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TECHNOLOGY, KUMASI**

**Causal Relationship Between Project Quality Problems and Communication**

By

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A Dissertation submitted to the Department of Construction Technology and Management,  
College of Art and Built Environment  
in partial fulfilment of the requirement for the degree of

**MASTER OF SCIENCE**

**NOVEMBER, 2018**

**DECLARATION**

I hereby declare that this submission is my own work towards the MSc. Project Management and that to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the university or any other university, except where due acknowledgement has been made in the text.

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## ABSTRACT

The Ghanaian construction industry faces numerous problems mostly associated with quality. Some of these problems are design changes, poor planning, poor supervision and low mechanization. Therefore, this study aims at exploring the relationship between quality problems and communication. With this aim, three (3) objectives were set which were to identify the quality problems that exist in the Ghanaian construction industry, to identify the factors that aids in effective communication in the Ghanaian construction industry and to identify the relationship between project quality problems and communication in the Ghanaian construction industry. With these objectives, an extensive literature review was conducted from which variables on quality problems and communication were identified. The variables were subsequently used in the development of a structured questionnaire. The questionnaire was distributed and forty-nine (49) were retrieved and used for the analysis of the study. The analysis was done using the mean score ranking and the multiple regression analysis. The findings of the first objective were that, the most significant problems as indicated by the respondents were inexperienced consultant, inexperienced contractor and time constraints. With the second objective of the study, the most significant factors that affect effective communication were unclear message, the timing of the communication, inappropriate medium, and semantic barriers. With the third objective, the complexity of the project, lack of sensitivity of the receiver, unclear messages, the number of companies involved and the process barrier shown significant relationship with the problems associated with quality. However, the complexity of the project shown the highest relationship with quality problems. The results indicated that, there is a significant relationship between communication and quality problems in the Ghanaian construction industry. With these findings, it was recommended that, a project manager must be experienced enough to spend a substantial amount of his time to formally or informally communicate at appropriate points in time to all stakeholders to enhance the project success. Also, a project manager must endeavor to adopt the appropriate communication medium at any particular point in time to expedite the communication process. Furthermore, the client and his advisors should be very keen in selecting a suitable project manager for the project as the selection of an incompetent project manager can affect the delivery of the project and the project manager must develop a strict and an appropriate communication system during the execution of complex projects to enhance communication effectiveness. The study was limited by the number of dependent variables that could be used. The regression analytical tool adopted could only be used for one dependent variable at a time. Therefore, further studies can also be conducted using a different analytical tool that can incorporate more than one dependent variable like the Structural Equation Model. Also, the study was limited to only D1K1 and D2K2 construction firms in the Sekondi-Takoradi and Accra metropolis. Therefore, further studies can be conducted using other stakeholders in the construction industry.

**Keywords:** Causal Relationship, Project Quality Problems, Communication, Construction Industry.

## TABLE OF CONTENT

<b>DECLARATION.....</b>	<b>II</b>
<b>ABSTRACT.....</b>	<b>III</b>
<b>LIST OF FIGURES .....</b>	<b>IX</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>X</b>
<b>DEDICATION.....</b>	<b>XI</b>
<b>CHAPTER ONE.....</b>	<b>1</b>
<b>1.1 BACKGROUND OF STUDY.....</b>	<b>1</b>
<b>1.2 PROBLEM STATEMENT.....</b>	<b>3</b>
<b>1.3 RESEARCH QUESTIONS .....</b>	<b>4</b>
<b>1.4 AIM OF THE STUDY.....</b>	<b>4</b>
<b>1.5 OBJECTIVES OF THE STUDY .....</b>	<b>4</b>
<b>1.6 SIGNIFICANCE OF THE STUDY .....</b>	<b>4</b>
<b>1.7 SCOPE OF THE STUDY .....</b>	<b>5</b>
<b>1.8 METHODOLOGY.....</b>	<b>5</b>
<b>1.9 STRUCTURE OF THE STUDY .....</b>	<b>6</b>
<b>CHAPTER TWO .....</b>	<b>8</b>
<b>LITERATURE REVIEW .....</b>	<b>8</b>
<b>2.1 INTRODUCTION.....</b>	<b>8</b>

<b>2.2 QUALITY AS A PERFORMANCE CRITERIA .....</b>	<b>9</b>
<b>2.2.1 Performance management .....</b>	<b>11</b>
<b>2.2.2 Factors that influence construction quality performance .....</b>	<b>13</b>
<b>2.3 COMMUNICATION ON CONSTRUCTION PROJECTS .....</b>	<b>14</b>
<b>2.4 FACTORS THAT AFFECT COMMUNICATION .....</b>	<b>16</b>
<b>2.4.1 Process barriers.....</b>	<b>16</b>
<b>2.4.2 Physical barriers .....</b>	<b>16</b>
<b>2.4.3 Semantic barriers.....</b>	<b>17</b>
<b>2.4.4 Psychological barriers .....</b>	<b>17</b>
<b>2.4.5 Language barrier .....</b>	<b>17</b>
<b>2.4.6 Social barriers .....</b>	<b>18</b>
<b>2.4.7 Cultural barrier .....</b>	<b>18</b>
<b>2.4.8 Technological failure .....</b>	<b>18</b>
<b>2.4.9 Unclear messages .....</b>	<b>18</b>
<b>2.4.10 Inappropriate medium .....</b>	<b>18</b>
<b>2.4.11 Lack of sensitivity to receiver .....</b>	<b>19</b>
<b>2.5 THE THEORITICAL IMPACT OF COMMUNICATION ON PROJECT QUALITY PERFORMANCE.....</b>	<b>19</b>
<b>2.6 SUMMARY OF CHAPTER.....</b>	<b>19</b>
<b>CHAPTER THREE .....</b>	<b>21</b>
<b>RESEARCH METHODOLOGY .....</b>	<b>21</b>
<b>3.1 CHAPTER OUTLINE.....</b>	<b>21</b>

<b>3.2 RESEARCH PROCESS .....</b>	<b>21</b>
<b>3.3 RESEARCH DESIGN .....</b>	<b>21</b>
<b>3.4 THE RESEARCH STRATEGY .....</b>	<b>22</b>
<b>3.4.1 Case study .....</b>	<b>23</b>
<b>3.4.2 Experiment .....</b>	<b>23</b>
<b>3.4.3 Survey.....</b>	<b>23</b>
<b>3.5 RESEARCH APPROACH .....</b>	<b>24</b>
<b>3.6. RESEARCH METHOD .....</b>	<b>24</b>
<b>3.7 POPULATION, SAMPLE SIZE AND SAMPLING TECHNIQUE.....</b>	<b>25</b>
<b>3.8 DEVELOPMENT AND DISTRIBUTION OF QUESTIONNAIRE .....</b>	<b>27</b>
<b>3.9 TOOLS FOR THE ANALYSIS .....</b>	<b>27</b>
<b>CHAPTER FOUR.....</b>	<b>29</b>
<b>DATA ANALYSIS AND DISCUSSION.....</b>	<b>29</b>
<b>4.1 INTRODUCTION.....</b>	<b>29</b>
<b>4.2 BACKGROUND OF THE RESPONDENTS .....</b>	<b>29</b>
<b>4.3 QUALITY PROBLEMS.....</b>	<b>31</b>
<b>4.4 EFFECTIVE COMMUNICATION .....</b>	<b>32</b>
<b>4.5 THE RELEATIONSHIP BETWEEN QUALITY PROBLEMS AND COMMUNICAITON.....</b>	<b>34</b>
<b>4.6 SUMMARY OF CHAPTER.....</b>	<b>36</b>
<b>CHAPTER FIVE .....</b>	<b>38</b>

<b>CONCLUSION AND RECOMMENDATIONS.....</b>	<b>38</b>
<b>5.1 INTRODUCTION.....</b>	<b>38</b>
<b>5.2 SUMMARY OF FINDINGS.....</b>	<b>38</b>
<b>5.3 CONCLUSION.....</b>	<b>39</b>
<b>5.4 RECOMMENDATIONS.....</b>	<b>40</b>
<b>5.5 LIMITATIONS AND FURTHER STUDIES .....</b>	<b>40</b>
<b>REFERENCES.....</b>	<b>42</b>
<b>QUESTIONNAIRE.....</b>	<b>50</b>

## LIST OF TABLES

TABLE 4.1: BACKGROUND OF THE RESPONDENTS .....	30
TABLE 4.2: QUALITY PROBLEMS .....	32
TABLE 4.3: BARRIERS TO EFFECTIVE COMMUNICATION .....	33
TABLE 4.4: REGRESSION ANALYSIS.....	36

## LIST OF FIGURES

FIGURE 1.1: STRUCTURE OF THE REPORT .....	7
FIGURE 2.1: THE COMMUNICATION PROCESS .....	15

## **ACKNOWLEDGEMENT**

This thesis would not have been possible without the Grace of God the Creator and the Source of Creation. Indeed, He has supplied all my needs even before I needed them. Unto Him I give all praise, glory and honor. Likewise, the success of this thesis cannot be without the immense contribution of my supervisor. From the depth of my heart, I am very grateful to Dr. Emmanuel Adinyira for his immense, insightful contribution towards this thesis. I would like to also express my profound gratitude to Bro. Ishmael Tetteh, Ing. Rosby Kome-Mensah and Mr. Ofori larbi for all the valued support. God richly bless you.

