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THE NEEDS FOR STANDARDIZATION OF DOCUMENTATION TOWARDS AN EFFICIENT COMMUNICATION IN THE CONSTRUCTION INDUSTRY

ABSTRACT:

The objective of this paper is to establish standardization concept that enhances the communication process and facilitates better document management as a management tool. Basically the study is conducted by literature review on communication planning; flow, structure and a questionnaire survey were distributed among the stakeholders in the construction industry. The respondents in this study are stakeholders from the city of Ipoh, which located in the state of Perak, Malaysia. In all 45 respondents were involved in this research. The result indicates that standardization and standard communication instrument play an important role in effective communication. It is understood that improvements in these standards documentation and communication instrument is needed. Implication in this studies include the improvement of project communication processes and technologies on different functional levels may change the organization of future projects and how its business activities and work routines are designed, planned and performed.

KEYWORDS:

Communication, Standardization, Standard Document, Construction Industry

INTRODUCTION

Nowadays people have more understanding of the needs to practice good communication in the society in order to deliver a meaningful communication. Construction is a fragmented and dynamic sector with a project based nature. This makes that many stakeholders operate in frequently changing sets of relationship which are contractually driven (Dainty et al 2006). There are different communication instruments, such as contracts, specifications, reports, manuals, schedules, calculations, drawings, computer files, disks, print-outs, photographs, agenda's and minutes of meetings (Knipe, 2002). The management of documentation and communication used in a project is used by a number of subcontractors, the storage and retrieval thereof for further use. All these documents describe different range of usage at different project lifecycle. It is understood that without a proper standard documents and communication structure, the development of a project could be delayed. The purpose of this research paper is to improve communication in structure, flow and planning in the construction industry for a better management of documentation. The importance of process-oriented approach to the success of any business is very well documented (Garvin, 1995;

Hammer, 2002; Zairi, 1997). Management process especially in documentation in every organization is very important as it is used as tools for analysing and enhancing any business process. Nowadays people have more understanding of the needs to practice good communication in the society in order to deliver a meaningful communication. Construction is a fragmented and dynamic sector with a project based nature. This makes that many stakeholders operate in frequently changing sets of relationship which are contractually driven (Dainty et al 2006). There are different communication instruments, such as contracts, specifications, reports, manuals, schedules, calculations, drawings, computer files, disks, print-outs, photographs, agenda's and minutes of meetings (Knipe, 2002). The management of documentation and communication used in a project is used by a number of subcontractors, the storage and retrieval thereof for further use. All these documents describe different range of usage at different project lifecycle. It is understood that without a proper standard documents and communication structure, the development of a project could be delayed. The purpose of this research paper is to improve communication in structure, flow and planning in the construction industry for a better management of documentation. The importance of process-oriented approach to the success of any

business is very well documented (Garvin, 1995; Hammer, 2002; Zairi, 1997). Management process especially in documentation in every organization is very important as it is used as tools for analyzing and enhancing any business process.

RESEARCH OBJECTIVE

The objective of this research is to identify the needs of better organization standardization which leads to good communication process in order to remain competitive and to emphasize in providing a better communication tool and standardization. This is very important to foster better understanding of what the organization need at the same time considering time, cost and quality in the construction industry. Good document standardization is needed to increase the communication efficiency within the stakeholders and different parties in the industry. Documentation control brings to good information sharing between the team workspaces whereby it leads to cooperation within the members who involved the project. To summarize shortly, this papers intend to discuss and suggest on the importance of standardization towards a good communication in the organization and off course as well as in the construction industry.

