Factors of communication management for successful project delivery in the Swaziland construction industry

Mavuso, N.M. [1] **and Agumba, J.N.**[2]

[1] Department of Construction Management/Quantity Surveying, University of Johannesburg, l_mavuso@yahoo.com, Tel No. +26 87 653 2019.
[2] Department of Construction Management/ Quantity Surveying, University of Johannesburg, jagumba@uj.ac.za, Tel No. +27 11 559 6488.

ABSTRACT

Purpose of this paper: The study aims to identify the communication-management factors that influence project success; and it proposes a conceptual improvement model to enhance communication-management practice for successful project delivery in the Swaziland construction industry.

Design/methodology/approach: The study derived information that relates to the objectives of the study from different books, journals, theses, and published conference papers. Therefore, a historical-research approach was adopted to review the literature. Twenty-five articles were reviewed, spanning the period of 1998 to 2015. Thematic analysis was used to extract the themes, which were tabulated in a matrix.

Findings: Eight communication-management factors were identified that were observed to influence project success; and a hypothetical communication management improvement model has also been proposed. The variables were: Technology and systems, communication skills or competence, communication plans, teamwork and partnering, organizational structure, stakeholders' frame of references, project briefing and the context of an environment.

Research limitations/implications: The study proposes a hypothetical communication-management improvement model for successful project delivery, using the literature review; hence, this is a limitation in the study.
Practical implications: The communication-management factors can be considered as the critical factors required in construction projects to enhance communication practice for successful project delivery in the construction industry.

Value of the paper: The paper explicitly identifies the communication-management variables; and it proposes a hypothetical communication-management improvement model for successful project delivery. Consequently, it contributes to communication-management practice amongst the construction-industry stakeholders, such as the professional team, contractors and clients for successful project delivery.

KEYWORDS: Communication Management, Construction industry, Critical Success Factors, Project Success

1. INTRODUCTION

The success of the construction industry is dependent on effectively and efficiently integrating the resources of labour, material, plant and equipment.

Resource integration requires the effective communication of performance objectives for completing a project within budget, time and the required standard (Pinto *et al.,* 1988; Crawford, 2002 and Prabhakar, 2008). Numerous studies have associated communication with project success (Garbharran *et al*., 2004; Ogwaueleka, 2011; Govender et al., 2012; Ofori, 2013 and Meid, 2015).

The role of communication has been recognized as a stimulus to project success. Its management, therefore, is perceived as a strategic tool amongst the stakeholders at all levels of a project that could yield possible success. Aiyewalehinmi (2013) reveals that communication directly relates to the amount and quality of information that flows between management and workers. Communication builds relationships, changes negative perceptions, improves the morale, and heightens the commitment of the workforce, thereby enhancing productivity.

Communication effectiveness is dependent on the key stakeholders responsible for the project. Osman (2011) reveals how communication is critical to project success – especially amongst the stakeholders; because it often hinges on cross-team communication. Communication boundaries, for example, could result in possible failures. Adedapo, (2009) reveals that poor communication causes poor buildability, poor management of resources, and low productivity. A Holmes report (Grossman, 2011) elucidates how failure to convey clear and understandable strategies and processes that engage employees in shared goals, such as procedures and practices may result in cost uncertainties, escalated budgets, and possible project cancellation.

Globally, the study of communication management influence on the success of projects is increasing. A study in Malaysia encourages more understanding and more practice of good communication in the construction industry (Perumal, 2011). The Dutch industry highlights factors that influence communication in construction projects, focusing on problems in communication (Hoezen, 2012). Aiyewalehinmi (2013) also presents a factor analysis of communication in the construction industry of Australia.

1.1 Significance of communication

Chan *et al.* (2004) declare that communication has been generally studied as significant to projects. The study opined that communication is a vital link between people, ideas and the information required by parties involved throughout a project. Garbarran *et al.*, (2004) also disclosed that communication leads and integrates people in taking decisions to make a project successful. According to Naqvi *et al.,* (2011), the quality and effectiveness of communication is a basic prerequisite that makes or breaks a project. Therefore, improving communication in construction projects is important; because the efficiency and effectiveness of the construction process is strongly dependent on the quality of communication (Reyman *et al.,* 2006).

1.2 Significance of communication management

Gouder (2010) explains that the goal of communication management is to ensure timely and appropriate collection, storage, distribution and the generation of project information for project success. Communication management has served as catalyst for the development of project management in the construction industry. Dombai (1999) further maintains that a well-planned strategic approach to diversity management should have communication as its pivotal point; because communication management has been accepted as a new approach to the analysis of communication

competence of businesses and situations that develop new interactive forms that manage the information flow within and outside an organization.