## **DEDICATION**

This dissertation is dedicated with the deepest respect and honour to Abdoulaye Dicko, Gloria Awuku Boateng and my lovely wife Kadidjatou Sawadogo for their support, understanding and immense contribution to my life and education.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 BACKGROUND OF STUDY**

Numerous researches have indicated that, the construction industry is the core for infrastructural development in every country (Agarkwah-Baah, 2007; Rameezdeen, 2005). In Ghana, the construction industry does not only aid in infrastructure development but also, contributes significantly to Gross Domestic Product (GDP), growth (Ghana Statistical Service, 2015). Over the years, the Ghanaian construction industry has experienced a steady growth. Construction in Ghana can be historically linked to Great Britain.

In the early days, construction was regarded as a family business and was done at a non-commercial scale (Ahadzie.2010). According to the same author, construction during those days was basically for provision of shelters mostly made of wood and mud. The Ghanaian construction industry was dominated by foreign firms like Taylor Woodrow Company in the pre-independence and post-independence era. According to Assibey-Mensah, (2008), the first construction firm to be established in Ghana was the State Construction Corporation (SCC) in 1961 and its primary goal was to lay roads in the most economical way. With time, the Ghanaian construction grew and became more sophisticated which lead to the development of Building Regulations which was fabricated using the regulatory system of UK. Also, a wide range of stakeholders were involved in the construction process as it became complex in existence (Dadzie et al., 2012). The complexity of the construction industry has led to numerous challenges and set-backs in the industry.

In 2011, Amoah et al., identified numerous problems associated with the construction industry. Most of these challenges affects the overall quality of the construction product. The Ghanaian

construction industry is therefore prone to under-performance in terms of quality. According to Egemen and Mohamed (2005), completing a project to meet the required quality standards is one of the major criteria in measuring project success. Quality is achieved when the legal, aesthetic and functional requirements of a project of the customers/client is achieved (Tang et al., 2005). Quality involves meeting or exceeding the expectations of clients. According to Ling et al., (2009), quality is the output of the service provided or work done. The three (3) significant components of quality management on a construction project are quality planning, quality assurance and quality control (Project Management Institute, 2000). These components aid in the achievement of high-quality performance in construction when they are properly executed.

Communication on the other hand is also a key component of the construction industry. Adequate interaction with every benefactor of a construction project including all project team members is a very important enabling factor for the success of the project (Pinto and Slevin, 1987). Communication as applied in construction projects can be defined as the exchange of project-specific comprehension between the sender and the receiver thus providing accurate information to all stakeholders (Project Management Institute, 2000). According to Higgin and Jessop (2013), difficulties in communication on construction projects can lead to a significant increase in the quantity of unnecessary expenditure which also affects the progress of the work and cause unnecessary delays which can consequently affect the quality of the project.

Hence, the aim of this study is to ascertain the causal relationship between quality problems and communication.

## **1.2 PROBLEM STATEMENT**

The Ghanaian construction industry faces numerous problems mostly associated with quality (Amoah et al., 2011). Some of these problems are design changes, poor planning, poor supervision and low mechanization (Ahazdie, 1995; Fugar and Agarkwaah-Baah, 2010). According to Ling et al., (2009), quality is the end product of the service provided or work executed. Quality involves meeting or exceeding the expectations of clients. Thus, quality is only achieved if the client's needs are met adequately; anything that fall short of that is considered a quality problem. Therefore, quality performance originates from the client's expectations. If client's needs and expectations are not clearly communicated and understood by the contractors, it significantly affects the output of the project. Clients are regarded as the major benefactors of any project. They initiate a project, therefore, meeting their needs is of huge importance to the contractors.

A research study involving five hundred construction projects shown that, a well-defined project aims and a collaborative and cohesive project team is a major dictator of project success (Larsen and Gobeli 1989). This shows that, communication is key in realizing the goals of the client. Identifying and communicating project goals to team members and other stakeholders at the early stages of a project is very critical because failure to do this can lead to identifying some of the project requirements at the later stage which will cause alterations to the plan of the construction procedure consequently leading to project quality problems (Anantatmula 2010).

Despite this factor, little study has been conducted to identify the causal relationship between quality problems and communication in Ghana. Therefore, this study is being conducted to ascertain the causal relationship between quality problems and communication.

### **1.3 RESEARCH QUESTIONS**

With this topic, three (3) questions were asked which were;

1. What are the quality problems that exist in the Ghanaian construction industry?
2. What are the factors that aids in effective communication in the Ghanaian construction industry?
3. What is the relationship between project quality problems and communication in the construction industry in Ghana?

### **1.4 AIM OF THE STUDY**

The aim of this study is to ascertain the causal relationship between quality problems and communication in the Ghanaian construction industry.

### **1.5 OBJECTIVES OF THE STUDY**

With the above aim, three (3) objectives were set which were;

1. To identify the quality problems that exist in the Ghanaian construction industry;
2. To identify the factors that aids in effective communication in the Ghanaian construction industry; and
3. To identify the relationship between project quality problems and communication in the Ghanaian construction industry.

### **1.6 SIGNIFICANCE OF THE STUDY**

This study will provide an empirical evidence of the relationship between project quality problems and communication. Its finding will be significant for various stakeholders in the construction industry, since it will determine whether or not project quality problems also depend on effective communication. For instance, clients will be aware of the significance of effective communication in solving project quality problems. They will therefore urge their advisors to improve on the

effectiveness of their communication process to improve on the quality of the final product. This study is also very significant in academia. The outcome of this study will fill the gap in literature in terms of the relationship between quality and communication on construction projects. Furthermore, it will provide project managers and construction managers knowledge on the importance of effective communication on construction projects. Construction managers are critical in ensuring the quality of the final product as they are the main executors of the construction project. With significant knowledge on the importance of communication in improving quality, construction firms will put in much effort in ensuring the communication process is expedited. Also, the outcome of this study will aid in solving the quality problems that exists on construction projects.

### **1.7 SCOPE OF THE STUDY**

This study was limited to only construction managers. Construction managers are the executors of construction projects and thus, they are involved in the final output of a construction project. They receive information from clients and consultants on project requirements. Therefore, they are more suitable in providing reliable data on how quality problems are related to communication. However, this study was narrowed to D1K1 and D2K2 construction companies in the Sekondi-Takoradi and Accra metropolis. This was due to the quantum of projects that are executed in these metropolis and the capacity of the category of contractors selected.

