 2015). Some experts have suggested that customer satisfaction is a critical dimension of project success (Davis, 2014; Serrador & Turner, 2015).

Ebbesen and Hope (2013) argued that although the iron triangle is a traditional method, it is still important in evaluating project success; it is also imperative to consider the triple constraints measure of project efficiency, which includes setting priorities during the project life cycle. Contemporary views expressed in the literature have distinguished between project efficiency and overall project success. Serrador and Turner (2015) defined project efficiency as the necessary action to complete a project. Ebbesen and Hope (2013) defined project success focused mainly on business objectives, meeting customer satisfaction, and sustainability. Mir and Pinnington (2014) emphasized that it is essential to adopt a more aggregate approach in measuring project efficiency (time, budget, scope) to include a package of five drivers of total project success (business success, preparing for the future, project efficiency, team satisfaction, and impact on the customer). Verner, Babar, Cerpa, Hall, and Beecham (2014) stressed the many ramifications and importance of a project completed on time. Projects completed late create a variety of financial and operational problems for the customer, often connoting that the project was a failure (Pinker, Szmerekovsky, & Tilson, 2014; Verner et al., 2014).

Cserhati and Szabo (2014) argued that the theory of relationship concerning performance drivers has a significant influence on both relationship quality and customer satisfaction. Project performance drivers such as interpersonal relationship during the different phases of the project have a direct influence on customer satisfaction (Hornstein, 2015; Serrador & Pinto, 2015). Zou, Kumaraswamy, Chung, and Wong (2014) indicated that active customer management is significant for project success, especially during the different phases of the project. According to Suprapto, Bakker, Mooi, and Moree (2014), relationship management is the main driver of the project success criteria of customer satisfaction. Projects completed late usually have a profound adverse effect on customer perceptions of the project management performance of a firm. Late completion of a project has a negative influence on how the customer perceives performance levels and on how the customer rates management during the project (Williams et al., 2015).

Hornstein (2015), Mir and Pinnington (2014), and Suprapto et al. (2014) opined that the iron triangle is expandable, to include customer satisfaction and relationship quality as dimensions of project success. Williams et al. (2015) noted that among the project management process of initiation, planning, execution, monitoring and control, and close (PMI, 2013), the project management execution process is the only phase that has an impact on customer satisfaction and an indirect impact on relationship quality. Williams et al. (2015) urged project managers to incorporate effective communication in planning, scheduling, and executing deliverables for the customer.

Project management criteria such as scheduling, cost, and profitability often adopted by some project managers aid in the assessment of project success in an industry and a country (Carvalho, Patah, & Dido, 2015). Project success has a significant impact on profitability and schedule (Carvalho et al., 2015). Project success has been the purpose of useful discussions in the project management studies (Carvalho & Rabechini, 2015) that relate to the social and political background of project management performance (Sage,
Dainty, & Brookes, 2014). Carvalho and Rabechini (2015) stated that the sustainable dimension of project success as it relates to the impact on social and environmental aspects is more coordinated with the time, cost, and quality. Some researchers have studied the effects of incorporating project management practices on performance (Besner & Hobbs, 2013). Useful methodologies and techniques developed in the project management knowledge profession and institutions have advanced the understanding of all (PMI, 2013). The PMI (2013) focused on the importance of hard skills, emphasizing the need for documentation, measurement, and control of the project during its life cycle. Carvalho (2014) also emphasized the importance of soft skills in project management, especially as these relate to communication, stakeholders’ management, and expertise. Project management failure, often assumed as evidence of unsatisfactory factory management on the part of the project manager, is perhaps avoidable with good management practices (Sage et al., 2014). Carvalho et al. (2015) noted that implementing a project successfully necessitates more effort put into the soft side and combining both soft and hard skills to deal with the various stakeholders within the organization. Takey and Carvalho (2015) stated that other authors have collaboratively included education and training as key factors in project performance.

The environment in which a project takes place also plays an important role in project performance (Carvalho et al., 2015). In a country where project management is at a more advanced level concerning activities such as project management associations and regulations, the opportunity to execute project management successfully is high (Carvalho et al., 2015). Prasad, Tata, Herlache, and McCarthy (2013) suggested that cultural issues of the country in which the project is taking place merit consideration, including the aspects related to projects being more vulnerable to political corruption. Prasad et al. (2013) proposed that project managers should also consider features such as flexibility and autonomy, infrastructure, and stakeholders’ diversity when working on international development projects.

Bari, Yusuff, Ismail, Jaapar, and Ahmad (2012) stated that market and economic conditions and contractors’ attributes are common factors that influence construction costs of Industrialized Building Systems (IBS) projects. The assertion of these researchers seemingly agrees with other factors such as project size as the highest determinant factor affecting project costs and widely used in the construction of cost models. Some of the factors considered to affect the cost of IBS projects are repeatability and standardization of plan; repeated use of design mold and construction techniques; economies of scales; speed of the process; and the comprehensiveness of IBS principles (Bari et al., 2012). The integration of supply chain in IBS, the constant demand, and repetition and standardization of works are essential to the sustainability of IBS players. Construction companies gain some form of mastery, accuracy, cost savings, and sustainability through the continuous application of the above factors. Comprehensive principles require measuring, convention, and standardization to ensure adhering to in IBS design. Companies achieve economies of scale by companies by lowering the average unit cost of production through the entire production system. More fundamentally, the challenge for the estimator is to prioritize various competing factors in the problem of potential cost overruns (Bari et al., 2012).

