

**EXPLORING STRATEGIES TOWARDS EFFECTIVE COMMUNICATION
AMONG CONSTRUCTION PROJECT TEAM IN THE GHANAIAN
CONSTRUCTION INDUSTRY**

By

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of the requirement for the award degree of

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma Kwame Nkrumah University of Science and Technology, Kumasi or any other educational institution, except where due acknowledgement has been made in the thesis.

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DEDICATION

I dedicate this study to God Almighty for his grace and mercies throughout the programme. I also dedicate it to my lovely daughter Franklina Adjeley Mensah.

ACKNOWLEDGEMENT

A number of people have contributed immensely toward my master's program in the conduct of this study and I am glad to use this medium to express my appreciation to them.

First and foremost, to my Maker, Lord and personal savior, Jesus Christ; I am grateful.

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ABSTRACT

Communication is seen as one of the key elements to the success of a construction project. Delays in project delivery, cost overruns and disputes among other problems the construction industry face today is as the result of poor communication. The current study sought to explore strategies towards effective communication among project team in the delivery of building construction projects. Structured questionnaires were designed and administered to key professionals involved in building construction professionals within the Accra Municipality. The data collected was analyzed using Relative Importance Index (RII), frequencies and percentages. The results revealed that different typologies of communication are used in the management of construction projects. From communication channel perspective, verbal, written, visual and non-verbal communications types were in use. From organizational perspective both vertical (upward/downward) communication and horizontal communication existed. Diagonal communication was not common. The modes of communication used include formal writing (e.g. letters, fax, memos), Emails, Site Review meetings, Phone calls, Notice board etc. The choice of these communication channels was also found to be influence by the types of message to be sent and the preference of the sender or receiver. The study also found that the barriers to effective communication include differing perception between sender and receiver, the use of wrong communication channel, Inconsistent verbal and non-verbal communication, Information overload, Poor timing for communication, Poor listening and premature evaluation and badly expressed message. These issues affected communication among the parties to the project. Based on the above it was recommended that the proper communication channel should also be used.

Keywords: Construction, Project, Team, Strategies, Ghanaian Construction Industry

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT.....	v
TABLE OF CONTENTS	vi
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
CHAPTER ONE	1
GENERAL INTRODUCTION.....	1
1.1 INTRODUCTION	1
1.2 BACKGROUND TO THE STUDY	1
1.3 STATEMENT OF THE PROBLEM.....	3
1.4 AIM AND OBJECTIVES	4
1.4.1 Aim	4
1.4.2 Objectives	4
1.5 RESEARCH QUESTIONS	4
1.6 METHODOLOGY	5
1.7 SIGNIFICANCE OF THE STUDY	6
1.8 SCOPE OF THE STUDY.....	7
1.9 ORGANIZATION OF THE STUDY.....	7
CHAPTER TWO	9
LITERATURE REVIEW	9
2.1 INTRODUCTION	9
2.2 CONCEPTUAL REVIEW	9
2.2.1 Understanding Communication	9
2.2.2 Communication in Construction.....	10
2.2.2.1 Communication at Conception and Design Stages.....	11
2.2.3 Importance of Communication in the Construction Industry	13
2.2.4 Methods of Communication	15
2.2.5 Participants in Construction Project Delivery	17

2.3	EMPIRICAL REVIEW	17
2.3.1	Barriers to effective communication among the project Team in construction project Delivery	17
2.3.1.1	Differing perception	18
2.3.1.2	Poor listening and premature evaluation	18
2.3.1.3	Distrust.....	18
2.3.1.4	Badly expressed messages.....	19
2.3.1.5	Difference in background	19
2.3.1.6	Information overload	19
2.3.1.7	Inconsistent verbal and non-verbal communication.....	20
2.3.1.8	Emotional reaction.....	20
2.3.1.9	Noise/distraction.....	20
2.3.2	Categorization of Barriers to Communication.....	21
2.3.2.1	Language	21
2.3.2.2	Psychological barrier	21
2.3.2.3	Physical Barrier	22
2.3.2.4	Systematic barrier	22
2.3.2.5	Attitudinal barrier:	22
2.3.3	Strategies to remove Barriers and enhance Effective Communication	22
2.3.3.1	The Organizational Structure.....	24
2.3.3.1.1	Complete	24
2.3.3.1.2	Concise.....	24
2.3.3.1.3	Clear	25
2.3.3.1.4	Correctness.....	25
2.3.3.1.5	Consideration	25
2.3.3.1.6	Courtesy:	25
2.3.4	Effects of Poor Communication on Construction Projects.....	25
2.4	CONCEPTUAL FRAMEWORK.....	27
CHAPTER THREE.....		29
RESEARCH METHODOLOGY		29
3.1	INTRODUCTION	29
3.2	RESEARCH STRATEGY	29
3.2.1	Quantitative Research Strategy	29

3.2.2	Qualitative Research Strategy	30
3.2.3	Mixed method.....	30
3.2.4	Adopted Research Strategy	31
3.3	RESEARCH APPROACH	31
3.3.1	Deductive Research Approach	32
3.3.2	Inductive Research Approach.....	32
3.3.3	Adopted Research Approach	33
3.4	RESEARCH DESIGN.....	33
3.4.1	Survey Research	33
3.4.2	Case Study	34
3.4.3	Experimental Research	34
3.4.4	Adopted Research Design	34
3.5	DATA TYPE AND CATEGORIZATION	35
3.5.1	Sources of Data.....	35
3.6	POPULATION AND SAMPLING PROCEDURES	35
3.6.1	Research Population and Sample Frame	35
3.6.2	Sampling Technique	35
3.7	DATA COLLECTION METHODS.....	36
3.7.1	Data Collection Instrument (Primary Data) and Data Collection.....	36
3.7.2	Data Validity and Reliability	36
3.8	DATA PROCESSING AND ANALYSIS TECHNIQUES	37
3.9	ETHICAL CONSIDERATIONS	37
CHAPTER FOUR		39
ANALYSIS AND RESULTS DISCUSSION.....		39
4.1	INTRODUCTION	39
4.2	DESCRIPTIVE ANALYSIS OF DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS	39
4.2.1	Profession of Respondents.....	39
4.2.2	Working Experience of Respondents	40
4.3	KEY COMMUNICATION TYPOLOGIES AMONG PROJECT TEAMS IN THE GHANAIAN CONSTRUCTION INDUSTRY	41
4.4	MODE OF COMMUNICATION AMONG PROJECT TEAMS IN THE GHANAIAN CONSTRUCTION INDUSTRY	43

4.5	BARRIERS TO EFFECTIVE COMMUNICATION AMONG PROJECT TEAMS IN GHANAIAAN CONSTRUCTION INDUSTRY	46
4.6	STRATEGIES TO EFFECTIVE COMMUNICATION AMONG PROJECT TEAMS IN THE GHANAIAAN CONSTRUCTION INDUSTRY	48
CHAPTER FIVE		49
SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS		49
5.1	INTRODUCTION	49
5.2	REVIEW OF RESEARCH OBJECTIVES	49
5.2.1	Key Communication Typologies among Project Teams in Ghanaian Construction Industry	49
5.2.2	Mode of Communication among Project Teams in the Ghanaian Construction Industry	50
5.2.3	Barriers to Effective Communication among Project Teams in Ghanaian Construction Industry	50
5.2.4	Strategies to Effective Communication among Project Teams in the Ghanaian Construction Industry	51
5.3	SUMMARY OF FINDINGS	51
5.4	RECOMMENDATIONS	52
5.5	FUTURE RESEARCH DIRECTIONS	53
5.6	CONCLUSIONS	53
REFERENCE.....		54
APPENDICES.....		62
APPENDIX A: RESEARCH QUESTIONNAIRE		62

LIST OF TABLES

Table 4.1 Working Experience of Respondents	41
Table 4.2 Mean Score of Key Communication Typologies among Project Teams	42
Table 4.3 Mode of Communication among Project Teams in Ghanaian Construction Industry	45
Table 4.4 RII Barriers to Effective Communication among Project Teams in Ghanaian Construction Industry	47
Table 4.5 Mean Score for Identifying Strategies to Effective Communication	48

LIST OF FIGURES

Figure 1.1: Organization of the Study	8
Figure 2.1: Conceptual Framework of communication in project management	28
Figure 3.1: Deductive Research Approach	32
Figure 4.1: Profession of Respondents	40

CHAPTER ONE

GENERAL INTRODUCTION

1.1 INTRODUCTION

This chapter presents an introduction to the study covering the background of the study, problem statement, aim and objectives of the study, research questions, scope of the study, summary of the methodology and significance of the study. The structure of the thesis is also presented in this chapter. Specifically, section 1.2 highlights the gaps in the existing studies, which led to setting of the research questions.

1.2 BACKGROUND TO THE STUDY

Literature has indicated that the failure of the construction industry to deliver projects within the scheduled time and budget can be attributed to a number of reasons (Alinaitwe, et al. 2013). According to Ahiaga-Dagbui and Smith (2014) the reasons range from managerial incompetence to technical difficulties as well as risks and uncertainties. Besides, how assembled project delivery team of contractors, designers, suppliers, project managers, etc. collaborate effectively, on a project will largely depend on how they communicate with each other. Hoezen (2011) indicated that the efficiency and effectiveness of the construction process strongly depends on the quality of communication between the different team players. Thus, effective flow of information within a project team has been one of the most frequently studied project success factors (Pinto, 2002; Scott-Young and Sampson, 2008; Amando et al. 2012).

According to Ruuska (1996) the word “communication” comes from Latin: “*communicare*” (i.e. make together). It is an activity of transmitting information by exchanging ideas, messages, or information, by expression, illustrations, symbols, writing, or actions. The various stages of construction depend on the transfer of adequate and essential information, in order to establish an appropriate design in accordance with

the requirements of the client (Higgin and Jessop, 1965) as cited by Emmitt and Gorse, (2003) and Den Otter and Emmitt, (2008). With regard to building construction, as the project unfolds, information must be communicated from one expert to another in the form of drawings, specifications and construction methods. Effective communication should be able to produce the required impact and retain the impact, with the ability to improve the message's impact. The possible purposes could be to create changes, develop actions, create understanding, inform or convey a particular idea or point of view. In the construction industry, when the desired effect is not achieved, factors such as barriers to communication are explored, with the intention being to discover how the communication has been ineffective. Therefore, it is essential to note that barriers to effective communication could distort the meaning and purpose of the message that is being presented, and that may result in poor communication or an unacceptable consequence. These include overload of information, feelings, language silence, uncertainty of communication, social factors, filtering and selective interpretation (Fiske, 1990).

