SUPERIOR PRODUCTIVITY NEEDS EFFECTIVE COMMUNICATION SYSTEM: AN EMPIRICAL STUDY ON CONSTRUCTION INDUSTRY

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ABSTRACT: *Business is conducted through various channels of communication, including the Internet, Print (Publications), Radio, Television, Ambient media, Outdoor, and Word of mouth. Business Communication can also refer to internal communication. A communications director will typically manage internal communication and craft messages sent to employees. Communication is a means by which operatives and other members of the team are linked (considering construction) in order to achieve the central goal. The various means by which information can be transmitted in the construction industry for the successful execution of any project as the success of such project relies largely on the establishment of a clearly defined framework or communication. Information can be transmitted formally or informally. In some cases construction contracts may state the form which communication must take. A very big step towards communication in the construction industry is the client statement of requirements. The information will include the size of the building, nature of the building, funds available, function of the building and time limitation of the project. This study is all about the effectiveness of communication during construction work carried out at BYD Electronics Pvt Ltd and how it helps the construction industry to enhance production and completion of projects within the stipulated period.*

Keywords: *Effective Communication, Construction Industry, Productivity*

INTRODUCTION

Communication is used to promote a product, service, or organization; to relay information within the business; or to deal with legal and similar issues. It is also a means of relying between a supply chain, for example the consumer and manufacturer. The purpose of communication in the workplace is to provide employees with the information they need to do their jobs. Business Communication encompasses a variety of topics, including Marketing, Branding, Customer relations, Consumer behavior, Advertising, Public relations, Corporate communication, Community engagement, Research & Measurement, Reputation management, Interpersonal communication, Employee engagement, Online communication, and Event management. It is closely related to the fields of professional communication and technical communication.

Communication between supervisors and subordinates remains a problem. Unfortunately, human beings have a natural tendency to judge, evaluate, approve of, or disapprove of other peoples' statements. This should not come as a surprise, since we all have different backgrounds, experiences, and education. We have different values and, therefore, are motivated

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differently. Just as you must process information from others, others must process it from you. As a supervisor, you will spend a great deal of your time communicating to influence subordinates to accomplish work. You motivate, guide, and organize your subordinates to do their work. And your primary tools for doing those things are spoken and written communication.

In construction, communication could also be achieved through letters, drawings, symbols, signs, posters and word through which members of an organization send and receive information and also send information to the public at large. The communication, the workers especially in construction firms find it easy and highly productive to work together. Instruction and order are given and they are carried out as expected once they are well understood and acted upon rightly. The working day of every personnel is filled with communication in different ways and forms through orders, directives, information, conversation, requests and rumors.

LITERATURE REVIEW

Communication can be analyzed as a two way process as information is not only sent but also received, understood and implemented. (Adeleke, 2004). Machinery need to be in place for further communication to take place, either downward communication (from superior to sub-ordinate), horizontal (between colleagues of the same level) or upward communication (from sub-ordinate to superior). Careful attention must be paid to these means and machinery of communication because internal communication is vital for high productivity, as an aid to construction project delivery in the construction site and it is a more difficult process now than it was decades ago. The principal reason for this is that there has been changes in the attitude of workers towards their employers and in the present site environment there has been a move away from old concepts of unquestionable obedience, proper provision must be made for upward communication to avoid misconceptions of information failing which superior personnel like Architect, Project manager, Engineer or supervisor may generate a bad feeling and may also end up making decisions in a vacuum and such decision may not be accepted by the junior staff and personnel like the laborers and gang men.

The telephone is used to communicate urgent matters which could be followed up by letters to consultants concerned. Basically, consultants transfer information through drawings, schedules and specification notes. (Seeley, 1995)

There is need for architectural, structural and service drawings to be required by the quantity surveyors. The specifications must be clear, definite and concise so that when read with the drawings, set out the quality of materials and the workmanship or standard required in the project to enable the quantity surveyor prepare his bill of quantities. During the progress of the work, all the instructions from the architects and engineers intending to alter the original scheme of work are sent up to the quantity surveyor and must be detailed enough to enable him establish the cost implication of the project and provide professional advice.

