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The Role of Effective Communication in the Management of Projects: A Case of Alemu Nigeria Enterprises Limited

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Abstract:

This study examines the role of effective communication in the management of projects with the aim of contributing to existing literature on project success and performance. The study adopted a survey strategy, employing the use of a structured questionnaire to obtain primary data from the case organization – Alemu Nigeria Enterprises Ltd. A total of 60 questionnaires were administered to the entire staff of the organization with a high response rate of 83.75%. Secondary data were gathered from records and status reports on past projects managed by the organization. Two hypotheses were formulated for the study and tested using the chi square test statistic (X^2). The findings from this study indicate that effective communication in projects play a strategic role in improving project outcomes. However, the results of the study further indicated that effective communication alone could not directly translate to project success as other factors could also influence project outcomes. Furthermore, the findings from the study revealed that the use of electronic communication systems largely enhances effective project communication.

Keywords: Project management, communication, project success, project performance, project team, electronic communication

1. Introduction

The issue of success is one that has been at the heart of project management discourse for many years now. With the increased adoption of projects, programs and portfolio approaches by many organizations in meeting their objectives, the need to investigate the factors that influence success has become more crucial now than ever. As such, many plausible studies have been carried out by researchers to identify ways of increasing the success rates of projects, as well as improve overall project management practices.

Existing literature on project success suggests that effective communication of data and information is essential to project success (Cleland and King, 1983; Baker et al., 1983; Blankevoort, 1984; Pinto and Prescott, 1988; Clarke, 1999; Belout and Gauvrea, 2004; Zulch 2014). Furthermore, Diallo and Thuillier (2005) maintain that project success is strongly linked to communication and co-operation between stakeholders. Sievert (1986) argues that, a high percentage of the frictions, frustrations and inefficiencies in working relationships is traceable to poor communication. This however, exposes the importance of effective communication to the management of projects and also reiterates the need for project management organizations to be constantly abreast with evolving communication practices in order to optimize the performance of their projects.

This paper commences with a brief overview on communication. It then discusses communication between project stakeholders, as well as technological advancement and the use of electronic communication in the management of projects. The study hypotheses are then presented followed by a brief discussion on the methodology used in the study. The results of the study are presented and the findings discussed. This is followed by a conclusion section.

2. Communication – An Overview

Communication according to Axley (1984) is a metaphorical pipeline along which information is transformed from one individual to another. A similar point of view on the subject can be deduced from Thomason's (1988) definition of communication as the lifeblood of any system of human interaction as without it, no meaningful or coherent activity can take place. Nevertheless, the difficulty in securing a generally acceptable definition of communication boils down to the imprecise and multi-dimensional nature of the concept. A general description of the communication process involves the transfer of information, ideas, emotional feelings or views by one person to another in an understandable way through the use of meaningful words, signs, letters, or symbols for the purpose of entertainment or influencing the behaviour of the other (Umoh, 1996). However, Ochieng and Price (2009) provide a more robust definition of communication as a professional practice where suitable tools and regulations can be applied in order to improve the utility of the data communicated, and is a social process of interaction between individuals.

Communication is indeed a crucial part of human existence. As rightly pointed out by Burke (2003), it is one of those subjects that is hard to separate from what we do naturally everyday. It is however, important to give particular attention to the art of communicating in a project environment because, for a project to succeed, there is a continuous need for communication to issue instructions, solve problems, make decisions, resolve conflicts, and keep everyone supplied with the information they need (Burke, 2003). Project communication as described by Ramsing (2009) is the overall term for all aspects of communication in a project. These include dispensing information on decisions made, work authorizations, negotiations, and project reports (Kerzner, 2000). A further simplification of the term is provided by the PMBOK (2013), which suggests that it is the process required to “ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information”.

The ultimate aim of any project-driven endeavour is a successful completion. Project success is measured against a project’s timely completion within cost, at the desired quality (Lin and Mohamed, 1999), and to the ultimate customer’s acceptability (Kerzner, 2000). To achieve this however, Kerzner (2006) maintains that good communication and inter-personal relationships must exist between project stakeholders. The need for effective communication in the management of projects is further stressed as Lester (2007) states, “Information together with communication is the very life blood of project management”. Another intriguing argument to support the importance of effective project communication suggests that 95 per cent of all project problems are caused by poor communication and that the importance of being able to manage the skills of communication when presenting facts, details, status, project requirements, etc. should be of high priority in project management (Baker, 2007; Ramsing, 2009). This point of view had also been expressed by Cleland and Ireland (2002) as they maintain that a high percentage of frictions, frustrations, and inefficiencies in our working relationships with other people is traceable to poor communication.

To further buttress the need for effective communication in the management of projects, Reed and Knight (2009) highlight the following:

- Particularly in large projects, communication is essential for efficient coordination.
- Lack of communication can lead to people “not being on the same page” and “working at cross purposes”.
- Lack of communication can lead to confusion that can add more cost and more time.
- Having good communication with your client and group members is very important when working on any project
- False starts from misunderstandings are expensive in terms of time and resources and they also create bad feeling within a team.
- Meeting overload is also a risk; projects that meet too much and work too little also suffer from poor morale.

Another point of view on the relevance of communication in the management of projects upholds that, effective communication is the key to managing expectations, misconceptions and misgivings on project teams (Ochieng and Price, 2009). Also, El-Saboni et al. (2009) state that, good communication, during all phases of a project lifecycle, is an important success factor that connects all the other factors of project success.