The factors relevant to the achievement of sustainable social (public) housing estates’ provision relate to four critical project management success factors (CPMSF). These factors are the project managers’ performance; the organization that owns the development project; the characteristics of the team members; and the external project environment (Ihuah, Kakulu, & Eaton, 2014). In the developing countries, the critical factors such as social, economic and environmental receive recognition as the three key objectives to ensure sustainable economic growth in the development of the country (Ihuah et al., 2014).

Project Failure

Doloi (2013) argued that cost overruns can often be a problem frequently faced in project management. The project financial management function within a project is usually responsible for managing the complex financial relationships with suppliers, an end-user, and facility managers in modern construction projects often face the difficulty in providing an accurate estimate of cost budgets. The difficulty often emanates from the unavailability of data to estimate project cost accurately. With cost estimates established correctly, senior management have sometimes classified these costs as high thereby reducing the estimate without adjustments in a corresponding decrease in the scope of a project (Doloi, 2013). Senior management in a project management setting, often provide a top-down cost estimate starting with an understanding of how much there is to allocate to a given project. The end-users usually bear the burden of cost overruns in the form of an extra cost imposed on the output. The socio-economic infrastructure projects are most vulnerable to cost overruns (Doloi, 2013).

In Africa, the problem that detracts from successful project completion could possibly be that the frequent categorization of the causes of construction time and cost overruns are governed by seven principal factors: incompetence; design; market and estimate; slowness and lack of constraint; financial capability; government; and workers (Shehu, Endut, Akintoye, & Holt, 2014). Examining the policy of the government of the more advanced United Kingdom, indicated that the process there represents an integrated project insurance policy. The policy covers an excessive cost overrun, and it provides cost-effective financial security to any supply chain members (UK Government, 2012). The management of the construction industry often plays a vital role in a country’s development (Low & Babatunde, 2013). The management of the construction companies may contribute to the economic development of the country through the provision of employment (Shehu et al., 2014).

In furtherance of this discussion, it may be worthy of mention, that quality practitioners in organizations usually allocate significant resources in the form of time and money to improve organizational performance (Jamison & Mairani, 2012). Researchers have stated that 70% of all projects have failed and of which 60% to 80% of these projects are in the realm of Total Quality Management (TQM). The three causes attributed to the failure of quality initiative projects are the lack of support from management implementing the action, lack of attention to change management during the implementation stage, and failure to execute the quality function of the project efficiently (Jamison & Mairani, 2012).

Participants

The participant selection criteria for this study was restricted to recruiting only project managers and leaders in the building construction sector in Greater Accra region of Accra, Ghana. The data collection entailed randomly administering a survey to project managers and leaders with a minimum of 5 years of experience and those who handled multiple building construction projects.
The other eligibility criteria were that project managers and leaders needed to hold PMP (project management professional) or any other project management qualifications and/or certifications. The Ghana Real Estate Developers Association (GREDA) database is a repository of contact numbers, e-mail addresses, and postal addresses of all 158 from which project professionals were recruited. Eligible, qualified, and screened participants were recruited through telephone calls and e-mails and scheduled for an appointment on a date and time of personal convenience, a principle suggested by researchers who implemented such practices (James, 2015).

The recruitment of screened and eligible participants was carefully undertaken. In this study, after appointments were scheduled, trained and qualified field data collectors visited a mutually convenient location and designated meeting place in person with a hard copy of the questionnaire to gather responses through face-to-face administration of the survey (see Liu & Wang, 2015). The data collectors, who helped in administering the survey, included graduates from universities in the region. The traditional approach of a pen-and-paper survey to collect data from the participants was necessary because in Ghana, Internet connectivity may have issues. We did not experience any problem in obtaining access to the participants (Campbell, Cherry, Ryerson, & Jones, 2014). In the study, informing the participants about the purpose of data collection and treating all survey responses information as confidential was important (see Burgess-Proctor, 2015). Instead of identifying participants with personal names on the survey paper, we used codes and numbers to ensure confidentiality. There was no incentive offered to participate in the study other than communicating the knowledge and possible positive social change and other associated benefits that could result from the study in respect of project professionals, other stakeholders, including consumers and the overall population seeking housing.

Research Method and Design
Research Method

The research methodology chosen for this study was quantitative. The rationale for choosing quantitative methodology over qualitative research was predicated on the need to assess the relationship between the identified predicting variables and the dependent variable (see Nimon & Oswald, 2013). Examination of the relationship between research variables required data collection and analysis using a specific instrument that aligned with the research objectives. The Six KPI instrument developed by Ngacho (2014) was used to collect data from project management professionals in Accra, and thereby to help to measure the relationship between the dependent variable and predicting variables. Unlike qualitative methodology, a quantitative study requires the use of numerical data to perform the appropriate level statistical analysis (Carayon, Kianfa, Li, Xie, Alyousef, & Wooldridge, 2015). As this study was to assess relationships between variables, the Pearson product-moment correlation coefficient was used to analyze the responses from the survey administered to screened and eligible project managers in Accra, Ghana. Because the research involved a relatively large sample, the findings may be generalized to building construction companies in Ghana and to other developing countries with a similar project management characteristic. Quantitative research was chosen over mixed and qualitative methods since it an efficient way to gathering information from a large sample drawn from the population (see Masue, Swai, & Anasel, 2013). With a quantitative methodology, the researcher can apply suitable statistical techniques to analyze the data (Carayon et al., 2015).