The global construction industry is changing in reaction to the need to broaden and develop new or improved management systems, and new technologies. The construction sector has long been classified as a knowledge-intensive industry, according to (Krajewski and Wippert 2004). This has resulted in improved communications, enhanced use of innovative data and communication technology methods. Many industry participants now recognize internet-based project management (ICPM) systems as a prospective alternative to guarantee significant improvements in communication effectiveness, productivity and general industrial performance (Krajewski and Wippert, 2003). For construction projects, developing effective strategies will require some knowledge and skills in effective communication to work in the industry. Interaction and

relationships between people are much more complicated in projects, which operate in a vibrant and continually evolving setting (Senaratne Ruwanpura, 2016). Poor communication arises because most participants on projects rarely share the full or required knowledge of the project at hand. Literature shows that an efficient project communication plan is crucial for the successful delivery of projects in the construction industry, although its application is in its infancy owing to the lack of adequate project communication (Barbato, 2003).

In recent years, the Ghana Government and international organization reports have persistently condemned poor performance of work within the construction industry, having most of the projects failing to meet the anticipations of clients (World Bank, 2003). This has caused most researchers to redirect their focus on influential factors in the area of, procurement, access to credit, performance improvement, health and safety etc.

1.3 STATEMENT OF THE PROBLEM

Ineffective communication management system in project delivery in Ghana is the major cause of failures associated with the construction industry (Buerthey, et al. 2013). For a successful project to be realized, the role of communication in construction of projects cannot be undermined as various project professionals in the industry must communicate freely. One of the major issues faced by companies is to resolve information flow, whether vertical or horizontal (Affare, 2012). According to Foley (2005), as the project advances and the design is generated, experts must be able to communicate information in the form of specifications, drawings, and other documents among one another. A poorly managed communication will lead to errors in design, a de-motivated workforce, a general slowdown on the entire job and failure to meet schedule requirements. In view

of that, this study is intended to explore the various barriers to effective communication amongst project teams in the Ghanaian Construction Industry.

1.4 AIM AND OBJECTIVES

1.4.1 Aim

The research aimed at exploring the various barriers to effective communication among in the Ghanaian construction industry.

1.4.2 Objectives

The specific objectives of this work were as follows:

- (i) To identify key communication typologies among project teams in the Ghanaian construction industry
- (ii) To explore the various mode of communication among project teams in the Ghanaian construction industry
- (iii) To ascertain barriers to effective communication among project teams in Ghanaian construction industry.
- (iv) To determine strategies for effective communication among project teams in the Ghanaian construction industry.

1.5 RESEARCH QUESTIONS

This study aims at addressing the following research questions:

- (i) How do project professionals value communication in the construction industry?
- (ii) What are the barriers to effective communication among project team in the construction industry?
- (iii) What are the impacts of communication barriers on construction projects in Ghana?

- (iv) What are some of the effective strategies that can be put in place to overcome communication barriers?

1.6 METHODOLOGY

The current study will be based on the quantitative research strategy. This strategy will be adopted because the current study seeks to collect quantitative data, which will be subjected to statistical analysis.

Studies have shown that there are two approaches to research, deductive and inductive research approaches. The deductive research approach involves testing existing theories while the inductive approach develops a new theory (Van Hoek et al. 2005). Considering the objectives of the study, it is evident that the results of the study will be testing already existing theories; hence, it becomes imperative that the deductive research approach be adopted.

The survey research design will be used to identify various barriers to effective communication, determine the impacts of these barriers and to identify effective strategies to overcome them, among construction project teams. Surveys will also enable the researcher to obtain data about practices, situations or views at one point in time through questionnaire (Creswell, 2009; Bryman and Bell, 2015).

The population of the study was made up of professionals in construction firms with classification of D1 and D2, within the Accra Metropolis, in the Greater Accra Region of Ghana. The number of registered D1 and D2 building contractors based on the Ministry of Works and Housing in the Accra Metropolis is 128 as at 2014 (Mohammed, 2017). This comprised mainly quantity surveyors, architects, engineers, project managers, among others. As mentioned earlier on, the study was limited to construction companies within the Accra Municipality. The respondents were selected using simple and purposive sampling techniques.

The current study used both primary and secondary data. The secondary data was obtained through literature review on effective communications among project teams. The secondary data is hoped to be obtained from journal publications, previous thesis, books, etc. The primary data was gathered using structured questionnaires, which shall be self-administered to a carefully drawn sample of the respondents. The data collected was entered into the statistical package for the social scientist (SPSS) software package, which will assist in analyzing the data into descriptive statistics (such as mean, percentages, frequency) and later use Relative Importance Index (RII) for inferential statistics. Based on the findings, conclusions and recommendations were made.

1.7 SIGNIFICANCE OF THE STUDY

Di Martino et al. (2019) noted that, the construction industry has been categorized as an informative-intensive industry. Therefore, improved on information sharing, increased usage of innovative information and communication technology tools, increase in the use of internet-based construction project management (ICPM) systems, are globally being recognized by the industry as a potential solution to ensure major improvements in communication efficiency, productivity and overall industrial quality (Wippert and Krajewski 2003). The aim of this research was therefore to explore the various barriers to effective communication among construction project team in the Ghanaian construction industry. The study brings to light to various communication barriers among project team in Ghanaian construction industry, and as well provide inputs for policy makers in that regards. This study's significance to academia will be that, the work will be a valuable document for students and researchers who would want to conduct any work on barriers to effective communication among project professionals in Ghana.

1.8 SCOPE OF THE STUDY

The study of communication in the Ghanaian construction sector is a broad area and involves a lot of work, particularly if there are no specific areas to focus on. The industry consists of all construction players like clients, contractors and consultants, who are in the business of constructing either buildings or roads, or both. This research therefore, focused on the project team within the building industry. This is due of the fact that the building subsector is more developed locally than the road sector. It does not cover communication barriers within road sector in the country. The study will have an explorative character and the main purpose is to explore the various barriers to effective communication among project team in the Ghanaian construction industry. In addition, the study will further concentrate on the organizations in the building sector of the industry, since they are presumed to be involved in all that this research is likely to deal with relating to communications. The geographical scope of the study was the Greater Accra region of Ghana. This is because of the wide range of construction projects available in the area. This location brought about diverse response to the study. Also, the research found this location to be more convenient due to its proximity to the researcher which aided easier and faster distribution and retrieval of the questionnaires.

1.9 ORGANIZATION OF THE STUDY

This research is structured in five interdependent and related chapters.

Chapter 1 contains the background of the research as well as the problem statement, aim and objectives. This feeds into the formation of research questions for the study. It further explains the significance of the study outlining the scope, limitations and methodology to be adopted. Chapter 2 encompasses an extensive literature review, which borders on the theoretical, empirical and conceptual review of the study. Chapter 3 details the methodology of the study, thus naming the theoretical underpinnings of

research and how data will be collected and analyzed. Chapter 4 provides data analysis and discussion of results. This will aid in answering the research questions, targeting the specific objectives. Chapter 5 summarizes and concludes the outcomes of the research, itemizing and explaining recommendations arrived at.

A framework of the inter-relationships between the chapters and the process of the research is shown in Figure 1.1 below:

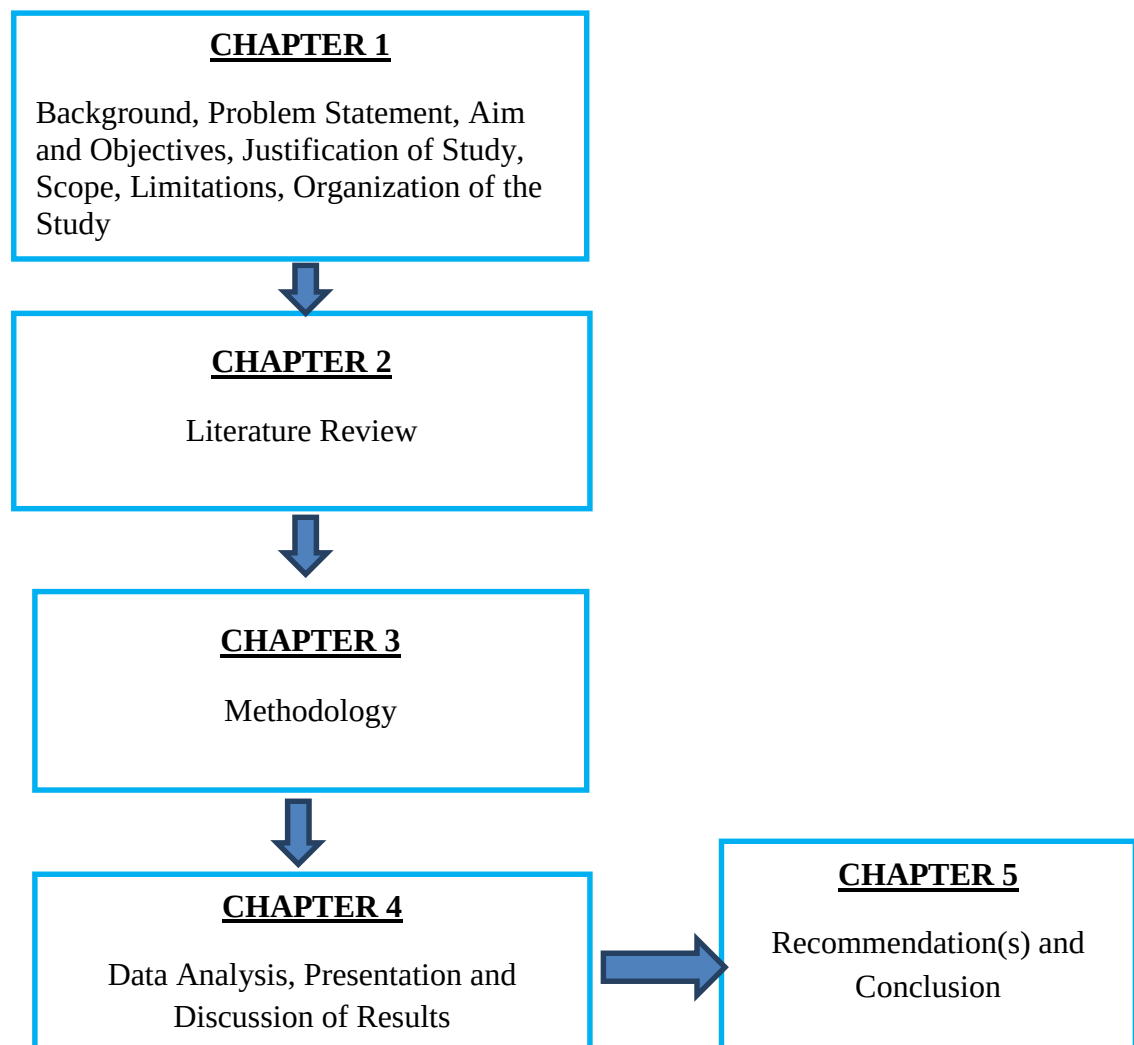


Figure 1.1: Organization of the Study

Source: Author's Construct (2019)

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents a review of literature on communication in construction project management. The drivers and barriers to effective communication among the project team have been reviewed, based on findings from empirical studies. Also, strategies to remove communication barriers and enhance performance were reviewed.