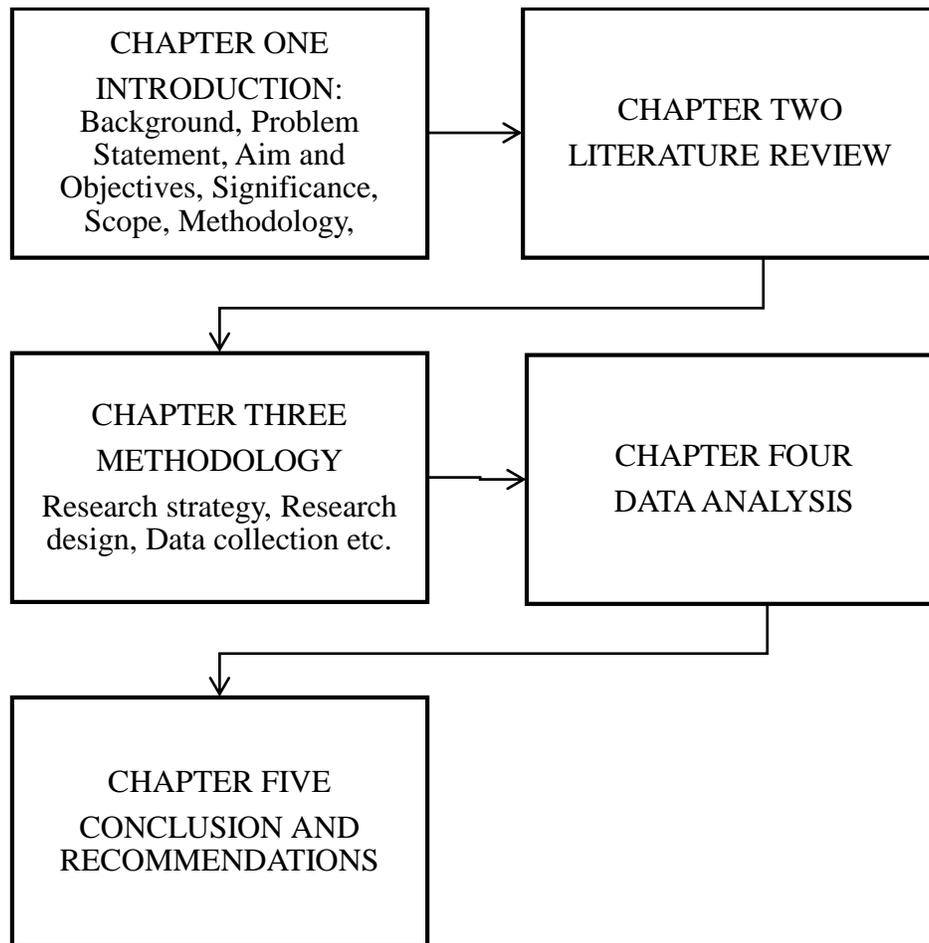
### **1.8 METHODOLOGY**

The methodology adopted for this study was very significant in shaping how the study was conducted. This study adopted the quantitative research method. This is because, this study relied on numerical data for the analysis. Information collected from the respondents was converted to numerical representations and consequently, mathematical tools adopted for the analysis. The

research strategy adopted is survey research while the research approach is deductive. Structured questionnaire was developed to seek for information from the respondents. The targeted respondents were construction firms operating in the Sekondi-Takoradi and Accra metropolis. Therefore, the purposive sampling technique was utilized in reaching the respondents. Questionnaires were piloted prior to distribution. This aided in ensuring that relevant questions for the study were asked.

### **1.9 STRUCTURE OF THE STUDY**

This research has five major divisions or chapters. The chapter one discusses the general introduction of the study. They consist of sub-sections like the background of study, the problem statement, aim, objectives and the significance of the study. The chapter two review the literature pertaining to the area of study. The chapter three talks about the methodological approach adopted for the research. This included the research design, research strategy, the population and the sample size of the study. The chapter four looks at the analysis of data and discusses the findings from the analysis. The final chapter deals with a discussion of the findings from the chapter four. From there, recommendations were made based on the findings.



**Figure 1.1: Structure of the report**

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This chapter reviews literature pertaining to quality and communication. The review begins with a discussion on the quality performance as a success criterion followed by the factors that affects quality performance. Subsequently, the concept of communication is reviewed together with the factors that affects communication. This aided in a discussion on the relationship between quality performance and effective communication.

It has been established that, the construction industry plays a very significant function in enhancing the development process of the country. The sector provides structures demanded for the development of the socio - economy which aid in the total growth of the economy. Furthermore, the construction sector provides employment for many participants ranging from skilled professionals to unskilled or manual laborers who are recruited by construction firms. However, the attainment of competitive advantage which is sustainable through the constant transport of extraordinary services and as nicely as satisfied clients is due to strong quality culture practiced in the industry.

The construction industry is faced with various problems due to its complex nature of functioning (Kanji and Wong, 1998). There are numerous organizations, occupations and professions in the construction industry Schultzel and Unruh (1996). Therefore, effective communication is key in ensuring that, the project is delivered with high quality. The contractors, sub-contractors, consultants and the client on a project has a vital role to play in assuring the achievement of high

quality. Failure of any of the participants to communicate effectively can affect the quality delivery of the construction project.

## **2.2 QUALITY AS A PERFORMANCE CRITERIA**

According to Turban and Aronson (2001), the final result of a process or an activity is the outcome. The same authors indicated that, basically, processes and operations are assessed with two major performance measures. These are effectiveness and efficiency. Effectiveness means behaving in the right manner in all things while efficiency is doing the things correctly. However, performance may take different understandings depending on the circumstance and subject area being addressed. Performance in the construction industry, is most of the time measured based on the extent to which the objective of the client, such objectives required by clients are that timeliness, safety, quality and profitability are met (Lee et al., 2006). Bassioni et al., (2004) also indicated that, performance in construction involves extra aspects like profitability, satisfaction of the customer, growth, innovation and standard of work life. These criteria are described as a function of another. This creates huge complexity in the definition of performance. Furthermore, the definition of performance becomes more complex as it requires a combination of criteria, a degree of analytic thinking (such as end-users), a time frame, a certain focus, and a measurement system (qualitative or quantitative; objective or subjective). Traditionally, performance in the construction industry is popularly measured using the “iron-triangle” criteria which includes time, cost and quality (Zoltan, 2017). The project cost includes the cost from the origin to complete execution of works and not only the tender sum. The schedule of a project is normally arranged to allow the building to be used by a date determined by the client. Quality is achieved when the, artistic, legal and operational requirements of a project of the customers/client is achieved (Tang et al., 2005).

There are other performance criteria like health and safety, environmental performance and client satisfaction. However, this study is concentrated on quality performance.

Quality was described by American Society for Quality, (2006) as the conformance to the agreed requirements of the client. According to Ling et al., (2009), quality is the output of the service provided or work done. Quality is one of the major criteria in measuring project success. Most definitions of quality in the construction industry focuses on both product and process quality. However, Gilberto (2007), emphasized the motive to distinguish between the quality of the process and the quality of the product. Product quality refers to the quality of the physical components associated directly to the products that are physical. Moreover, quality process involves how stages are standardized or activities in other to achieve an acceptable product of quality. For example, in the construction industry, a product quality might concern achieving a level of quality in the fundamental components, that is equipment, technology and materials which is durable in the structure; in contrast process quality seeks to ensure that quality cuts across each activities done during the planning, designing, organization, construction, management of the project. Furthermore, it also seeks to achieve quality in the three phases of design and planning, construction and maintenance operation.

Requirements of the product and process that depicts quality are specified by the client and his advisors and detailed in the contract signed by both parties. Throughout the whole process of construction, quality is massively considered because compromising on quality of an activity at a particular phase would affect the succeeding phases. According to Gilberto (2007), the determinants of quality in relation to construction projects is evident in the design as well as the phases of the construction. The deviation of quality in a project is commences at the design and construction phase of a project. Traditionally, there are two (2) approaches in estimating the quality

of a construction project. The first is in relation specifications and requirements of the client, if they have been met. The second one is connected to the process of creating the product. That is, in terms of the meeting of the standard or requirements of the set out management processes, as well as for the procedures related to the product to be delivered. In particular, the first approach has been used for the assessment of performance (in phrases of success or failure) of building projects (Kagioglou et al., 2001). However, in achieving the goal or aim of the project, much focus should be on the rating of the process in relation to performance. An improved projects' product is achieved by greatly improving the efficiency and effectiveness of the processes of the project.

### **2.2.1 Performance management**

Performance management is the process of integrating a system by which the processes is monitored to ensure its accomplishment (19). It depicts how successful organization achieve their set goals and strategies by the collection of data on performance and the comparison of the differences in projections. Timely delivery or meeting of deadline also play a role in the success of the organization (20). He also called attention to the fact that, the failure of processes of project to attain the set goal of the project in firms relating to construction when the project processes fail to achieve their target should propel management to come out with more effective and improved processes. Furthermore, Yasamis et al. (2002), indicated that, systems for measuring performance should have an information management system in the identification, collection, storage, updating and retrieval objective and subjective information.