DEFINITION OF STANDARDIZATION

Standardization is an important benefit of process documentation. Well-defined process documents can be used to develop standard operating procedures (Bae, 1993; Symons and Jacobs, 1997). Document standardization will help to achieve consistency in operations. It is well understood that proper document standardization improves management procedure whereby at the same time it reduces the conflict among current employees and give an overall idea on how management system should be conducted. The main purpose of standardization is to develop a specific level of conformity (Smit & Cronje, 2002). Project documentation and records which has been standardize helps to establish baseline and communication process in the project team. Document which has been standardize in the most professional way define requirement to support and enhance the management function daily especially in delivering a good communication. By having good document standardization, internal communication between the various levels and functions will meet it effectiveness. Standardization contributes to increased productivity because the documents and communication from one project to the next are the same or similar and thereof less confusion is created. In this lines, a better communication plan, communication flow and instrument and last but not least the communication structure is very important in enhancing a good standardization (Zairi, 1997).

DEFINITION OF COMMUNICATION

Communication is a process whereby information is encoded and imparted by a sender to a receiver via a channel/medium. The receiver then decodes the message and gives the sender a feedback. Communication requires that all parties have an area

of communication commonality. There are auditory means, such as speaking, singing, and sometimes tone of voice, and nonverbal, physical means, such as body language, sign language, paralanguage, touch, eye contact, or by using written communication. Communication is a process by which we assign and convey meaning in an attempt to create shared understanding. This process requires a vast repertoire of skills in intrapersonal and interpersonal processing, listening, observing, speaking, questioning, analyzing and evaluating. It is through communication that collaboration and cooperation occur. Basically, there are three 3 types of communication in business, written, verbal and non- verbal. Written includes letters, emails, memos, reports and formal documents. Verbal communication includes chats, presentation and voicemails. Non-verbal communication is using signals to communicate and studying body language (Simon, 2002).

COMMUNICATION AND STANDARDIZATION

Communication is pervasive in all areas of organizational life. Communication is process of transferring information from one source to another. Communication is commonly defined as “the imparting or interchange of thoughts, opinion, or information by speech, writing, or signs” Communication can be perceived as a two-way process in which there is an exchange and progression of thoughts, feelings or ideas towards a mutually accepted goal or direction (Simon, 2002). The construction industry depends on external communication for dealing with ever more complex inter-organizational relationships. Project communication management tools and techniques ensure the timely and appropriate generation, collection, dissemination, storage and ultimate disposition of project information (Wagner & Hollenbeck, 1992). For this, communication planning, flow, structure and document standardization in an organization are very important in enhancing the business project.

Proper and good communication skills in terms of verbal, written and contractual are very essential at all stages of project from inception till completion. Standardization in document will enhance the concept of communication skills in any organization. With a proper standardization system, procedure and policy in the organization, it will boost the communication in all aspect such as planning, controlling, monitoring and as well as organizing. Information flow through proper communication channels and standardized documentation is a key enabler to run any project successfully (Burke, 2003).

TYPES OF COMMUNICATION

Verbal communication involves using speech to exchange information with others where we communicate verbally in face to face conversation. Meetings, interviews, conferences, speeches, and phone calls are other forms of verbal communication. We can communicate verbally to exchange ideas, understand diverse points of view, and solve problems.

Verbal skills are among those most valued by employers to improve professional work performances (Melody, 2002). In verbal communication, one person sends a message to another person or group using speech. Communication is successful only when the speaker and listener understand each other. Because the average person is exposed to thousand of messages every day, messages must rise above competing information to gain our listener's attention. After receiving messages, listeners must be able to interpret or decode its meaning.

A written communication is a communication by means of written symbols either printed or hand written. Also include questions related to communicating with others through written word like emails, notes, memos and proposal as well. For business purposes, managers must deliver their messages clearly, sufficiently and effectively if they want to be successful. Poorly written messages create confusion and fail to achieve intended purpose. Communicating through writing is essential in the modern world and is becoming ever more so as we participate in what is now commonly called the information age. Written messages do not have to be delivered on the spur of the moment; instead they can be edited and revised several times before they are sent so that the content can be shaped to maximum effect. Meanwhile written communication are often considered more appropriate for complex business messages that include increased customer/client satisfaction, improve inter organizational efficiency and enhanced image in the community and industry (Gail, 2004).

