

Technical Instruction on Building Maintenance in the Workplace: Lack of Language Proficiency, More Harm than Good?

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Article Info

Volume 83

Page Number: 1495 - 1501

Publication Issue:

March - April 2020

Abstract

The building maintenance (BM) sector is a very essential and an integral part of urban infrastructure development which gives tremendous boost to our country's economy. The BM industry has been known to be one of the hazardous activities within the industry. This activity must be well clearly defined to the workers by the BM site supervisors. The BM principles are implemented to minimize the environmental impact. It is also to upgrade the performance of an existing building to meet new requirements. Theoretically, building project's performance has a direct bearing related to its potential for project success. However, in BM building projects, the criteria for measurement are wider due to the nature of it being more complex and multi-dimensional. This encompasses many factors to reflect the nature of work. The lack of language proficiency is a problematic issue among BM workers and is not a new issue in the BM industry. The study, therefore, examined the attentiveness of BM supervisors in maintenance industry based on their approach instructions during supervisions on maintenance sites. This case study research utilized semi-structured interviews, observations, and examined existing documents. Interviews conducted with BM supervisors in areas of technical site maintenance showed that lack of English language proficiency, both verbally and written, exists among BM workers, especially those who have just arrived and worked in the BM industry in Malaysia.

Keywords: *Technical, Instruction, Building Maintenance (BM), Supervisors*

Article History

Article Received: 24 July 2019

Revised: 12 September 2019

Accepted: 15 February 2020

Publication: 15 March 2020

1. Introduction

The Building Maintenance (BM) industry could be as an essential local backbone, especially for developed countries. According to Okosun and Olagunju (2017) stated that a building maintenance as work done to keep a building in, or restore it to initial state or to a currently acceptable standard. While Söderholm et al. (2007) stated that maintenance as a process of operations, which apply techniques, administration and supervision to keep a unit in or renovate it to the necessary condition. The site supervision is where the general direction, coordination and oversight of the on-site work processes is given from

a supervisor to the workers (Mustapha, 1990). Ahmed Senouci et al. (2015) cited from Jaselskis (1993) stated that the built environment activity such also BM industry, however, is recognized as the one of the most hazardous industries. BM activities is a sector that has very specific hazards, like work at heights, work with power tools, and sometimes working in the outdoor elements.

2. Research Methodology

The purpose of this qualitative case study was to identify the BM organisation operation and to investigate ways of improving the BM activities work task instruction to the

BM workers. A purposive sampling on BM supervisors were conducted because BM Supervisors are able to give the research in depth data on what is happening in the field. Purposive sampling is conducted because through purposive sampling the research would be able to recruit people who could yield in depth knowledge on the topic (Kamarudin, 2017). The research utilized data collected from case studies and semi-structured interviews of two areas of BM divisions such as operations and technical archive divisions. Face to face semi structured interviews provided useful insights into what the requirements are in a management process and how it was organised in specific organisations. Observations were also conducted on the BM work process. Documents on BM projects such as reports, BM drawings relating the specific projects and BM project work instructions in technical instructions would also be analysed.

3. The BM site supervisor's capability

Workers are the most valuable asset and a blood stream of every organisation. The need to have a well process of a task distribution. The functions of supervisors waste to try their best to develop the employee's capabilities, ultimately creating a good working environment within the organization (Farooq & Aslam, 2011). Harunet. al (2013) mentioned in their research that an experienced personnel's are important assets and has significant impact on the effectiveness of maintenance activities. Khamaksorn (2016) pointed out that supervisor's knowledge is vital towards project success, and capable to highlighted critical skill.

According to Schaub and Franfenberger (1999), site work is an area that is complex in nature and site supervisors plays an important part in achieving superior constructability quality site work. This is usually based on the experience and knowledge of the individual supervisors which could help reduce significantly the amount of fault information needed. The BM sector has always been and continues to be a high risk area because of the number of fatalities reported on yearly basis. Tsang (2002) stated that failure of maintenance equipment and damaged facilities, indirectly increase operating maintenance costs.

4. Technical Knowledge as media of technical instruction in maintenance tasks

BM usually comes with temporary organizations therefore normally consist of people from many different companies, who often are involved in more than one project at the time, which makes the demand for coordination high. Furthermore, a lot of people in the project will only be there for a short duration, thus only personnel are working in the same project from initiation to finished BM works (Winch 2012). Maintenance tasks therefore has to be done throughout the year, requiring competent staff to undertake building services, operation and maintenance (Chan et al 2001; 2003). Ali and Zakaria

(2012) stated that knowledgeable technical maintenance personnel should bring their knowledge to suitable work environment to acceptable practice. According to Stover (2004) stated that tacit knowledge refers to the undocumented therefore it expressed knowledge that is communicated to others while explicit knowledge is documented.

Paulin and Kaj Suneson (2012) stated that knowledge transfers more apply when studying groups of people, while knowledge sharing was affective when studying individuals. Davenport and Prusak (2000) stressed that a skilled person that transfers his or her knowledge to others lifts the performance of the company at large. Throughout BM work, this would able to increase performance in BM organisation. Yao et al. (2014) pointed out that a knowledge-sharing culture could develop well organizational working activities culture.