Communication, consequently, should be understood to play a vital role in all stages of construction – from design, production, organisation and management (Tipili *et al*., 2014).

1.3 Nature of communication in the construction industry of Swaziland

Currently, the country is undertaking huge construction projects that aim to meet the country's vision of first-world status by the year 2022. The vision arises with augmented complexities that present further challenges of linking construction activities with project objectives that inhibit successful project delivery. According to the Swaziland Association of Architects, Engineers and Surveyors (SAAES), (n.d.), the country has experienced or has knowledge of projects not being completed on time, and within budget that have led to the dissatisfaction of clients in the public and private sectors. The study, however, does not outline the factors that could contribute to such poor project delivery.

Little attention has been given to communication theory in the construction industry of Swaziland; and ineffective communication management could be contributing factors to poor project delivery. Generally, communication has been studied as significant to construction projects (Perumal *et al*., 2011; Toor *et al*., 2005 and Garbharran *et al.*, 2004); and yet the construction industry of Swaziland is still inundated with reports of poor delivery of its construction projects. The studies assert that communication significance for project success could be given more consideration, through understanding the impact of the communication management concept from desktop research, in order to enhance its effectiveness in the construction industry.

The acknowledgement of communication problems exists in Swaziland. An extract from the royal institute of chartered surveyors (RICS, 2002) reveals that communication seemed to be very alien to many surveyors in Swaziland, who believed their hard-earned technical skills were more important than the element of communication. However, despite the previous studies, new levels of research have been adopted in the Swaziland construction industry to enhance effective communication practices for successful project delivery.

Therefore, this monograph undertakes to identify the critical success factors (CSF) of communication management that influence project success; and it also proposes a conceptual communication-management improvement model.

2. THE RESEARCH METHODOLOGY

The paper used both primary and secondary data. A literature review on the communication-management factors for successful project delivery was conducted. The literature review was carried out on 25 articles. These articles were obtained from books, journals, theses, and conference papers between 1998 and 2015. The non-experiential data were analyzed using thematic-content analysis. The articles were read a number of times, in order to obtain a sense of the content; and the emerging themes were noted. The themes were further categorized into sub-themes. The research path followed in the study is illustrated in Figure 1.1 below:

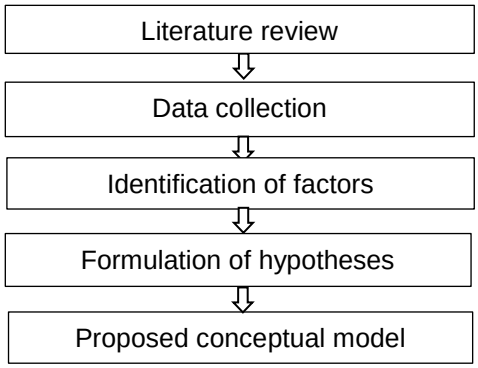

Figure 1.1 Illustration of research path
Source: (Imitiaz, Al-Mudhary, Mirhashemi and Ibrahim, 2013)

3. LITERATURE REVIEW ON COMMUNICATION MANAGEMENT

There are a number of papers that document the influencing factors of communication management. Culo *et al.* (2010) identified those factors in communication management that can impact a project, either good or bad as:

- A clear and concise communication plan;
- The availability of technology.

Aiyewalehinmi (2013) focuses on the factor analysis of communication in the construction industry as:

- Human relationships and functional effectiveness with interaction between management and employees – thereby encouraging employees' participation and effective input.
- Lines of powers and policy implementation are viewed as comprising communication policy.
- Effective leadership communication style and the importance of craft institution context to communication.

Perumal *et al.* (2011) discovered that people, systems, culture and structure could be used as communication strategies to ensure the correct performance of the project. They summarize the following approaches:

- Use the proper system;
- Organizational structure;
- Communication skills;

Naqvi *et al.,* (2011) addressed the impact of stakeholders' communication on project outcome. The report inferred that project management remains effective only when there is:

- Effective communication in the team's management.
- A well-structured manner in the flow of correct information and timely information;
- Establishing a reporting hierarchy between the team members of any project;
- A formal communication framework.

Hoezen *et al.,* (n.d.) suggested that the efficiency and effectiveness of the construction process strongly depend on the quality of communication. In the research, the following factors were derived, in order to influence communication in the Dutch construction industry:

- Organization of the construction process;
- The stakeholders' frame of reference;

- Preparation of the project brief;
- Openness about the budget available and mutual responsibility.