Contract communication process is a process communicating through contractually by several official documentations within designated authority. Such direction should be in writing, but may be provided orally in meetings, briefings, phone or video conferencing. A written record of direction should be created for such oral directions. All formal written correspondence to the contractor should include the contract number within the subject line. Formal communication from the contractor should follow a formal contract correspondence tracking system with commitments appropriately assigned and tracked for timely completion. The contractor will be required to communicate with other team member and staff in conjunction with its responsibilities and work scope (Justin & Marc, 2009)

COMMUNICATION FLOW AND INSTRUMENTS

Communication flows in four directions: downwards, upwards, horizontally and laterally. These basic communication flows are shown in Figure 1.

Communication which flows from the superiors to subordinates is known as downward communication. In an organization structure, the superiors utilize their abilities to attain the desired targets which mean that they may be engaged in issuing commands, directions and policy directives to the persons working under them (at lower levels). Under downward communication, the superiors anticipate instant

recital of a job that's why it is highly directive. This may include statements of organizational philosophy, policies, project objectives, schedules, budgets, and constraints, position descriptions and other written information relating to the importance, rationale and interrelationships and interactions of various departments' projects, and jobs in an organization (Smit & Cronje, 2002).

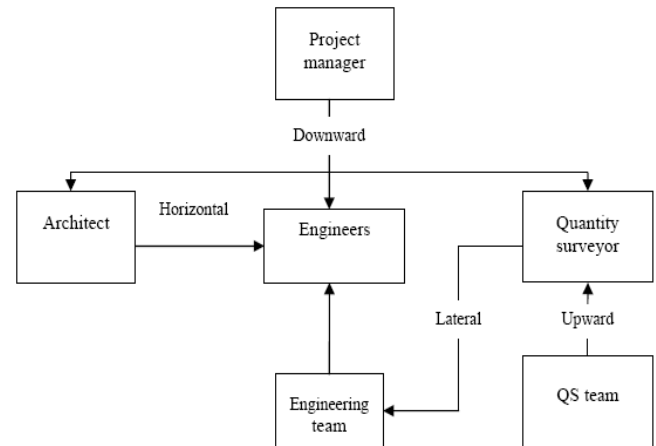


Figure 1 Communication Flows: Source (Adapted from Smit & Cronje, 2002)

According to Smit & Cronje (2002), upward communication can be very beneficial for the companies because it can increase the participation of the employees and exposes their issues and problems. In this type of communication, Information provided to upper management for their purposes of evaluating the overall performance of the projects for which they are responsible, or to refine organizational strategy. Meanwhile horizontal communication occurs across the same level and facilitates the linking of different areas of expertise and this may encourage innovation. In an organization, lateral communication works in contrast to traditional top-down, bottom-up communication methods. Individuals participating in this non-traditional form can often become aware of new events before those individuals higher up on the communication ladder. Information spread through lateral communication often moves at a faster pace than that of tradition methods and allows individuals with a diverse.

INFORMAL COMMUNICATION

Grunig (2000) stated informal communication takes place due to the individual needs of the members of an organization and subsists in every organization. Normally, such communication is oral and may be expressed even by simple glance, sign or silence. Informal communication, is implicit, spontaneous multidimensional and diverse. It often works in group of people, i.e. when one person has some information of interest; he passes it on to his informal group and so on. In spite on many advantages, informal communication has certain disadvantages. Informal communication contains facts, deceptions, rumors and unclear data. The informal channels of communication may transmit completely imprecise information that may harm rather than help an organization. In

addition, it is impossible to fix the responsibility for its origin or flow of information. However, for the efficient working of any organization both formal and informal communications are required.

PROJECT COMMUNICATION INSTRUMENT

Project communication, as shown in Figure 2, is internal and external communication between members of an organization at all levels in order to achieve a mutual goal or goals.

