

A CONCEPTUAL MODEL FOR COMMUNICATION MANAGEMENT FOR SUCCESSFUL PROJECT DELIVERY IN SWAZILAND CONSTRUCTION INDUSTRY

NOKULUNGA MAVUSO AND JUSTUS N. AGUMBA

Nokulunga Mavuso, Department of Construction Management and Quantity Surveying, University of Johannesburg, Johannesburg, South Africa; l_mavuso@yahoo.com

Justus N. Agumba, Department of Construction Management and Quantity Surveying, University of Johannesburg, Johannesburg, South Africa; jagumba@uj.ac.za

Abstract

This paper presents a literature discourse of existing literature on communication management to identify the variables that influence project success. Furthermore, the study proposes a conceptual model. The reviewed literatures spanned a period of nine years from 2004 to June 2013. A systematic search in google was used. Fifteen articles were obtained from the database. The articles were tabulated in a matrix to identify the core variables relevant to the study using content analysis. Seven communication management variables were identified that are perceived to influence project success. These were: technology and systems, communication skills or competence, communications plan, teamwork & partnering, organizational structure, stakeholders' frame of references, and project briefing. Furthermore, a hypothesized model was proposed. The analysis is based on literature review only, hence a limitation in the study. The paper has identified critical success factors specific to communication management that influence project success. The study has further proposed a hypothesized conceptual model that is viewed as a panacea to improve communication and ultimately project success in Swaziland construction industry.

Keywords: communication, construction, factors, management, project success

Introduction

Globally, under developed, developing and developed countries recognise the social and economic role the construction sector plays. In Swaziland the construction industry benefits from the public sector investment of 25% of the capital budget. Building plans approvals jumped by more than 7% compared to 2012. However, the construction sector's gross domestic product (GDP) has dropped from 3.0% in 2008 to 2.2% in 2012 (Mafusire 2013). The poor GDP suggests the construction industry of Swaziland is driven by the shortage of best practice that improves performance, efficiency and effectiveness. According to reviews in literature in the construction sector, communication management performance has been for many years critical to the construction industry (Garbharran, Govender and Msani, 2012; Chan and Scott, 2004; Ogwaueleka, 2011 and Ofori, 2013), thus highlighting the importance of critical success factors study towards construction management. Naqvi, Aziz and Rehman (2011), reveal that stakeholders' communication is key to the success or failure of projects.

Hoezen, Reyman and Dewulf (2006), stresses that the efficiency and effectiveness of the construction process is strongly dependent on the quality of communication. The Project Management Institute's (PMI, 2013) Project Management Body of Knowledge (PMBOK) indicates that one of the most crucial success factors in project management is effective communication to all stakeholders which has a positive impact on project outcome, programs, portfolios and subsequent business success. Swaziland does not have recorded data specific to communication management because the concept of communication in the construction industry of Swaziland is casually undertaken. Moreover, it is still at its infancy in implementing the regulatory process through the newly formed construction industry council (CIC). An extract from an article in 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 are more important than the element of communication(Swaziland Association of Architects, Engineers and Surveyors (SAAES, n.d.).The Swaziland construction industry's limited understanding of ever changing new developments of communication management poses a threat on its business sector. These effects contribute to difficulty in acquiring work, delayed delivery of projects, low profit margins resulting in construction business failure. Hence, the industry needs to incorporate a model of communication management based on identifying the critical success factors of communication management in order to create a culture of effective communication for the purpose of improving project delivery in the construction industry as a whole.

Problem Statement

The construction industry is a risky business because it is volatile. The possibility of business failure exists for any construction company, if there are no appropriate business strategies. The construction industry in Swaziland is viewed as underperforming in relation to the delivery of projects. The underperformance has led to the dissatisfaction of clients. Furthermore, there is scarcity of research to address the impact of communication management as a tool to improve project delivery. A barrier in communication management may lead to poor project delivery and profitability as a result of complexity of a project. This effect on projects provides an opportunity for this study to unravel information from previous literature related to communication management and project success. The research question to be answered is:

- What are the critical communication management factors that influence project success?

The specific research objectives are:

- To identify the critical communication management factors that will influence project success
- To propose a conceptual model for communication management

Research Methodology

The method used was an integrative review of literature search from mostly google which provided databases such as emerald insight. The descriptors for data search of articles were "communication management factors" AND "Construction project success". The review spanned between the periods 2004 to 2013. Only articles written in English were selected and reviewed. The search from google retrieved a number of relevant articles from different journals namely; African Journal of Business Management (AJBM), World applied Science Journal (WASJ), Canadian Society of Civil Engineering (CSCE), ACTA Structilia, The international Journal of Engineering and Science (IJES), Journal of Construction and Management (ASCE) and emerald insight. In selecting the articles for review the objectives, findings and conclusion should have been reported on communication management. Fifteen articles were considered relevant for analysis. The articles were either quantitative, qualitative or mixed method design studies. These articles are presented in Table 1.