Research Design

After careful deliberation, we determined that a correlational design would best serve the needs in fulfilling the objectives of this study. The statistical technique of correlation aided in examining the relationship between budget (dependent variable) and time, quality, (predicting variables) and in measuring the relative strength of association between these variables (see Washburn, 2012).

Regression and correlation were useful for testing the null hypothesis and discerning possible association between the dependent variable and predicting variables and the degree and extent of any such relationship (see Ngacho & Das, 2014). Careful consideration therefore prompted choosing the analytical technique of correlation over regression, as specific and optimal for this study and its objectives. Calculating the correlational coefficient aided in measuring the strength of the linear association between the dependent variable and the predicting variables (see Puth et al., 2014). Examining relationships of cause and effect requires quasi-experimental and experimental designs (Orcher, 2014). Because our objective was to examine the associations between variables, not cause and effect, quasi-experimental and experimental designs were deemed inappropriate for this study and hence not considered.

Population and Sampling

The population of the study were the property developers from the Ghana Real Estate Developers Association (GREDA), representing the housing development companies in the construction industry of Ghana. In this study, opting for simple random sampling helped meet the objectives of the study as this technique ensured the focus of collecting data from the cross-section of appropriate and qualified participants in the building construction in Greater Accra. The GREDA database contains the study population in Accra and included 158 project managers. Simple random sampling of participants from a population perhaps is of significance for generating unbiased result and ensures that every member stands an equal chance of selection (Acharya, Prakash, Saxena, & Nigam, 2013). A large randomly selected sample also potentially makes a study finding generalizable to other populations with similar characteristics (Aune-Lundberg & Strand, 2014).

Tabachnick and Fidell (2007) stated that to determine the proper sample size, statistical tests and power are imperative. Statistical power when set at 0.8 or 80% generally means there is a 20% chance of accepting the null hypothesis in error. The conventional medium power used was 0.8, with a medium effect size of 0.3, to measure the magnitude of the correlation between the predicting and dependent variables. The hypotheses were nondirectional, which necessitated the use of the two-tailed test. The level of significance was 0.05 (Ellingson, 2013). We used the G*Power 3.1 software to determine the minimum sample size. When using the G*Power to calculate the sample size with the Point Biseral model for correlations at a two-tailed level, an effect size of 0.3 (medium), an α of 0.05, and a power of 0.80, the minimum sample size was 82.

A type II error can occur when the researcher fails to reject a false null hypothesis which can be attributed to a sample size that is considered small. Collecting data from 82 participants minimized the probability of committing a type II error.
Data Collection Instruments

The quantitative instrument known as the Six KPIs’ developed by Ngacho and Das (2014) served as the data collection instrument for the study. The estimation of project success originally guided the development of the instrument to collect data and examine the relationship between safety, site disputes, environmental impact, and budget (Ngacho & Das, 2014). The rationale for choosing the Six KPIs’ as the research instrument for the study was based on its high level of validity in predicting overall project success. The Six KPIs’ is a 5-point assessment scale from “strongly disagree” to “strongly agree” was used to rate the overall project success using Six KPIs’.

The project managers as participants in the study recorded responses to the survey. Survey statements were based on a Likert scale of 1 (strongly disagree) to 5 (strongly agree) for each statement/question in the survey. The score from the overall survey statements from the participants provided the numerical data for analysis in respect of examination of degree and extent, or lack thereof in correlation between the six main factors, identified as Key Performance Indicators by the authors of the research instrument (Ngacho & Das, 2014). The response choice of not applicable, for any non-response indicated missing data, possibly when the participant did not have an answer to a survey statement or question, or inadvertently skipped it. Addressing the missing data included the approach of using an educated guess as to why the data was missing, and the use of median replacement function in SPSS served to reduce potential biases. The smaller the score for each survey question may suggest the result of the project as less desirable, and a larger score may indicate that the project has a higher beneficial effect on the business and expectedly the same propositions envisioned by the authors of this instrument would similarly hold true in this study (Ngacho & Das, 2014).

Data Collection Technique

As stated, the GREDA database served as the resource for the retrieval of contact numbers, e-mail addresses, and postal addresses of all 158 respondents from the registered list of members. The efforts at securing appointments on a date and time of convenience of the researcher and potential study subject respectively, involved recruiting eligible, qualified, and screened participants through telephone calls and e-mails, a strategy favored by researchers (James, 2015). After obtaining an appointment, visits with assistants in person with a hard copy of the questionnaire with and eliciting responses through direct a face-to-face administration of the survey (Liu & Wang, 2015).

Participant access through GREDA facilitated access, however, there was no prior personal association or acquaintance. To administer a paper and pencil survey, the help of assistants was in conformance with a common research practice (Campbell et al., 2014). Selecting educated and trained assistants helped to their services did not in way influence participant responses. The role of the assistants was mainly to assist in the distribution of the survey (Ngacho & Das, 2014). The assistance of external help was necessary in administering the survey due to the large sample size for the study. Conducting the data collection in Accra, Ghana, was not possible to use electronic media because of limited access to the internet. With the limitation, to personally survey all participants, using assistants who were business graduates from accredited universities in Ghana aided in administration of the instrument and in data collection.