Peansupap (2005) maintains that IT and ICT have been identified as essential tools for improving communication in the construction process, and for creating new business opportunities. Garbharran *et al.,* (n.d.) reveal that shared project vision and a detailed communication plan are required, in order for communication management to succeed. Cheng *et al*. (2004) explained that strategies have emerged for avoiding conflict and adversarial relations between parties; and these are widely used in the construction industry as follows:

- Partnering facilitates effective communication and co-ordination;
- The application of computers is another effective way; and
- Incentive schemes and team-building activities are two enablers that incorporate a two-way communication.

Johnson (n.d.) discloses that effective communication skills are vital in realizing potential and in achieving career security; while Pirtroforte (2010) supports governance and communication in the building process, with the focus on new information technology. Ho (2013) elucidates that formal and informal communication mechanisms need to be maintained in:

- An organization's communication system;
- Attitudes and beliefs that should be understood as a response to communication; and
- An adequate channel of communication should be established.

Geren (2012) identifies communication skills, teamwork with a good attitude and identifying the lines of communication at the inception of a project is a good practice. Hussain Barakat (2009) asserts that effective communication between the participants is the key to a successful project. Finally, an extract from DiSalvo et al. (1989) and Gorse et al. (2006b) emphasize that poor interpersonal and communication skills are the main cause of group failure. Kleim (2008) explains that communication is about information – and not just the data that occur in various forms and at different levels affected by the context of the environment.

Louw *et al.*, (2005) and Gamble *et al.* (1998) further underline that communication does not exist in a vacuum; but it takes place within the context of physical, social, historical, psychological and cultural issues.

The literature derived eight critical success factors of communication management for project success. These are classified in Table 1.1, as follows:

Table 1.1 Communication-management factors

Communication Management Factors	**Authors**
Technology and systems	Meid (2015) ;Culo and Skendrovic (2010); Perumal and Bakar (2011); Hijiazi, *et al*. (2008); Cheng Leng Li and Zahir Irani (2004); Pirtroforte (2010) and Dombai (1999)
Communication skills or competence	Welch (2015); Dada(2014); Bron (2014); Aiyewalehinmi (2013); Perumal and Bakar (2011); Cheng Leng Li and Zahir Irani (2004); Johnson (n.d.); Garen (2012) and Davis (2002)
Communication plan	Meid (2015); Culo and Skendrovic (2010); Aiyewalehinmi (2013); Naqvi *et al*. (2011); Garbharran, *et al*. (2012.); Ho (2013) and Welch (2015).

Teamwork and partnering	Aiyewalehinmi (2013); Naqvi, *et al*., (2011); Cheng Leng Li and Zahir Irani (2004); Garen (2012) ; Davis (2002) and Eddie Chang (2002)
Organizational structure	Perumal and Bakar (2011); Naqvi *et al*. (2011); Ho (2013); Garen (2012) and Anumbe (2002)
Stakeholders' frame of references	Louw *et al.,*(2003); Hoezen, *et al*., (2006.); Ho (2013); Garen (2012); Sertyesilisik *et al.*, (n.d.),
Project briefing	Meid (2015); Hoezen, *et al.,* (2006); Garbharran, *et al.*, (2012)and Khosrowashashi (n.d.)
Context of an environment	Kleim 2008 and Louw *et al.*, (2005); Gamble *et al.*, (1998)

(Source: Communication management factors for project success from 1998 to 2015)

4. RESULTS AND DISCUSSIONS

The communication management variables for project success are discussed, and are as follows:

Factor 1: Technology and systems
Culo *et al*., (2010) reveal that appropriate technology or system's implementation can improve communication. The researchers opine that appropriate systems and technology should be in place. Perumal *et al*., (2011) evaluate that the use of proper systems assists people in organizations to communicate effectively, internally and externally, in order to improve communication within the organization. Cheng *et al*. (2004) further explain that from traditional methods of communication, the application of computers is another effective way. Pirtroforte (2010) supports governance and communication in the building process with the focus on new information technology that should be broadened from controlling contractual compliance to facilitating communication and the interaction amongst project participants. Meid (2015) emphasises that a society, which lags behind in terms of technological advances, is going to be isolated and excluded from the global economic activity. Therefore, the following hypothesis ***H1*** is stated:
H_1: Technology and systems have a positive influence on project success.