Table 1 Summary of communication articles.

Year, Journal & Country	Author	Objectives
2013, IJES (Australia)	Aiyewalehinmi	Identify and recommend common workplace communication approach where all social parties can work towards a common goal
2013, ASCE (USA)	Ho	Investigate performance of performance impacts of government structures
2012, ACTA structilia, (South Africa)	Garbharran, et al.	Assess the perceptions of contractors and project managers regarding critical factors that lead to project success.
2012, RLGA technical Services, (USA)	Garen	Communication during construction
2012, emerald insight (Malaysia)	Yong & Mustaffa	Identify principal factors that are critical to the success of the construction project and determine their relative importance as perceived different respondents.
2011, AJBM (Pakistan)	Naqvi, Aziz & Rehman	Exploring & learning how quality of stakeholder communication for IT projects affects the project outcome
2011, WASJ (Malaysia)	Perumal & Abu Bakar	Identify requirements of better standardization, which leads to good

		communication process to remain competitive and provide more a more effective communication tool and standardization
--	--	----------------------------------------------------------------------------------------------------------------------

Source: Literature reviewed from 2004 to 2013

Continuation **Table 1** Summary of communication articles.

Year, Journal & Country	Author	Objectives
2010, HRCAK, (Croatia)	Culo, K & Skendrovic	Communication management is critical for project success,
2010, tandfonline.com (USA)	Pirtroforte	Broaden the focus of new information technologies from controlling contractual compliance to facilitating communication and interaction among project participants
2009, creativecommons.org (Dubai)	Barak	An investigation into the communication and information management systems, both formal and informal, in construction projects and inherent complexities in construction projects
2008, CSCE, (Canada)	Hijjazi, Ghebeh & Zayed	Implement a design model to a case study in a project in order to examine its effectiveness and efficiency using seven different communication channels during project life cycle.
2006, Twente University, (Netherlands)	Hoezen, Reymen & Dewulf	Improve communication in construction
2005, itcon.org, (Australia)	Peansupap	To understand the nature of ICT diffusion within a construction organization.
2004, emerald insight, (Hong Kong)	Eddie, WL. Cheng, et al.	Present a model that helps develop a learning culture with partnering network in construction
N.d. , ascelibrary.org	Johnson	Five way communication

Source: Literature reviewed from 2004 to 2013

In proposing the theoretical conceptual model of communication management, the steps in Figure 1 were followed, i.e. literature review, identifying the critical communication management factors, formulation of hypotheses, propose a conceptual model analysis of identified factors and report writing. The critical success factors of communication management were analyzed using content analysis. The recurring themes in the 15 articles were then identified.

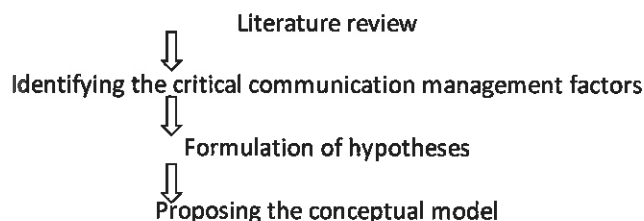


Figure 1. Illustration of research path

Literature Review

Communication Management Overview

Communication centers as vital role in all stages of construction such as design, production, organization and management (Tipili, Ojeba and Muhammad 2014). Gouder (2010) indicated that communication management is amongst the more important factors for success in projects. The author further advocated that the goal of communication management is to ensure timely and appropriate collection, storage, distribution and generation of project information. According to Heydasch (2015) communication management is defined as the flow of information within a company or between multiple companies, whether internal or external. In the construction industry communication management between professionals is recognized as an integral part of construction process in any successful project because stakeholders spend most of their time undertaking diverse tasks and activities that require communication at all time.

Critical Factors of Communication Management that Influence Project Outcome

The literature from the different authors is illustrated in Table 2. It provides the study with different sets of critical success factors associated with communication management that influence project success. Different themes have been presented by different authors and categorized in seven communication management factors.

Table 2 Communication management factors

Communication Management Factors	Authors
Technology and systems	Culo and Skendrovic (2010); Perumal and Bakar (2011); Hijazi, Ghebeh and Zayed (2008); Cheng leng Li and Zahir Irani (2004) and Pirtroforte (2010)
Communication skills or competence	Aiyewalehinmi (2013; Perumal and Bakar (2011); Cheng leng Li and Zahir Irani (2004); Johnson (n.d.); Garen (2012) and Davis (2002)
Communications plan	Culo and Skendrovic (2010); Aiyewalehinmi (2013); Naqvi, Aziz and Rehman (2011); Garbharran, Govender and Msani (n.d.) and Ho (2013)
Teamwork & partnering	Aiyewalehinmi (2013); Naqvi, Aziz and Rehman (2011); Cheng leng Li and Zahir Irani (2004); Garen (2012) and Davis (2002)
Organizational structure	Perumal and Bakar (2011); Naqvi, Aziz and Rehman (2011); Ho (2013) and Garen (2012)
Stakeholders frame of references	Hoezen, Reymen and Dewulf (n.d.); Ho (2013) and Garen (2012)
Project briefing	Hoezen, Reymen and Dewulf (n.d.) and Garbharran, Govender and Msani (n.d.)

