CHALMERS
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Managing Interruptions for Project managers

Master's Thesis in the Master's Programme Design and Construction Project Management

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CHALMERS UNIVERSITY OF TECHNOLOGY
Master's Thesis BOMX02-16-131
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ABSTRACT

A key barrier to managing time effectively without causing major hinder to success is the common encounter with interruption in everyday work situation. The study replicates and extends on previous work on: a) how and when interruptions occur, b) how managers´ task are affected by interruptions and c) how managers constantly cope with reorganizing their work.

The study was carried out at an Engineering consultancy work place where the participant (project manager) was shadowed under working hours as he handled a number of interruptions and disruptions. In the process the methodology use to conduct this study and explain the activities involve in collecting empirical data will be theoretical and practical approaches with adaptation of qualitative and qualitative methods.

The participant (Project manager) will be treated to three often encountered intersecting jobs: keeping the project on time, on scope and on budget across everyday interruptions, Stakeholder interruptions and User interruptions that slow down the project such as; phone calls, emails, instant messages, hallway conversations, colleagues stopping to chat at the office, unexpected company meetings, team member being out sick and increase in scope from a stakeholder. The focus will be on different types interruptions, its consequences both positive and negative, the beneficiary, what happens after the interruption, how Project Managers handle and mitigate interruptive activities.

In order to achieve these goals the author will pay visit to the Project Managers' workplace for one week before the actual commencement of the research. The purpose is to get acquainted with the company's culture, practice and foster interpersonal relationship. This will be succeeded by the process of shadowing which will last for a period of two weeks. During this period of observation, details of the project Managers' activities in the office will be studied by mapping, timing and tabulating; movement within the office, interaction with human and technological devices, above all utilization of time. Also, the author will conduct two interviews that will be used alongside the recorded observation to generate the result of the study.

Some abbreviations used in the thesis include; Pm (Project manager), ITC (Information Technology Communication), AOL (America on line), IM (Instant Messages), PDA (Personal Digital Assistances), IMS (Interruption Management Strategies).

Key words: Workplace interruption, urgency, management, re-organization

Contents

Preface

The research presented a Master's thesis in the Master's Programme Design and Construction Project Management carried out at the Department of Civil and Environmental Engineering, division of Construction Management at Chalmers University of Technology between January 2015 to June 2016.

Acknowledgement

I want thank my supervisor Martine Busser for her tireless effort in guiding and supervising me through this thesis. I would also like to thank the observed Project manager and his team for granting me the privilege to work with them.
Special thanks go to the following families; Sjogren, Hornsten and Carlson whose indescribable believe in me and relentless support ease my burden through the perilous years of study.

To my Wife and Daughter, I say thank you for being there for me. Without your support it could have been difficult to bring this work to a successful close.

Finally, I say special thanks to my Mother Mrs. B. I. Kamara and late Step father Rev. A.F Kamara who waited anxiously for this moment but suddenly passed away before this work was completed. May his gentle soul Rest in Peace.

Göteborg, August 2016

Richard Mordu Kamara

Notations

Some notations used in the thesis include; Pm (Project manager), ITC (Information Technology Communication), AOL (America on line), IM (Instant Messages), PDA (Personal Digital Assistances), IMS (Interruption Management Strategies).

List of Appended Papers

Paper 1 - Interview questions

Paper 2 – Interview respondents

1 Introduction

In spite of careful planning and management tools, Project managers particularly those working in the construction industries still face numerous interruptions and disruptions in the course of their work. Among the major causes of interruptions and disruptions is physical human interaction related activities, when put together with technology result to colossal loss of valuable time. As a multiphase sector, the construction industry work environment is constantly threatened by interruptions that have remarkable consequences for project deliveries as well as manager's health condition. For instance, consider the simple task of conducting a construction project meeting. Prior to the meeting managers have to establish preconditions – agenda, participants, date, time, venue etc. During the process interruptions occur in the form of telephone calls, instant messages notifying alarms, emails exchange between managers, clients and other stakeholders that demand managers' attention pending on the urgency. Also, other worth noting interruptive activities can occur in the form of noise and fire alarms that are equally disruptive as chatting with a colleague on non-work related matters, surfing the web, etc. Interruptions do not cease in the preparatory stages of meetings, but continues along meetings and subsequently thereafter. In turned managers are faced with the challenges to device means that will curb these disruptions.