Factor 2: Communication skills or competence
Communication skills influence communication management in project success. Culo *et al*., (2010) report that extensive training and learning should be implemented to ensure that the proposed communication systems are compatible with the experience and expertise of the project participants. Perumal *et al*. (2011) show that verbal, written and contractual skills have almost the same importance. Johnson (n.d.) elaborates that communication competence is important to develop career security. Garen (2012) argues that a poor communicator would either have his message questioned or ignored completely. In line with Garen (2012), Hussain Barakat (2009) posits that effectiveness lies with people who communicate to achieve a common objective. Davis (2002) also concurs that it is people who deliver projects – and not processes or systems. Welch (2015), accentuates that internal communication practices need to develop specialist knowledge and skills; so that they can meet the needs of diverse internal audiences and contribute to the organisation's success. Therefore, the following hypothesis ***H2*** is stated:
H_2: Communication skills or competence have a positive influence on project success.

Factor 3: Communication plan
Culo *et al*., (2010) specify that communication management impacts a project. A clear and concise communication plan communicates how the project flows into and out of the project. The study of Aiyewalehinmi (2013) focuses on the lines of powers and policy implementation, viewed as communication policy. According to Garbharran *et al*. (2012), a detailed communication plan is further promoted as being necessary for the effective dissemination of information. Meid (2015) emphasizes that by implementing a communication plan and encouraging a culture of open and honest communication, the organization can expect improvement in the organization. Therefore, the following hypothesis ***H3*** is stated:
H_3: A Communication plan has a positive influence on the success of the project.

Factor 4: Collaboration and teamwork
Cheng *et al.* (2004) explain that collaboration facilitates effective communication and co-ordination. The researcher also found that incentive schemes and team-building activities are two enablers that incorporate a two-way communication system. Aiyewalehinmi (2013) explores human relationships and functionality with the interaction between management and employees – as being effective in communication, and encourages employee participation. Naqvi *et al*., (2011) explains that team management and the processes that start to produce in time affect the project's outcome positively. Therefore, the following hypothesis ***H4*** was stated:
H_4: Collaboration and teamwork have a positive influence on project success.

Factor 5: Organizational structure
Perumal *et al*. (2011) elucidate that an organizational structure very much influences the co-ordination and the flow of organizational systems. The researcher explains that a proper organizational structure should be formed, in order to encourage a good flow of information and to enhance effective communication in an organization. Garen (2012) showed that identifying the lines of communication on the inception of a project is a good practice. Naqvi *et al*., (2011) further supports on how a well-structured manner in the flow of correct information and timely information is important. Ho (2013) further expands that an adequate channel of communication should be established. Therefore, the following hypothesis ***H5*** was stated:
H_5: Organizational structure has a positive influence on project success.

Factor 6: Stakeholders' frame of reference
Ho (2013) discovers that attitudes and beliefs should be understood as a response to communication. Hoezen *et al*., (2006) confers with the stakeholder's frame of reference, only to find that this has a great influence on communication. The study further explains that stakeholders' perception of their role is crucial; while Garen (2012) reveals that communication with a good attitude is important. Perception has certain implications for the way in which organizations communicate with each other (Dombai, 1999). Louw *et al.* (2003) explain that perceptions have a profound influence on communication; because they colour the way we see other people and their behaviour; and consequently, the way we respond to those people and their behaviour is important. Therefore, the following hypothesis ***H6*** was formulated:
H_6: Stakeholder's frame of reference has a positive influence on project success.

Factor 7: Project briefing
Garbharran *et al*. (2012) emphasizes the important consideration on proper hand-over procedures as a part of communication. They state the need for a

shared project vision with constant updates, as the project progresses. Hoezen *et al*., (2006) state that principals in projects need to make their requirements clear. The paper further emphasizes that effective communication through briefing helps stakeholders to understand the objectives and makes them more responsible towards their work. Khosrowashashi (n.d.) informs us that the quality of a project brief has a significant impact on decisions at the design stage of a project; in turn, the decision influence all phases of the construction-project life cycle. Therefore, the following hypothesis ***H7*** was formulated:
H_7: Project briefing has a positive influence on project success

Factor 8: Context of an environment
Louw *et al.* (2005); and Gamble *et al.* (1998) assert that the physical, social, historical, psychological and cultural contexts all have an influence on the delivery of information.