Despite the fact that various studies have identified communication as one of the main factors impacting project success or failure (Müller, 2003), Ramsing (2009) argues that organizational experience in planning communication strategically seems to be lacking in project management. The consequences of this, the author claims, is organizations missing out on the usage of internal project resources and expertise. Further research also suggests that the area of project communication receives lesser attention compared to other project areas such as project risk management and project team building (Diallo and Thuillier, 2005; Olsson, 2007; Reed and Knight, 2009). These findings however, indicate the need to create more awareness of the strategic role of communication in the management of projects and to further highlight the importance of investing sufficiently in good project communication (Herkt, 2007).

3. Communication between the Project Stakeholders

Diallo and Thuillier (2005) maintain that the success of any project is essentially linked to communication and cooperation between stakeholders. Therefore, in order to improve project outcomes, the communication process needs to begin long before project plans are drawn up and continue throughout the life-cycle of the project (Khan and Gerrard, 2006) and must be effectively managed (Freeman 1984; Mitchell et al., 1997; Daake and Anthony, 2000; Friedman and Miles, 2002; Simon, 1957; Juliano, 1995). A project stakeholder is referred to a person or group of persons, who are influenced by or able to influence the project (Japsen and Eskerod, 2009) throughout its life cycle (Nilsson and Fagerström, 2006). It is necessary therefore to reiterate the importance of contributions (e.g. deliverables or supporting decisions) from a strong coalition of supportive and influential stakeholders managed through an effective communication channel (Burke, 2003; Khan and Gerrard, 2006; Japsen and Eskerod, 2009).

Kerzner (2009) upholds that communication problems in project teams exist in four major areas. These include: Communication problems among team members, between project manager and team members, between top management and project team, and between the client and the project leaders. These areas are examined below.

3.1. Communication among Project Team Members

Working in teams has emerged in recent years as one of the most important ways in which work is being reorganized (Procter and Burrige, 2008). The project environment is not excluded from this phenomenon. A team is a social system of two or more people that are embedded in an organization, whose members perceive themselves as such and are perceived as members by others, and who collaborates on a common task (Hoegl, 2005). This definition is also applicable to a project team. However, Scott-Young and Samson (2008) emphasize the temporality of a project team as a distinguishing factor. Teamwork according to Kerzner (2000) is work

performed by people acting together with a spirit of cooperation under the limits of coordination. Among other components of team working (Reed and Knight, 2009), Jones et al. (2005) identifies effective communication as the most critical component of teamwork. This however, points out the need for team members' collaboration and continuous communication in order to secure team efficiency and effectiveness which in turn leads to project success (Turner and Müller, 2004).

Communication, if poorly managed, could be a major deterrent to effective project team development. Kerzner (2009) however, attributes the likely cause of communication problems in project teams to team members' inability to keep others informed on vital project developments. This may be as a result of poor morale, low motivation levels, or team members' carelessness. Ineffective patterns of communication between the team, support groups and the client lead to serious team building problems (Kerzner, 2009). Unclear objectives, poor coordination and project control, as well as reduced workflow are results of poor team communication (Reed and Knight, 2009; Kerzner, 2009).

Another factor capable of creating a gap in effective communication within the project team is the cultural diversity of team members. Culture as defined by Hofstede (1980) is the collective programming of the human mind that distinguishes the members of one human group from another. Most project teams today often comprises of members drawn from across different cultural backgrounds. This however, may account for a possible variance in the cultural precepts of team members (Janssens and Brett, 2006) – precepts being the sets of norms or standards which define team member's interaction with one another (Dekker et al., 2008). This difference in cultural precepts of team members could give rise to communication challenges such as misunderstanding of instructions, misinterpretation of designs and indeed, the general misconception of the project (Kerzner, 2009). Cramton et al. (2007) and Janssens and Brett (2006) also hold the view that unrecognised differences in cultural precepts can affect team performance as a result of the occurrence of conflict which is generated from inaccurate attributions made by team members. To minimize communication breakdown in project teams as a result of cultural diversity, Dekker et al. (2008) stresses the need for creating awareness of the cultural differences of team members. These differences according to Janssens and Brett (2006) should be accepted and respected by all team members. However, Sandy and Jane (2008) propose that team members subjecting individual cultures to a common team culture can be a positive means of reducing the risks of communication breakdown arising from cultural diversity.

3.2. *Communication between Project Manager and Team Members*

To ensure the smooth operation of a project, it is the single point of responsibility of the project manager to integrate and co-ordinate all project contributions, guiding them towards the successful completion of the project (Burke, 2003). According to Reed and Knight (2009), one of the ways to achieve this is through maintaining effective communication with the project team. As Burke (2003) suggests, ensuring that every member of the team is duly informed of their roles and responsibilities, as well as other project developments, is the duty of the project manager. However, Kerzner (2009) proposes that certain factors can hamper effective communication and development of the project team. Some of these include:

- Unclear project outcomes/objectives – situations where project objectives are not clearly spelt out often results in ambiguities, communication breakdown, conflicts, and power struggle which makes the clear definition of roles and responsibilities difficult within the team.

To minimize or prevent the occurrence of these situations, it is important to make sure that all team members are fully abreast on the overall and interdisciplinary objectives of the project. Precise and regular communication with top management and client, as well as status review meetings and feedbacks are critically important in achieving this (Kerzner, 2000; Kerzner, 2009; Ramsing, 2009).

- Dynamic project environments – many projects quite often experience changes on continuous bases throughout their life-cycle. This could result from changes in scope, objectives and resource base by senior management, as well as regulatory changes or client demands. These changes, if not duly and adequately communicated by the project manager, can drastically affect the internal operations of a project team.