According to Yasamis et al. (2002), if the operations and output of a construction organization is results oriented and seeks to create quality awareness, then that organization practices quality performance in constructions. For example, overruns in time and delay of activities of construction are mostly used as a yardstick to measure the significance occurring of rework has during the

process. They also introduced that for the outcomes to be permanent and its enhancement are expected to make bigger the productivity and profitability of contractors as well as growing customer and end-user satisfaction, great overall performance is measured over a lengthy term. Therefore, the excellent performance in construction projects is described at three stages: The venture level, the operational degrees and the corporate level. The decision to embark on a project finally assigned to the company is taken at the corporate level. The organization at the corporate level may be contracted with different projects, which particular organizations may be allotted to each. each of which may be allotted to a specific organization. The organization at the corporate level is uncertainly constituted as a joint venture, a consortium or sole organization etc. (ISO, 2003).

Operational level is a stage within the project where multiple construction activities are carried out. Each activity includes different and multiple activities, tasks, and resources, the outcome of these activities define performance. The performance in relation to quality at the operational level has an influence on the awareness of quality at the project level. at the project-level influences the quality performance at the operation level. Therefore, the accessibility and implementation of positive pleasant improvement strategies that will assist the achievement of the operations goals can assist evaluate standardized performance of operations.

Quality performance should be evaluated for two processes carried out by construction organizations (ISO, 2003):

1. The management of the processes of a project involves every activity required in managing the project and attaining the set goals of the project continually (e.g. improving, planning and controlling).

2. The activities related to the realization of the product of the project. (e.g. design/engineering, procurement, construction).

According to Gilberto (2007), the finished facility and the contracting service sum up to the output of a construction works. An entire description of the quality of the project requires the consideration of the finished facility and the contracting service as well. The completed structure establishes the construction projects' product whereas the services in relation to contract is the process of creating the product, that is the completed structure. The level of satisfaction of the client in the completed structure and the contracting service is the determinant of the quality of the project. Therefore, requirements for quality performance in construction are reliability in contracting service and consciousness of the firm about quality.

### **2.2.2 Factors that influence construction quality performance**

The construction industry is faced with numerous challenges that hinders the achievement of high project performance just like any other industry. The identification of the factors that affect construction project quality will aid the various stakeholders in the construction industry in avoiding them and strictly sticking to the client's requirements.

According to Jha and Iyer (2006), managers of construction firms are not committed to continual quality improvement, this is due to; lack of proper training for staff; poor leadership and supervision; efficient team work among stakeholders, these factors hinder the achievement of high-quality performance in the construction industry. Furthermore, Shri et al. (2009), identified kickbacks; incorrect planning; level of competition; fraudulent practices; number of competitors; lack of coordination between designers and contractors; poor financial control on site; wastage on site; previous experience of contractor and frequent design changes as the primary factors that affect quality performance. Studies conducted by Tengan (2007), identified lack of experts and

technical professionals and resources to undertake tasks, low level of commitment and understanding from employees; lack of education and on the job training as the major factors that influenced quality assurance practices. Other factors included competence of project managers, lack of on-site project manager, poor monitoring and feedback, low capability of project team, poor management techniques, insufficient information and communication channels, lack of early and continual client/consultant consultation by contractor and insufficient project managers experience (Baker et al., 1983; Cleland and King, 1983; Pinto and Slevin, 1987).

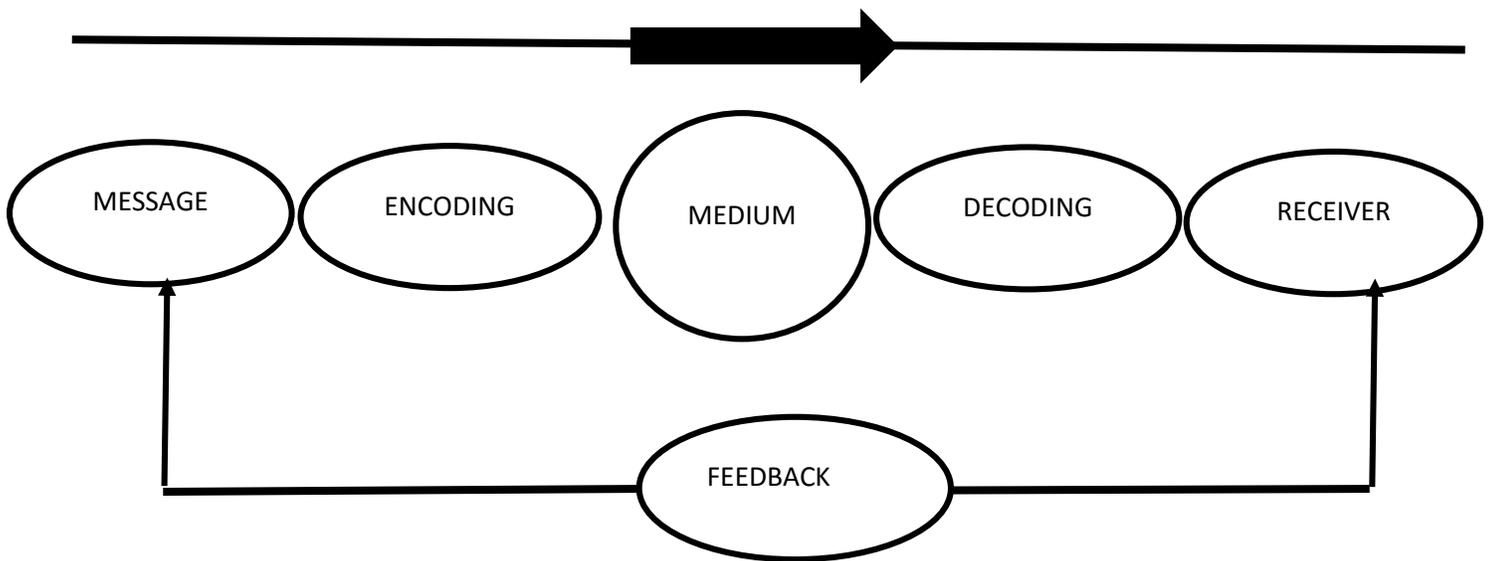
### **2.3 COMMUNICATION ON CONSTRUCTION PROJECTS**

Effective communication in construction projects is very vital the smooth progress of the construction activities. Different authors have varying perception about the definition of communication. Olu (1999), defined communication as the process by which people attempt to share meanings through symbolic messages. Dance (1970), described communication as the exchange of information, usually through symbols. According to Obamiro (2008), communication can be described as the exchange of information between a sender and a receiver. Borgatti et al. (2009), described communication as the means of broadcasting information from a sender to a receiver.

There are basically two (2) forms of communication. These are formal communication and informal communication. These two (2) forms of communication are usually used together in an organization. However, formal communication is based on regulations. According to Dainty et al. (2006), formal communication follows laid down instructions set in the communication strategy of the organization. Informal communication follows no guidelines. In a typical construction organization, communication can be categorized based on the direction of flow from the sender to the recipient (Okoh, 2004). These categorizations of communication are downward flows, upward

flows, horizontal flows and lateral flows. Downward communication is from head to assistants. Whereas upward communication comes from assistants to heads. Horizontal and lateral communication is between people on the same hierarchy.

Communication is a complex task. The process of communication consists of seven (7) steps. These are the message, encoding, transmitting (medium), receiving, decoding, understanding and feedback. Figure 2.1 depicts the communication model. The message originates from the sender and through a medium, it reaches the receiver. The mediums of communication may include face-to-face, video conferencing tools, project documents, telephone and e-mails. Research has shown that, face-to-face communication is the most used communication medium in the construction industry.



**Figure 2.1: The communication process**

Source: Barrelas, (2010).

## **2.4 FACTORS THAT AFFECT COMMUNICATION**

Communication is affected by numerous factors in the construction industry. The factors that affect communication can be regarded as the barriers to effective communication. The author, George Bernard Shaw wrote “The greatest problem with communication is the illusion that it has been accomplished” (Shaw, 2011). This study categorizes the barriers to communication into four (4). These are the process barriers, physical barriers, semantic barriers, language barrier, social barriers, cultural barriers, technological failure, inappropriate channel, insufficient knowledge about the subject, lack of sensitivity of the receiver and psychological barriers (Eisenberg, 2010).

### **2.4.1 Process barriers**

Every step in the communication process is very significant for effective and good communication. Process barrier may include the sender’s fear to communicate a good idea due to fear of criticisms. Furthermore, differences in language can be classified under the process barrier. Other forms of process barrier may include the use of an inappropriate communication medium. For instance, expression of feelings is best done face-to-face rather than through letter writing. Communication is a complicated, discussion process, therefore, any breakdown in the cycle can cancel out the transmission preventing understanding (Eisenberg, 2010).