2.2 CONCEPTUAL REVIEW

2.2.1 Understanding Communication

Frequent and effective communication is necessary throughout the life of any project since humans execute projects interacting by way of teams (Mehra, 2009). Communication could be defined in various ways. According to Hubbard, G. et al. (2002), communication is defined as, “the process by which people attempt to share meanings through symbolic messages”. The best way to have effective team communications is to involve all team members in all activities. This is the responsibility of the project manager together with other team members, for proper communication management on projects.

Communication may be carried out in the form of behavior, signs, symbols, writing or signals, speech, as well as through project scope statement, project plans, and status report. Mehra (2009) noted that a project is likely to fail when expectations are not aligned with results. These gaps can be bridged through timely and effective communication to avoid surprises at the end. The expectations, goals, and priorities of the project stakeholders should be well documented and communicated.

Communication consists of transmitting information from one person to another. In fact, some scholars of communication take this as working definition and also as a means

circumscribing the field of communication theory. Their definitions are outlined below: “Communication is a term used to refer to any dynamic, information sharing process” (Sutcliffe, et al. 2004). Communication is the exchange of information via a common system of symbols (Garvey, 2014). Communication as defined by Nonaka and Toyama (2015) as “the process of interaction between individuals in which meaning is created and shared”. As recognized by Dainty et al. (2006), the term “communication is itself a multifarious and complex term, which can mean different things in different context and situations”. Communication is a process of conveying information from a sender to a receiver using a medium, in which, the sender and receiver understands the information in the same way (Mehra, 2009).

According to Bryde, et al. (2013) communication can be defined as “the process of exchanging information related to the progress and successful completion of a project through the sharing of knowledge and experience for the mutual benefit of the parties involved in ensuring timely project delivery”.

2.2.2 Communication in Construction

Thompson (2002) indicated that communication is the method through which information is encoded and transmitted by a sender, through a medium to a receiver. The receiver is then expected decode the message and give the feedback to the sender. It requires all parties to have a common ground for the communication. These may include verbal means like speaking, singing and voice tone, as well as non-verbal and physical means, like body eye contact, touching, sign language, and even written communication. Furthermore, communication may be termed as a process whereby a particular meaning is assigned and conveyed, in an attempt to create shared understanding.

Within the building organization, communication is to convey a particular instruction which can influence the actions or behaviors of the team, towards the achievement of the

project objectives. This may involve an exchange of, or request for information during the construction process. In a typical project-based environment, communication can present some challenges. It is particularly true in the construction industry, where associations tend to be characterized by a distinctive unaccustomed group of individuals, who only come together for brief periods, before dissolving into other projects (Dainty et al. 2006).

According to research, communication is vital for all the organization's company operations, making it an integral part of the building process (Emmitt and Gorse 2003). Beyond the argument, any improvement in communication can improve on the effective operation of any organization. Construction projects are complex and risky, requiring the active participation, co-operation and co-ordination of all contributors (Love, et al. 2002).

2.2.2.1 Communication at Conception and Design Stages

Shutt, (1992) as cited by Affare (2012) opined that at this stage, communication is often between clients and consultants, which happen to be a continuous process from the inception of a project to its completion. This is when the client's requirements, which may include funds available, time limitations of the project, nature of the building, are made available to the consultants.

Construction projects are assembled by gathering different professions and areas of expertise as one team (Söderholm and Wikforss, 2006) cited by Wikforss and Löfgren (2007). Typical of such assemblies is that each professional group also has a set of principles, guidelines, experience and professional skills that have been developed in some way. At the same time, as this helps make the profession strong and successful, it also explains why they cannot co-operate with other professionals particularly well. Taking this professional barrier as the starting point, a construction project can be

described as a ‘battle of the titans’ in which each of the professions involved is fighting for supremacy over the others. But the battle is not fought within individual fields of knowledge. Design engineers and other technical consultants know that the design is the responsibility of the architect, and although they may have their views on the subject, the architect’s monopoly of knowledge in this respect is not seriously challenged. However, when it comes to new work practices, project management tools or collaboration forms, of which none of the established professional groups holds a previous monopoly, the battle suddenly becomes important. It is not always a battle for the best solution, but rather a contest to establish whose opinions carry the greatest weight and what sort of information is actually of importance. Communication tools introduced with a purpose of imposing better control and coordination of construction projects are an arena for such knowledge contests. This lack of co-operation among the professionals affects communication and eventually affects the delivery time of the project. The architect is required to prepare a general outline of client’s requirement, after carrying out feasibility studies, then, communicate the requirements to the rest of the team for a collective action. Having obtained all approvals from the client, the architect and engineer will have to prepare working drawings, schedules and specifications as well as, seek the judgment of the quantity surveyor, concerning the cost implications of the project, to find out if the project design will be within the approved financial plan.

Poor communication among team members usually brings practical difficulties concerning detailed drawings (O’Daniel, and Rosenstein, 2008). In many cases, these problems could have been avoided, if there had been adequate consultation and collaboration between the architect and builder. There have been several instances, in which it is clear to the contractor or site officer that he will have to seek guidance from

the architect, or ask for information on certain points; meanwhile, it is not stated until such a late point that delay takes place (Makri, and Warwick, 2010).

2.2.3 Importance of Communication in the Construction Industry

Communication is an integral topic in the construction industry. Due to its specific characteristics, the industry forms a complex communication environment. Construction is a fragmented but dynamic sector with project-based nature. The culture shows reality of conflicts and lack of mutual respect and trust (Dainty et al. 2006).

Communication is essential to all business activities; it is an integral part of the organization's processes. Beyond every argument, an improvement in communication can help improve an organization's operating system. Good communication within and outside organizations that contribute to construction projects, can result in improved motivation levels and improved processes. On the other hand, inadequate communication can lead to having a demotivated workforce causing problems in production (Kultalahti, and Liisa, 2014).

Construction projects are complex and risky, requiring the active participation of all contributors. Therefore, a good system of co-operation and co-ordination of activities, through interpersonal and group communication skills are essential in to the successful completion of the project. However, poor communication systems, lack of discussion and insufficient feedback are found to be the root cause of most defects in many construction works. The proper management of construction requires that there is always a constant flow of information between all interested parties. This is especially important to the quick dissemination information among team members during the construction process (Titus, S. and Bröchner, J., 2005).

Gamil (2017) noted that, time overrun, conflicts, rework, design errors are some of the effects of poor co-ordination and communication of design information. Communication

is one element of project management that encompasses all others. Therefore, effective communication is vital for any organization to function. Communication breakdowns cause problems leading to low productivity as well as low quality of job. Construction moves so quickly that the inability to take into account a modification in plans or equipment can result in costly tearing out of finished work or slowing down throughout the work. As a result, there are many kinds of information that must quickly be made available among the various teams situated at different vertical/horizontal, and geographic locations and with outside parties. Considering the fact that construction is such a vibrant, complex, and disparate industry, the difficulties of efficiently communicating are higher than in most other manufacturing settings. Contractually driven relationships, conflicts and a lack of mutual respect and trust, all combine to hinder open communication, and this renders the role of the project manager extremely challenging and difficult. Nevertheless, addressing communication issues in the industry can be seen as a principal enabler for improvement.

Jacklyn (2011) stated that as professional construction managers, we cannot overemphasize the function of communication in a construction project. The most common reason for construction disputes is a breach in communication and expectations. Depending on the size of your project, the communication center may be the Property Manager, or it may be a sufficiently big project to guarantee the retention of a skilled representative of the client. A concerted effort is therefore necessary to facilitate communications between the team members, made up of the Architects and Contractors, together with engineers, quantity surveyors, interior designer, permit and entitlements expeditors, communications and computer system designers and installers, furnishing installers, landscape designers, etc. One may therefore assert that a construction project has an enormous number of “moving parts”:

A successful project requires that the professionals involved are experienced, adequate, have the same attitude, have team players with complimentary skill sets, and are able to do their best to meet the project's vision and objectives. It is therefore important to establish a clear chain of communication and command for the input and circulation of information. This means that all requests for information, pertaining to the project should be introduced in writing and addressed through proper channels, and captured and documented for the project, so as to ensure that issues are responded to by the right person without delaying progress of the works.

As professional project managers, it is our responsibility to put together the desired team, who can properly coordinate the disciplines of design and engineering, and perform the phases of organizing and preconstruction skillfully. The contractors can then accomplish the project smoothly, on time and within budget. During the construction stage, the on-site presence of the project manager helps track the job of the contractors, coordinates the consultants, mitigates change orders, carries out quality control checks and is fully in line with the budget and timetable.

2.2.4 Methods of Communication

There are various ways and methods of communicating information in the construction industry. While a great majority of information is exchanged verbally, most of it is also exchanged in written format as either hard copy or electronic means. Although the information may be given verbally through methods like project instructions and meetings, the sender has to ensure that, those informations are well documented, and stored for future reference, in the form of minutes or voice recordings. Aspects of the construction work like the scope of work and details of construction are usually communicated through drawings, contract documents, specifications, addenda and minutes (Maslej, 2006). Contracts are formed when one party passes down work to

another: for example, when a client hires the services of a consultant to actualize their project, they form a contractual relationship by way of signing a contract agreement. The same is true when a consultant, appoints a contractor to execute the work designed on behalf of the owner. The contractor may decide to also sublet some of his work to subcontractors in which case another contractual relationship will be formed between the two parties. Unfortunately, miscommunication is prevalent in construction, especially when work is passed down from one to another or a contract is formed (Maslej, 2006). Mehra, (2009) reveals that for ease of classification, the forms and methods of communication in the construction industry are outlined below:

- **Formal Written:** This takes the form of Project charter, Plans, Specifications, Reports, and Metrics etc. The written communications include memos, letters, e-mails, faxes, reports, other strategic plans; tactical plans legal documents and other forms of information to be shared. Written proposals, progress reports, training manuals etc. are all important parts of construction management.
- **Formal Verbal:** this includes presentation and speeches.
- **Informal Writing:** these include memos, e-mail, notes, etc.
- **Informal verbal:** these are meetings, stakeholder conversations etc.
- **Nonverbal Messages:** these are messages communicated through facial expressions as well as postures and gestures, and these account for about 55% of what others perceive and understand.
- **Para-verbal Messages** – Examples are the pitch, tone, and pacing of our voice. This accounts for about 38% of what is perceived and understood by others.