Anumba et al. (2005) stated that knowledge transfer by tacit knowledge on the other hand is more difficult to share. Mohajan (2016) stated that tacit knowledge, which is the opposite of explicit knowledge are more difficult to formalize, communicate or transfer from one person to the other. This goes the same whether it is communicated verbally or in writing. The approaches were taken by individual experiences, tasks reflections and know-how. BM process requires collaboration between people and the BM personnel should be able to communicate in a clear and concise channel. Yu and Shen (2013) highlighted that experience sharing such as on-site visits with client would also help a client learning to accept suggestion ideas and latest technology.

5. Technical explicit infrastructure in BM

Building maintenance is a unique professional process. To be successfully technical managed, it requires an approach different from other technical processes. In BM work tasks, the application of explicit knowledge is regularly transferred through technical infrastructure. In BM, most of technical tasks contain of such technical documents and drawings. According to stated that BM applies much on technical tools such as checklists, templates and regulation laws.

Shah et al. (2010) mentioned in their study that the information for BM and the refurbishment design of a building increases the more a supervisor communicates through paper documents. In this context, drawings and other building design documents are most often complicated due to professionals involved in the design process. the need to have an ability to communicate (visualize, understand, evaluate, and coordinate) for the BM knowledge transfer. The clear instruction to the BM personnel to avoid wrong interpretation to those read it.

BM process refers to a procedure where it multidisciplinary in nature, performed in a succession of technical phases to justify whole solutions that starting from feasibility study, BM schematic strategy to BM

contract implementation and maintenance management phase. The BM activities comprises of several explanations indicating what the technical process utilizes which is usually an inter-discipline and non-liner activity which is complex and full of unknown elements.

According to Tipili (2014) stated that on-going communication between BM project team members and its stakeholders improve project success. According to Koivula (2009), communication is one of the most vital features of project and for that difficulty in project supervision. Furthermore, Ali et al. (2009) highlighted that BM work is a vital activity in Malaysia whereby it is not easy to manage.

6. Difficulties faced by BM supervisor’s delivery technical instruction in English

BM activities such as major repairing in a project, or upgrading a project is more risky, complex and uncertain within the building industry (Rahmat, 1997;Rayers and Mansfield, 2001).The characteristics of BM work is with high risk and is extremely complex (Quah,1988;Egbu et al.,1996) required developments in their instruction delegation process. The nature of BM process with technical information-intensive and its iterative makes it inflexible to manage which could be quite difficult (Choo et al., 2004). Shah et. al (2010) mentioned that due to the lack of understanding and experience when it comes to the maintenance process is one of the contributing factors to the delay in maintenance activities. Harris (2006) stated that the difficulties in supervision

instruction of maintenance activities related toward the previous documents of building systems. Ali et al. (2008) stressed that maintenance characteristics are complex likened to newly built construction which involved various aspects such as technical and technology approaches. Due to this the instructions must be clear planned and understanding by the technical team and technical supervision.

7. Technical communication English in BM activities

The usage of English language often applies in the technical documents. According to Ahmed and Rahman (2015) mentioned in their study there were difficulties when it came to organising discussions with the site supervisors in order to learn more about their practical experience at the BM site. The study then documented different kinds of problems, which are relevant to site hazards. Affendy et al. (2017) highlights that the need to have a green practice in BM activities and sharing the knowledge at the feasibility task. Furthermore, the necessity to adapt green practices in the day-to-day operation for the BM operation. According to Tipli et al. (2014) highlighted that several delivery of communication such technical instruction plays a vital role in all stages of BM such as BM design, BM operation and BM organization and BM management. According to Cornelius and Associates, (2010) stated that communication in project was to keep associates of the project team updated in terms of progress.

8. Results and Discussions

Table 1: Medium of technical instruction in BM

BM Phase	Bm Description	Medium Instruction	Knowledge Approach
Initial BM phase	Technical BM Briefing	English	Explicit
	BM site visit and observation	English	Tacit
	Technical Assign Tasks	English	Explicit
	Customer Complaint Handouts	Common English and local place language	Explicit
	Record Of Replacements Or Repair Inspection Schedule	English	Explicit
BM operation	Safety Instruction For BM Works	English	Explicit
	Technical Work Order, BM Operation Task,	English	Explicit And Tacit
	Technical As-Built Drawing	English	Explicit
	Technical Building Services As-Built Drawing	English	Explicit
	On-Site Technical Operation	English And Local Place Language	Tacit And Explicit

Post BM	BM Technical Report	English	Explicit
	BM Post Technical Inspection Checklist	English	Explicit

Table 1 show that in the early stages of BM projects, the supervisors would usually need to gather as much information from existing building and projects. The design in BM is different from building something new

where supervisors has to accommodate their BM activities with existing building condition. The instruction at BM initial level such as briefing in explicit while at site the instruction will coordinate with tacit approach.