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Besides trust, the need for direct, personal interaction through face-to-face contact – one of the most pervasive features of construction business (Egbert 2004; McCormick 1999; Mungunasi 2000; Trulsson 1997), makes the difference between winning and losing an order. If you spend a lot of time away from your business premises, on site or with customers, a mobile phone will allow people to contact you at any time of the day (Duncombe and Heeks 2001). Duncombe and Heeks (2001) note that a telephone, for example, 'will be particularly useful for keeping customers informed about problems such as late deliveries or production problems'. A mobile phone may be used for work purposes. Despite having better communication with clients, much business still relies on face-to-face contact, one of the most pervasive features of economies (Molony 2007). However, whatever the merits of these different forms of communication, many leaders still do not appear to have altered their unbusinesslike and seemingly carefree attitude towards keeping customers informed when prearranged timings cannot be met.

Effective communication has not been given enough attention in construction firms thereby creating many loop holes in information dissemination.

RESEARCH PROBLEM AND OBJECTIVES OF THE STUDY

Effective communication has not been given enough attention in construction firms thereby creating many loop holes in information dissemination. As a result of this poor attitude in the industry, it is found necessary to create solutions to such problems through this research as to improve productivity in construction firms.

OBJECTIVES OF THE STUDY

The aim of this research is basically to identify the problem caused by ineffective communication in the construction industry.

The objectives of the research are:

- To identify the major factors that causes ineffective communication in the construction industry.
- To identify the problem caused by these factors.

From the information that will be gathered, the importance of effective communication on execution and delivery process will be made known to all concerned at the supervisory level of construction work. This research work will also show how ineffective communication negatively affects productivity based on the facts gathered. This research work will also be useful to the management of construction companies and their professional status.

RESEARCH QUESTIONS

The following questions will be answered so as to improve on duration and productivity.

1. Can poor leadership cause ineffective communication?
2. Can lack of experience about construction work hinder communication on site?
3. Will good administration enhance effective communication?
4. What role will incentives play in disseminating order and information?
5. Will the introduction of seminars, workshops, postal and handbills improve communication on site?

RESEARCH METHODOLOGY

It describes the procedure followed in realizing the goals and objectives in this research. This involves the adequate description of the research are stressing on the inclusiveness of the chosen area of this study, the research tools and sampling techniques necessitating the administration of questionnaires and oral interview.

SAMPLING METHOD & SAMPLING SIZE

This research is based on simple random sampling method. It entails the use of identical objects on which the entire population is written. The objects are then gathered together with the required number being selected from them, one after the other, using random digit table. The population for the study was huge, but because of time and resource constraint, the sampling size for this research work is 100. Simultaneously Architects, Builders, Structural Engineers, Project Managers and Quantity Surveyors were also interviewed.

METHOD OF DATA COLLECTION

In order to obtain appropriate and adequate responses from the respondents, a combination of fixed response and open end type of questionnaire was prepared in such a way that the options of the respondents were required on the subject of the dissertation.

The questionnaire is divided into two main sections A and B. in the fixed response type of questionnaire design: there are tailored options of answers from which the respondents must choose while responding or answering each question. The opinions of the respondents were just to tick their own approval of available options of answer. The questionnaires were distributed to the respondents through direct contact in order to supply the necessary data to be used for the research work. Responses were collected on individual basis and also interviews were conducted with respondents in respect of questionnaires earlier distributed. The study is actually intended to examine the effectiveness of communication as an aid to construction project delivery in Chennai but with a special attention given to a few construction sites within the Chennai metropolis because it houses the most large and medium construction firms in India.

Secondary data were used as supplements. Theoretical concepts are obtained through interviews used to interpret and compare the findings. Analytical tools were basically the descriptive statistics, which includes simple percentage methods and chi-square etc.