Effective communication is a two-way process involving active listening and reflecting, i.e. speaker and listener accountability. It also uses feedback to confirm understanding, making it stress-free.

2.2.5 Participants in Construction Project Delivery

A number of players are involved in construction project delivery. These include the client, quantity surveyor, architect, consulting engineers, specialists and the contractors. Each of these parties play special role towards the successful completion of the project. Thus, there should be effective and efficient communication and sharing of information among these parties (Maslej, 2006).

2.3 EMPIRICAL REVIEW

2.3.1 Barriers to effective communication among the project Team in construction project Delivery

Referencing from the businessdictionary.com, barriers to communication are defined as, “aspects of or conditions that interfere with effective exchange of ideas or thoughts.” Communication barriers can be anything that misrepresents or prevents the proper transmission or receipt of a message. Carlsson et.al, (2001) in a study, argued that “barriers to effective communication are likely to be broken down by more integrated project delivery systems. Ejohwomu, (2017) revealed that unclear project objectives, ineffective reporting systems and poor leadership were the most significant barriers to effective communication. The study also uncovered that the principal reasons responsible for ineffective communication include: managerial and technical barriers and credibility and background barriers. Barriers to effective communication within construction begin within the firm. With the possible exception of small and highly specialized firms, construction companies usually contain a diversity of different categories of professional, managerial, skilled and unskilled craft and administrative employees. All of these individuals will need to communicate across their divisional, departmental, professional and hierarchical interfaces in order to successfully fulfill their specific functions. Within project-based industries such as construction, barriers to effective communication are

complex and multifarious because of the number of actors which govern the success of construction practices (Dainty et al. 2007).

Some of the attributes that brings about the barriers in effective communication is stated as the following:

2.3.1.1 Differing perception

Fagerlind et al. (2012), in his study, highlighted differing perception as the most common barrier to communication. People who had different knowledge backgrounds and experience often perceive the same idea from different viewpoints. Suppose that a new superior complement an assembly line worker for his or her efficiency and high-quality work, the superior genuinely appreciates effort and same time want to encourage the other employees to emulate his or her examples. Others on the assembly line may however regard the worker being singled out for praise as a sign that “buttering up the boss” they react by testing or being openly hostile. Thus, individual perception of the same communication differs radically.

2.3.1.2 Poor listening and premature evaluation

Siddiqui and Rasheed (2016) stated that poor listening and hasty assessment require undivided attention and self-discipline. There is a common tendency to support or reject what is being said rather than trying to understand the speaker’s frame of reference. Due to this, people tend to hear what they want to hear, not necessarily finding out what the information is all about. They tend to conclude discussions their own way without getting the impulse of what was communicated.

2.3.1.3 Distrust

Siddiqui and Rasheed (2016) revealed that communication may suffer due to the fact that the listener does not trust the communicator. The credibility of a message largely depends on a function of trustworthiness of the sender to the receiver of the message.

Distrust may lead from the inconsistent behaviors of supervisors or may stem from the fear of being punished for sincerely reporting an unfavorable but true information to the boss, owing to previous experience in the subordinate. The absence of trust in communication could make the sender to hold back some important information without sending. Distrust can lead to sabotaging and bias decision taking among team members.

2.3.1.4 Badly expressed messages

This may be as a result of the content in the communication, a form of its chosen words, phrases or sentences, if not selected well, may be a barrier to efficient transmission of messages. Even though the concept may be evident in the sender's mouth, the information may still be overshadowed by badly selected phrases, omission, absence of coherence, bad organization of thoughts, awkward phrase structure, platitude, unnecessary jargons, and inability to explain the message's meaning.

2.3.1.5 Difference in background

Another significant barrier to healthy communication is the variations in social, ethnic or educational background, compounded by variations in age and personality. For instance, an employee with no serious academic background might feel resentful or inferior to a fellow employee with a higher academic background. The latter might also consider himself to be superior to the others. The different background and inferior/superior attitude will make communication difficult.

2.3.1.6 Information overload

In many instances, an individual may receive a message but misinterpret it merely because at the moment there are so many other problems that calling that person's attention. Due to severe pressure, vital aspects of the information can be overloaded.

2.3.1.7 Inconsistent verbal and non-verbal communication

Language is one of the main means of communication, but the message we send and receive is heavily influenced by non-verbal variables such as: body motion, clothing, distance from the individual we talk to, posture, gesture, facial expression, eye movement, and contact with the body. Even when our message is as simple as “Good morning” we convey different intents by our non-verbal communication methods.

2.3.1.8 Emotional reaction

Reactions like anger, love, defensiveness, hate, jealousy, fear and embarrassment often influence how we understand other messages. If for example, we are in an atmosphere where we feel threatened with loss of power or prestige, we may lose the ability to assess the meaning of the message, and will rather tend to respond in a defensive or aggressive manner.

2.3.1.9 Noise/distraction

Noise is any factor that interferes with communication, disturbs, confuses or otherwise. Communication happens rarely in a completely noise-free setting, of course, so individuals have learned to screen many of the irrelevant messages they receive. The problem is that they sometimes also screen out relevant information. Mehra (2009) gave some examples of barriers to communication in the construction industry as cultural, physical, words, perception, lack of experience, emotion, linguistic, non-verbal, gestures, differences in language, dialect and accent. Any of these barriers to communication can create disturbances or interferences and can negatively influence the effectiveness of communication.

Several reasons contribute to why interpersonal communications fail. In many communications, the messages may not be received exactly the way the sender intended. It is, therefore, important that the communicator requests for feedback to check that their

message is clearly perceived. Skills like active listening, clarification and reflection may help. However, the skilled communicator also needs to be made aware of the barriers to effective communication, and how to avoid or overcome them. The numerous barriers to communication may occur at any level in the communication process. Barriers may lead to the message becoming distorted, and therefore, risk wasting both time and money through confusion and misunderstanding. Effective communication involves overcoming these barriers and conveying a clear and concise message.

2.3.2 Categorization of Barriers to Communication

2.3.2.1 Language

Language and pronunciation skills may act as a communication barrier. However, even if the terminology used for a message is expressed in the same language, it can create a barrier if the receiver does not fully understand the message. For example, a message that includes a lot of professional terminology and abbreviations won't be easily understood by a recipient who doesn't know the terminology used. Regional expressions and colloquialisms may be misinterpreted or even deemed offensive.

2.3.2.2 Psychological barrier

The receiver's psychological state will affect how the message is received. For instance, if someone has personal concerns or is stressed, they may be more concerned about those particular concerns and not be as responsive to the message as if they were not stressed. Stress management is an important personal skill that affects our relationships with each other. Anger is another example of a psychological barrier to communication, when we're angry, it's easy to say things we may regret later and misinterpret what others say. More generally, individuals with low self-esteem may be less assertive and may not feel comfortable communicating. They may be afraid to say how they feel or read negative meanings in messages they hear. Psychological barriers may result from the physical

condition of the receiver: for example, a receiver with reduced hearing may not fully grasp a talk, especially when there is significant background noise.

2.3.2.3 Physical Barrier

The geographic distance between sender and receiver is an example of a physical barrier to communication. Communication is usually simpler over shorter distances because there are more channels of communication where less technology is needed. While contemporary technology often reduces the effect of physical obstacles, it is important to understand the benefits and disadvantages of each communication channel so that a suitable channel can be used to overcome physical obstacles.

2.3.2.4 Systematic barrier

Systematic communication barriers may exist in structures and organizations where information systems and communication channels are inefficient or inappropriate or where there is a lack of understanding of the roles and responsibilities of communication. Individuals may be uncertain about their role in the communication process in such organizations, and often do not know what is expected of them.

2.3.2.5 Attitudinal barrier:

These are behaviors or perceptions that prevent people from communicating effectively. Attitudinal barriers to communication may occur as a result of poor management, personality conflicts, and lack of motivation or resistance to change. Effective messaging recipients should try to overcome their own attitude barriers in order to facilitate effective communication.

2.3.3 Strategies to remove Barriers and enhance Effective Communication

Overcoming communication barriers require a vigilant observation and thoughts of potential barriers in a particular instance of communication. Strategies to overcome barriers will be different in different situations depending upon the type of barriers

present. The following are some of the important general strategies that will be commonly useful in all the situations to overcome the barriers of communication:

- Taking the receiver more seriously,
- Crystal clear message,
- Delivering messages skillfully
- Focusing on the receiver,
- Using multiple channels to communicate instead of relying on one channel,
- Ensuring appropriate feedback
- Being aware of your own state of mind/emotions/attitude.

In addition to removal of specific barriers to communication, the following general guidelines may be helpful to facilitate communication:

- Having a positive attitude about communication,
- Defensiveness interferes with communication,
- Work at improving communication skills.

The communication model and discussion of barriers to communication provide the necessary knowledge to improve communication. This increased awareness of the potential for improving communication is the first step to better communication. Always make communication a goal oriented process. Relational goals must come first to pave the way for other goals. When the sender and receiver have a good communication relationship, they are more likely to accomplish the goals of the communication process. Experimenting with alternative for communication that is to say, what works well with one person might not work well with another person. Using various communication channels, listening and feedback techniques can help. Accept the reality that miscommunication can occur. The best communicators mostly fail to have perfect communication. They accept miscommunication and work to reduce its negative effects.

Use of simple and clear words should be ensured. The use of indistinct words and technical terms should be minimized. It is important to identify and reduce the source of noise during communication. Listening attentively and carefully also helps. Active listening means listening to the message with a thorough understanding. By asking questions, the speaker can guarantee that the receiver understands his / her message and in the same way that he / she intends.

2.3.3.1 The Organizational Structure

This should be simple, to facilitate communication between different levels of hierarchy. The number of hierarchical levels should be optimal, and the organization should have an ideal span of control. The simpler the organizational structure, the more effective the communication will be. The managers should know how to prioritize their work. They should not overload themselves with the work, but rather spend quality time with their subordinates, and should listen to their problems and feedbacks actively.

According to Mehra (1999), 6 C's of communication, which applies to both written and oral communication as follows:

2.3.3.1.1 Complete

In all respects, the message must be complete and should convey all the facts that the receiver requires. Incompleteness of the message can result in misunderstanding or incomplete understanding and confusion between the sender and the recipient. It is the sender's duty to ensure that the information provided in the message is complete before sending the message.

2.3.3.1.2 Concise

Conciseness means reducing wordiness and communicating the message with the least possible words without forgoing the other C's.

2.3.3.1.3 Clear

Clarity in communication facilitates understanding and enhances a message's meaning. A clear message uses words that are accurate, appropriate and concrete and avoid words that are ambiguous.

2.3.3.1.4 Correctness

Correctness in communication means that there should be no grammatical and spelling errors.