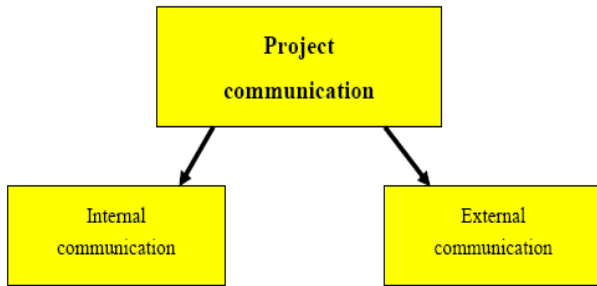


Figure 2. Project Communication:

Source: (Adopted from Le Roux, 1999)

To achieve goals, it is necessary to communicate or interact at various levels of the organization and as this is known as internal communication. Members also have to communicate with individuals or groups who are not members of the project. This is referred to as external communication. The project communication instrument section defines how and what the project will communicate with its stakeholders. This communication occurs within the team and between the team and external entities. The Project communication instrument identifies the processes, methods, and tools required to ensure timely and appropriate collection, distribution, and management of project information for all project stakeholders. It also describes the team's strategy for communicating internally among team members and company personnel, as well as externally with vendors and contractors. In the construction industry, there are some communication instruments that are basically used among the stakeholders. This types of communication includes estimation, cost plan, payment advice, cost report, escalation costing presentation, final accounts, standard document, contract document and as well drawings. All this instruments are given priority by the professionals from inception till a completion of a project. Standardization of documents through a rigid system used by the construction company allows them to work in order and deliver messages at the right time (Le Roux, 1999)

COMMUNICATION STRUCTURE

Structure defines lines of authority and communication, specifies the mechanism by which tasks and programmes are accomplished. The performance depends on the coordination between the parties involved, the system of communication, the culture of the project, the staff members and the communication structure (Aaker, 1992. 331).

Intercultural communication is in many ways far more complicated, e.g. languages, because participants need to be aware of an increased potential of misunderstanding. Project team members are part of different sub-cultures. In a project team there may be communication problems because of these differences and expressions in different professions (Peltoniemi & Jokinen, 2004:3-4).

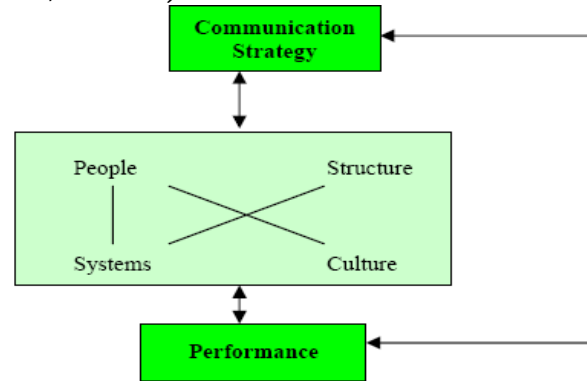


Figure 3. The framework for analyzing projects:

Source : (Adapted from Aaker, 1992)

People, systems, culture and structure may be used as communication strategies to ensure the performance of the project. Every sub-project has a different set of people, systems and culture to that of the main project. This strains the project, increases communication problems and makes it less likely to complete a project without incidents. Basically it's understood that people in the organization will use the proper system which carried out by the organization to communicate effectively, this could be internally or externally. It also helps in improving communication within the organization. Apparently, it plays the vital role among the stakeholders as this brings a good understanding in the organization among the different parties. Last but not least organization structure very much influence on the coordination and flow of the organization system. A proper organization structure should be form in order to encourage a good flow of information and enhance towards an effective communication in the organization as well as in the industry. Good organization structure leads to the practice of better time, quality and cost management as well increasing organization performance (Aaker, 1992).

METHODOLOGY

Research was done among the stakeholders in the construction industry focusing in Ipoh city, located in the state of Perak, Malaysia. The practice of document standardization towards good communication in an organization was determined and interpreted. The efficiency of professional communication and communication instrument, were established when the concept of document standardization were taken into consideration. The survey was conducted to evaluate the current performance of stakeholders in respect of their communication and communication instruments in the construction industry. Professionals (architects, engineers, project managers and quantity surveyors) were requested to respond to the questionnaire.