As a preventive measure, Kerzner (2009) proposes that an agreement must be worked out by key project personnel on the principal direction of the project, which is then communicated to the entire team. The author also points out the importance of educating top management and the customer on the detrimental outcome of unnecessary changes to the project. Forecasting the project environment and developing contingency plans can also minimize the risk of occurrence.

- Credibility of project manager – the communication process as well as other team building efforts within the project team can be distorted when the project manager lacks credibility within and outside of the project team. This often makes team members reluctant in committing their efforts to the project or the project manager. Credibility problems of the project manager may arise from lack of relevant experience in the project area, poor technical judgments, poor managerial skills, or the adoption of inappropriate leadership styles.

A good relationship between the project manager and other vital managers who compliment the team's efforts can enhance the project manager's credibility (Thompson, 1991; Burke, 2003; Kerzner, 2009).

- Lack of team member commitment – several reasons can be attributed to the cause of commitment from team members. One of such reasons is lack of motivation from the project manager and also from the senior management. It is necessary to make clear what rewards team members will get upon successful project completion. Another likely cause of lack of commitment is the existence of intense interpersonal conflicts within the team. Team member commitment can also be dampened when suspicious attitudes are perceived to exist between the project manager and a functional support manager, or between two team members from two conflicting functional departments.

As a corrective measure, it is important for the project manager to determine the cause of low commitment of team members in the early stages of the project life and make efforts to change any negative views toward the project. Conflicts between team members can also result in lack of commitment. In such situations, timely intervention and mediation by the project manager is important. Also, in situations where team members' insecurities lead to lack of commitment, the project manager must seek to determine the causes of such insecurities, and work on minimizing the team members' fears (Kerzner, 2009).

- **Role conflicts** – projects where the roles of team members are not correctly spelt out by the project manager often results in ambiguity over who is to do what within the project team. This however, does not allow for a smooth communication channel and is capable of hindering project success.

To prevent this, the project manager should give team members the opportunity as early as feasible in the project to identify what roles they consider themselves to be more efficient in. Dividing the overall project into subtasks and subsystems could be useful. Furthermore, status review meetings should be conducted on regular bases to keep the team abreast on project progress (Moynihan, 2002; Kerzner, 2009).

3.3. Communication between Top Management and Project Team

Project communication between senior management and the project team is another aspect of communication, which if not properly managed, can hinder team effectiveness and project success (Pinto and Pinto, 1990). One major factor capable of straining communication ties between senior management and the project team as pointed out by Kerzner (2009) is the fact that project leaders usually indicate that senior management support and commitment is unclear and subject to waxing and waning over the life-cycle of the project. This behaviour the author believes can make team members feel uneasy and can also reduce their enthusiasm and commitment to the project. Furthermore, communication gaps between top management and the project team can be created following management's inability to set right the project environment for the team at the outset, and failure to provide the team with timely feedback on their activities and performance during the project's life-cycle (Jones et al., 2005; Procter and Burrige, 2008; Kerzner, 2009).

Another issue to consider when examining the communication process between top management and the project team is the management style adopted. Hughes (1998) identifies two management styles, which are the 'top-down' management style and the 'bottom-up' management style.

- **Top-down management style:** this approach is very common in contemporary project management. It is a system where project objectives and directives are established by the senior management (Baar, 2009). It is the responsibility of senior managers under this approach to provide information, plans, guidelines, and fund processes for the project. Process formality is a distinguishing characteristic of this approach.
- **Bottom-up management style:** contrary to the top-down approach, the bottom-up management approach gives room for team members' participation in every aspect of the management process (Hughes, 1998). This approach fosters a more democratic atmosphere where the decision on a course of action is taken by the whole team (Baar, 2009).

The table below shows the characteristics of both approaches.

Top-down management	Bottom-up management
1) Management's overall control	1) Management and team collaboration and participation
2) Bureaucratic	2) Democratic
3) Rigid operation processes	3) Flexible operation processes
4) Imposed processes	4) Team-driven processes
5) Low moral motivation – team members feel their opinion does not count.	5) High motivation – team members contribute to the development process of the project.

Table 1: Characteristics of 'top-down' and 'bottom-up' management approaches

Several debates have evolved as to which of these two is the best management approach for managing projects (Eskerod and Blich Feldt, 2005; Wi et al., 2009; Baar, 2009). This, some researchers maintain is best determined by the nature and size of the project (Hoegl, 2005). Though many experts claim the bottom-up approach is most suitable as it gets work done quicker, increases productivity and allows for a better communication atmosphere between senior management and the project team (Wi et al., 2009), the top-down approach is considered more advantageous in terms of clarity and project control (Hughes, 1998; Baar, 2009). To maintain effective communication and a good working atmosphere between senior management and the project team however, it will be important to maintain a balance between the two approaches, adopting the best practices from both.

3.4. Communication between the Client and the Project Leaders

As Kerzner (2000) rightly points out, an important constraint for determining the success of a project is the client/project owner's acceptability. Plant (1989) further upholds that a vital component of the project manager's success, the success of his team and the general effectiveness of the project, is highly reliant on the project manager's ability to manage his relationship with the client. An important way of achieving this is through effective communication (Ramsing, 2009). Despite the significance of the client's role in the development and implementation of the project, Thompson (1991) suggests that project managers often lack sufficient support

from the top management of the client's organization. This, according to Kerzner (2009) can have negative impacts on the communication process, project team performance and the general progress of the project.