2.3.3.1.5 Consideration

Consideration implies "stepping into the shoes of others." Effective communication must take into account the recipient(s) (i.e. the viewpoints of the audience, background, level of education, mentality, etc.) The sender must therefore, try to understand the needs of the audience, their emotions, and issues. The sender must ensure that the audience's self-respect is maintained and their feelings are not damaged.

2.3.3.1.6 Courtesy:

Courtesy in the message implies that both the expression of the sender and the recipient should be shown in the message. The message should be honestly polite, thoughtful, and enthusiastic.

2.3.4 Effects of Poor Communication on Construction Projects

In the construction industry, poor communication has a considerable negative impact on the worker safety, quality, cost, and schedule of the project (Maslej, 2006). Miscommunicated information leads to poor workmanship and work that has been done already may be redone or corrected resulting in delays in the construction schedules. Construction work is usually structured such that no time is wasted or the time wastage is minimized in each process. To achieve this, activities are scheduled to be carried out consecutively as a team. Take for instance, in a housing project; the masonry crew could

be scheduled to start work immediately after the concrete crew completes the foundation (Burke, 2003; Liu, 2009). Assuming the concrete crew has to effect some corrections on their work due to miscommunication, this in turn will affect the masonry crew who will then have to wait for the concrete crew and will eventually delay all the subsequent crews.

Conclusively, a little communication error can lead to significant project delays. Projects changes in the form of changes in scope or additional work must be communicated to the team early, so that schedule deadlines can be achieved.

poor communication can negatively influence the cost of any given construction project. According to Maslej (2006), project cost can increase due to incomplete or faulty contract document, misinterpretation of the contract document, and lack of proper project supervision. Maslej (2006) also revealed that language barrier was a major contributor to poor communication practices on the project site and it has a remarkable impact on worker safety. Ironically, contractors are willing to take the risks associated with hiring employees from different walks of life, without considering the issues with language. Contractors tend to save a considerable amount of money in labour costs by making use of illegal immigrants with language barrier. Many of these immigrants have little or no English skills, which can cause major communication problems at the project site eventually affecting productivity, profitability and above all worker safety (Dexter, 2005). The most common causes fatal injuries and sometimes deaths during construction, are falls, being hit by objects, electrical shocks, workers caught in between machinery or some other equipment, are all related to workers with little or no language skills (Maslej, 2006).

Quality in construction refers to the standard of work that required. This is based on the requirement of the contract documents obtained from drawings, specifications, contract,

addenda and other additional conditions supplementary to the contract (Collier, 2005). Dunbar (2006) stated that the purpose of the construction specification is to clearly communicate the expectations of the stakeholders or client, to the contractor in a manner that was clear for all to understand. He further suggested that well written specification is essential to producing an accurate contract document. Although poor project quality is often associated with the contractor, the mistakes of some specification writers and designers are also responsible for non-achievement of project quality (Maslej, 2006). Inefficiencies in contract documents can be a form of miscommunication which may lead to significant quality problems.

2.4 CONCEPTUAL FRAMEWORK

From the literature review communication is viewed as essential element in project management. It involves a flow of information from one end (called the sender) to another end (the receiver) using an appropriate communication medium (shown as funnel in Fig 2.1). The choice of the communication channel, among other factor, affect the effectiveness of the communication and for that matter the feedback from the receiver as noted by (Maslej, 2006).

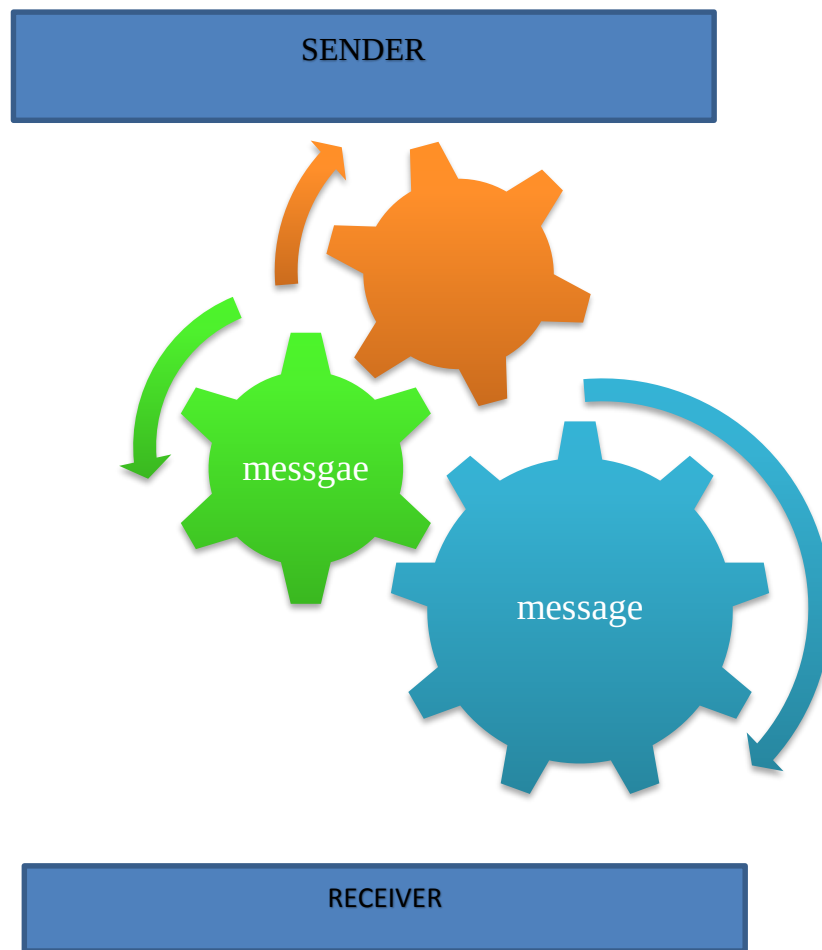


Figure 2.1: Conceptual Framework of communication in project management

Source: Author's Construct (2019).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The various methods used for collecting and analyzing the data required for the study are presented in this chapter. It includes an explanation of the study population, sample size and sampling technique, sources of data, data collection and analysis method. Ethical considerations in the conduct of the thesis are also spelt out in this chapter.

3.2 RESEARCH STRATEGY

A research strategy dwells on how the research objectives are addressed. The choice to follow any particular strategy depends on the purpose of the study, the type and availability of information for the research (Naoum, 2002). In the view of Naoum (2002), a research strategy is the process of addressing the research objectives. According Fellow and Liu (2001), a research strategy can be quantitative, qualitative or mixed method.

3.2.1 Quantitative Research Strategy

According to Mackenzie and Knipe (2006), a quantitative strategy involves data collection in numeric form that can easily be subjected to statistical analysis, based on which inferences can be made. Such strategy is also associated with the use of questionnaires for data collection. Sources of data collection are mostly concerned with the employment of questionnaires and surveys using scientific tools in analysing them (Saris and Gallhofer, 2014). Quantitative research uses variables on a subject and by adopting some tools like correlation; descriptive statistics (mean, standard deviations, frequencies etc.) The objective of a quantitative research is to develop and employ mathematical models, theories and hypotheses, in relation to the natural phenomena (Sarantakos, 2005). Quantitative strategy usually flows with the deductive approach.

Quantitative research designs are more structured, rigid, fixed and predetermined in their use to ensure accuracy in measurement and classification (Kamil, 2011). In order to guarantee replication for verification and assurance, enough details of quantitative research design must be provided, and a clear distinction with the data collection procedures must be established.

3.2.2 Qualitative Research Strategy

Qualitative research strategy also involves data collection using interviews, observation, focus group discussion among others. This strategy helps to study a phenomenon in details). According to Cresswell (2003), a qualitative study is an inquiry process of understanding a social or human problem, based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting. Most qualitative research designs are not as structured and sequential as compared with quantitative ones, but are flexible and emergent in nature allowing for the selection of people from whom relevant information can be explored and gathered. Ahiaga-Dagbui et al. (2017) concluded that qualitative research is subjective in nature, exploratory and places more emphases on words in data collection and analysis. It often relies on interpretive or critical social science epistemology and follows a nonlinear path. It focuses on what exists rather than how many there are by collecting soft, rich and deep data (Ahiaga-Dagbui et al., 2017).

3.2.3 Mixed method

This strategy combines the use of both quantitative and qualitative research strategy. Amaratunga et al. (2002) noted that the research strategy to be adopted for a study depended on the nature of the study and the research questions. In the current study, due to the nature of the research questions, the study adopted quantitative research strategy. (Ponterotto et al. 2013) identified four rationales for adopting mixed method to be

participant enhancement; instrument fidelity; treatment fidelity and significance enhancement. Creswell (2009) accords the rising popularity of mixed method in the social and human sciences to the following reasons: the utilization of the strengths of both quantitative and qualitative methods; the inadequacy of one individual method to resolve the complexity of the problems of social and health sciences and more insights provided compared to the use of any individual method.

3.2.4 Adopted Research Strategy

The quantitative research strategy was adopted for this work. Existing data on communication typologies, both from the channel and organizational perspectives were collected. The various communication modes, barriers to communication and strategies to effective communication were also considered. Data collected from this research will be analysed using statistical and mathematical techniques to determine the causal relationship between the two. Hence, the choice of the quantitative strategy for the research.

3.3 RESEARCH APPROACH

Research approach is a plan and process, which consists of the steps of having broad assumptions to detailed method of data collection, data analysis and interpretation, based on the nature of the research problem being addressed. A research approach offers the investigator with a foundation and directions as to how to treat the research questions. Every research project involves the use of theory, which may or may not, be made explicit in the research design but in the presentation of the results and decisions. Generally, there are two research approaches, deductive approach and inductive approach (Fellow and Liu 2008). According to Naoum, (2006) the deductive approach tests existing theories why inductive approach builds new theories

3.3.1 Deductive Research Approach

Deductive research approach involves the movement from theory to data in order to explain the causal relationship between variables. It is largely dependent on the use of scientific principles involving highly structured approach and the selection of sufficient sample size in order to generalize conclusions. It involves the application of controls to ensure validity and the collection of quantitative data for analysis (Richter et al 2017).

According to Collis et al.(2013), cited by Rahi (2017), deductive approach where you don't get theory from observation theory already existed and proved by researchers moreover you can explain a research that based on empirical observation and theory generated on conceptual and theoretical structure. Generally researcher intends to test a theory by collecting the fresh data from respondents and observe the findings by applying various statistical tests. This method is generally recommended for specific studies in which researcher work on particular concept by creating assumptions and then verifying those assumptions.