According to earlier studies, the concept of CSFs to project success still remains elusive; and yet the phenomenon is still investigated (Chan *et al.*, 2004; Ogwaueleka 2011; Garbharran *et al*., 2012; Ofori 2013 and Mustaffa *et al*., 2015). However, data have indicated that communication is one of the recurring common variables critical to project success (Dombai, 1999; Hoezen *et al*., 2006; Kleim, 2008; Gouder, 2010 and Meid 2015). Therefore, the following hypothesis ***H8*** is formulated:
H_8: Context of an environment has a positive influence on project success

Based on the aforementioned discussion, a conceptual communication management model is proposed in Figure 1.1.

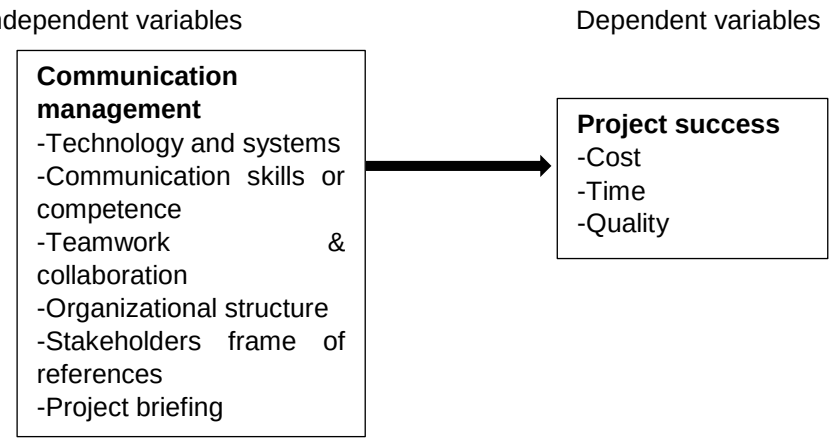

Figure 1.1 The proposed communication management conceptual model
Source: Mavuso *et al*.(2016)

5. CONCLUSION AND RECOMMENDATION

The problem of communication management is not unique to Swaziland's construction industry. Globally, the vast majority of construction sectors experience challenges in communication that hinder successful project delivery. The impact is seen by a plethora of studies, suggesting ways of improving successful project delivery in the construction industry. In order, to address the dissatisfaction of poor project delivery in the construction industry of Swaziland, along with other countries facing the same challenge, this study recommends validating the proposed hypothetical conceptual communication management improvement model (**Figure 1.1)** in future research.

Literature has been reviewed globally to demonstrate that effective communication management practice is needed to sustain successful project delivery. Swaziland has a booming construction industry that is faced with the challenge of poor project delivery. This study maintains that this is due to demoting the fundamentals of communication management to project delivery.

The research paper proposes that project success depends on Communication-management factors to enhance communication effectiveness for project success. The study suggests that: Proper technology and systems; communication skills or competence; teamwork and collaboration, clear organizational structures; an understanding of stakeholders' frame of reference; project briefing; and understanding the context of the environment are all contributing factors to the effectiveness of communication management for successful project delivery.

REFERENCES

Adedapo, O. 2009. Effective Communication as an Aid to Construction Project Delivery Available: From:http://www.scribd.com/doc/16567787/Effective-communication-as-an-aid to-construction-project-delivery [19 June 2009].

Aiyewalehinmi, E.O. 2013. Factor Analysis of Communication in the Construction Industry. *The International Journal of Engineering and Science*. Available from: http://www.theijes.com/papers/v2-i10/Part.1/H02101049057.pdf (Assessed 27 October 2014)

Allen, L. (n.d.). *Cost of Poor workplace Communication*, Available from:<http:www.businessperform.com/workplace-communication/poor-communication-costs.html (Assessed 27 October 2014)

Anumba, J., Baugh, C., and Kalfan, M. 2002. Organizational Structures to Support Concurrent Engineering in Construction, Available from: http://www.emeraldinsight.com/doi/abs/10.1108/02635570210428294

Cheng Leng Li, E. and Zahir Irani, L. 2004. A Learning Culture For Strategic Partnering In Construction*, Construction Innovation*, Vol.4 ISSN 1 pp 53 - 65.Available from: http://dx.doi.org/10.1108/14714170410815006 (Assessed 2 April 2015)

Cheng, E., Heng, L. and Love P. 2002. Network Communication in the Construction Industry*,* ''*Corporate Communications*: An International Journal, Vol. 6 ISSN: 2, pp.61-.Available from: http://www.emeraldinsight.com/doi/abs/10.1108/13563280110390314 (Assessed 2 April 2015)