PRETESTING

The questionnaire was pretested on 23 samples. Owing to the intrusive nature of the questions, the researchers were apprehensive about the validity of the responses.However, the respondents answered the questions without any difficulty. Minor changes were made in the questionnaire such as reducing the number of questions.

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DATA ANALYSIS & INTERPRETATION

The information and data collected from the professionals from BYD Electronics Pvt Ltd now becomes the aim of this study. This is very useful in making conclusions and suggestions. Simple average and chi-square method have been used for the findings.

RESPONDENTS DETAILS (IN PERCENTAGE)

Table 1

SECTION	NO GIVEN	NO OF RESPONSES
Architect	31	25
Builder	25	21
Civil Engineer	27	25
Quantity Surveyor	32	29
TOTAL	115	100
PERCENTAGE	100%	87%

Eighty Seven percent (87%) of the total questionnaires distributed were completely filled out and returned.

THE POPULATION OF RESPONDENTS

The population of respondents is analyzed below.

Table 2

Professionals	Number	Percentage
Architect	25	25%
Builder	21	21%
Civil engineer	25	25%
Quantity surveyor	29	29%

From the table and chart above it is noticed that the highest population of respondents are the Quantity surveyors, followed by the Builders and Architect and lastly the Builders.

ACADEMIC QUALIFICATION OF RESPONDENTS

Table 2

Academic qualification	Number	Percentages
B.E	22	22%
B.E, M.E	29	29%
B.E, MBA	32	32%
MSc/MBA	17	17%

The table and chart shows that the highest populations of respondents are the B.E/MBA holders. This is because they are more involved in the medium managerial positions.

WORK EXPERIENCE OF RESPONDENTS

Table 3

Experience	Number	Percentages
1 to 5	32	32%
6 to 10	17	17%
10 to 15	34	34%
Above 15	17	17%

The table and chart clearly indicates that a majority of the people in the medium managerial positions are those whose years of experience fall between 10-15 years.

Communication is an effective tool of actualization of a project.

Table 4

Rating	Number of responses	Percentage
Strongly agree	29	29%
Agree	33	33%
Disagree	17	17%
Strongly disagree	14	14%
Neutral	7	7%

From the above chart and table, a majority of the respondents agree that communication is an effective tool in the actualization of construction project

Result of Training of operatives on onsite communication

Table 6

Rating	Number of responses	Percentage
Excellent	28	28%
Good	49	49%
Neutral	21	21%
Bad	1	1%
Worse	1	1%

Findings show that when workers are trained, onsite communication is carried out in a more reliable pattern and higher productivity is attained.

Site meetings are an important channel of communication between the consultants and contractor on site.

Table 5

Rating	Number of responses	Percentage
Yes	41	41%
No	29	29%
May be	30	30%

The table and chart above clearly shows that site meeting creates an important avenue for consultants and contractor to exchange ideas and pass on information to others.

Poor communication often results in delay, increase in cost, abandonment, amongst other problems.

Table 7

Rating	Number of responses	Percentage
Strongly agree	17	17%
Agree	24	24%
Disagree	32	32%
Strongly disagree	15	15%
Neutral	12	12%

This table shows little contract information as a higher percentage disagrees that it causes delay which will in turn cause an increase in the cost of the project. So it may be biased information.

Workshops, handbills and posters enhance productivity and educate workers.

Table 8

Rating	Number of responses	Percentage
Yes	49	49%
No	18	18%
Maybe	33	33%

Findings reveal that the use of posters, handbills and organizing workshop will enhance site productivity and also educate workers.

Poor leadership results in poor communication.

Table 9

Rating	Number of responses	Percentage
Strongly agree	18	18%
Agree	23	23%
Disagree	35	35%
Strongly disagree	19	19%
Neutral	5	5%

Findings reveal that the leadership pattern has little effect on communication on site

Poor and distorted information affects the level of work done on site.