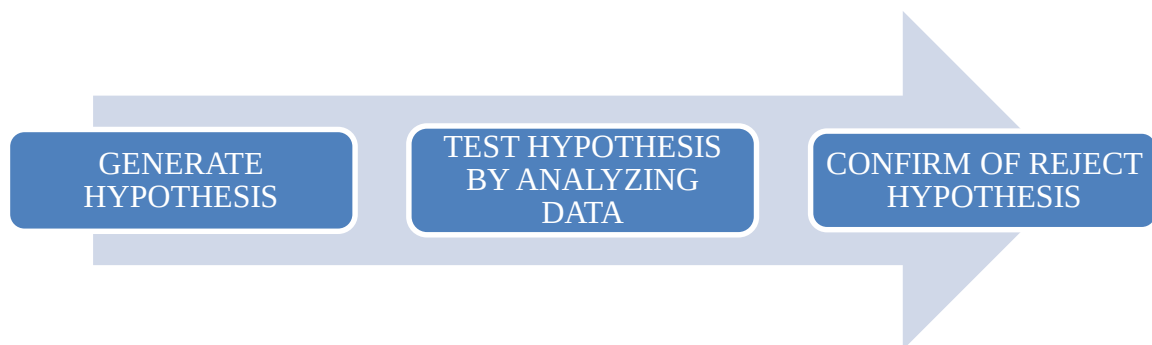


Figure 3.1: Deductive Research Approach

Source: Author's Construct (2019).

3.3.2 Inductive Research Approach

Investigators can easily offer descriptions of personalities, groups and events, but intermittently, they are obligated to clarify the features and patterns of personalities, groups or phenomenon (Saunders et al, 2009). Blaikie (2009) suggested that, the

inductive approach empowers investigators to create limited generalizations about the dissemination of, patterns of association amongst, observed characteristics of individuals and social phenomena. The inductive approach begins with the collection of data, then the search for developing patterns, theories or models that propose correlations between variables. Investigators with inductive approach usually criticize the deductive approach for disregarding descriptions and reasons. They also claim the deductive approach purely concentrate on results and stiff research frameworks (Saunders et al, 2009; Bryman, 2012).

3.3.3 Adopted Research Approach

The deductive research approach was adopted for this study, to test the research objective against existing theories or hypothesis. This will bring to light what pertains in the Ghanaian construction industry, in terms of the value placed on project communication, barriers to communication barriers and determine strategies for effective communication.

3.4 RESEARCH DESIGN

A research design encompass the general framework of methods and procedures adopted in collecting and analyzing data including drawing validity and reliability tests (Creswell, 2009). The research design adopted is highly guided by the philosophical stance of the research. It constitutes the guide for collecting data, its measurement and analysis. The design of a research can be a survey, case study, experiment, just to mention a few.

3.4.1 Survey Research

A survey research design according to Leedy and Ormrod, (2017) involves the collection of data from large respondents. This is the most widely used data gathering technique in social science. Surveys can be used for explanatory, descriptive and exploratory research

and allows for the gathering of many descriptive information for the testing of multiple hypothesis in a simple survey. They have the ability to produce accurate, reliable and valid data. However, it requires serious efforts and thought to achieve, and could easily yield misleading results, if care is not taken (Neuman, 2014).

3.4.2 Case Study

Bryman (2004) asserts that a case study is basically suitable for thorough and practical study of a research subject area. It is mostly applicable when a thorough and intensive study of a single case is required. Even though a case study design can be carried out on different cases simultaneously, the required richness of data serves as a limitation to the number of cases that can be studied at the same time.

3.4.3 Experimental Research

According to Neuman (2014), experimental research, in common language, refers to the modification of a situation and then comparing the outcome to what existed without modification. Experimental designs are used to test the relationship between research variables and dependent variables through manipulations. They are generally intended at the formulation and testing of theory or evaluation of interventions (Bryman, 2004; Fellows and Liu, 2015; Yin, 2009).

3.4.4 Adopted Research Design

The current study also aimed at gathering data from various construction professions on issues concerning communication in project management, the typologies of communication, barriers to effective communication, among others. This can be achieved using surveys, hence the choice of the survey research design for this study.

3.5 DATA TYPE AND CATEGORIZATION

3.5.1 Sources of Data

The study collected both secondary and primary data. Secondary data was collected through literature review from previous thesis, books, journal publications etc. The primary data on the other hand was collected from the field survey using structured questionnaires.

3.6 POPULATION AND SAMPLING PROCEDURES

3.6.1 Research Population and Sample Frame

The population of a study comprises the entire units of the variables the researcher sets to study (Bryman, 2004). The units are people who generally have particular features, expertise or qualities, which allow them to provide the type of data required (Ary et al. 2018). The significance of recognizing the suitable group depends on the reality that the research results are valid and reliable (Chow et al. 2017).

The research population was limited to building contractors in the Accra Metropolis of the Greater-Accra Region of Ghana. Donkor (2011) revealed that over seventy percent of Ghanaian contractors tend to operate officially in the Greater Accra and Ashanti regions and therefore contractors in any of these two areas could be considered for the research. Mohammed, (2017) in a study identified 128 building contractors, registered with the ministry of works and housing and based in the Accra Metropolis as at 2014. a list of registered contractors. The target group were quantity surveyors, architects, project managers, engineers, etc.

3.6.2 Sampling Technique

Due to the size of the target population, the sampling technique employed was the census sampling. This is a sampling technique where the entire population is used for the study. According to Singh and Masuku, (2014), although cost considerations make this

impossible for large populations, a census is more attractive for small populations (e.g., 200 or less). Considering the proximity of the respondents and the population size, it was deemed necessary to use the census for better results.

3.7 DATA COLLECTION METHODS

3.7.1 Data Collection Instrument (Primary Data) and Data Collection

The primary data for the current study was collected using structured questionnaires. The questionnaire was mainly closed ended to ensure uniformity in the data collection and facilitate the data analysis. The questionnaire was structured into 2 parts. The first part gathered data about the demographic characteristics of the respondents while the second part asked all the necessary questions required to achieve the objectives of the study. Generally, questions in part two were formatted using Likert scale of 1-5. For example, questions on the “key communication typologies”, were scored on a 5-point scale were [1–Never used]; [2–Rarely used]; [3–Sometimes used]; [4–Often used] [5–Always used]. A copy of the questionnaire can be found at the appendix.

The questionnaire was administered online using google forms. The data collection was done in the month of August 2019. A total of 128 questionnaires were sent out, and a total of 78 questionnaires were retrieved which gave us a response rate of about 60.93 percent. However, 4 out of the received questionnaires were not complete and for that matter excluded from the data analysis.

3.7.2 Data Validity and Reliability

Any research can be affected by factors that can invalidate the findings. A good research tool should meet the tests of validity, reliability and practicality. Validity refers to the extent to which a test measures what we actually wish to measure. Reliability refers to accuracy and precision of a measurement procedure. Determining validity can be viewed as constructing an evidence-based argument regarding how well a tool measures what it

is supposed to do (Bhaskar and Manjuladevi, 2016). According to Saunders et al. (2009), validity relates to whether or not findings are really about what they appear to be. Greener (2008) and Saunders et al. (2009) however, agree that external validity has to do with the generalizability of research findings.

The response rate is the ratio of completed questionnaires to the total number of eligible respondents, and literature assumes that a high response rate shows validity of the results of the study (Coffey et al. 1996). Aibinu, and Odeyinka, (2006), in accessing construction delays and their causative factors in Nigeria, made reference to assertion by Moser and Kalton (1971) that “the result of a survey could be considered as bias and little value if the response rate was lower than 30-40%”. This assertion indicates that the response rate of 60.93% was adequate for the analysis.

3.8 DATA PROCESSING AND ANALYSIS TECHNIQUES

The responses of the respondents were analyzed to enable the researcher make meaningful discussions on the subject matter. The Statistical Package for Social Scientist (SPSS) version 16 was used to collate the responses. Subsequently, questions on the demographic characteristics and general particulars of the respondents were analyzed using percentages. The results were then presented in graphs, charts and tables. The ordinal data was analyzed using Relative Importance Index (RII), using the formula:

$$\text{Relative Importance Index (RII)} = \frac{\sum W}{AN}$$

Where, W = the weights given to each variable by the respondents, ranging from 1 to 5;

A = the highest weight (i.e. 5 in the study)

N = the total number of samples

3.9 ETHICAL CONSIDERATIONS

In order to comply with the ethical standards in the conduct of a research, the study sought the consent of the respondents. They were not forced to complete the

questionnaire. Moreover, the anonymity and confidentiality of the information provided was also ensured. Finally, all researchers whose documents were used for the study were duly acknowledged.

CHAPTER FOUR

ANALYSIS AND RESULTS DISCUSSION

4.1 INTRODUCTION

This chapter basically provided the analysis of the primary data collected via the administration of questionnaires and the discussion of the results of the study. Upon the successful completion and retrieval of the questionnaires, the data was statistically analyzed and interpretations were drawn to address the specific research questions and objectives stated in chapter one of this study. The analytical tools used in this research were Mean Score Ranking and Relative Importance Index. The results of the research were then presented using pie chart, bar chart and tables. Out of the one hundred and twenty (120) questionnaires that were distributed targeting the sample size, seventy-four (74) questionnaires representing approximately 62% were retrieved and analyzed. According to Moser and Kalton (1979), the response rate is considered inadequate if it is less than thirty (30) of the questionnaires distributed.

4.2 DESCRIPTIVE ANALYSIS OF DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

The study explored the background information of the respondents selected for the study. The data obtained was principally primary data from the retrieval of distributed questionnaires. The importance of this aspect of the study was to confirm if the respondents possess the characteristics of the required participants.

4.2.1 Profession of Respondents

The construction project team is usually made up of various professionals coming together to achieve the construction objective. There was the need to identify the specific professionals participating in the study in order to confidently generalize the outcome. Figure 4.1 below indicates the various professionals that participated in this study. From

the figure, majority (46%) of the professionals were those who belonged to other professionals not included in the questionnaire options but form part of the construction project team in Ghana. Engineers were the professionals ranked in the second position with 30% score. Project managers came third with 17% and quantity survey were the minority group made up of 7% of the respondents.