Repeated co-worker interruptions take toll on managers in responsible capacity by driving them to "a time famine" wherein disrupted managers are plagued by the sense of having more work to do than the required time to execute them Perlow, (1999). In the light of this, Grove, (1983:67), referred to the unexpected routine visits experienced by managers for instance in the construction industry as "the plague of managerial work". These interruptions are present in the life of organisations (construction industry) and occur in different ways and forms – unexpected meetings and conversations during office hours interrupt managers´ work pattern and shorten opportunity to prolong isolated moments for reflection Berger & Merritt, (1998); Mintzberg, (1990) and Thomas & Ayres, (1998). The importance of discussing the concept of interruptions for Project managers in the construction industry lies on the fact that by investigating how and when these interruptions and disruptions occur, how they affect manager's task and how managers cope with reorganizing their work can contribute to optimization of productive time, keep up with schedules and minimization of stress caused by work overload.

In the light of this, the author shall utilize related studies, replicate and extend earlier research with new findings in this study. In conclusion, the author will summarize his result and discussion for further research.

Definition of Interruption

Generally management scholars and practitioners define interruption as "incidents or occurrences that impede or delay organizational members as they attempt to make progress on work tasks". Thus, the definition leads the group above to perceive interruptions as disruptive for organizational members Quintus & Jennifer, (2003). Several definitions are accepted from other renowned researchers including; Cooper and Franks (1993) who defined interruption as "any disturbances to the normal functioning of a process in a system" and Macfarlane, (1998) who also defined interruption as "human interruption is the process of coordinating abrupt change in people´s activities."

In spite of the numerous definitions provided by different scholars, this thesis will stick to Cooper and Franks (1993) definition of interruption which the author considered suit the study.

Modality and Management Strategies of Interruption

The modality explains the manner in which interruption is presented to an individual. According to McFarlane, (1997) interruption may occur in the form of direct communication between individuals, through mediation by an individual, communication devices or other animated objects.
These methods of conveyance can influence the management of interruption and possible result. Various theories point to a number of ways the brain can process information and how interruption interacts with the process. An important aspect to understand is how primary task and interruption occurs in similar or different modalities. In practice, the primary task may be auditory such as listening to a radio while on the other hand interruption may occur in the form of telephone call, visual, or text message. In support of this explanation are existing theories on the effects of differences and similarities on the modalities, Kirtika Challa, (2012).

A band of spectrum found from earlier studies explains that two categories of framework exist i.e. the memory for goals framework claim that every human has a single processing channel through which all activities must pass through and processed at a time irrespective of their modalities Altman & Trefton, (2002). The capacity to process these activities is determine by their activation level. When interrupted, the activation level of the primary task decays over time until the primary activity resumes. In the process the decay of activities determine the disruptiveness of the interruption. In other words the activation level is determinant of the time need to resume the primary activity at the initial level of the process, Kirtika Challa, (2012). Within the framework that dealt with activity based models, studies have shown, that interruption taking place at earlier stages of primary task are more disruptive than those in later stages, Cutrell, (2001).
On the other end of the spectrum is the Multiple Resource Theory, Wickens, (2012), that explains the different processing channels for different modalities possess by every human. Therefore, in practice, if the primary activity is auditory and the interpretation is visual in that sense they differ in modality. However, the ability to process the activities does not reduce as long as the individual is within the limit of processing the information. As a result a primary and interruptive task with the same modality has negative effect on information processing capacity, Kirtika Challa, (2012). In contrast, other studies revealed that similarity of modalities and complexities of interruption affect interruption regardless of the duration of the interruption, (Broadbent, 1989).

1.1 Purpose

The thesis has an aim to document the work practice of a Project manager and to serve as educational material for management training and research. One of the objectives is to provide better grasp of Project managers' activities targeting specifically those involving interruptions. The other, is to use existing literature and research methods to analyze how managers deal with interruptions in their daily practice.

1.2 Research questions

In response to the purpose of the study, the following research questions have been formulated:
R1. What are the theoretical perspectives of interruptions for Project manager?
R2. How does a manager cope with interruption in reality?

1.3 Limitations

Since the primary purpose of this thesis is to provide a framework that examines how and when interruptions occur, focusing particularly on how these disruptions affect managers' tasks and how these managers are coping with to reorganize their work constantly. The author have decided not to consider certain aspects of management of interruptions for managers in depth or even avoided them completely in the thesis. These aspects include; health issues, interruptions effect on project outcome and compensation activities for lost time. Another limitation is that the author was only allowed by the company to observe and interview one Project manager in fear of sensitivity of their projects and lawsuit.