### **2.4.2 Physical barriers**

Any number of physical interference and distractions can interpose communication, including a telephone call, distances between people, drop-in visitors, walls, and static on the radio. Physical roadblocks are often taken lightly but they can sometimes be removed. For example, a wall positioned inconveniently causing interference can be removed. Interruptions such as telephone calls and drop-in visitors can be removed by issuing instructions to a secretary. An appropriate choice of media can overcome barriers caused by distance between people (Eisenberg, 2010).

### **2.4.3 Semantic barriers**

The words selected when communicating, the meaning and emotions attached to them and how we use them can create many communication problems. The same word may bear different meanings to different people depending on the context within which it is used. Technology also is a key player semantic barriers to communication (Eisenberg, 2010).

### **2.4.4 Psychological barriers**

Experience on field, filtering, and psychological distance are three important concepts that are associated with psychological and social barriers (Antos, 2011). Fields of experience includes the perceptions of people about certain issues, the background and the needs and expectations of people. Senders of information can encode and receivers decrypt messages only when they have enough experience context of their fields of experience. Communication becomes difficult when the sender's field of experience overlaps very little with the receivers. Filtering means that more often than not we see and hear what we are emotionally tuned in to see and hear. Psychosocial barriers involve a mental space between people that is similar to the distance pertaining to physicality.  
distance.

### **2.4.5 Language barrier**

Language difficulties may act as roadblock to communication. Even when communicating in the same language, the terminologies may not be understood fully by the receiver, such a situation clarifies language as a barrier to communication. For instance, expressions in certain areas may be misinterpreted or even considered offensive (Eisenberg, 2010).

#### **2.4.6 Social barriers**

The social psychological phenomenon of conformity, a process in which the norms, values, and behaviors of an individual begin to follow those of the wider group can all serve as social barriers to communication (Mutua, 2010). Social factors such as age, gender, socioeconomic status and marital status many acts as a barrier to communication in certain situations

#### **2.4.7 Cultural barrier**

Culture shapes the way we think and behave. It can be seen as both shaping and being shaped by our established patterns of communication. Cultural barriers to communication often arises when individuals in one social group have development different norms, values, or behaviors to individuals associated with another group. Cultural difference leads to difference in interest, knowledge, value and tradition. Therefore, people of different cultures will experience these culture factors as a barrier to communicate with each other (Eisenberg, 2010).

#### **2.4.8 Technological failure**

These problems develop as a result of message not delivered due to technical failure like receiver was not in mobile network area and the sender has no way of detecting the message was not sent to receive due to failure in technicalities (Eisenberg, 2010).

#### **2.4.9 Unclear messages**

Communicating effectively starts by sending a clear message. Messages are unclear once the receiver is not able to decrypt or interpret the message received from sender (Eisenberg, 2010).

#### **2.4.10 Inappropriate medium**

Medium changing enables the receiver to make meaning of the nature and the relevance of a message. Recognizing the receiver's needs, status, knowledge of the subject and language skills assists the sender in preparing a successful message (Eisenberg, 2010).

#### **2.4.11 Lack of sensitivity to receiver**

A message should be well adjusted to suit the understanding of the receiver, the inability to do this can cause a breakdown in communication. Recognizing the status, needs and the knowledge of the receiver concerning the communicate sent in preparing a successful message (Eisenberg, 2010).

### **2.5 THE THEORITICAL IMPACT OF COMMUNICATION ON PROJECT QUALITY PERFORMANCE**

In order to improve the quality performance of any construction organization, it must be noted that, the entire performance of the organization must be improved. Numerous research has shown the significance of communication in improving organizational performance. Kibe (2014), analyzed communication strategies and their effect on organizational performance. With the use of a descriptive explorative design, 132 questionnaires were distributed to employees. From the findings of the study, he concluded that, for effective organizational performance, a clear environment for communication should be encouraged. Similar studies conducted by Husain (2013); Bery et al., (2015) showed similar results. This shows the significance of communication in improving the performance of an organization. Over 80% of a typical day in an organization is spent communicating with others. Since most of the management practices are planning, organizing, leading and controlling, the entire performance of the organization hinges on effective communication.

### **2.6 SUMMARY OF CHAPTER**

The literature review was conducted based on the objectives of the study. The objectives of the study were to identify the quality problems that exist in the construction industry in Ghana, to identify the factors that aids in effective communication in the construction industry in Ghana; and to identify the relationship between project quality problems and communication in the Ghanaian

construction industry. The review begun with a discussion of quality as a success criterion. The was followed by performance management and factors that affect quality performance. Communication on construction projects was subsequently reviewed followed by the factors that affect communication. The literature ended with a discussion of the theoretical impact of communication on project quality performance. The review demonstrated that, quality is a very significant success measurement criterion. Also, communication is a very important tool in the overall performance of every organization. Furthermore, the review demonstrated that, the problems associated with quality can be eliminated if the effectiveness of communication is enhanced in the construction industry.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 CHAPTER OUTLINE**

Marczyk et al. (2005), indicated that, the use of an appropriate research methodology aids the researcher to reduce the complicated nature of the study of the study, as well as present a well-established procedure to addressing the research objectives. Therefore, this chapter discusses the research methodologies adopted for the research. This chapter shall entail the discussion of the research design, the research process, the research method, population, sample size and sampling technique and tools used for the analysis.

#### **3.2 RESEARCH PROCESS**

The aim of this study was to ascertain the causal relationship between quality problems and communication in the Ghanaian construction industry. The literature of this study was reviewed as part of the research procedure. From the review of literature, data was collected through a questionnaire survey based on the objectives of the study. The data collected aided in the achievement of the research objectives and making recommendations from the study.

#### **3.3 RESEARCH DESIGN**

The research design describes the coherent plan of data needed to offer suitable answers to the questions pertaining to the research in the study. Also it depicts how information is gathered and examined for this purpose (Cresswell, 2009). Yin (2009), indicated that, the research design directs and motivates the most suitable instrument for collecting and analyzing the data towards the achievement of the research objective. The research design also aids in the selection of the appropriate research method (Cresswell, 2009).

Social researchers basically ask two (2) questions which leads to the two types of research design. These are;

1. What is happening?
2. Why is it happening?

The answer to the first question gives rise to the descriptive research design. Kerlinger (1986), described descriptive research design as the provision of an accurate account of the features of a particular individual or situation as a way of discovering new meanings, describing what exists and grouping information. The answer to the second question gives rise to the explanatory research design. Explanatory research design involves the development of relationships which is based on the fact that, one development is influenced by several factors. Explanatory research can be based on relation or connection. In some cases, the two (2) principles may be combined in one study.

The aim of this study was to ascertain the causal relationship between quality problems and communication in the Ghanaian construction industry. Thus, the outcome of the study will include the development of relationships using appropriate analytical tools. Therefore, the most appropriate research design for this study is explanatory research design.

### **3.4 THE RESEARCH STRATEGY**

There are basically six (6) main research strategies used in any research study (Bryman 2009; Saunders et al., 2009). The strategies are case studies, surveys, actions, experiments, ethnography and archival analysis (Bryman 2009; Saunders et al., 2009). However, according to Blismas (2001), the most suitable research strategies for social science and project management research are survey research, case study research, action research and experiment. These strategies are discussed below.

### **3.4.1 Case study**

Yin (2009), described the case study research strategy as a proficiency that examines one entity by using various tools to collect data. This type of research is very suitable for exploratory research. The case study research involves an intensive analysis of the research entity (Neuman, 2003). According to Yin (2009), the case study research design is best suited for answering ‘how’ and ‘why’ questions and also very suitable for inductive research approach.

### **3.4.2 Experiment**

According to Bryman (2009), a type of strategy in research that contains discovering casual connections concerning variables by handling one variable on another. According to Cresswell, (2009), it is very apt for works whose variables are projected at testing a theory It is very suitable in answering “how” and ‘why’ questions.

### **3.4.3 Survey**

The survey research usually involves the use of samples to represent groups and is mostly used for prediction the relationship between variables and also to predict the behavior of the variables subject to a certain test (Oppenheim, 2003). Thus, survey research is suitable for researches that are to demonstrate the influence of group of variables on another group without any manipulations to the independent variable (Oppenheim, 2003). Blismas (2001), indicated that, the survey research strategy is very effective for construction management research.