The aim of the study included collecting a considerable amount of information from a large group of people in a short period in a relatively cost-efficient manner. The advantage of quantitative research is in the feasibility of rapid assembly and analysis of by the researcher by using advanced analytical statistical software packages, such as SPSS. Quantitative data analysis is more scientific and objective (Westerman, 2014) compared to other forms of research hence enabling the obtained usefulness in testing new hypotheses or to new theories. The final study sample size of 82 drawn, adequately represented the population of 158 project management professional (Johansen, Halvorsen, Haddadi, & Langlo, 2014). Each of the participants received and completed a survey questionnaire aligned with the objectives of the study, with approval obtained in advance from the developers of the instrument Ngacho and Das (2014).

Study Validity

The data collection for this descriptive quantitative research included using a random sampling of project managers and leaders from the real estate development from the Greater Accra, Ghana who had at least five years of active participation in project management. The instrument used by Ngacho and Das (2014) in the Kenyan’s construction sector demonstrated construct validity of the questionnaire served as the data collection instrument in the study. Ngacho and Das studied the construction industry and sought the expert opinions of participants on the 35 variables of the Six KPIs’ of safety, site dispute, environmental impact, and budget. Ngacho and Das administered the same survey to professionals with expertise that matched the sample for the study. The aim of Ngacho and Das was to examine project success in the building construction sector. A test conducted in the Kenyan construction industry on user-friendliness and feasibleness of the questionnaire by the experts suggested some changes to accommodate the educational level of the participants. Participants in the study were from the building construction industry in Ghana and included project managers from the real estate development sector having similar expertise in project management as seen in the Kenyan construction industry.

Ngacho and Das (2014) used a correlation matrix to assess the convergent and discriminant validity of the items on the instrument in the study conducted in assessing project managers in Kenya. The inter-item correlation of the scale in this research instrument, referred to as the Six KPIs’, had a mean of 0.100, while the smallest inter-item correlation within each performance measure was as follow: time performance factor: 0.100, cost performance factor: 0.280, quality performance factor: 0.875, site disputes factor: 0.573, environmental impact factor: 0.438, and safety performance factor: 0.338. Correlation coefficient and p-values were as follows: ρ > 0.15 denotes p-value < 0.05 or significant at 5% level, ρ > 0.20 denotes p-value < 0.01; or significant at 1% level. The correlations were significantly greater than zero (ρ < 0.000), providing evidence for convergent validity. For discriminant validity to exist, the correlates of each factor in the correlation matrix require counting by the researcher to determine the number of times each Six KPIs’ had higher correlations with elements of other factors than elements of its factor in the correlation matrix. The count, when tallied, should be less than one-half of the possible comparisons of each Six KPI with elements of other factors than elements of its factors in the correlation matrix (Djulbegovic et al., 2013).
The examination of the study result revealed that there were 88 violations of discriminant validity out of 378 possible comparisons, hence, indicating the presence of discriminant validity (Ngacho & Das, 2014). The result indicates that the Six KPIs’ instrument measures what it purports to measure (Trochim & Donnelly, 2008). So, choosing the Six KPIs’ instrument developed by Ngach and Das (2014) was an appropriate means to collection data on time, quality, and budget.

**Data Analysis**

**Research Question**

The central research question for the study was: What is the relationship between time and quality, with budget?

**Hypotheses**

Null Hypothesis (H0): There is no relationship between time and quality with budget.

Alternative Hypothesis (H1): There is a relationship between time and quality with budget.

In the study, the null and the alternate hypotheses were:

Ho: p = 0 – There is no correlation
Ha: p ≠ 0 – There is correlation

The study reflected a two-tailed test because the hypothesis was non-directional.

The $r$ is a measure of the linear correlation (dependence) between two variables X and Y inclusive (Puth et al., 2014). The value of $r$ lies between 0 and 1, and it could be negative and positive. If $r$ is zero, then this indicates that there is no linear association between time and quality and budget. In correlation, if $r$ equals 1, that indicates a perfect positive linear relationship between the variables. When there is a perfect correlation, all individuals sampled will lie exactly on the same straight line with a positive slope (Haerling & Prion, 2014). Comparing the p-value from the test to the significant level of 0.05 led to the decision to fail to reject or reject the Null Hypothesis. The hypothesis test determination was based on following the decision rule: If $p > 0.05$, fail to reject the Null Hypothesis (Ho) that there was no significant statistical correlation between project budget and time. Conversely, if the $p<0.05$, reject the Ho. In the final step, describing the analysis, the outcomes, and the statistical conclusion helped in interpretation of the relationship or association, between the variables time, quality and budget, as advocated by researchers advising on statistical practices (Lane, 2013).

**Presentation of the Findings**

The purpose of the quantitative correlational study was to examine the relationship between time, quality, and project budget. The population of the study was the property developers from the Ghana Real Estate Developers Association (GREDA), and participants in the study included project managers and leaders in the building construction sector in Greater Accra. Data were collected from participants using a quantitative instrument known as the Six KPIs’ developed by Ngach and Das (2014). The objective was to collect data and examine the relationship between time and quality and budget. The predictor variables for this study were time and quality. The dependent variable was project budget. The results of the analyses indicated that time, was significantly associated with project budget.