Around hundred (100) questionnaires were sent out to these stakeholders which are about 20% from the overall population. In this study, random sample approach was used and the result was convenient. Structured questionnaire was administered face to face to the stakeholders through walk in interview and also through postage service. Out of 100 questionnaires, 45 were returned and useable. Before the survey administration, interview and pre-test of the questionnaire with a small group of respondents was conducted to validate the instrument of the survey.

RESULT / DISCUSSION

Quantitative data from the survey responses were coded and entered into an SPSS database. Mean comparison (mean) analysis was conducted on the respondent communication skills and instrument usage. Out of this survey, there are some important findings that can be concluded. It is clearly understood that communication is the most strategic - now more than ever. In information driven age, communication is an integral part of the corporate strategy. Besides that writing is still the core skills for communication, whereby verbal, written and contractual communication was rated almost the same in importance. Respondent profile were taken into consideration in this survey, which include type of organization (client, contractor, consultant, others), respondent position (architect, project manager, engineers, quantity surveyor), respondent and company experience in construction field and last but not least numbers of construction projects involved by the respondents. The following is a discussion of the findings for the two separate types of communication information (skills and instruments) by the stakeholders.

Communication Skills

Result from the survey indicates (Table 10.1) that the three communication skill which is verbal, written and contractual has almost the same importance in the construction industry. For the verbal communication, the usage of this communication skill is higher among the quantity surveyor with the highest mean 3.81 with total of 12 respondents. This shows that verbal communication are higher in usage among the quantity surveyor as they need to communicate more often to the entire project team member internal and externally throughout the whole project running. Meanwhile for written communication, the mean are higher among the engineers which is about 3.81 compared to other stakeholders. Project engineer is responsible for providing guidance, managing the project and coordinating the engineering teams and for this written communication plays an important role. The engineers hold the higher mean for contractual communication which is 3.72. This is because they are responsible for obtaining all necessary permits and licenses and, depending upon the contractual arrangements, for directing or monitoring compliance with building and safety codes, other regulations and requirements set by the project

insurers. They also oversee the delivery and use materials, tools, and equipment; worker safety and productivity; and the quality of construction. It is understood verbal communication is the most vital skill for communication. Overall we can see that verbal, written and contractual was rated almost the same in importance.

Table 1. Respondent's ratings for verbal, written and contractual communication skills

Types of Position	Mean	N	Std. Deviation	Verbal Communication	Written Communication	Contractual Communication
Architect	3.63	11	.809	3.63 11 .809	3.63 11 .809	3.00 11 1.34
Project Manager	3.75	12	.965	3.75 12 .965	3.41 12 1.31	3.08 12 1.31
Engineers	3.81	11	.904	3.81 11 .904	3.81 11 .981	3.72 11 1.00
Quantity Surveyor	3.81	11	.873	3.81 11 .873	3.54 11 .820	3.36 11 1.02
Total	3.73	45	.863	3.73 45 .863	3.60 45 .836	3.28 45 1.17

Communication Instruments

Table 10.2.1 above shows the survey results on the important of communication instrument used by the professional. Among the instrument used are including estimation, cost plan, payment advice, cost report, escalation costing presentation, final accounts, standard system documents, contract condition document, preliminaries document, preambles of trade document, and finally drawings. For estimation, the quantity surveyor has the highest importance compared to other stakeholders which the mean is 4.18. This is because the quantity surveyors control construction costs by accurate measurement of the work required, the application of expert knowledge of costs and prices of work, labour, materials and plant required, an understanding of the implications of design decisions at an early stage to ensure that good value is obtained for the money to be used and spend in most appropriate way.