Source: Literature reviewed from 2004 to 2013

Technology and systems

Culo and Skendrovic (2010) revealed that the appropriate technology or systems implementation improves communication. The researchers implore that appropriate systems and technology should be in place. Perumal and Bakar (2011) evaluate that the use of proper systems is understood to assist people in organizations to communicate effectively, internally and externally to improve communication with the organization. A study on Virtual Reality Model Language (VRML) by Hijazi, Ghebeh and Zayed (2008) highlights stakeholders have turned to handle communications management using computer system. Peansupap (2005) further augments that information technology (IT) and information and communication technology (ICT) have been identified as essential tools for improving communication in construction process and for creating new business opportunities. Cheng *et al.* (2004) expands to explain that from traditional methods of communication, the application of computers is another effective way. Pirtroforte (2010) supports governance and communication in building process with focus of new information technology that should be broadened from controlling contractual compliance to facilitating communication and interaction amongst project participants. It can therefore be hypothesized that:

H₁ Technology and systems have a positive influence on project success.

Communication skills or competence

Communication skills very much influence communication management in project success. Culo and Skendrovic (2010) report that extensive training and learning should be implemented to ensure that the proposed communication systems is compatible with experience and expertise of the project participants. In addition, the report accentuates that it is imperative to consider if the available technology is likely to change before the project is over, so as to integrate the participants to the changes in technology Perumal and Bakar (2011) shows that results from the survey indicated that, namely verbal, written and contractual skills, have almost the same importance in the construction industry. Johnson (n.d.) discloses that effective communication skills are vital in realizing potential and earning career security. The author elaborates that communication competence is important to develop career security. Geren (2012) argues that, how well you communicate has an impact on how well you perceived by others. The researcher explains that a poor communicator either has their message questioned or ignored completely. In line with Barakat (2009), Geren advocates that it is people who build and people who communicate to achieve a common objective. Davis (2002) also concurs that it is people who deliver projects and not processes or systems. It can therefore be hypothesized that:

H₂ Communication skills or competence has a positive influence on project success.

Communication plan

Culo and Skendrovic (2010) specify that communication management impacts a project, either good or bad through a clear and concise communication plan which communicates how the project flows into and out of the project. Aiyewalehinmi (2013) study focuses on lines of powers and policy implementation, viewed as communication policy. According to Garbharran *et al.* (2012), a detailed communications plan is further promoted as necessary for effective dissemination of information. It can therefore be hypothesized that:

H₃ Communication plan has a positive influence on project success.

Partnering and teamwork

Cheng *et al.* (2004) explain that partnering facilitates effective communication and coordination. The researcher also found that incentive schemes and team building activities are two enablers that incorporate a two way communication. Aiyewalehinmi (2013) explores human relationships and functionality with interaction between management and employees as effective in communications and encourages employee participation. Naqvi *et al.* (2011) explains that team management and the processes start to produce in time that affects the projects outcome positively. Barakat (2009) finally asserts that effective communication between participants is vital to a successful project. It can therefore be hypothesized that:

H₄ Partnering and teamwork has a positive influence on project success.

Organizational structure

Perumal and Bakar (2011) elucidates that an organizational structure very much influences on the coordination and flow of organization systems. The researcher explains that a proper organization structure should form in order to encourage a good flow of information and enhance towards an effective communication in organization. Geren (2012) enlightens that identifying the lines of communication on inception of project as good practice. Naqvi *et al.* (2011) further supports on how a well-structured manner in flow of correct information and timely information is important. Ho (2013) further expands that an adequate channel of communication should be established. It can therefore be hypothesized that:

H₅ Organizational structure has a positive influence on project success.

Stakeholder frame of reference

Ho (2013) discovers that attitudes and beliefs should be understood as a response to communication. Hoezen *et al.* (2006.) confer with stakeholder's frame of reference to be found to have great influence on communication. The study further explains that stakeholders' perception of their role is crucial and Geren (2012) reveals communication together with a good attitude is important. It can therefore be hypothesized that:

H₆ Stakeholder frame of reference has a positive influence on project success

Project briefing

Garbharran *et al.* (2012.) emphasizes important consideration on proper handover procedures as an item that constitutes communication. Their study revealed that there must be a shared project vision with constant update as the project progress in communication for project success. Hoezen *et al.* (2006.) state that principals in projects need to make their requirements clear and therefore enough time should be spent on the brief which could positively affect communication. The paper further emphasizes effective communication through briefing helps stakeholders to understand the objectives and makes them more responsible towards their work. It can therefore be hypothesized that:

H₇, Project briefing has a positive influence on project success.