1.4 Disposition

To make it easier for readers to follow the thesis a brief presentation and guide is provided by the author, following a simple structure (introduction, method, findings, results, and discussion) see figure 1.
The first part presents the theoretical framework which review previous research works related to those aspects covered in this study. The purpose is to furnish readers with fore knowledge and understanding about the concept of interruptions for managers from different perspectives. The second part deals with the methodology which describes the methods use in the study to achieve the thesis results. It outlined how the thesis was carried out including methods of data collection. Qualitative study as a concept for data collection with activities such as; interviews, group observations, together with the - reliability and validity of the data are briefly explained in this section.
The third part presents findings from the research and summarized form of what was observed on the research focusing on the issues aimed to study. This section takes into account the essential parts of information from the interviews and observations. Also, the section aims to support the result and discussion of the study, providing information obtained from the research. The fourth part is the result whereby the prevailing setting is compared with the theory in order to achieve a balance. Finally, the thesis ends with a discussion and conclusion chapters that summarises the results, assessment of the process in the study, what went well, what was interesting, and what could be improved.

Figure 1. Thesis guide

2 Theoretical framework

The theoretical framework of this thesis relies entirely on literatures and theories on the notion of managing interruptions for Project managers. These literatures and theories focusing specifically on the thesis topic, aims and objectives were collected from the abundant and accessible study materials provided by previous researchers. The choice of selection of both literatures and theories may have been influenced by the gathered empirical material. In addition, internet search engines were extensively utilized with the help of key words to prepare the background for the theories. Not neglecting the fact that availability of information on a subject can be misleading, hints and guidelines from the supervisor proved very useful in the selection of appropriate theories. The study focuses mainly on interruptions for managers within engineering consults whose area of operation is limited to the construction industry. Against this backdrop the author decides to choose an appropriate definition of interruption to suit the aim of the study.
According to Cambridge dictionary definition "interruption is an occasion when someone or something stops something from happening for a short period". However, the author preferred to adopt the general management scholars and practitioners' among the numerous available definitions of interruption in this thesis. Hence, it reflects the aims and objectives of the study.

2.1 Literature Review

This chapter provides a handy guide and review from earlier studies on interruption including its effects and management. In as much as the scope of this research is centered on interruptions for Project managers´ tasks, this section begins by examining the elements of interruptions. Thereafter, followed by a research discussion on interruptions at the workplace, how and when interruptions occur, strategic management of interruptions, and an introduction to some management tools of interruption in modern times.
The study was carried out with an anonymous company at a north east coastal city in America, where a Project manager was observed and interviewed to fully understand the concept of interruption. Data collected from the observations and interviews were pieced together with established theories to produce the result of the study. These theories provide a benchmark for the study whilst the interviews revealed the Project manager's innermost thoughts, feelings and personal experience that could not have been understood by ordinary observation. The results are expected to bring out similarities and differences between the study and theories of the observed activities recorded under normal work periods and conditions.

2.2 Constituents of Interruption

The literature review involves careful usage of the internet and other appropriate resource modes to assemble relevant literature for the chosen subject. The author intend to carry out a systematic review which focuses on the research questions; pieced together all relevant evidence and argument to the research questions. The reason for that was to situate the present study within the body of literature and provide readers a context with the help of the gathered reference for the study. Interruption has been divided into many parts i.e. the characteristic of the interruption

itself, how it is handled by the interrupted/affected individual, its' effect on both the individual and task. Earlier studies by McFarlane and Latorella, (2002) explored in-depth the characteristics of interruption - Source and modality. Other scholars like Jett and George, (2003), deliberated on the effects of interruption on the interrupted individual. This is liken to, Toms et al, (2005) whose ideas of interruption constituents are summarized as shown below in table 1.
Previous studies on the subject of interruption related to workplace environment were also, conducted by O´Conaill & Frohlich, (1995), Dabbish & Kraut, (2003); McFarlane & Latorella, (2002); Miller, (2001), Dragunov & Deitterich, (2005) and Gonzalez & Mark, (2004) to name a few. These researchers examined the modelling cost of interruption, the prediction of interruption, internal and external interruption, task management and multitasking, interruption management, timing and characteristics of interruptions. Nonetheless, this review is limited on interruptions for Project managers – manager's attitude to cope with interruptions and reorganization of their work.