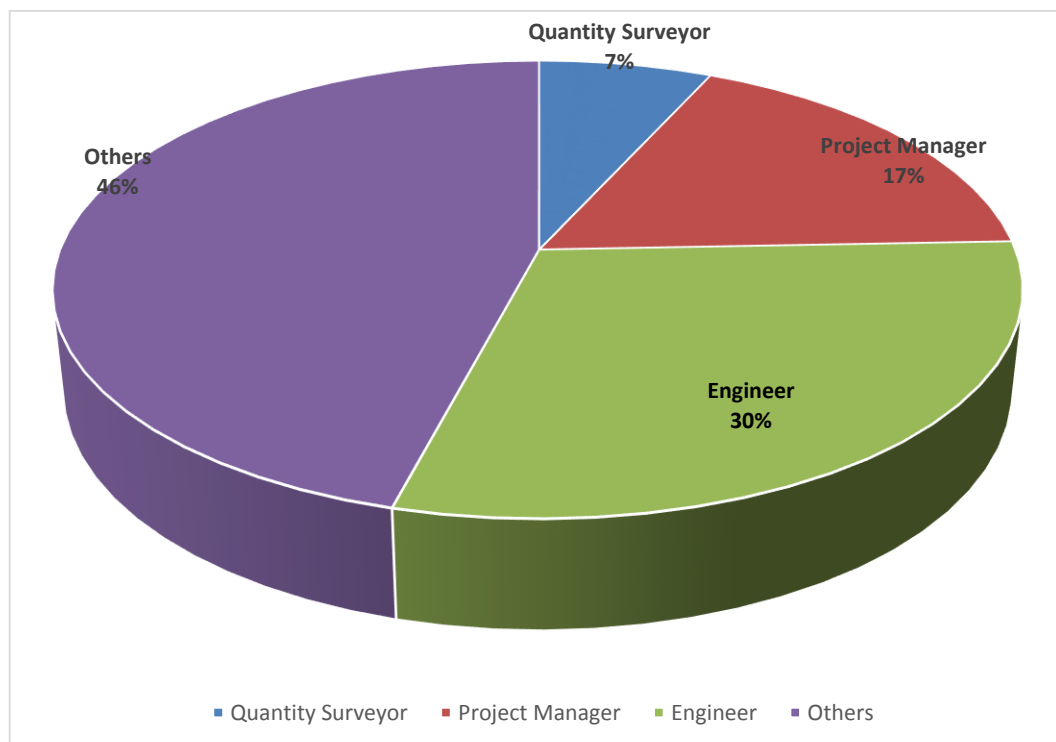


Figure 4.1: Profession of Respondents

Source: Field data (2019)

4.2.2 Working Experience of Respondents

This part of the questionnaire also sought to enquire about the respondent's years of working experience. The respondent's years of working experience will influence their responses since they would have been exposed to a lot of communication challenges. Those who are also inexperienced will have their perspective about communication in the construction industry. From table 4.1 below, 26 of the respondents representing 35.1% have been engaged in their current profession within the last five (5) years. This was

followed by 18 number of respondents representing 24.3% of the total respondents who had 5-10 years of working experience. 10-15 years of working experience was rated 3rd with 17 respondent representation taking 23.0%. those who have been working for a relatively longer period of time in this study were few in number. 12% of the respondents indicated that they had 15-20 years of experience whereas just 4 of the respondents representing 5.4% worked for more than 20 years.

Table 4.1 Working Experience of Respondents

Duration	Frequency	Percent	Cumulative Percent
1 – 5 years	26	35.1	35.1
5-10 years	18	24.3	59.5
10- 15 years	17	23.0	82.4
15-20 years	9	12.2	94.6
More than 20 years	4	5.4	100.0
Total	74	100.0	

Source: Field data (2019)

4.3 KEY COMMUNICATION TYPOLOGIES AMONG PROJECT TEAMS IN THE GHANAIAN CONSTRUCTION INDUSTRY

As argued by Mehra (2009), frequent and effective communication is necessary throughout the life of any project because all projects are executed by humans and they interact by way of teams. In response to the above, one of the objectives of the current study was to critically assess the key communication typologies among project teams in Ghanaian construction industry. This variable was assessed from two perspectives: channel and organizational perspective as shown in Table 4.2

From the channel perspective, it was reported by the respondents that verbal communication is the most widely used communication type with mean score value of 4.49 and standard deviation of 0.781. This was followed by written communication with 3.99 as the mean score and 0.888 as the standard deviation. In explaining this, some of

the respondents noted that in most situations information or instructions are shared among parties to a project through verbal means such as telephone calls after which written notice is issued subsequently. Beside the above, face to face communication such as meetings, presentations and visual communications are used to ensure effective management of a project. Therefore, face-to-face communication was ranked 3rd with 3.84 as its mean score value and 1.171 as the standard deviation. The horizontal, visual, diagonal and non-verbal communication typologies, which were ranked 4th to 8th in the table, are rarely used, according to the findings of the survey. The above findings agree with Thompson (2002) and Dainty et al. (2006), who opined that a number of communication typologies must be used during construction project delivery to enhance the project outcomes.

Table 4.2 Mean Score of Key Communication Typologies among Project Teams

No	Communication typologies	N	Mean	Std. Deviation	Rank
1.	Verbal communication	74	4.49	0.781	1 st
2.	Written communication	74	3.80	0.793	2 nd
3.	Face to face	74	3.84	1.171	3 rd
4.	Vertical (upward/downward) communication	74	3.14	1.025	4 th
5.	Horizontal communication	74	3.58	1.073	5 th
6.	Visual communication	74	3.99	0.888	6 th
7.	Diagonal communication	74	2.70	1.003	7 th
8.	Non-Verbal communication	74	2.66	1.101	8 th

Source: Field data (2019)

4.4 MODE OF COMMUNICATION AMONG PROJECT TEAMS IN THE GHANAIAN CONSTRUCTION INDUSTRY

According to Emmitt and Gorse (2003), communication is essential in all operations that involve humans. It is an integral part of the construction process. Consequently, any improvement in communication can improve the operating effectiveness of a team. Conversely, Gamil, and Rahman, (2017) also argued that inadequate communication can result in a demotivated workforce and lead to problems in construction project delivery. The current study as part of its objectives examined the mode of communication among project teams in the Ghanaian construction industry. The results as showed in Table 4.2 revealed that a number of communication modes/channels are employed for effective management of construction project according to the respondents. All the channels indicated in Table 4.3 were found to be used at different frequency levels depending on the type of message to be sent. The results above confirm that early findings by Dainty et al. (2006) and Jacklyn (2011) who noted in their studies that communication is carried out using symbols, signs, behaviour, speech, writing or signals, as well as through project plans, project scope statement and status report. Relative Importance Index (RII) is a non-parametric technique that is widely used by construction researchers for analyzing structured questionnaire responses for data involving ordinal measurement of attitudes (Kometa *et al.* 1994). Relative Importance Index (RII) was therefore used to determine the relative importance of the various mode of communication among project teams in Ghanaian construction industry. The questionnaire adopted a five-point likert of 1 to 5 (where 1 – Never used; 2 – Rarely used; 3 – Sometimes used; 4 – Often used; 5 – Always used). The data collected was analysed and the results are that Face to face discussions and Phone Calls are the two most important mode of communication used in the construction industry. The two

both scored an RII of 0.838 thereby ranked the first among the various mode of communication in construction industry in Ghana. Formal writing (e.g. letters, fax, and memos) was the second highest ranked mode of communication with an RII of 0.762. Formal writing is one of the various modes of communication that plays a vital role in the construction industry. Instruction regarding variations and others are always expected to be documented in formal writing so as to serve as evidence in the event of construction disputes. Site review meetings, noticeboard communication, induction training, emails, customer complaint system among others were also greatly in use in the construction industry.

Table 4.3 Mode of Communication among Project Teams in Ghanaian Construction Industry

MODE OF COMMUNICATION AMONG PROJECT TEAMS IN GHANAIAN CONSTRUCTION INDUSTRY											
	Modes of Communication	Frequency of rank					TOTAL	ΣW	MEAN	RII	RANKING
NO.		1	2	3	4	5					
1	Formal writing (e.g. letters, fax, memos)	2	6	17	28	21	74	282	3.81	0.762	3 rd
2	Site Review meetings	3	4	19	35	13	74	273	3.69	0.738	4 th
3	Whatsapp	7	17	23	15	12	74	230	3.11	0.622	9 th
4	Phone Calls	0	3	9	33	29	74	310	4.19	0.838	1 st
5	Emails	4	12	18	25	15	74	257	3.47	0.694	7 th
6	Web site	15	20	22	15	2	74	191	2.58	0.516	13 th
7	Noticeboard	3	11	19	23	18	74	264	3.57	0.714	5 th
8	Newsletter	11	22	26	10	5	74	198	2.68	0.535	12 th
9	Employee manual	9	18	23	17	7	74	217	2.93	0.586	11 th
10	Customer complaint system	6	10	29	21	8	74	237	3.20	0.641	8 th
11	Disciplinary and grievance code	7	16	24	25	2	74	221	2.99	0.597	10 th
12	Induction training	6	7	21	20	20	74	263	3.55	0.711	6 th
13	Face to face discussions	0	2	9	36	27	74	310	4.19	0.838	1 st

4.5 BARRIERS TO EFFECTIVE COMMUNICATION AMONG PROJECT TEAMS IN GHANAIAN CONSTRUCTION INDUSTRY

Communication is views as a process of conveying information from one person (the sender) to another (the receiver) with the use of a medium in which the communicated information is understood the same way by the sender and receiver (Mehra, 2009). Jacklyn (2011) also noted that the most common reason for construction disputes is a breach in communication and expectations. The current study sought to also examine the barriers to effective communication among project teams in the construction industry. From the results shown in Table 4.4, it is evident that a number of factors act as barriers to effective communication. The results from the use of RII as the analytical tool revealed that the top rated five (5) barriers are poor listening and premature evaluation, poor timing for communication, the use of wrong communication channel, differing perception between sender and receiver, and inconsistent verbal and non-verbal communication. This finding agrees with that of Dainty et al. (2006) who noted that the use of wrong communication channel create communication challenges for project team. Moreover, the timing of a particular method also affects the ability of receiver to send feedback to the sender of a message. Regarding differing perception between the receiver and sender, Maslej, (2006) also noted that people with different backgrounds of knowledge and experience, often view the same idea from different perspectives and this dichotomy may create barrier for effective communication. Mehra (2009) also share the same view on the above subject.