The collection and organization of the data were followed by the analysis and interpretation of the results. The statistical correlation and regression models helped me to examine the relationship between each predictor variable and project budget. Prior to discussing the results of the statistical tests, we computed descriptive statistics of the demographic variables of the participants followed by a report of the study variables and measures of reliability.

**Demographic Interpretation**

The summary of demographic data of study participants and include details such as PMP certification, gender, age, highest education level, industry, and years with the company among the 116 study participants. Most participants, both men and women, were not PMP certified (84.5%, $n = 98$); 14.7% ($n = 17$) were PMP certified. The distribution implies most project leaders in the construction industry in Ghana do not have project management certification or qualifications.

Most project participants were male, which implied that the construction industry in Ghana is predominantly male. The male participants constituted 90.5% ($n = 105$) with 19.2% ($n = 10$) being female.

The largest age group was 31 to 40 and constituted 61.2% ($n = 71$) of the sample. The age group 21 to 30 constituted 19.8% ($n = 23$), and the participants over 51 years of age ($n = 4$) constituted the smallest age group.

For highest level of education in construction engineering, 24.1% ($n = 28$) had an associate’s or technical degree. Many of the participants, 62.9% ($n = 73$), had a bachelor’s degree, 11.2% ($n = 13$) had a master’s degree, and 0.9% ($n = 1$) had some other degree (see Table 4). The education level distribution implies participants with bachelor’s degrees dominate the construction industry in Ghana.

When observing industry, almost all participants were in the construction industry (98.3%, $n = 114$), with 0.9% ($n = 1$) both in finance/banking and other.

Finally, for experience and tenure in the construction industry, 34.5% ($n = 40$) stated less than 5 years, 62.6% ($n = 61$) stated 5–10 years, 5.2% ($n = 6$) stated 11–16 years, 2.6% ($n = 3$) stated 16–20 years, and 4.3% ($n = 5$) stated more than 20 years (see Table 6). On average, most participants had been with the company for more than 5 years.

**Variable Selection, Analysis and Interpretation**

The aim of the study was to examine the responses of participants to survey questions, which fell under the following research overarching research question of this study: What is the relationship between time and quality with budget? The hypotheses below helped to guide the statistical analyses:

H0: There is no relationship between time and quality with budget.

H1: There is a relationship between time and quality with project budget.

To test the hypotheses, we conducted correlation analyses and simple linear regression models to examine the associations between time and quality, and project budget. A final multiple regression model was used to determine whether a combination of time and quality had a significant impact on project budget. Tests included normality and linearity assumptions as well as multicollinearity assessments for the multiple regression models. Before presenting the results of the analyses, we provided descriptive statistics of the demographics and study variables.

The measurement of each study variable entailed taking an average of specified survey responses. Participants completed survey responses to Likert-scale statements scored on a scale from 1 (strongly disagree) to 5 (strongly agree). The smaller score for each study variable indicated the result of the project as less desirable, and the larger score indicated that the project had a higher beneficial effect on the business. The dependent variable of project budget factors was encapsulated in Survey Questions 1 through 6, and yielded
scores that ranged from 1.67 to 4.67 with an average of 3.10 ($SD = 0.66$). For the independent variables of time, and quality. The time factors were embedded in Survey Questions 13, 14, 15, 25, 26, and 28, and scores ranged from 2.00 to 4.50 with an average of 3.22 ($SD = 0.52$). Quality factors were included in Survey Questions 27, 30, 31, 32, and 34, and scores ranged from 2.40 to 5.00 with an average of 4.02 ($SD = 0.43$). Overall, the average scores for quality factors were the highest.

Cronbach’s alpha was the measure used to assess the reliability of the scores that made up the dependent and independent variables in this study. The alpha value for project budget was 0.63, 0.33 for time and 0.34 for quality. Low alpha values implied that there may have been issues with reliability for each study variable.

Before commencing the correlation and regression analyses to answer the main research question, we conducted a test for normality to determine whether the dependent and independent variables were normally distributed. Assessing normality necessitated taking into consideration Shapiro-Wilk tests, along with observations of skewness and kurtosis. Table 1 shows the results of these tests. Although some of the Shapiro-Wilk $p$ values were indicative of non-normal distributions ($p<0.05$), all the skewness and kurtosis values were within the acceptable range for normality (-3 to 3). This indicated satisfaction of the normality assumption for the study variables.

**Table 1. Normality Checks for Study Variables.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Shapiro-Wilk $p$ value</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project budget</td>
<td>0.053</td>
<td>0.09</td>
<td>-0.03</td>
</tr>
<tr>
<td>Time</td>
<td>0.059</td>
<td>-0.13</td>
<td>0.30</td>
</tr>
<tr>
<td>Quality</td>
<td>0.002</td>
<td>-0.37</td>
<td>0.73</td>
</tr>
</tbody>
</table>

**Pearson’s Correlation**

The overarching research question was: “What is the relationship between time, quality, and budget?” To answer this question, we used Pearson’s correlation coefficient to assess the degree and extent of linear association between time, quality, and project budget. Table 2 shows the results: time ($r = 0.50$ [moderate correlation], $p < 0.0001$), showed significant correlation with project budget. The correlations is positive, which meant that increase time, was associated with an increase in project budget scores. The interpretation from a project management standpoint, is that higher costs associated with expenses incurred in respect of the dependent variables elevated total project costs and necessitated an increase in budgetary allocations for project success and completion. The association between time and budget was however moderate.