Another issue researchers have raised which is capable of straining relationships between the client and the project leaders is that in most situations, the power and authority of the client is used in excess against the technical knowledge and talents of the project manager (Plant, 1989; Moynihan, 2002). This, they claim often results in frictions and a lot of controversies which causes delays, cost overruns and conflicts in the project. To address this however, Plant (1989) proffers that there must be a partnership relationship between the client and the project manager where collaboration, synergy, mutual respect, risk sharing and shared goals exist. The author further stresses that building such a relationship will depend, above all, on the professionalism of the project manager and his personal interaction with the client.

4. Technological Advancement and the use of Electronic Communication in the Management of Projects

Technology has made a remarkable impact on the communication process in the management of projects in recent years, especially with the increasing use of electronic communication as a means for enhancing effective and efficient project communication (El-Saboni et al., 2009). Alshawi and Ingirige (2003) address the use of electronic communication in the different stages of the project life-cycle.

One major impact of technology in project communication can be seen in the growing use of videoconferencing and teleconferencing in communication between project stakeholders. Many project managers consider these useful replacements for business travel, and a suitable means of managing projects where the project team members are separated geographically (Cleland, 1999). Researchers also believe that in adopting these methods of communication in the place of face-to-face meetings, the participants stick with the agenda better as there is little or no room for chitchatting and socializing before the meeting commences (Cleland, 1999; Alshawi and Ingirige, 2003; Newell, 2005).

Another technological advancement that has impacted on project communication is the use of Electronic mail (E-mail). In a project environment, the use of e-mail has become a means of communicating and uniting people rather than through paperwork and meetings. Cleland and Ireland (2002) propose that the use of e-mail is increasingly gaining acceptance as a replacement for memoranda, regular mail, and other means of written and verbal communication.

The Internet is another technological development which has proved to be a useful communication medium in the management of projects. This medium of communication makes it possible to share and combine project data from various parts of a project which may not be in the same geographical location (Newell, 2005).

The use of electronic bulletin boards allows a message originator to post messages and also enables anyone connected to the computer network to see it and also post their opinions. This form of communication researchers maintain is a fast way of getting information across and receiving feedback especially in larger project organizations (El-Saboni et al., 2009).

Again, technological advancements in project communication can be seen in the development of collaborative software to manage and facilitate project team activities. This software is designed to enhance collective work of project teams and is believed to accomplish tasks in lesser time than needed to have team members attend meetings (Cleland and Ireland, 2002). The use of collaborative software, apart from the fact that it increases team efficiency, is also a catalyst for moving the company toward a more team-focused organization (Cleland, 1999).

It is a common tradition today that project managers and team members are required to frequently make presentations to senior management, clients, and various other project stakeholders. This requirement however, has been made easily and inexpensively achievable through the development of computer software for presentations (Newell, 2005; El-Saboni et al., 2009). One of such software is Microsoft PowerPoint. The availability of digital photography in this software package makes it possible to attach photographs into presentations in order to give it more meaning. Also, the cumbersome process of making presentation graphics on transparencies is eliminated as video projection can now be used (Newell, 2005).

The benefits of electronic communication in the management of projects are indeed quite enormous. It is considered to have a positive effect on project schedule if implemented because it bypasses delegation and makes decision making expedite since information is transparent and available whenever needed (El-Mashaleh et al., 2006; El-Saboni et al., 2009). Gallaher et al. (2004) in their NIST report identified potential economic savings which could be derived from the implementation of electronic communication systems as a substitute for paper based communication. Though extra cost may be incurred in implementing these systems, the long-term benefits are expected to outweigh the extra expenses involved (Finch, 2000; El-Saboni et al., 2009).

Despite the enormous advantages of using electronic communication in managing projects, Cleland and Ireland (2002) criticize it on the bases that the verbal cues that can indicate how a person feels about an issue are lacking, and can lead to misunderstanding (Ochieng and Price, 2009). Weatherley (2006) also suggests that lack of face-to-face contact makes supervision and development of relationships in project teams difficult. However, these authors support the use of electronic communication on the grounds that it is an avenue to increase productivity and consensus building in the organization. El-saboni et al. (2009) further stresses that using electronic communication in co-existence with other mediums of communication is a more efficient way to achieve the strategic objectives of the organization.

5. Hypotheses

5.1. Hypothesis 1

H0: Effective communication does not have a direct effect on project success

H1: Effective communication has a direct effect on project success

5.2. Hypothesis 2

H0: Electronic communication systems does not improve project communications

H1: Electronic communication improves project communications

6. Methodology

An online questionnaire comprising of eighteen questions was created electronically through <http://www.surveymonkey.com> and was used by the researcher to obtain data from the staff of Alemu Nigeria Enterprises Limited. ANE Limited is a privately owned medium scale company that specialises in the planning, execution and general management of projects in Nigeria. The questionnaire was designed primarily to investigate the role of communication in projects managed by the organization and if it had a direct impact on project success. 60 questionnaires were issued to the entire staff of the organization. However, 52 respondents filled out and returned the questionnaire, while 8 did not. The response rate for the study therefore is 83.75% response rate and 16.25% non-response rate. This response rate was considered to be high and adequate for the study. The hypothesis formulated for the study was tested using the chi square test statistics (X^2). The chi square test is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories (Sharp, 1979). The tests are conducted at 5% level of significance. Therefore, the decision will be to reject the null hypothesis if the calculated value of X^2 is greater than the critical value of (X^2). This means that there are five chances out of hundred of rejecting a true null hypothesis. The degree of freedom (df) is determined by the number of rows and columns in the contingency table. The degree of freedom is given by $(r-1)(r-2)$

7. Results of the study

7.1. Hypothesis 1

H0: Effective communication does not have a direct effect on project success

H1: Effective communication has a direct effect on project success.