Proposed conceptual model of communication management

The critical communication management factors have been identified and the formulation of the hypotheses has been established. These critical communication management factors need to be tested in relation to the project success. The result from testing the hypotheses will indicate whether they are accepted or rejected. The result of the critical success factors of communication management that influence project success in the Swaziland construction industry will have great practical significance to stakeholders. This enables the stakeholders to focus their resources on the factors that influence project success.

Independent variable

Communication management factors
Technology and systems
Communication skills or competence
Communications plan
Teamwork & partnering
Organizational structure
Stakeholders frame of references
Project briefing

Dependent variable

Project success
Time
Cost
Quality
No accidents on site



Figure 2 Conceptual model of communication management

Conclusion

This study provides comprehensive review of literature on communication management factors that influence project success. It presents current theory development in communication management. The study revealed two major gaps i.e. there is no consensus of communication management factors that influence project success. . Furthermore, there is paucity of studies in the developing and underdeveloped countries that have focused to identify the different variables i.e. critical factors of communication management that will influence project success. In relation to these gaps the review suggested various factors of communication management that will influence project success namely; technology and systems, communication skills or competence, communication plan, teamwork & partnering, organizational structure, stakeholder frame of references, and project briefing. Furthermore a hypothesized conceptual model has been proposed to depict the relationship of the independent variables and project success. The need to test this conceptual model is suggested for a future study in Swaziland construction industry to establish the relationship of the independent variables and the dependent variable in the context of Swaziland.

References

- 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)
- 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)
- Culo, K, and Skendrovic, V.2010, Communication management is critical for project success, J.J.S University, Osijek, Croatia
- Ekung S., and Ujene, A. 2014, Leadership traits of construction project managers and their impact on project outcome. Available from: http://www.ijset.in/wp-content/uploads/2014/09/IJSET.0720140225.1011.1707_SAMUEL_1354-1363.pdf
- 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.specsandcodes.com>
- Gouder, J., 2010, Effective project communication management. Available from: http://www.projectperfect.com.au/info/project_management_expertise.php
- Hannah, M., Mills, R., Howlett, E. and Holman, S., 2002, Extract from the RICS magazine "BUSINESS" Nov/Dec.2002 DISCUSSION: *The Image of Quantity Surveyor*. Available from: <http://www.saaes.org.sz/articles.html> (Accessed 26 November 2014)
- Heydasch, K., 2015, What is Communication Management. Available from: <http://www.wisegeek.com/what-is-communication-management.htm> (Accessed 20 March 2015)
- Hijazi, 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. an Dewulf, G., 2006, The problem of communication in construction, University of Twente
- Johnson, A., n.d., Communication Five Ways .Available from:
- 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>
- Mafusire, A. and Leigh, F., 2014, *African Economic Outlook (Swaziland)*. Available from: http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2014/PDF/CN_Long_EN/Swaziland_EN.pdf
- Naqvi, I., Aziz, S. and Rehman, R., 2011, The Impact of Stakeholder communication on project outcome, Available from: <http://www.academicjournal.org/AJBM>
- Peansupap, V., 2005, Factors Enabling Information Communication Technology Diffusion and Actual Implementation in Construction Organizations. Available from: http://www.itcon.org/data/works/att/2005_14.content.02646.pdf (Accessed 02 April 2015)
- Pirtroforte, R., 2010, Communication and Governance in the Building Process. Available from: <http://www.tandfonline.com> (Assessed 02 April 2015)
- Project Management Institute, 2013, The High Cost of Low Performance: The Essential role of communications. (USA: Pulse of the Profession in Depth Report) Available from: http://www.pmi.org/~media/PDF/Business-Solutions/PMI_Pulse_2014.ashx (Accessed 17 October 2014)
- Swaziplace.com. 2014, Available from: *Swaziland Association of Architects, Engineers and Surveyors*. Available from: <http://www.swaziplace.com/saaes/> (Accessed 2 December 2014)
- The construction Industry Council., 2014, Available from: http://cic.co.sz/?page_id=48
- 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.net/gjestarticlestipilietal.pdf?view=inline>
- Yong Cheong, Y and Mustafa, E., 2015, Clients, consultants and contractors perception of critical success factors for construction Projects in Malaysia. Available from: https://www.academia.edu/974843/Clients_Consumtants_and_Contractors_Perception_of_Critical_Success_Factors_for_Construction_Projects_in_Malaysia