Table 2. Importance of Communication Instrument used by Professional

Types of Position	Architect				Project Manager				Engineer				Quantity Surveyor				Total							
	R	σ	n	k	R	σ	n	k	R	σ	n	k	R	σ	n	k	R	σ	n	k				
Types of Communication Instruments																								
Estimation	4.00	.894	2	4	3.66	.778	4	4	3.81	.981	3	3	4.18	.404	1	1	3.91	.792	1	1	3.91	.792	1	1
Cost Plan	3.00	.774	2	3	2.91	.792	3	3	3.36	.924	1	1	3.00	1.00	2	2	3.06	.863	7	7	3.06	.863	7	7
Payment Advice	3.36	1.28	2	4	3.16	1.14	4	4	3.72	1.190	1	1	3.35	1.361	3	3	3.40	1.21	2	2	3.40	1.21	2	2
Cost Report	3.00	.632	4	3	3.33	.778	3	3	3.54	1.128	1	1	3.36	1.026	2	2	3.31	.900	3	3	3.31	.900	3	3
Escalation Costing Presentation	3.18	.404	1	2	3.25	.452	2	2	3.18	.539	1	1	3.09	.404	3	3	3.17	.441	5	5	3.17	.441	5	5
Final Accounts	3.18	.603	2	3	3.16	.577	3	3	3.09	.539	4	4	3.27	.786	1	1	3.17	.613	5	5	3.17	.613	5	5
Standard System Documents	3.09	.831	1	2	3.00	.953	2	2	3.00	.632	2	2	3.00	.632	2	2	3.02	.753	8	8	3.02	.753	8	8
Contract Condition Document	2.72	.646	4	3	3.25	.866	2	2	3.09	.831	3	3	3.27	.904	1	1	3.08	.820	6	6	3.08	.820	6	6
Preliminaries Document	3.27	.467	1	2	2.91	.900	2	2	3.27	.646	1	1	3.27	.786	1	1	3.17	.716	5	5	3.17	.716	5	5
Preambles of Trade Document	3.09	.831	2	3	3.08	.514	3	3	2.90	1.300	4	4	3.27	1.190	1	1	3.08	.972	6	6	3.08	.972	6	6
Drawings	3.45	.700	1	2	3.25	1.215	2	2	3.00	.632	4	4	3.09	1.128	3	3	3.20	.943	4	4	3.20	.943	4	4

Meanwhile for cost plan, the engineers rated with the highest mean which is 3.36. Engineers needs to control projects with highest degree of efficiency whereby cost plan establishes the base line of the project cost at different stages of development of the project. For payment advice, the engineers ranked the top means with 3.36. Payment should be verified carefully before it was done. The mean for cost report is rated as 3.54 and highest among the engineers. Escalation costing presentation instrument among the project manager rated as highest mean which is 3.25. For final account, the quantity surveyor holds the highest mean 3.27. Quantity surveyors control final accounts by accurate measurement of the work required, the application of expert knowledge of costs and prices of work, labour, materials and plant required, an understanding of the implications of design decisions at an early stage to ensure that good value is obtained for the money to be spend. Standard system document is one of the most important tools in the lines of communication instrument. For this, the result shows that the architect rated with highest mean which is 3.09. There is specific standard system tools such as Computer Aided Design or Computer

Aided Drafting (AutoCAD) used by this professional. However this instrument is still popular among other stakeholders. System documentation should be reasonably self contained; however it will often be a component of a wider collection of documentation and it is reasonable for it to reference other documents. The result above shows that all the stakeholders needs and using this systemized standard document no matter verbally, written or contractually. For contract condition document, quantity surveyor has the highest mean of 3.27 where they need to arrange a final contract documents through a brief discussion from the client. Meanwhile for preliminaries document, architect, engineers and the quantity surveyor has the same importance. They are responsible for providing best practice guidance on the content, form and preparation of construction production information throughout the whole project cycle. For preambles of trade document, the quantity surveyor has the top ranking with 3.27 mean. The quantity surveyor will ensure that the whole quantity of each product and material required to complete the work is of consistent kind, size, quality and overall appearance. Products incorporated into the work will be handled, stored and fixed with care. Last but not least, the drawings, the mean are highest among the architect which is 3.45. This would include articulating the architectural vision, conceptualizing and experimenting with alternative architectural approaches, creating building models and component and interface specification documents, and validating the architecture against requirements and assumptions. All the result above indicate that effective communication contribute towards a success of a project.