7.1.1. Question Variables

Question 1 – Gender of respondents

Question 18 – What in your opinion was the factor that had a direct effect on the success of a project you know of or have been involved with?

Using the chi square, we have

$$X^2 = (fo - fe)^2 / fe$$

Where:

X^2 = Chi square

fo = Observed frequency

fe = Expected frequency

fo - fe = Deviation

$(fo - fe)^2$ = Deviation squared

$(fo-fe)^2/fe$ = Deviation squared and weighted

To get the degree of freedom, the formula $(r-1)(c-1)$ is used

Where:

C = Total columns

R = Total rows

Let the level of significance be 5% = 0.05.

Using the respondents' responses, the tables below are employed in testing the hypothesis:

Gender	Effective communication	Other factors	Total
Male	18	16	34
Female	12	6	18
Total	30	22	52

Table 2: Observed frequency for first hypothesis

Gender	Effective communication	Other factors	Total
Male	19.62	14.38	34
Female	10.38	7.62	18
Total	30	22	52

Table 3: Expected frequency for first hypothesis

To calculate X^2

$$X^2 = (fo - fe)^2/fe$$

$$X^2 = (18 - 19.62)^2/19.62 + (16 - 14.38)^2/14.38 + (12 - 10.38)^2/10.38 + (6 - 7.62)^2/7.62$$

$$X^2 = 1.62^2/19.62 + 1.62^2/14.38 + 1.62^2/10.38 + 1.62^2/7.62$$

$$X^2 = 2.624/19.62 + 2.624/14.38 + 2.624/10.38 + 2.624/7.62$$

$$X^2 = 0.134 + 0.183 + 0.253 + 0.345$$

$$X^2 = 0.915$$

The chi square table is constructed thus:

Cell	fo	fe	fo - fe	(fo - fe) ²	(fo - fe) ² / fe
1	18	19.62	1.62	2.624	0.134
2	16	14.34	1.62	2.624	0.183
3	12	10.38	1.62	2.624	0.253
4	6	7.62	1.62	2.624	0.345
Total	52	52			0.915

Table 4: Chi square table for first hypothesis

Therefore X^2 calculated = 0.915

$$\text{Degree of freedom} = (r-1)(c-1)$$

$$\text{Therefore df} = (2-1)(2-1)$$

$$\text{df} = 1$$

Thus, using 5% level of significance which is 0.05, the (X^2) distribution = 3.84.

Decision: Since the chi square calculated value of 0.915 is less than the critical value of 3.84, therefore we cannot reject the null hypothesis (H_0) which states that effective communication does not have a direct effect on project success.

7.2. Hypothesis 2

H_0 : Electronic communication systems does not improve project communications

H_1 : Electronic communication improves project communications

7.2.1. Question Variables

Question 5 – Have you worked as part of a team on a particular project for the organization?

Question 17 – Adopting the use of the electronic communication systems (ECS) mentioned in question 15 will improve project communication and also optimize the organization's performance in managing projects.

Using the respondents' responses, the tables below are employed in testing the hypothesis:

Team participation	Support use of ECS	Do not support use of ECS	Total
Have worked in team	49	2	51
Have not worked in team	0	1	1
Total	49	3	52

Table 5: Observed frequency for second hypothesis

Team participation	Supports use of ECS	Do not support use of ECS	Total
Have worked in team	48.06	2.94	51
Have not worked in team	0.94	0.06	1
Total	49	3	52

Table 6: Expected frequency for second hypothesis

To calculate X^2

$$X^2 = (fo - fe)^2/fe$$

$$X^2 = (49 - 48.06)^2/48.06 + (2 - 2.94)^2/2.94 + (0 - 0.94)^2/0.94 + (1 - 0.06)^2/0.06$$

$$X^2 = 0.94^2/48.06 + 0.94^2/2.94 + 0.94^2/0.94 + 0.94^2/0.06$$

$$X^2 = 0.884/48.06 + 0.884/2.94 + 0.884/0.94 + 0.884/0.06$$

$$X^2 = 0.019 + 0.301 + 0.941 + 14.734$$

$$X^2 = 15.995$$

The chi square table is constructed thus:

Cell	fo	fe	fo - fe	(fo - fe) ²	(fo - fe) ² / fe
1	49	48.06	0.94	0.884	0.019
2	2	2.94	0.94	0.884	0.301
3	0	0.94	0.94	0.884	0.941
4	1	0.06	0.94	0.884	14.734
Total	52	52			15.995

Table 7: Chi square table for second hypothesis

Therefore X^2 calculated = 15.995

Degree of freedom = (r-1) (c-1)

Therefore df = (2-1) (2-1)

df = 1

Thus, using 5% level of significance which is 0.05, the (X^2) distribution = 3.84.

Decision: Since the chi square calculated value of 15.995 is greater than the critical value of 3.84, we can reject the null hypothesis (H0) and therefore, the decision is to accept the alternative hypothesis (H1) which states that electronic communication improves project communications.