Characteristics of interruption

Source	Self-interruption, from another person, a computer, an animate or inanimate object.
**Modality	Face-to-face, mediated by another person, machine or other device.
Expression	Verbal or nonverbal, contain affect characteristics
Intent	Interruption may be an alert, a recommendation or suggestions

How-individuals handled interruptions

Coordination method	Immediate, negotiated, mediated and scheduled
Length of the interruption	Time between the point of interruption and the time when the original activity is recommenced
Fluency of task resumption	How easily the user returns to the primary task

Some effects of Interruptions

**Effects on Manager	Loss of focus, loss of awareness and/or engagement with the activity, change in the short- term memory contents, distributed attention
**Effects on task	Loss of control over the activity depends on the point in the process (beginning, middle or end).

Augmenting Workplace factors

Facility factors	Level of noise, physical environment, open office versus closed office setting

Organizational factors	Distributed versus centralized location, traditional versus virtual supervision.
Workplace culture factors	Interruption expectation level, interruption saliency for the individual, interruption relevance to the task, impact of interruption on perceived performance pressure, awareness of others, cultural collaboration.
**Managerial factors	Explicit pressure of search versus Explicit pressure of interruption, implicit pressure, real versus imputed levels of supervision.

** Factors taken into account in the research by Toms et al, (2005).

Table 1. Constituents of Interruption Courtesy of Toms et al, (2005).

Interruptions at the work environment

The fact that 21st century work environment is defined by performance of several tasks whose paths intertwined with interruption cannot be disputed. According to study conducted by O´Conaill and Frohlich, (1995) on the nature of interruptions in the workplace, it was revealed that in the majority of the cases, 64%, recipient gained from interruptions while little over 40% of recipient never return to preoccupied task before being interrupted.

Some positive consequences

Previous research also, showed that interruption has both positive and negative consequences. Eyrolle and Cellier, (2000) hypothesised that most workplaces are encompassed by the impact of negative interruptions leading to increase errors and stress proportional to workload. This conclusion arises from observational data collected for 29 hours of work from which 125 natural occurring interruptions were obtained. The studies also, revealed that on average Project managers are most likely to be interrupted 4 times per hour, each lasting for at least 2 minutes 11 seconds. Modern employees are primarily equipped with cell phones, Personal Digital Assistances (PDA), laptops and utilize instant messages (IM) that facilitate constant connection. The privilege of easy and fast communication is not free from problems despite the favourable environment it creates for multi-tasking and interruptions. Other positive consequences of interruption occur in the form of communication. CIPD, John Andrew Forth, Neil Millward, (2002) highlighted the direct use of communication as interruption to encourage team working, job flexibility, total quality management programmes, appraisal and reward systems that rigidly focuses on group instead of individual achievement, extensive training and promote personal development. Also, managers use direct communication as a complement of broad set of practices to enhance superior work environment and advantageous terms and conditions aiming to acquire maximum retention rates and reduce the cost of recruitment for companies. Two-way or direct communication practice is mostly frequent in workplaces with provision of extensive fringe benefits; job security guarantees equal opportunity policies and extensive training for lower-level employees.

In another study carried out by Hudson, Christensen, Kellogg and Erickson (2002), on the positive effects of interruption was related to the work habits and management of 12 middle and upper managers at IBM Research Laboratory. The researchers

equipped participants with Black Berry (PDA) devices to carry along on their normal working routines for a period of one week. As part of the study, participants were also asked to complete surveys that entail such questions as the type of activity and how receptive to an interruption participants were at any point in time. The study result was compared with other earlier studies on the subject and revealed that nearly 21% of managers' time was spent alone and 23% was spent on meetings and communication. Furthermore, "the data also revealed relative consistency of daily rhythms in attitudes toward interruption" ... and "meetings that can occur through serendipitous encounters" (p.99). This correlates with what most participants agreed to that despite interruptions could be annoying, expected and unexpected, they often occur for the good of the task, the interrupter and interrupted.

Some interruptions that may serve beneficial purpose include alert and warning, reminders, notifications and suggestions. All of types of interruptions are considered to be interruption when they cause a change or disturbance in a person's activity or behaviour. The explanations and examples below illustrate the four different types of interruptions that may serve beneficial purposes.

Usually, warnings and alerts are sign or signal of something negative is occurring, or an early notice to be cautious. Their intended purpose is to make people aware of an impending danger or difficulty – drug interaction warnings – designed to interrupt current task and to prevent potential error. They warn doctors and pharmacists about the danger of drug-drug interaction during prescribing or filling prescription, Walji, F. M et al, (2008).