Based on the description above, the survey research strategy was deemed most suitable as it is regarded are a great strategy in exploring the relationships between variables and predicting behaviors as opined by Oppenheim, (2003).

### **3.5 RESEARCH APPROACH**

The research approach primarily indicates the way and depth research questions are answered. According to Saunders et al. (2009), deductive research approach and inductive research approach are the two (2) categories of approaches to any type of research.

Inductive research approach employs the bottom-up approach and has to do with the formulation of theories and the testing of that theory (Naoum, 2002). Furthermore, the inductive employs the approach observing the concept generally and formulation of a theory and often described as a qualitative approach (Baxter and Jack, 2008). The inductive approach is generally dependent and requires the full engagement of the researcher who employs it (Creswell, 2009).

On the other hand, the deductive research approach starts at the highest conceptual level and works down to the details in connection to theory formulation and testing of hypothesis (Naoum, 2002). Thus, this approach targets the specific phenomenon into details. It is usually described as the quantitative research method (Baxter and Jack, 2008). The deductive research approach basically collects data by using statistical tools and uses mathematical techniques to analyze the relationships between factors and draws conclusion from its findings (Naoum, 2002).

Due to the statistical techniques used in the collection of data, analyzing, facts identification and the casual relations amid variables to test hypothesis and in the drawing of conclusions, the deductive approach was employed for this study.

### **3.6. RESEARCH METHOD**

There are basically three (3) main research methods. These are the quantitative, qualitative and mixed research methods.

The quantitative research basically employs the use of mathematical tools to test hypothesis and answer research questions. A good quantitative research method does not involve the research and the questionnaire used is mostly close-ended. The quantitative research method is mostly used in situations in which the researcher wants to study how a specified variable affects another, disregarding the effects of other variables.

On the flip side, the qualitative research method normally involves the use of text to make vivid descriptions and generate meanings. The researcher must be extensively involved in qualitative research. Open-ended questions are used as opposed to quantitative research which uses close ended questionnaire.

The mixed research method is a combination of both the quantitative and the qualitative research method. Thus, it draws from the strength of the two methods. According to Creswell (2003), the mixed research method is relatively new and still under development.

The type of research method adopted depends on the type of data used to answer the research question. Research data can be numerical, textural or both. Quantitative research uses numerical data while qualitative data uses textural data. Due to the fact that this study utilized numerical data, the quantitative research method was deemed suitable for the study.

### **3.7 POPULATION, SAMPLE SIZE AND SAMPLING TECHNIQUE**

The population for this study is D1K1 and D2K2 construction organizations in Sekondi-Takoradi and Accra metropolis. The number of D1K1 and D2K2 construction organizations in Sekondi-Takoradi and Accra metropolis centered on the Ministry of Works and Housing, is one hundred

and twenty-eight as at 2014. It is therefore necessary to establish a sample size as most of the construction firms may not be responsive and also avoid unnecessary/excessive repetition of responses. Therefore, using the Kish formula, a sample size of sixty-six (66) was attained.

$$n = \frac{n'}{\left(1 + \frac{n'}{N}\right)}$$

$$n' = \frac{s^2}{v^2}$$

Where

$v$  = the standard error of sampling distribution = 0.05

$s^2$  = the maximum standard deviation of the population

Total error = 0.10 at a confidence interval of 95%

$$s^2 = p(1 - p) \text{ where } p = 0.50$$

$$= 0.50(1 - 0.50)$$

$$= 0.25$$

$p$  = the proportion of the population elements that belong to the defined region.

$$n' = \frac{s^2}{v^2}$$

$$= \frac{0.25}{0.05^2} = 100$$

$$N = 128$$

Therefore

$$n = \frac{100}{\left(1 + \frac{100}{128}\right)} = \frac{100}{(1+1.205)} = 56.15 \approx 56.$$

Adding an extra ten (10) to cater for non-responsiveness, the sample size will amount to sixty-six (66) respondents.

The respondents were reached using the simple random sampling technique. This sampling technique is suitable for a sample that each member is capable of providing reliable responses

### **3.8 DEVELOPMENT AND DISTRIBUTION OF QUESTIONNAIRE**

Structured questionnaire was developed for the respondents to indicate their opinion on the subject of study. The questionnaire consisted of sections. The first section was dedicated to the background of the respondents. The other three (3) sections were set in accordance to the objectives of the study. Objective one, two and three were allocated to section two and three respectively. The five-point Likert scale was used for the rating by the respondents. Prior to the distribution of the questionnaire, a pilot survey was conducted among peers. This aided in making final tunings to the questionnaire. The questionnaires were finally distributed to sixty-six respondents. However, forty-nine (49) questionnaires were retrieved and used for the analysis. This represented a 74.24% response rate.

### **3.9 TOOLS FOR THE ANALYSIS**

The section 1 of the questionnaire was analyzed using percentages and text to describe the nature of the participants of the study. The section 2 was analyzed using the mean score ranking to rank the variables gathered from literature. Similarly, the section 3 was analyzed using the mean score ranking. Finally, the section 4 was analyzed using the multiple regression method to ascertain the relationship between the project quality problems and communication. However, the responses were coded using SPSS software version 20. The regression analysis is fundamentally used to analyze the relationships among variables. Furthermore, the regression analysis method can be adopted to monitor changes in the dependent variable with changes in the independent variable.

There are two (2) fundamental forms of regression. These are simple linear regression and multiple linear regression. The multiple linear regression was adopted for this study as linear regression is

used to study the relationship between one independent and one dependent variable. However, since this study as more than one independent variables, the multiple regression analysis was used as its study the relationship between one dependent variable and multiple independent variables.

## **CHAPTER FOUR**

### **DATA ANALYSIS AND DISCUSSION**

#### **4.1 INTRODUCTION**

This section of the study analyze data that has been collected from respondents in order to attain the three (3) objectives of the study. The objectives were to identify the quality problems that exist in the construction industry in Ghana, to identify the factors that aids in effective communication in the Ghanaian construction industry and to identify the relationship between project quality problems and communication in the Ghanaian construction industry. The first step of achieving the objectives involved the review of literature which was used to develop a questionnaire to collect data from the respondents. The next step of achieving the objectives was to analyze the data collected. The data was analyzed using the mean score ranking and the multiple regression analysis. Prior to the analysis of the objectives, the background of the respondents was analyzed using frequencies. The outcome of the analysis is discussed in this chapter.

#### **4.2 BACKGROUND OF THE RESPONDENTS**

Respondents' background is displayed on table 4.1. The first question of the respondents' background wanted to ascertain the category of the respondents. The options were D1K1 and D2K2 as they were the main target for the study, twenty-eight (28) of the respondents were D2K2 whiles twenty-one (21) of the respondents were D1K1.

The second question was projected to assess the years of experience of the respondents in practice. The years of experience of respondents gives an indication of his familiarity and knowledge of the processes of the firm. From the responses, majority of the respondents had more than six (6) years

of experience. The least had Below 5 years of experience. This gives an indication that, the responses given by the participants will be highly dependable.

**Table: 4.1: Background of the respondents**

DESCRIPTION	FREQUENCY	PERCENTAGES
<b>Category of construction firm</b>		
D1K1	21	42.86
D2K2	28	57.14
<b>Years of experience</b>		
Below 5 years	2	4.08
6-10 years	24	48.98
11-15 years	13	26.53
16-20 years	6	12.24
Above 20 years	4	8.16
<b>Education Level</b>		
HND	7	14.29
BSc	31	63.27
Post graduate	11	22.45
<b>Number of projects</b>		
Below 5	5	10.20
6-10	24	48.98
11-15	11	22.45
16-20	6	12.24
Above 20	3	6.12

Source: Field survey, (2018).

The third question asked the respondents to indicate their highest level of education. This also gives an indication of the knowledge level of respondents. Majority of the respondents had BSc degree constituting a thirty-one (31) in number of the respondents.

The last question under the background of the respondents wanted to ascertain the number of construction projects the participant has being involved in. The options were below 5, 6-10, 11-15, 16-20 and above 20. The majority of the respondents indicated that they had executed 11-15 projects.

### **4.3 QUALITY PROBLEMS**

The first objective of the study sought to identify the quality problems that exist in the Ghanaian construction industry. The construction industry is confronted with various problems that hinders the achievement of high project performance just like any other industry. The identification of the factors that affect construction project quality will aid the various stakeholders in the construction industry in avoiding them and strictly sticking to the client's requirement. Therefore, the respondents were asked to indicate how significant the quality problems are in construction project management. Their responses were rated with the five-point Likert scale and analyzed using the mean score ranking.