8. Discussion of Findings

The respondents were asked to state in their opinion, what factor had a direct effect on the success of a project they knew of or were involved with. The responses revealed that, 29 (55.8%) respondents considered effective communication to have a direct effect on the success of their projects. However, 7 (13.5%) respondents attributed it to project leadership, while 4 (7.7%) respondents attributed it to good morale. Also, 12 (23.1%) respondents maintained that good team work directly affected the success of their projects. None of the respondents provided any other detail as to what other factors might have directly influenced the success of their projects. Though the findings show that more of the respondents stated that project communication had had a direct effect on their projects, the researcher cannot conclude in general terms that effective communication directly leads to project success because a good number of respondents had stated other factors that directly affected the success of their projects. Also, from the decision reached in the hypothesis (hypothesis 1) which was developed and tested, the null hypothesis which stated that 'effective communication does not have a direct effect on project success' was not rejected, and therefore suggests that other factors other than effective communication might also have a direct effect on project success. However, the findings give a strong indication that effective communication in projects plays a strategic role and deserve significant attention in order to improve project outcomes. Furthermore, this finding leaves room for further research into identifying the exact extent to which project success is influenced by effective project communication. Further investigations can also be carried out to probe in detail, how the other factors identified in this study such as project leadership, team work and good morale, can impact on project success.

The researcher sought to determine the level of agreement of the respondents on the view that, the use of email, videoconferencing, teleconferencing, electronic bulletin boards, are highly effective measures of ensuring effective project communications. The responses provided by respondents indicated that, 32 (61.5%) respondents highly agreed with the statement. Similarly, 17 (32.7%) respondents simply agreed to this. Though 3 (5.8%) respondents were not sure of their stance on the matter, none of the respondents neither disagreed nor strongly disagreed with the statement. This however, left the response count for both options at 0 (0.0%). In line with what other researchers have said (El-Mashaleh et al., 2006; Gallaher et al., 2004; Finch, 2000; El-Saboni et al., 2009), this finding further demonstrates that these mediums can effectively enhance project communications. To further determine the effectiveness of the use of electronic communication systems, the hypothesis (hypothesis 2), which was developed and tested, revealed that adopting the use of these channels, improves project communication.

9. Conclusion

The research shows that the issue of project communication is indeed a crucial subject, which must be accorded sufficient attention in the management of projects. Though this his area of project management has too often been neglected or paid less attention to (Diallo and Thuillier, 2005; Olsson, 2007; Reed and Knight, 2009), it was identified to be of strategic importance to the effective and successful management of projects (Herkt, 2007). Furthermore, it is remarkable to note that technology has played a vital role in improving project communications. As recommended by researchers (El-Mashaleh et al., 2006; Gallaher et al., 2004; Finch, 2000; El-Saboni et al., 2009), the use of email, videoconferencing, teleconferencing, electronic bulletin boards and other electronic communication systems have proved an effective way of optimizing good project communications. Though it might be expensive to set up and maintain these systems, the long-term benefits as suggested by Finch (2000) and El-Saboni et al. (2009) are expected to outweigh the extra expenses involved.