CONCLUSION AND IMPLICATION

In every project, it is important that the project-related information is fully documented with a proper standardization to ensure that all the people involved understand what has and is happening throughout the project running. Each project has a great deal of communication and documentation. With many projects using the same communication instruments, over and over again, the running of the project will be much easier and more understandable if communication instruments, plans, structure and flows are in a standard process. Standardization will provide a system for effective management that is not too complex, and may contribute towards the effective execution and completion of a project. The improvement of project communication processes and technologies on different functional levels may change the organization of future projects and how its business activities and work routines are designed, planned and performed. This can for example help enabling just-in-time deliveries and the more industrialized and rational business processes that the construction industry in fact is striving for. On-demand access and mobility of information, enhanced communication tools together with new ways of organizing and performing collaborative work could be



important components of this development process. The full recognition and determination to improve collaborative communication and information exchange throughout all project phases will probably have considerable effects on the industrialization process of construction projects. These issues have lately started to become a focal point for the construction industry. That is a welcomed change of attitude in a project based industry that historically has seemed to have taken appropriate project communication practices for granted.

The findings of this research revealed that a good document standardization and the usage of communication instruments helps to facilitate a better understanding among the stakeholders in the industry. Meanwhile a good standardization process will ensure timely and appropriate generation, collection, distribution, storage, retrieval and ultimate disposition of project information. The findings also indicate that the stakeholders are more likely dependent to each other through communication process. This is supported by the existing literatures on communication instruments.

Implication from this research on general practice is to create awareness on the importance of communication tools and instruments are important in the field of construction. Many organizations are offering more and more communication awareness courses that address the skills and that take place to create interactive environments. This study suggests that involving stakeholders in the construction industry should adopt the usage of good communication tools and instruments that will ensure each team member will successfully communicate to deliver a good end product. It is understood that this tools provide fast, accurate, constant feedback and clear direction are fulfilling whereby one of the most important conditions that help stakeholders to improve their work progress.

Managerial implication from this study suggests that the standardization of document and communication process is important for more effective implementation of construction contract. This suggests that stakeholders in the construction industry should be able to communicate efficiently and effectively during project implementation. Analyzing communication tools and instruments criteria is not enough, it is important to examine which factors and patterns contribute to efficiency and whether they differ across different organization and environment. Therefore, to be more compatible with today's global market, appropriate communication tools and instrument are needed for better communication practice. Also, they will be able to develop communication strategies by deriving a best communication tools. Meanwhile construction professionals should try to acquire new knowledge in communication skills and standardization as a whole in practice towards the need of the market.

The limitation of this research is that the data collected is limited in scope. This study was carried

out in Ipoh, Perak, a city with a population of slightly more than 600,000 people, which might not representing the whole country. Thus, further research on the other parts of the country need to be carried out in order for generalisation can be possible

FUTHER RESEARCH

Since the degree of acceptance of communication skills in construction industry is still very low, there are some recommendation to improve the awareness and usage of communication skills and standardization in construction industry. Related organization can establish more seminars or training program in advance usage of communication skills to introduce what is all about communication and its importance towards standardization and its application in construction industry. Meanwhile the organization needs to encourage and promote the use of better communication skills in construction industry where the top management of any organization need to exposed, support and apply good communication skills in their organization. This is important to educate with a proper method to their employees and their partnership organization. Finally organization needs to have a proper standard as a guideline, procedure and policy regarding work process to encourage good communication implementation during any project planning.

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