Testing the significance of the correlations between time and quality, and project budget entailed using bootstrapping procedures. Effects were computed for each of 2,000 bootstrapped samples, and a 95% confidence interval was computed by determining the effects at the 2.5th and 97.5th percentiles. The bootstrapped 95% confidence interval for time ranged from 0.35 to 0.64. Finally, the bootstrapped 95% confidence interval for quality ranged from -0.15 to 0.27. The bootstrapped 95% confidence intervals time did not include zero. Therefore, time was significantly associated with project budget.

**Table 2. Pearson’s Correlation with Project Budget.**

<table>
<thead>
<tr>
<th>Correlation</th>
<th>$p$ value</th>
<th>Bootstrap 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>0.50</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Quality</td>
<td>0.06</td>
<td>0.528</td>
</tr>
</tbody>
</table>

**Simple Linear Regressions**

To further explore the research question, Table 3 shows the results of the simple linear regressions (SLR), with time and quality were used as independent variables, and project budget as the dependent variable. Similar to the correlation results, SLR results indicated significant association between time and budget. The time variable explained that 5 to 25% of the variability in project budget scores ($R^2$ value ranged from 0.05 to 0.25 for time).

The estimation of time revealed a positive correlation $\beta = 0.50$ (moderate correlation) $p < 0.05$, which implies that a one unit increase in time will likely lead to an increase in project budget scores. For each model, additionally when observing a plot of the residuals by the fitted values, a histogram of the residuals, as well as a normal probability plot of the residuals, seemed evident and apparent, ostensibly all models satisfied the assumptions of normality and linearity.

As demonstrated with the correlation results, these effects were tested using a bootstrap estimation approach with 2000 samples. The bootstrapped 95% confidence interval for time ranged from 0.45 to 0.81. The bootstrapped 95% confidence interval for quality ranged from -0.23 to 0.41. The bootstrapped 95% confidence intervals for time did not include zero. Time therefore was significantly associated with project budget.

**Table 3. Summary of SLR Analyses for Project Budget.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE(B)$</th>
<th>$B$</th>
<th>$T$</th>
<th>$R^2$</th>
<th>Bootstrap 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>0.63*</td>
<td>0.10</td>
<td>0.50</td>
<td>6.09</td>
<td>0.25</td>
<td>0.45 – 0.81</td>
</tr>
<tr>
<td>Quality</td>
<td>0.09</td>
<td>0.14</td>
<td>0.06</td>
<td>0.63</td>
<td>0.004</td>
<td>-0.23 – 0.41</td>
</tr>
</tbody>
</table>

**Multiple Linear Regression**

For the final analysis, Table 4 shows the results of the multiple regression model, with time and quality, as the independent variables, and project budget as the dependent variable. The results denoted predictors indicating 29% of the variability in project budget ($R^2 = 0.29$, $F = 8.89$, $p < 0.0001$). When adjusting for all other factors in the model, time still significantly predicted project budget ($\beta = 0.46$, $p < 0.0001$).

Standard multiple linear regression, $\alpha = 0.05$ (two-tailed), was used to examine the efficacy of time and quality in predicting project budget (Table 4). The independent variables were time and quality. The dependent variable was project budget. The null hypothesis was that time and quality would not significantly predict project budget. The alternative hypothesis was that time and quality would significantly predict project budget. The model as a whole was able to significantly predict project budget, $F(1, 114) = 37.08$, $p < 0.001$, $R^2 = 0.25$. The $R^2$ (0.25) value indicated that approximately 25% of the variability in project budget accounted for by the linear combination of the predictor variables (time and quality). In the model, time was statistically significant, with time ($\beta=0.46$, $p<0.001$) accounting for a higher contribution to the model. Quality did not provide any significant variation in project budget. These effects were tested using a bootstrap estimation approach with 2000 samples. The results connoted, that time was significant, with bootstrap 95% confidence intervals that did not include zero (0.38 – 0.78 for time).

**Table 4. Summary of MLR Analyses for Project Budget.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE(B)$</th>
<th>$B$</th>
<th>$T$</th>
<th>Sig. ($p$)</th>
<th>Bootstrap 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>0.58</td>
<td>0.11</td>
<td>0.46</td>
<td>5.11</td>
<td>&lt;0.0001</td>
<td>0.38 – 0.78</td>
</tr>
<tr>
<td>Quality</td>
<td>0.07</td>
<td>0.14</td>
<td>0.04</td>
<td>0.47</td>
<td>0.642</td>
<td>-0.23 – 0.36</td>
</tr>
<tr>
<td>Constant</td>
<td>0.49</td>
<td>0.60</td>
<td>0.82</td>
<td>0.416</td>
<td>-0.78 – 1.76</td>
<td></td>
</tr>
</tbody>
</table>

$R^2 = 0.29$
The study may hold value to project practice because the results of prevailing cultural and societal norms. Many constructions companies fail to innovate, but the contract bids for future engagements (Lu & Hao, 2013). The deficit in awareness can have a detrimental effect on the achievement of performance, in respect of construction goals.