10. References

- i. Alshawi, M. And Ingirige, B. (2003) Web-enabled project management: an emerging paradigm in construction. *Automation in construction* 12, Pp. 349 – 364.
- ii. Axley, S. (1984) Managerial and organizational communication in terms of the conduit metaphor. *Academy of Management Review* 9. Pp. 428 – 437.
- iii. Baar, B. (2009) Top-down and Bottom-up Project Management: Leveraging the Advantages of the Two Approaches [online]. Available from World Wide Web: <<http://blog.softwareprojects.org/top-down-and-bottom-up-1936.html>> [Accessed on 28th October 2009].
- iv. Baker, B. (2007), “Power Points”. *PM Network*. Vol. 21 No. 3.
- v. Blankevoort, P. J. (1984) Effects of Communication and Organization. *International Journal of Project Management*. Vol. 2 (3), Pp. 138 – 147.
- vi. Bratton, J. and Gold, J. (1999) *Human Resource Management – Theory and Practice* (2nd ed.). London: Macmillan Press Ltd.
- vii. Bryman, A. And Bell, E. (2007) *Business research methods* (2nd ed.). New York: Oxford University Press Inc.
- viii. Burke, R. (2003) *ProjectManagement - Planning and Control Techniques*, Chichester: John Wiley & Sons Ltd.
- ix. Cleland, D. (1999) *Project Management – Strategic Design and Implementation* (3rd ed.), U.S.A: McGraw-Hill.
- x. Cleland, D. And Ireland, L. (2002) *Project Management – Strategic Design and Implementation* (4th ed.), U.S.A: McGraw-Hill.
- xi. Cramton, C., Orvis, K. And Wilson, M. (2007) Situation invisibility and attribution in distributed collaborations. *Journal of Management*. Vol. 33, Pp. 525 – 546.
- xii. Daake, D. And Anthony, W. (2000) Understanding stakeholder power and influence gaps in a health care organization: an empirical study. *Health Care Manage Rev* 25 (3), Pp. 94.
- xiii. Dekker, D., Rutte, C. and Van den Berg, P. (2008) Cultural differences in the perception of critical interaction behaviours in global virtual teams. *International Journal of Intercultural Relations*. Vol. 32 (5), Pp. 441 – 452.
- xiv. Diallo, A. And Thuillier, D. (2005) The success of international development projects, trust and communication: an Africal perspective. *International Journal of Project Management*. Vol. 23 (3), Pp. 237 – 252.
- xv. Drucker, P. (1952) “How to Be an Employee”. *Fortune*. Pp. 126.
- xvi. Duyn, J. V. (1986) True Staff Communication: understanding people management. *Data Processing*. Vol. 28 (2), Pp. 92 – 94.
- xvii. Easterby-Smith, M., Thorpe, R. And Jackson, P. (2008) *Management research* (3rd ed.). London: SAGE Publications Ltd.
- xxviii. El-Mashaleh, M. O’Brien, W. And Minchin (jr), R. (2006) Firm performance and information technology utilization in the construction industry. *Journal of Construction Engineering and Management*. ASCE/499.
- xix. El-Saboni, M., Aouad, G. And Sabouni, A. (2009) Electronic communication systems effects on the success of construction projects in United Arab Emirates. *Advanced Engineering Informatics*. Vol. 23 (1), Pp. 130 – 138.
- xx. Emmitt, S. And Gorse, C. (2003) *Construction Communication*. Oxford: Blackwell Publishing Ltd.
- xxi. Eskerod, P. And Blich Feldt, B. (2005) Managing team entrees and withdrawals during the project life cycle. *International Journal of Project Management*. Vol. 23 (7), Pp. 495 – 503.
- xxii. Finch, E. (2000) *Net Gain in Construction - Using the Internet in the Construction Industry* (2nd ed.). Heinemann College: Elsevier Butterworth.
- xxiii. Freeman, E. (1984) *Strategic management – A stakeholder approach*. Boston: Pitman.
- xxiv. Friedman, A. And Miles, S. (2002) Developing stakeholder theory. *J Manage Stud* 39 (1), Pp. 1.
- xxv. Gallaher, M., O’Connor, J., Dettbarn, J., Gilday, L. (2004) *Cost Analysis of Inadequate Interoperability in the U.S. Capital Facilities Industry*. National Institute of Standards and Technology, U.S Department of Commerce Technology Administration. NIST GCR 04 – 867.
- xxvi. Henderson, L. (2004) Encoding and decoding communication competencies in project management – an exploratory study. *International Journal of Project Management*. Vol. 22 (6), Pp. 469 – 476.
- xxvii. Henry, G. (1990) *Practical Sampling*. Newbury Park, CA: SAGE Publications Ltd.
- xxviii. Herkt, M. (2007) “ what is in it for us?”. *PM Network*. Vol. 21 No. 3.
- xxix. Hoegl, M. (2005) Smaller teams – better teamwork: How to keep project teams small. *Business Horizons*. Vol. 48 (3). Pp. 209 – 214.
- xxx. Hofstede, G. (1980) *Culture’s consequences: international differences in work-related values*. California: SAGE publications Ltd.
- xxxi. Hughes, O. (1998) *Public Management and Administration – an introduction* (2nd ed.). New York: St. Martin’s press, Inc.
- xxxii. Janssens, M. And Brett, J. M. (2006) Cultural intelligence in global teams: a fusion model of collaboration. *Group and Organization Management*. Vol. 31, Pp. 124 – 153.
- xxxiii. Japsen, A. And Eskerod, P. (2009) stakeholder analysis in projects: challenges in using current guidelines in the real world. *International Journal of Project Management*. Vol. 27 (4), Pp. 335 – 343.
- xxxiv. Jones, R., Oyung, R. And Pace, L. (2005) *Working Virtually: Challenges of Virtual Teams*. Idea Group Inc.
- xxxv. Juliano, W. (1995) External communication as an integral part of project planning. *PM Network*, Pp. 18 – 20.