Based on the analysis, the most significant problem as indicated by the respondents was inexperienced consultant. The second most significant problem was lack of technical and professional expertise. The third most significant problem was inexperienced contractor and time constraints. Researchers like Teegan (2007), Shri et al. (2009) and Jha and Iyer (2006) acknowledged the significance of the quality problems in their studies. The reliability on the facility that is built, competence of the contracting service and the quality conscious of organization of the contractor determines quality performance in construction.

**Table 4.2: Quality problems**

<b>DESCRIPTION</b>	<b>MEAN</b>	<b>SD</b>	<b>RANK</b>
Inexperienced consultant	4.44	0.487	1 <sup>ST</sup>
Lack of technical and professional expertise	4.20	0.577	2 <sup>ND</sup>
Inexperienced contractor	3.85	0.508	3 <sup>RD</sup>
Time constraints	3.76	0.561	4 <sup>TH</sup>
Lack of coordination between designers and contractors	3.65	0.640	5 <sup>TH</sup>
Lack of commitment from management on continual quality improvement	3.40	0.763	6 <sup>TH</sup>
Lack of commitment by the supervising team	3.33	0.755	7 <sup>TH</sup>
Fraudulent practices and kickbacks	3.29	0.703	8 <sup>TH</sup>
Incorrect planning	3.22	0.795	9 <sup>TH</sup>
Frequent design changes	3.14	1.555	10 <sup>TH</sup>
Conforming with specifications	3.10	1.326	11 <sup>TH</sup>
Poor monitoring and feedback	3.02	0.703	12 <sup>TH</sup>
Assurance with client's funding	2.95	1.016	13 <sup>TH</sup>
Number of competitors	2.89	0.795	14 <sup>TH</sup>
Inefficient team work among stakeholders	2.82	1.253	15 <sup>TH</sup>

Source: Field survey, (2018).

#### **4.4 EFFECTIVE COMMUNICATION**

The second objective wanted to identify the factors that aids in effective communication in the Ghanaian construction industry. Effective communication in construction projects is very vital the smooth progress of the construction activities. Communication is affected by numerous factors in

the construction industry. The factors that affect communication can be regarded as the barriers to effective communication.

**Table 4.3: Barriers to effective communication**

DESCRIPTION	MEAN	SD	RANK
Unclear messages	4.22	0.551	1 <sup>ST</sup>
The timing of the communication	4.10	0.487	2 <sup>ND</sup>
Inappropriate medium	4.00	0.487	3 <sup>RD</sup>
Semantic barriers	4.00	0.626	4 <sup>TH</sup>
Physical barriers (i.e. physical interference, walls, distances between people etc.)	3.93	0.577	5 <sup>TH</sup>
Technological failure	3.88	0.640	6 <sup>TH</sup>
Language barrier	3.82	0.763	7 <sup>TH</sup>
Psychological barriers	3.78	0.668	8 <sup>TH</sup>
Cultural barrier	3.66	0.763	9 <sup>TH</sup>
Process barrier	3.53	0.962	10 <sup>TH</sup>
The project organizational structure	3.50	0.902	11 <sup>TH</sup>
Lack of sensitivity to receiver	3.48	1.071	12 <sup>TH</sup>
Social barrier	3.20	1.303	13 <sup>TH</sup>
The number of companies involved in the project	3.02	1.118	14 <sup>TH</sup>
The complexity of the project	2.98	1.303	15 <sup>TH</sup>

Source: Field survey, (2018).

The respondents were asked to indicate how significant the communication problems are in construction project management. Their responses were rated with the five-point Likert scale and analyzed using the mean score ranking.

From the responses, it was realized that, unclear message was the most significant challenge to communication. Efficacious communication is initiated with a clear message. Messages are referred to as unclear if in terms of meaning, grammar is not understandable and words may act as a roadblock to communication because the receiver will not be able to decode the actual meaning of the message.

The second most significant factor was the timing of the communication. Poor timing of message delivery can influence the effectiveness of the message communicated.

The third most significant challenge was inappropriate medium. Changing the medium enables the receiver to decode the encryption and the importance of a message. Recognizing the needs, and status of the receiver as well as the receiver's knowledge of the subject and language skills assists the sender in preparing a successful message. However, selecting an unsuitable medium can have a significant effect of the effectiveness of the communication process

The fourth ranked challenge was semantic barriers. This barrier involves the how we use the words we choose to send a message, and the meaning we place on them can raise many barriers to communication. The problem is semantic, or the meaning of the words we use. The same word may mean different things to different people. Technology also plays a part in semantic barriers to communication.

#### **4.5 THE RELEATIONSHIP BETWEEN QUALITY PROBLEMS AND COMMUNICAITON**

The third objective of the study was to establish the relationship between project quality problems and communication in the construction industry in Ghana. With this objective, the respondents were asked to rate the criticality of the communication factors on quality performance in the

Ghanaian construction industry using the scale of 1 = not critical 2 = slightly critical 3 = moderate 4 = critical 5 = very critical.

In order to make inference of the relationship between the two (2) concepts, the beta values, significance level and t-statistic values were calculated using the SPSS software version 20. The calculation was done at a confidence level of 10% ( $\alpha = 0.10$ ; two-tailed test). Therefore, when the *t*-value is above 1.65, we can conclude that, there is a significant relationship. The Beta values shows the extent of the relationship. Beta values closer to 1 shows a significant relationship and vice-versa. From the values shown in table 4.4, the complexity of the project, lack of sensitivity of the receiver, unclear messages, the number of companies involved and the process barrier shown significant relationship with the problems associated with quality. However, the complexity of the project shown the highest relationship with quality problems. The results indicated that, there is a significant relationship between communication and quality problems in the Ghanaian construction industry.

Numerous researches have shown the significance of communication in improving organizational performance. Kibe (2014), investigated the effects of communication strategies on organizational performance. With the use of a descriptive research design, 132 questionnaires were distributed to employees. From the findings of the study, he concluded that, for effective performance in an organization, an open communication environment should be encouraged. Similar studies conducted by Husain (2013); Bery et al., (2015) showed similar results. This shows the significance of communication in improving the performance of an organization. Over 80% of a typical day in an organization is spent communicating with others. Since most of the management practices are planning, organizing, leading and controlling, the entire performance of the organization hinders on effective communication.

**Table 4.4: Regression analysis**

<b>DESCRIPTION</b>	<b>BETA</b>	<b>T-STATISTIC</b>	<b>SIG</b>
The number of companies involved in the project	0.297	2.559	0.004
Unclear messages	0.318	2.957	0.015
Physical barriers (i.e. physical interference, walls, distances between people etc.)	0.125	1.157	0.006
Semantic barriers. (i.e. the meaning of a word, phrase or text)	-0.093	-0.629	0.255
The complexity of the project	0.484	3.643	0.534
The project organizational structure	0.051	0.434	0.001
Language barrier	-0.037	-0.264	0.667
Lack of sensitivity to receiver	0.213	1.972	0.793
Cultural barrier	0.101	0.652	0.057
Technological failure	0.072	0.606	0.519
Process barrier	0.425	2.100	0.549
Psychological barriers	-0.252	-1.296	0.043
Social barrier	0.064	0.316	0.204
Inappropriate medium	-0.115	-0.615	0.754
The timing of the communication	-0.176	-0.914	0.543

Source: Field survey, (2018).

#### **4.6 SUMMARY OF CHAPTER**

The data analysis was conducted with mean score ranking and multiple regression analysis. The first and second objective were analyzed using the mean score ranking. The third objective was analyzed using the regression analysis. The findings of the first objectives were that, the most

significant problem as indicated by the respondents was inexperienced consultant. The second most significant problem was lack of technical and professional expertise. The third most significant problem was inexperienced contractor and time constraints.

With the second objective of the study, the most significant factor that affects effective communication was unclear message. The second most significant factor was the timing of the communication. The third most significant challenge was inappropriate medium. The fourth ranked challenge was semantic barriers.

With the third objective, the complexity of the project, lack of sensitivity of the receiver, unclear messages, the number of companies involved and the process barrier shown significant relationship with the problems associated with quality. However, the complexity of the project shown the highest relationship with quality problems. The results indicated that, there is a significant relationship between communication and quality problems in the Ghanaian construction industry.

## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

The study begun with the aim of ascertaining the causal relationship between quality problems and communication in the Ghanaian construction industry. Three (3) objectives were established which were to identify the quality problems that exist in the construction industry in Ghana, to discover the factors that aids in effective communication in the construction industry in Ghana and to detect the relationship between project quality problems and communication in the Ghanaian construction industry. With these objectives, an extensive literature review was conducted from which variables on quality problems and communication were identified. The variables were subsequently used in the development of a structured questionnaire. The questionnaire was distributed and forty-nine (49) were retrieved and used for the analysis of the study. The analysis was done using the mean score ranking and the multiple regression analysis. This chapter discusses the summary of the findings, limitations, further studies, conclusion and make recommendations.

#### **5.2 SUMMARY OF FINDINGS**

The data analysis was done with mean score ranking and multiple regression analysis. The first and second objective were analyzed using the mean score ranking. The third objective was analyzed using the regression analysis.

The findings of the first objectives were that, the most significant problem as indicated by the respondents was inexperienced consultant. The second most significant problem was lack of technical and professional expertise. The third most significant problem was inexperienced contractor and time constraints.

With the second objective of the study, the most significant factor that affects effective communication was unclear message. The second most significant factor was the timing of the communication. The third most significant challenge was inappropriate medium. The fourth ranked challenge was semantic barriers.

With the third objective, the complexity of the project, lack of sensitivity of the receiver, unclear messages, the number of companies involved and the process barrier shown significant relationship with the problems associated with quality. However, the complexity of the project shown the highest relationship with quality problems. The results indicated that, there is a very significant relationship between communication and quality problems in the Ghanaian construction industry. The results indicated that, there is a significant relationship between communication and quality problems in the Ghanaian construction industry.

### **5.3 CONCLUSION**

This study demonstrated that, there are numerous problems that affects the quality of a construction project. It is therefore very imperative to improve the quality of the end-product of executed work. However, in order to improve the quality performance of any construction organization, it must be noted that, the entire performance of the organization must be improved. This includes the communication process of the organization. This study demonstrated that, effective communication has a positive and very significant relationship with quality performance. However, the study demonstrated that, effective communication is affected by the complexity of the project which also shown significant correlation with quality performance. Over 80% of a typical day in an organization is spent communicating with others. Since most of the management practices are planning, organizing, leading and controlling, the entire performance of the

organization hinges on effective communication. Therefore, the process of communication should be expedited to improve the quality performance of the organization.

#### **5.4 RECOMMENDATIONS**

Based on the findings of the study, the following recommendations were made;

1. A project manager must be experienced enough to spend a substantial amount of his time to formally or informally communicate at appropriate points in time to all stakeholders to enhance the project success.
2. A project manager must endeavor to adopt the appropriate communication medium at any particular point in time to expedite the communication process;
3. The client and his advisors should be very keen in selecting a suitable project manager for the project as the selection of an incompetent project manager can influence the delivery of the construction process; and
4. The project manager must develop a strict and an appropriate communication system during the execution of complex projects to enhance communication effectiveness.

#### **5.5 LIMITATIONS AND FURTHER STUDIES**

This section discusses the limitations to the study;

1. The study was narrowed to only D1K1 and D2K2 construction organization in Sekondi-Takoradi and Accra metropolis. Therefore, further studies can be conducted using other stakeholders in the construction industry.
2. The study was limited to only quality performance measurement criterion. However, there are other performance measuring criteria like time and cost. Therefore, further studies can

be conducted using other performance criteria or a combination of construction performance variables;

3. Lastly, the study was limited by the number of dependent variables that could be used. The regression analytical tool adopted could only be used for one dependent variable at a time. Therefore, further studies can also be conducted using a different analytical tool that can incorporate more than one dependent variable like the Structural Equation Model.

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## **APPENDIX**

**KWAME NKURUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**COLLEGE OF ART AND BUILT ENVIRONMENT**  
**DEPARTMENT OF CONSTRUCTION TECHNOLOGY AND MANAGEMENT**  
**SURVEY QUESTIONNAIRE**

**TOPIC: CAUSAL RELATIONSHIP BETWEEN PROJECT QUALITY PROBLEMS  
AND COMMUNICATION**

Dear Sir/ Madam

I am an MSc student at Kwame Nkrumah University of Science and Technology, Department of Construction Technology and Management currently undertaking a research on project quality and communication.

Your experience and knowledge in the area of the research is very important and much appreciated. The information you shall provide shall be **STRICTLY CONFIDENTIAL** and for academic purposes only and findings from this research will be made available to you on request.

**The questionnaire is in four sections:**

- **Section 1 – Respondent’s Profile**
- **Section 2 – Quality Problems**
- **Section 3 – Communication variables**
- **Section 4 – Relationship between Quality Problems and communication**

I appreciate your effort and time very much in advance.

Yours faithfully,

Yaya Dicko, MSc. Student, KNUST. **Tel: 0243 548 448, email: [yanessci@yahoo.com](mailto:yanessci@yahoo.com)**

Dr Emmanuel Adinyira Project Supervisor, Department of Construction Technology and Management (KNUST)

## QUESTIONNAIRE

### SECTION 1: RESPONDENT'S PROFILE

Please read through the following questions, mark [x] and provide answers where appropriate and applicable

1. Please indicate your category in the Construction industry?

D1K1

D2K2

2. Please indicate your years of experience in your profession?

Below 5 years

6-10 years

11-15 years

16-20 years

Above 20 years

3. What is your highest level of education?

HND

BSc

Post Graduate

Other; Please specify.....

4. Please indicate the number of projects you have handled?

Below 5

6-10

11-15

16-20

Above 20

## SECTION 2: QUALITY PROBLEMS

1. Please indicate how significant the following problems affects construction quality in the Ghanaian construction industry. Please use the response scale below:

**1 = not significant    2 = slightly significant    3 = moderate    4 = significant    5 = very significant**

No.	Variables	1	2	3	4	5
1	Lack of commitment from management on continual quality improvement					
2	Lack of commitment by the supervising team					
3	Inefficient team work among stakeholders					
4	Fraudulent practices and kickbacks					
5	Incorrect planning					
6	Number of competitors					
7	Lack of coordination between designers and contractors					
8	Frequent design changes					
9	Lack of technical and professional expertise					
10	Poor monitoring and feedback					
11	Inexperienced contractor					
12	Inexperienced consultant					
13	Time constraints					
14	Conforming with specifications					
15	Assurance with client's funding					
	<b>If other, Please specify below:</b>					
16						
17						

### SECTION 3: COMMUNICATION VARIABLES

Please indicate the significance of these factor that affect communication in the Ghanaian construction industry. Please use the response scale below:

**1 = not significant    2 = slightly significant    3 = moderate    4 = significant    5 = very significant.**

No.	Variables	1	2	3	4	5
1	The number of companies involved in the project					
2	Unclear messages					
3	Physical barriers (i.e. physical interference, walls, distances between people etc.)					
4	Semantic barriers. (i.e. the meaning of a word, phrase or text)					
5	The complexity of the project					
6	The project organizational structure					
7	Language barrier					
8	Lack of sensitivity to receiver					
9	Cultural barrier					
10	Technological failure					
11	Process barrier					
12	Psychological barriers					
13	Social barrier					
14	Inappropriate medium					
15	The timing of the communication					
	<b>If other, Please specify below:</b>					
16						
17						

**SECTION 4: RELATIONSHIP BETWEEN QUALITY PROBLEMS AND COMMUNICATION**

Please rate the criticality of the following communication barriers on quality performance in the Ghanaian construction industry using the scale below. Please use the response scale below:

**1 = not critical 2 = slightly critical 3 = moderate 4 = critical 5 = very critical**

No.	Variables	1	2	3	4	5
1	The number of companies involved in the project					
2	Unclear messages					
3	Physical barriers (i.e. physical interference, walls, distances between people etc.)					
4	Semantic barriers. (i.e. the meaning of a word, phrase or text)					
5	The complexity of the project					
6	The project organizational structure					
7	Language barrier					
8	Lack of sensitivity to receiver					
9	Cultural barrier					
10	Technological failure					
11	Process barrier					
12	Psychological barriers					
13	Social barrier					
14	Inappropriate medium					
15	The timing of the communication					
	<b>If other, please specify below:</b>					
16						
17						