Table 10

Rating	Number of responses	Percentage
Yes	64	64%
No	26	26%
May be	10	10%

From table and chart poor and distorted information has an effect on the level of work done on site.

Effect of Inexperienced interpretation of working drawings in building components

Table 11

Rating	Number of responses	Percentage
Highly effective	59	59%
Effective	35	35%
Somewhat effective	2	2%
Not effective	1	1%
Neutral	3	3%

The table shows that inexperienced interpretation of working drawings is a major cause of building component failure.

Every worker on site is responsible for disseminating information effectively.

Table 12

Rating	Number of responses	Percentage
Strongly agree	38	38%
Agree	35	35%
Disagree	11	11%
Strongly disagree	9	9%
Neutral	7	7%

From the above, the study shows that every worker on site is responsible for effective dissemination of information.

Effect of Poor means of communication on information on site.
Table 13

Rating	Number of responses	Percentage
Highly effective	21	21%
Effective	64	64%
Somewhat effective	9	9%
Not effective	2	2%
Neutral	4	4%

This table shows that poor means of communication is another cause of distorted information on site.

Good relationship among site operatives will lead to time wastage and material wastage.
Table 14

Rating	Number of responses	Percentage
Yes	38	38%
No	47	47%
Maybe	15	15%

The table shows that there is no correlation between the relationship between operatives and time and material wastage.

Lack of involvement in performing duties as expected will lead to ineffective communication.
Table 15

Rating	Number of responses	Percentage
Strongly agree	38	38%
Agree	35	35%
Disagree	16	16%
Strongly disagree	7	7%
Neutral	4	4%

The table shows that the involvement a worker puts into his work affects the quality of communication he practices.

The importance of language used among operatives is very essential for effective communication on site.
Table 16

Rating	Number of responses	Percentage
Highly effective	22	22%
Effective	62	62%
Somewhat effective	11	11%
Not effective	4	4%
Neutral	1	1%

Findings from the table show that the language used among site operatives is of utmost importance in practicing effective communication.

Late dissemination of information will affect output on site negatively.
Table 17

Rating	Number of responses	Percentage
Yes	42	42%
No	38	38%
Maybe	14	14%

The table shows that late dissemination of information negatively affects output on site

Poorly presented information on site creates a big problem in the timely delivery of construction of projects.
Table 18

Rating	Number of responses	Percentage
Strongly agree	60	60%
Agree	32	32%
Disagree	3	3%
Strongly disagree	0	0%
Neutral	5	5%

The table shows that the presentation of information on site may create a big problem when poorly presented, in the timely delivery of construction projects.

Communication between departments in the company is adequate
Table 19

Options	Number of responses	Percentage
Disagree Strongly	26	26%
Disagree somewhat	32	32%
Neutral	17	17%
Agree somewhat	15	15%
Agree Strongly	10	10%

From the above table it is clear that most of the respondent have answered that there is inadequate communication between their departments. It happens sometimes because of employee carelessness. When a fresher steps into an organization, he/ she may experience difficulty in interacting with his/ her senior colleagues.

CHI-SQUARE METHOD

The chi square test is one of the simplest and most widely used *non-parametric tests* in statistical work. As a non-parametric test, it can be used to determine if categorical data shows dependency or the two classifications are independent. It can also be used to make comparisons between theoretical population and actual data when categories are used.

$$X^2=\Sigma(O-E)^2/E.$$

Where E=Expected frequency
O=Observed frequency
E=RT*CT/GT
Where RT=Row total
CT=Column total
GT=Grand total

Null hypothesis (Ho): "There is a significant contribution of effective communication on Employee's performance to improve productivity"

Alternate hypothesis (Ha): "There is no significant contribution of effective communication on Employee's performance to improve productivity"