Table 2: The work instruction process of BM project activities

BM process	Medium language	Instruction process	Knowledge approach
1	Common English	BM Supervisors assign workers	Tacit
2	Technical English	BM supervisors must assign tasks and recorded activities using specific technical form	Explicit
3			
4			
5			
6			

Table 2 shows the BM process work instruction. Process 1- Before the start of any BM project, the supervisors should make a survey on the current state of the site. Process 2-The supervisors must also be well versed and proficient in a study on the state of development in the BM site in order for them to handle an operation by determining what type of equipment or machinery that needs to be prepared to start a maintenance activity. Process 3-The supervisors also

must think about technical instruction into maintenance site. Process 4- After making feasibility studies on the BM site, the site supervisors should also provide a BM project summary technical report form in order for the next process to be carried out smoothly and according to a predetermined plan. Process 6-When the technical BM project summary is completed, the project manager should also provide BM project strategy from the early stages until the completion of the BM project.

Table 3: Valued technical instruction capabilities at the BM workplace

BM Capabilities	Work instruction capabilities	BM responsibilities
The capability to be safe, and have security and to be healthy	work that is safe and healthy in the BM workplace BM workplace that is free from harassment and unfair discrimination	BM supervisors must create a good interpretation in English language. Easy to understand by the personnel's
The capability to be knowledgeable.	BM work that lets to develop skills and abilities BM work where the training related to the job effectively BM work with good communication among the BM works and with whom you work work hours that let BM workers participate in the community	BM personnel must be able to understanding of English language instruction among the BM supervisors and BM personnel's. the BM technical documents must be clearly written.

Table 3 shows that BM supervisor is vital to project tasks success and know focus on assuring that BM supervisors acquire the core competencies required to be successful in their assignments. Their responsibilities

must ensure that the work instruction must be in good interpretation in English language and easy to understand by the workers. The language must be clearly stated in written form in the technical documents.

Table 4: Technical instruction difficulties at commencement of BM activities

	Technical Instruction Fault	Technical Instruction Difficulties
1	The poor quality BM technical site documentations.	Unclear on the work instruction where English as written medium in the documents due to delay in BM task completion.
2	Unclear BM site drawing supplied,	Lack of understanding of BM material specification cause of English language in technical English
3	The BM poor maintenance technical writing	Lack of English language interpret in the technical design
4	BM Design changes	Problem interpretation of technical design by the BM supervisors due to language confusing by the workers at BM site. This shows that unclear technical design and unappropriated BM material replacement.
5	Unclear BM specifications.	Understanding of English term in BM may cause the reading work specification

Table 4 shows the difficulties in BM due to handling of poor quality BM site documentation, unclear site drawing supplied, the poor design, technical BM design

changes, and unclear specifications. All above could affected the delay of BM activities and BM performance of the supervisors and the BM organisation.

Table 5: Summary of Data Collected from the interview

	Respondents	Explanation
1	Displaying all the BM data which were include in the BM task briefing	All parties received the same drawing based on BM site are (Respondents 1) The BM briefing only instruct to BM works when the work instruction has assigned into it.. (Respondent 2)
2	The briefing shows the parties involves	The need to have an arrangement of the personnel thus technical instruction more systematic and less conflict between each personnel (respondents 3)
3	BM virtualization and visualisation	building object can be pictured clearly ... (Respondent 4) visualisation shows the clearly in computerised and specification writing in English language
4	BM briefing must capable of displaying BM project similar to BM drawings	two dimensional BM technical drawing require to be understood by those who acting on BM site. (Respondents 3)
5	BM instruction must facilitate the BM process	it shows the concepts of BM and the involvement from the parties involves (Respondent 5) knowledge transfer and sharing based on the BM tasks (Respondent 4) Easy to calculate the cost of BM (Respondent 1) Easy to adapt of green BM (Respondent 2) Easy to applies safety in BM (Respondent 1)
6	Technical communication on BM	Communication must be clearly and easy to understand by BM supervisors and the BM semi-skilled workers and general BM workers... (Respondent 4)

Table 5 shows the BM field improper communication between management and BM project

team can lead any BM project to fail; a delay in message delivery can lead to fatal consequences. Several questions

were interview onto BM supervisors and they were to provide feedback and comments useful and objectives of expanding the effectiveness of knowledge transfer in the work instruction BM industry. The respondents responsible as supervisor's role at the maintenance departments.

9. Conclusions

The BM site work instruction process is one of the most challenging tasks faced by the supervisors. Due to this the need to have well instruction guidance for the supervisory. Lack of accurate and complete technical instruction during site work activities often leads to BM supervisor on site which are inappropriate and require extensive changes during the real site phases. Therefore, BM project execution requires instruction clearly in delivery of technical communication between professionals in all the various stages of BM activities. Improper technical communication in BM sites is somehow create serious difficulties, due to informal and inadequate technical instruction of communication between BM supervision and BM project team, however proper technical communication between all BM project team and BM workers should be enhanced for a safer BM project.

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