Application to Professional Practice

There is often the lack of awareness and understanding, and even disregard for what constitutes and represents successful project outcomes by project managers and leaders in the construction companies. This lack of what constitutes project success can be problematic because project managers in construction companies need to have a sense of achievement of performance, in respect of construction goals. The deficit in awareness can have a detrimental effect on the ability and track record of construction companies to improve business performance and increase revenues with successful contract bids for future engagements (Lu & Hao, 2013). Many constructions companies fail to innovate, but the infrastructure projects also do not keep abreast of contemporary and evolving standards of construction.

The findings of the study may hold value to project managers and leaders, as may advance project leaders understanding of the implication of project success in the building construction companies of Greater Accra, Ghana. The research undertaken for this study involved using the research instrument with Six Key Performance Indicators developed by Ngacho and Das (2014) to examine project success in the construction sector of Greater Accra Region, Ghana. This study entailed the examination of the professional practice of project managers and leaders in the construction industry against a comprehensive system of performance indicators.

The findings from the study would likely contribute to professional project management practice and may raise the awareness of project managers and leaders in construction companies regarding the appropriate and comprehensive estimation of success in building projects success. The determination of project success by different factors, which in this study, represented the independent variables. The attention to key performance indicators and factors associated with time and budget, can contribute to improving project outcomes and success. The findings would, in turn have potential effects to the increasing the success for all stakeholders.

Ika, Diallo et al. (2012) supported the five critical success factors (CSF) for project success. The success factors include monitoring, coordination, design, training, and institutional environment. The results of the study may contribute to the professional practice because the results showed that it is important to have proper coordination and monitoring of projects. The coordinating factor is a major determinant of project success such as in construction and infrastructure projects, an efficient design and implementation can also lead to project failure.

The results of the study can contribute to knowledge in respect of professional practice and project management. The knowledge generated from this study may convey to professional practitioners and project managers the importance of focusing on efficient design in the implementation of a project. In this study, the results indicated, that training for team members and other stakeholders is a crucial contributor to project success and recognized as a CSF for international development projects.

The results of the study and the findings, which emerged, may present a clear indication, that project success is inextricably linked to proper training for staff and professionals in the industry. Ika et al. (2012) stressed the importance of documentation, design, training, monitoring, coordination, and institutional environment in projects. Project management competencies can significantly benefit from proper monitoring and documentation, as the repository of knowledge residing in the expertise and acumen of project managers holds the potential of transference from the possessors of information, to others in the project team, and organization, with astute knowledge management strategies.

Implications for Positive Social Change and Welfare

Projects management and construction projects that are successful have a substantial impact on positive social change because the output of a successful construction project would be beneficial to all stakeholders, and society. The interests and actions of stakeholders in a construction project at different spatial scales appear affected by locational factors such as local culture, media, political systems, and regulations. Construction project must also display awareness and appreciation of prevailing cultural and societal norms. The results of the study have potential implications for improving the welfare of communities, and social change since the quality of the finished project would also depend on

Application to Professional Practice

Figure 1. Scatterplot for time by project budget.

From Figure 1 represents the plot for time against budget. The inference is that as time increased, so did the budget, however, the points appeared somewhat scattered, indicating a moderate positive correlation ($r = 0.50$). The interpretation is that one unit increase in time will invariably lead to an increase in the project budget.

Figure 2. Scatterplot for quality by project budget.

From Figure 2, representing the plotting of quality against budget, there was no indication of association between the dependent and independent variable. The budget therefore did not significantly correlate ($r = 0.06$) with quality. The inference drawn is that one unit increase in quality will not lead to an increase in the project budget.
how well the project can accommodate the different cultures of the individuals in the society. In massive construction projects, Chou and Yang (2012) suggested that placing focus solely on the stakeholder management process at early project phases is insufficient to manage stakeholder claims in complex project environments. The best practices exemplified by a project management team hence must demonstrably therefore display attention to ethical and cultural norms, which in turn must be integral in the management and execution of to all projects.

The results of the study may also connote, that the focus on the stakeholders coordinated with other success indicators such as quality of the project can be achieved within the timelines attributed to a certain project. The study results perhaps illustrated that it is critical, that the stakeholder management process at every project stage and along the entire life cycle of construction projects undertaken by the government remains a critical undertaking in such projects (Chou & Yang, 2012). The results and findings of this study on project management in Accra, Ghana, will expectedly contribute to positive social change. The study results may have a bearing on the welfare and benefit of construction projects and society, and the results could hold some importance in initial planning and evaluating of the entire life cycle of projects as would also serve to measure goals, against the overall quality of the finished project.

The results of the study indicated, that ample time and budget play important roles in the success of projects. Thus, taking these factors for granted by the project managers and leaders in the construction industry presents risks of lowered success and failing to come within the classic project management goals of within time and budget. The role and value of stakeholders after all influence the survival of the organization (Trigunarsyah et al., 2014). Project managers and owners should adopt improved decision-making strategies by creating a plan that will effectively involve stakeholders from the start of the project to the completion phase. The early identification and effective involvement of different stakeholders and members in projects are paramount during the project life cycle (Trigunarsyah et al., 2014). The overall success in the life cycle of projects can beneficially result, with positive social implications with the designation of actionable prioritization and the step-by-step details of the project, with appropriate milestones. Early identification and involvement of stakeholders in the initial phases of the project is the key to success (PMI, 2013). Positive and beneficial social implications may accrue from the findings of this study, because of the proven importance of the initial phases of the project, to be as important as the execution and finishing steps of a certain construction project. There is clear imperative and need for management to involve stakeholder in every stage of the project management plan. The number of stakeholders in a project introduces some level of complexities especially when it is a large undertaking (Bal et al., 2013). The findings from this study can contribute to positive social change, because knowing the real factors that influence the success of the projects can also contribute to what the project managers must prioritize to achieve a certain goal.