Table 4.4 RII Barriers to Effective Communication among Project Teams in Ghanaian Construction Industry

BARRIERS TO EFFECTIVE COMMUNICATION AMONG PROJECT TEAMS IN GHANAIAN CONSTRUCTION INDUSTRY											
	Barriers	Frequency of rank					TOTAL	ΣW	MEAN	RII	RANKING
NO.		1	2	3	4	5					
1	Poor listening and premature evaluation	3	11	18	25	17	74	264	3.57	0.714	1 st
2	Differing perception between sender and receiver	4	7	24	27	12	74	258	3.49	0.697	3 rd
3	Badly expressed message	5	17	15	24	13	74	245	3.31	0.662	6 th
4	Distrust	10	9	24	17	14	74	238	3.22	0.643	9 th
5	Emotional reaction	9	7	27	23	8	74	236	3.19	0.638	10 th
6	Noise/Distracton	5	14	20	23	11	73	240	3.29	0.658	7 th
7	Inconsistent verbal and non-verbal communication	5	9	22	27	11	74	252	3.41	0.681	5 th
8	Information overload	3	15	23	24	9	74	243	3.28	0.657	8 th
9	The use of wrong communication channel	4	8	27	18	17	74	258	3.49	0.697	3 rd
10	Poor timing for communication	2	11	22	25	14	74	260	3.51	0.703	2 nd

Source: Field data (2019)

4.6 STRATEGIES TO EFFECTIVE COMMUNICATION AMONG PROJECT TEAMS IN THE GHANAIAN CONSTRUCTION INDUSTRY

The last objective of the study was to explore strategies for effective communication among project teams in the Ghanaian construction industry. The results are shown in Table 4.5 below. According to the respondents using mean score analytical tool, a number of strategies can be implemented to ensure effective project communication. The top four strategies include, having clarity in message to enhance understanding, the use of appropriate communication channel, proper timing for sending message and Avoiding information overload. These recommendations are perfectly in agreement with what was reported in literature by Mehra (2009), Maslej (2006) and Dainty et al. (2006).

Table 4.5 Mean Score for Identifying Strategies to Effective Communication

No		N	Mean	Std. Deviation	Rank
1	Clarity in message to enhance understanding	74	4.23	0.944	1 st
2	The use of appropriate communication channel	74	4.15	0.806	2 nd
3	Avoiding information overload	74	4.00	1.007	4 th
4	proper timing for sending message	74	4.11	0.915	3 rd

Source: Field data (2019)

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter is dedicated to summarizing the entire research process thereby covering the overall structure of this dissertation which is captured in five independent but related chapters. Chapter one covered the background of the study, statement of the problem, aim and objectives of the study, significance of the study. The second chapter was dedicated to reviewing related relevant literature on the study. Chapter three also dealt with the various methods which were employed in undertaking the study. Chapter four presented the analysis and discussion of findings. Finally, chapter five which is this final chapter of the study also presented the summary, conclusion and recommendations of the study.

5.2 REVIEW OF RESEARCH OBJECTIVES

As important as communication is in the construction industry among project teams, the aim of this study was to explore the various barriers to effective communication among construction project team in the Ghanaian construction industry. To accomplish this aim, specific objectives were set out in this study to facilitate that purpose. This chapter therefore provides a review of how the various objectives of the study were successfully achieved.

5.2.1 Key Communication Typologies among Project Teams in Ghanaian Construction Industry

The study assessed the various typologies from two perspectives: channel and organizational perspective. Through literature review, some communication typologies were identified. The respondents in the study were then requested to rate the various typologies according to their awareness of the existence in the construction industry.

The data was then analyzed in this regard and the result was that verbal and written communications are the most common communication typologies identified in the construction industry. The mean score ranking also revealed the common use of face-to-face communication, vertical (upward/downward) communication, horizontal communication, among others in the construction industry.

5.2.2 Mode of Communication among Project Teams in the Ghanaian

Construction Industry

According to Gamil, and Rahman, (2017) inadequate communication can result in a demotivated workforce and lead to problems in construction project delivery. Therefore, there was the need to identify the various modes of communication available to the construction industry. The various modes were therefore identified in literature which the respondents of the study rate as was stated in the questionnaire. Relative Important Index (RII) was used to analyze the data collected. The result as is indicated in table 4.3 was that Face to face discussions and Phone Calls are the two most important mode of communication used in the construction industry.

5.2.3 Barriers to Effective Communication among Project Teams in Ghanaian

Construction Industry

From the literature review, communication was defined as a process of conveying information from one person (the sender) to another (the receiver) with the use of a medium in which the communicated information is understood the same way by the sender and receiver. There are, however some barriers to the flow of communication which this objective sought to explore. The results from the analytical tool used identified five (5) barriers which are common in the construction industry as; poor listening and premature evaluation, poor timing for communication, the use of wrong

communication channel, differing perception between sender and receiver, and inconsistent verbal and non-verbal communication.

5.2.4 Strategies to Effective Communication among Project Teams in the Ghanaian Construction Industry

Some of the strategies ascertained from this study to effectively improve on communication in the construction industry are; having clarity in message to enhance understanding, the use of appropriate communication channel, proper timing for sending message and Avoiding information overload.

5.3 SUMMARY OF FINDINGS

In pursuance of the aim of the study, the researcher set out 4 specific objectives. From the data collected the following are the major finding:

1. It was found from the results of the current study that different typologies of communication are used in the management of construction projects. From communication channel perspective, verbal, written, visual and non-verbal communications types were in use. The choice of a particular communication types depended on the types of message to be sent among other factors. From organizational perspective both vertical (upward/downward) communication and horizontal communication existed. Diagonal communication was not common. These findings agree with literature.
2. With regard to the mode of communication among project teams in the Ghanaian construction industry, it was found that the most widely used mode of communication are:
 - Formal writing (e.g. letters, fax, memos)
 - Emails
 - Site Review meetings

- Notice board
- WhatsApp
- Phone Calls

The choice of these communication channels was also found to be influenced by the types of message to be sent and the preference of the sender or receiver.

3. The study also found that there exist a number of barriers to effective communication. The top barriers are:

- Differing perception between sender and receiver
- The use of wrong communication channel
- Inconsistent verbal and non-verbal communication
- Information overload, Poor timing for communication
- Poor listening and premature evaluation and badly expressed message.

4. Based on the findings of the study, it was revealed that the following strategies are key to effective communication:

- The use of appropriate communication channel
- Clarity in message to enhance understanding
- Avoidance of information overload
- Proper timing should be used to communicate verbal message to project team members.
- Effective project coordination

5.4 RECOMMENDATIONS

Based on the findings of the study it is recommended that the right communication channel should be used by parties to a construction project to ensure effective

communication. Moreover, communication messages should be clearly expressed to prevent ambiguities.

5.5 FUTURE RESEARCH DIRECTIONS

It is suggested that future research should consider the following related area of the study's topic:

- The effect of communication among project team members on project success
- Critical success factors to effective communication on project sites

5.6 CONCLUSIONS

In conclusion, this chapter of the study revised the research objectives, provided a summary of the findings of this research as a contribution to knowledge thereby filling the research gap while providing answers to the research question. Recommendations and future research direction were also outlined.

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APPENDICES

APPENDIX A: RESEARCH QUESTIONNAIRE

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

(KNUST)

DEPARTMENT OF CONSTRUCTION TECHNOLOGY AND MANAGEMENT

Dear Respondent

I am undertaking this research in KNUST as part of the requirement for the award of MSc degree in Project Management. The study aims at critically exploring strategies to effective communication among construction project team in the Ghanaian industry.

The study seeks to achieve the following objectives:

- (i) To critically assess the key communication typologies among project teams in Ghanaian construction industry
- (ii) To examine the mode of communication among project teams in Ghanaian construction industry
- (iii) To ascertain the underlying barriers to effective communication among project teams in Ghanaian construction industry
- (iv) To explore strategies to effective communication among project teams in Ghanaian construction industry

I will be very grateful if you could answer this questionnaire to aid the study. For each question please, kindly respond by ticking (✓) in the appropriate box for each item. All information collected will be confidential and would be used only for academic purposes. Below is my contact should you need any assistance in filling the questionnaire. Thank you.

Mr. Ebenezer Mensah Annang, Email: slybusy@yahoo.com, Mobile: 0271150603

(Research Student)

Department of Construction Technology and Management, KNUST

Dr. De-Graft Owusu-Manu

Project Supervisor

Department of Construction Technology and Management, KNUST

PART ONE

SECTION A: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

1. Please state the capacity in which you work in your firm ☐ Quantity Surveyor
☐ Project Manager ☐ Architect ☐ Engineer ☐ Others (please specify)

2. How many years have you been practicing your profession?
☐ 1 – 5 years ☐ 5-10 years ☐ 10- 15 years
☐ 15-20 years ☐ More than 20 years

PART TWO

SECTION A: KEY COMMUNICATION TYPOLOGIES AMONG PROJECT TEAMS IN GHANAIAN CONSTRUCTION INDUSTRY

3. The table below shows some communication typologies among project teams according to literature. Based on your experience in construction projects management in Ghana please rate each of the variables using the scale below:

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

	Communication typologies	1	2	3	4	5
	<i>Channel perspective</i>					
1	Verbal communication					
2	Written communication					
3	Visual communication					
4	Non Verbal communication					
5	Face to face					
	<i>Organizational perspective</i>					
1	Vertical (upward/downward) communication					
2	Horizontal communication					
3	Diagonal communication					
	Others (please specify)					

**SECTION B: MODE OF COMMUNICATION AMONG PROJECT TEAMS IN
GHANAIAN CONSTRUCTION INDUSTRY**

4. The following are some modes of communication among construction project team according to findings from. Please based on your experience rate the levels of usage of the following communication channels: 1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

	Modes of Communication	1	2	3	4	5
1	Formal writing (e.g. letters, fax, memos					
2	Site Review meetings					
3	Whatup					
4	Phone Calls					
5	Emails					
6	Web site					
7	Noticeboard					
8	Newsletter					
9	Employee manual					
10	Disciplinary and grievance code					
11	Customer complaint system					
12	Induction training					
13	Face to face discussions					
	Others (please specify)					

SECTION C: UNDERLYING BARRIERS TO EFFECTIVE COMMUNICATION
AMONG PROJECT TEAMS IN GHANAIAN CONSTRUCTION INDUSTRY

5. The table below shows some factors identified in literature as being Barriers to effective communication among project team. Based on experience rate the following factors on a five-point Likert scale (1= Not a Barrier to 5 = Extreme Barrier)

Please use the spaces below the table to add other barriers and rank

	Barriers	1	2	3	4	5
1	Poor listening and premature evaluation					
2	Differing perception between sender and receiver					
3	Badly expressed message					
4	Distrust					
5	Emotional reaction					
6	Noise/Distraction					
7	Inconsistent verbal and non-verbal communication					
8	Information overload					
9	The use of wrong communication channel					
10	Poor timing for communication					
	Others (please specify)					

**SECTION D: STRATEGIES TO EFFECTIVE COMMUNICATION AMONG
PROJECT TEAMS IN GHANAIAN CONSTRUCTION INDUSTRY**

6. The following are the possible strategies to ensure effective communication among project teams as reported in literature. Considering your experience, please indicate how effective the following strategies are using the scale where 1–Very ineffective 2 –Ineffective; 3 – Neither effective nor ineffective; 4– Effective 5-Very effective

Sn	Strategies	Rankings				
		1	2	3	4	5
1	Clarity in message to enhance understanding					
2	The use of appropriate communication channel					
3	Regular meeting					
4	Effective project coordination					
	Others (please specify)					

END OF QUESTIONNAIRE

THANK YOU VERY MUCH FOR YOUR TIME.