- xxxvi. Kerzner, H. (2000) *Applied Project Management – Best Practices on Implementation*, U.S.A: Wiley.
- xxxvii. Kerzner, H. (2006) *Project Management – A Systems Approach to Planning, Scheduling and Controlling*, New Jersey: John Wiley & Sons Inc.
- xxxviii. Kerzner, H. (2009) *Project Management – A Systems Approach to Planning, Scheduling and Controlling*, New Jersey: John Wiley & Sons Inc.
- xxxix. Khan, S. And Gerrald, L. (2006) Stakeholder communication for successful water reuse operations. *Integrated Concepts in Water Recycling*. Vol. 187 (1-3), Pp. 191 – 202.
- xl. Lester, A. (2007) *Project Management – Planning and Control*. Burlington: Butterworth-Heinemann.
- xli. Lin, C. And Mohamed, M. (1999) Criteria of project success: an exploratory re-examination. *International Journal of Project Management*. Vol. 17 (4), Pp. 243 – 248.
- xl. Loosemore, M. And Al. Muslmani, H. S. (1999) Construction project management in the Persian Gulf: inter-cultural communication. *International Journal of Project Management*. Vol. 17 (2), Pp. 95 – 100.
- xl. Madu, L. (2006) *Basic management theory and practice - A basic path*. Enugu: Maurice Productions.
- xl. Mitchell, R., Agle, B. And Wood, D. (1997) Towards a theory of stakeholder identification and salience: defining the principle of who and what really counts. *Acad Manage Rev* 22 (4), Pp. 853 – 886.
- xl. Moynihan, T. (2002) Coping with client-based ‘people-problems’: the theories-of-action of experienced IS/Software project managers. *Information & Management*. Vol. 39 (5), Pp.377 – 390.
- xl. Müller, R. (2003) Determinants for external communications of IT project managers. *International Journal of Project Management*. Vol. 21 (5), Pp. 345 – 354.
- xl. Newell, M. (2005) *Preparing for the project management professional (PMP) certification exam*. London: Amacom.
- xl. Nilsson, P. And Fagerström, B. (2006) Managing stakeholder requirements in a product modelling system. *Computers in Industry*. Vol. 57 (2), Pp. 167 – 177.
- xl. Norton, W. (1978) Foundation of a communicator style construct. *Hum. Commun. Res.* 4, Pp. 99 – 112.
- li. Nwachukwu, C. (1988) *Management theory and practice*. Onitsha: Africana – Fep publishers Ltd.
- li. Oates, B. (2006) *Researching Information Systems and Computing*. London: SAGE Publications Ltd.
- li. Ochieng, E. And Price, A. (2009) Managing cross-cultural communication in multicultural construction project teams: the case of Kenya and UK. *International Journal of Project Management* (Article in press, corrected proof).
- li. Olsson, R. (2007) In search of opportunity management: is the risk management process enough? *International Journal of Project Management*. Vol. 25, Pp. 745 – 752.
- li. Pinto, M. And Pinto, J. (1990) Project team communication and cross-functional cooperation in new program development. *Journal of Product Innovation Management*. Vol. 7 (3), Pp. 200 – 212.
- li. Plant, N. (1989) Managing the client relationship (with a little help from methodologies). *International Journal of Project Management*. Vol. 7 (1), Pp.33 – 35.
- li. Project Management Institute (PMI).(2013) *A Guide to the Project Management Body of Knowledge (PMBOK) 5th Edition*.
- li. Pouloudi, A. (1999) Aspects of the stakeholder concept and their implications for information systems development. *Proceedings of the 32nd Hawaii International Conference on Systems Maui, Hawaii*.
- li. Procter, S. And Burrige, M. (2008) Team working and Performance: the extent and intensity of team working in the 1998 UK workplace Employee Relations Survey (WERS98). *The International Journal of Human Resource Management*. Vol. 19 (1), Pp. 153 – 168.
- li. Quinton, S. And Smallbone, T. (2006) *Postgraduate research in business – a critical guide* (1st ed.). London: SAGE publications Ltd.
- li. Ramsing, L. (2009) Project communication in a strategic internal perspective. *Corporate Communications: An Internal Journal*. Vol. 14 (3), Pp. 345-357.
- li. Reed, A. and Knight, L. (2009) Effect of a virtual project team environment on communication-related project risk. *International Journal of Project Management* (Article in press, corrected proof).
- li. Remenyi, D., Williams, B., Money, A. And Swartz, E. (1998) *Doing research in business and management: an introduction to process and method* (1st ed.). London: SAGE Publications Ltd.
- li. Roberts, C., Edwards, R. And Barker, L. (1987) *Intrapersonal communication processes*. U.S.A: Gorsuch Scarisbrick.
- li. Sandy, S. And Jane, W. (2008) Exploring the effects of trust, task interdependence and virtualness on knowledge sharing in teams. *Information Systems Journal*. Vol. 18 (6), Pp. 617.
- li. Saunders, M., Lewin, P. And Thornhill, A. (2007) *Research Methods for Business Students* (4th ed.). England: Pearson Education Limited.
- li. Saunders, R. G. And Stewart, R. W. (1990) Failure of communication in research and development. *International Journal of Project Management*. Vol. 8 (2), Pp. 71 – 78.
- li. Scott-Young, C. and Samson, D. (2008) Project success and project team management: Evidence from capital projects in the process industries. *Journal of Operations Management*. Vol. 26 (6), Pp. 749 – 766.
- li. Sekaran, U. (2003) *Research Methods for Business – A Skill Building Approach* (4th ed.). U.S.A: John Wiley & Sons Ltd.
- li. Sharp, V. (1979) *Statistics for the social sciences*. Boston: Little Brown and Co.
- li. Sievert, R. (1986) “Communication: An Important Construction Tool”. *Project Management Journal*. Pp. 77.

- lxxi. Simon, H. (1957) *Administrative behaviour – study of decision-making processes in administrative organizations* (2nd ed.). New York: The Macmillan company.
- lxxii. Snyder, C. and Parth, F. (2007) *Introduction to IT project management*. U.S.A: Management Concepts, Inc.
- lxxiii. Thomas, R. And Drury, R. (1988) *Team communication in complex projects*. *Engineering Management International*. Vol. 4 (20), Pp. 287 – 297.
- lxxiv. Thomason, G. (1988) *A Textbook of Human Resources Management* (4th ed.). London: Institute of Personnel Management.
- lxxv. Thompson, P. (1991) *The client role in project management*. *International Journal of Project Management*. Vol. 9 (2), Pp. 90 – 92.
- lxxvi. Turner, J. And Müller, R. (2004) *Communication and Co-operation on Projects Between the Project Owner As Principal and the Project Manager as Agent*. *European Management Journal*. Vol. 22 (3), Pp. 327 – 336.
- lxxvii. Umoh, M. (1996) *Analysis of Management Principles and Practice*. Enugu: J.T.C. Publishers
- lxxviii. Van Maanen, J. (1983) *Qualitative methodology*. Beverly Hills: SAGE publications Ltd.
- lxxix. Weatherley, S. (2006) *Master class Multi-cultural Project Team Working*. London: ECI in Partnership with Engineering Construction Industry Training Board (ECITB), ECI UK.
- lxxx. Wi, H., Mun, J., Oh, S. And Jung, M. (2009) *Modeling and analysis of project team formation factors in a project-oriented virtual organization (ProVO)*. *Experts Systems with Applications*. Vol. 36 (3), Pp. 5775 – 5783.
- lxxx. Zulch, B. (2014) *Leadership communication in project management*. *Procedia – Social and Behavioral Sciences*. Vol. 119, Pp. 172 – 181.