**Recommendations for Future Consideration and Research**

The results and findings of the study indicated the importance of focusing on the different factors that matter the most in a project, notably on completion within, time and budget, and uncompromising on quality. In ensuring quality and successful project outcomes, appropriate prioritization in achieving key performance objectives across the continuum of a project, aids in timely execution. The reason is that the quality of a project may have a direct impact on whether current and future construction projects business and revenue generation goals are met. Finally, the services and professional commitment offered by the project managers to the business and customers must be constant and consistent. Project managers should always be able to deliver at least the very minimum expected, however striving to exceed and surpass goals would be ideal for the Ghanaian or the construction industry in any geography, and the principles of goal project management are universal.

The discoveries of the study may lead to the identification and reduction in the inefficiencies in project management and performance. Project managers and business leaders could use the knowledge to maximize the use of time and budget to provide affordable buildings to the community. To increase knowledge on project management, further research may lead to the path of improvement in practices and strategy, specific to the construction industry, and the following are the recommendations for further research:

1. Conduct a qualitative study, which will facilitate future researcher led studies to focus on gaining insight into the experiences and perceptions of the participants as to the impacts and effects of the different factor variables examined in this study;
2. Conduct a study across various geographies would possibly serve to increasing the generalizability of the results of the study and would have a wider scope regarding actual data;
3. Undertake a study based on data collected from stakeholders would garner a recommendation as part of further research because the evaluation of the data from external factors might help the current scenario in project management;
4. Focus on certain types of structures vis-à-vis, other types of structures might also be beneficial since the system of project management might be different from one infrastructure to another.

**Reflections on the study**

Our reflection revolves around experience as a project management leader and an academic. Mohammed et al. (2012) stated that the transformational leadership theory is about developing people. The results and findings of this study have personal value to introspect and realize that the leadership or leaders such as the project managers matter because the success of the projects depends on these individuals. Organizations judge effective leaders by the capability to bring changes to the organization of affiliation. The commitment of a leader and follower towards a common purpose, therefore, serves to achieve the goals and vision of the organization (Aga et al., 2016). Pursuant to our intense personal reflection, the conclusion is that compromising the goals and vision of the organization present dangers to limit and lower project success. To cite an example, the priorities of a leader must consider the overall structure because it would ascertain whether the path that a project is currently taking is still proper and supported by the different factors that matter to a certain project and the different stakeholders. Kissi et al. (2013) indicated that the transformational leadership of portfolio managers has a positive and significant relationship with championing behavior. The findings of the study led me to realize that the championing behavior as a leader also involves the desire to champion the cause of followers. Based on our personal experiences, proper conviction as a leader inspires and motivates followers to emulate management and other qualities. Lee et al. (2013)
supported the contention as consistent with innovating behavior among immediate followers. A point worthy of mention is that based on our personal experiences, it is deemed as important, that the project managers must be able to find the values held in high esteem by immediate followers. This perceived value in leadership by followers is also important in making project managers realize the inherent value of the project, as a source of revenue to the organization. The claims hold true in project environments in which portfolio managers demonstrate transformational leadership to drive innovation-championing behavior among project managers. Our reflection includes the fact that the innovation must start from the top (i.e., the project managers), but innovation must also be present in other people associated with the project. Followers have the perception that individual managers will offer support if there is a failure in implementing innovative solutions. The assumption made could lead to improved project performance in the organization (Kissi et al., 2013). The improved project performance is a result of considering and implementing many factors and exemplary project management principles and practices. Based on our personal experiences, the application and implementation of the theoretical knowledge serve best, when efficiently and effectively transferred into valuable contributions of value in project management.

Transactional leaders often achieve results using rewards and recognition. Such leaders emphasize the use of extrinsic motivations to shape goal setting to strengthen organizational culture, structure, and strategy (Mohammed et al., 2012). The leadership styles such as transformational, transactional, when adroitly adopted by the team leader, has an operational effect on the development of learning since there are strategic resources within the team and the organization (Mohammed et al., 2012). This reflection also led to the realization, that a transformational leadership approach aids in visualizing proper implementation and execution of the project and the outcome of success, or otherwise. When concomitantly displayed, transformational and transactional leadership approaches demonstrate a caliber and ability akin to an ambidextrous individual. The adept leader often offers the necessary direction for goal achievement required by the team. From experience and knowledge acquired during this study, and during our professional engagement, the achievement of project success is also in the view and perception of quality by stakeholders. The perception of project construction quality by stakeholders often commensurately correlates with the value delivered to the community.

Summary and Study Conclusions

The principle purpose of the quantitative correlation study was to examine the relationship between time and quality with project budget. The results of the statistical analyses of the data collected led to the conclusion that time was significantly associated with project budget. Specifically, as time increased so did score for project budget. In conclusion, the strongest relationship between the dependent variable of budget and the independent variable of time, observed may indicate clear opportunities of focus for construction project management in Ghana.

References


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