Culo, K, and Skendrovic, V. 2010. Communication management is critical for project success, J.J.S University, Osijek, Croatia

Dada, O. 2014. A Principal Component Analysis of Skills and Competencies Required of Quantity Surveyors: Nigerian Perspective. Available from: http://hrcak.srce.hr/file/196206

Dookran V.R, 2012. managing scope change within fast-track projects. Available from:

Dombai, C., 1999. The Influence of organizational Culture in a Context of meaning on Diversity Management in Multi-cultural Organizations

Garbharran, H., Govender, J. and Msani, T. 2012. Critical Success factors influencing project success in the construction industry*.* Durban University of Technology

Garen, L. 2012. Communication during Construction*,* Available from: http://www.specssandcodes.com

Giritli, H., Balci, D., and Sertyesilisik, n.d., An Investigation of Conflict Resolving Approaches of Employees in the Construction Industry. Available from: www.novapublishers.com/catalog/product_info.php?products_id=44872

Gouder, J. 2010. Effective project communication management. Available from:http://www.projectperfect.com.au/info project management expertise.php

Grossman, D. 2011. The Holmes report. 17 July 2011. *David Grossman: Blog.* Availablefrom:<http://www.holmesreport.com/opinion-info/10645/The-Cost-Poor-Communication.aspx. (Assessed 27 October 2014)

Hannah, M., Mills, R., Howlett, E. and Holman, S. 2002. Extract from the RICS magazine "BUSINESS" Nov/Dec.2002 DISCUSSION: *The Image of Quantity Surveyors*. Available from: http://www.saaes.org.sz/articles.html (Accessed 26 November 2014)

Hijiazi, W., Ghebeh, A., and Zayed, T. 2008. VRML as an effective communication technique*.* Available from: http://users.encs.concordia.ca/~zayed/Confrence%20Papers/41%20VRML%20as%20an%20Effective%20Construction%20Communication%20Technique.pdf (Accessed 27 October 2014)

Hoezen, M., Reymen, I. and Dewulf, G. 2006. The problem of communication in construction*,* University of Twente

Ho, C. 2013. communication makes corporate code of ethics effective: lessons from Hong Kong

Kliem, R.L. 2008. Effective Communication for project management. *Aurbach Publication*. Available from: www.crcpress.com/Effective-Communications-for-Project-Management/Kliem-PMP/9781420062465

Louw, M. and Du Plooy-Cilliers, F. 2003. Let's Talk about Interpersonal Communication.

Maame, A. 2012. An Assessment of Project Communication Management on Construction Projects in Ghana. Available from: http://ir.knust.edu.gh/bitstream/123456789/4897/1/Maame%20Aba%20Wusuah%20Affare.pdf

Meid, A. 2015. An Engineering Management Analysis of Communication

System in an Organisation that Supplies the Mining Industry. Available from:https://ujdigispace.uj.ac.za/bitstream/handle/10210/13803/Meid%2c%20A.%20MTech%202015.pdf?sequence=1&isAllowed=y (Accessed 12 February 2016)

Naqvi, I., Aziz, S. and Rehman, R. 2011. The Impact of Stakeholder communication on project outcome*,* Available from: http://www.academicjournal.org/AJBM

Pirtroforte, R. 2010. Communication and Governance in the Building Process*.* Available from: http://www.tandfonline.com (Assessed 02 April 2015)

Prabhakar, G P. 2008. What is Project Success: Literature Review*.* Available from: http://eprints.uwe.ac.uk/14460/1/1244-3745-1-PB%5B1%5D.pdf (Assessed 10 October 2015)

Tipili, L., Ojeba, P. and Muhammad, S. 2014. Evaluating the effects of communication in construction project delivery in Nigeria*.* Global *Journal of environment Science and Technology:* ISSN -2360-7955, Vol.2 (5): pp 048-054, June 2014. Available from: http://springjournals.net/full-articles/springjournals.netgjestarticlestipilietal.pdf?view=inline

Welch, M. 2015. Internal Communication Education: A Historical study. *Journal of communication management*, Vol 19Iss:4, pp388-405. Available from: http://www.emeraldinsight.com/doi/abs/10.1108/JCOM-09-2014-0053?journalCode=jcom

Yong, C. Y. and Mustaffa, E. 2015. Clients, consultants and Contractors' perceptions of critical success factors for construction Projects in Malaysia*.* Available from: https://www.academia.edu/974843/Clients_Consultants_and_Contractors'_Perceptions_of_Critical_Success_Factors_for_Construction_Projects_in_Malaysia