OBSERVED FREQUENCY TAB LE

Employee'	Effective Communication	Performance
X1	10	6
X2	6	4
X3	14	8
X4	8	5
X5	12	7
X6	16	9
X7	10	6
X8	8	5
X9	12	7

EXPECTED FREQUENCY TABLE

C	P	(C-P)	(C-P)^2	(C-P) ^2 / C
10	6	4	16	1.60
6	4	2	4	0.66
14	8	6	36	2.50
8	5	3	9	1.12
12	7	5	25	2.08
16	9	7	49	3.06
10	6	4	16	1.60
8	5	3	9	1.12
12	7	5	25	2.08
			TOTAL	15.82

x ^2 = 15.82
x ^2 at .05 = 15.45
The result was significant ($p < 0.001$).

As the calculated value of chi-square (15.82) is more than the table value (15.45), so our null hypothesis is rejected and alternate hypothesis is accepted.

Thus we can say that There is no significant contribution of effective communication on Employee's performance to improve productivity.

From the research and direct visits to some construction sites coupled with the information gathered through the questionnaire distributed, it was revealed that most indigenous firms are aware of the importance of effective communication; consequently qualified personnel were appointed to man some strategic points effectively. In most of these firms, open policy of communication was exhibited and no form of organizational barrier existed. The laborer could easily walk up to the site supervisor for instructions without going through any other channel. In larger organizations, the means of communication is very effective and advanced equipment like radio messages and walkie talkie are being used on large site.

From the above analysis it could be deduced that poor communication occurs in the construction industry because of:-

- Lack of an established communication system,
- Irregular site meetings,
- Inadequate training of operatives on communication skills,
- Distortion in information,
- Inexperience interpreting of information on working drawings,
- Lack of interest to perform duties,
- The language used in disseminating information,
- Late dissemination of information,
- Poor presentation of information.

A more efficient post and telecommunication services will contribute in no small measure towards achieving communication effectiveness.

SUGGESTIONS & RECOMMENDATIONS

From the research work carried out on communication process in the BYD Electronics Pvt Ltd construction work using Chennai city as an example, the followings recommendations can be implemented. Provision of adequate communication equipment for speedy transmission of information should be used. The message should be reinforced i.e. it should be presented in a number of ways or means. Firms should have a well established communication system to enhance communication's effectiveness. Written communication should be legible and clear. The use of simple, direct language and avoidance of jargon is very essential to avoid ambiguity. A more efficient post and telecommunication services will contribute in no small measure towards achieving communication effectiveness. Superiors should treat sub-ordinates in such a way that they will be accessible to them. This will impact in a positive way, by bringing down imaginary wall of silence that prevents healthy dialogue and group problem solving. Education and training programs should be organized by firms to meet there obligations by providing well-qualified employees at all levels. It should be designed to include both information about the working and also appreciation of the sources of information. This will enable them to exercise their minds more confidently and capably, thus leading to an awareness of more efficient techniques. Feedback should also be encouraged. It ensures that the sender gets his message back from the receiver which indicates how far understanding has taken place. The communicator should adjust to the world of the receiver. Since his intention is to get the message across, he should try to anticipate the receiver's feelings and attitude. He should size up the receiver's store for background

information, intelligence, and level of thinking, reasoning, perception, information image and memory and, therefore, tailor fit the receivers' vocabulary, interest and values. The employers of labour in the industry should give preference to well-qualified applicants for employment.

CONCLUSION

It may be stated without exaggeration that a major problem in the Chennai construction industry is that of setting up meaningful and reasonable communication network. Poor build ability, poor management of resources and low productivity are as a result of poor communication in the industry and usually cause delay in timely project delivery. This in turn will have an adverse effect on the economy at large. The success of implementing the long term strategy hinges upon the increasing acceptance and adoption of information technology by the industry players in their business processes. In the meantime, construction and real estate education providers can continue to train their students for immediate needs via the introduction of IT modules in their existing courses or conduct relevant continuing professional development courses in information technology.

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