A reminder is any form of interruption that causes an individual to remember or recall an event – clinical decision support systems – that remind physicians of standard tests or procedures conforming to clinical practice guidelines, Bates et al, (2003). The reminders are intended to prevent error occur while the physician document or order the tests and procedures.

Suggestions which are also ideas or proposals are disseminated to individuals. These individuals can be patients for example who often receives suggestions and recommendations from care providers. These suggestive interruptions often occur as face-face encounters. They may not demand immediate attention or all that important. However, effective suggestions may clearly link actions that are recommended, Walji, F.M et al, (2008).

The term notifications are often described as the process of informing an individual. They are defined as "the most generic type of interruptions, the least degree of importance or urgency", Walji, F. M; et al (2008). In its simplest form a notification may solely be informational in purpose with no clear instruction for action – a notice to inform a physician about the lab results that the requested order is ready. They may call for actions absolutely without any particular instructions – a lab test with indications that a patient needs immediate surgery. Hence, these notifications may lead to action, Walji, F. M; et al, (2008).

Also, the benefits can be valuable information exchange or physical mental relief from stress caused by work itself. O´Conaill and Frohlich, (1995) analysed positive consequences for single interruption content to determine the benefactor, for instance, in the case of a conversation. The study considered interaction of non-work related activities as jointly beneficial to participants. Furthermore it revealed that the greatest number of interruptions was beneficial for the initiator and receiver, 43.2%. Initiators benefit only 32.8% while recipient benefit 20.8%. Lastly is the third party, for whom 2.4% of the cases of interruption were initiated for his /her benefit, as illustrated in figure 3 below.

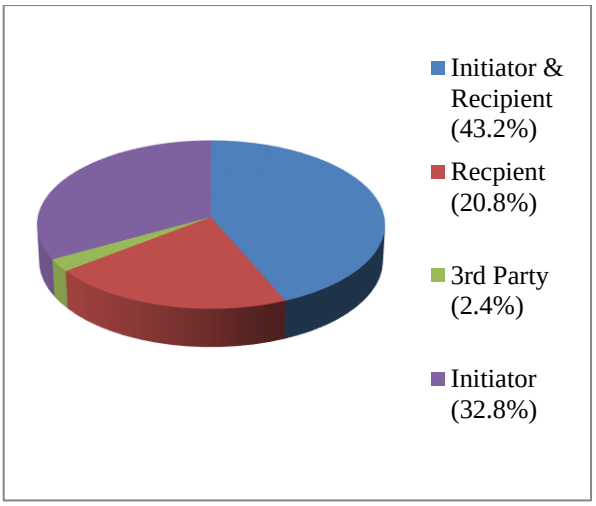

Figure 3. Beneficiary of interruption O´Conaill and Frohlich (1995).

Negative consequences

In general interruptions are described to have negative effects. Interrupted tasks are perceived to be more difficult to complete, Bailey, Konstan, & Carlis, (200). Interruptive tasks are also thought to last longer to process and return to task when they are non-related to the task at hand Curtrell, Czerwinski, & Horvitz, (2010). According to Burnistrov & Leonova, (1996) and Dix, Ramduny, & Wilkinson, (1995), additional memorial loads cause it difficult to resume the abandon task. Also, it difficults arise from remembering previous task being processed before the interruption Furthermore, the complexity of the interrupted task affects the disruptiveness of an interruption. The interruption of complex tasks restrains performance, and has no direct effect on not too difficult tasks Burnistrov & Leonova, (2002). Individual differences also determine the ability to respond and manage interruptions, McFarlane & Latorella, (2002). The common belief that interruption affect performance is ascertain by Bailey et al, (2000) that users perform slower on interrupted tasks in spite of evidence that interruption may in reality accelerate task completion, Zijlsta, Roe, Leonara, & krediet, (1999). Another important factor is time. The timing of interruption may have no adverse effect on interruptions emerging early during a search task. This may cause the interrupted to forget the primary task goal than an interruption arriving at a later time, Cutrell et al, (2001). How the interruption is presented is also important – Interruptions presented aurally are given quicker attention than visual stimuli. As such, auditory task in progress are less vulnerable to interruptions than visual tasks Latorella, (1996). To maintain a balance, the effects of interruptions should be perceived from different view point. Certainly so, an interruption may be deemed devastating to an ongoing task but pending on the individual performing the task it may not have any detrimental impact on the entire task. Most research on the study of interruptions including this thesis focus on the task level. However, the human level is also worth analyzing.

In another study done by Eyrolle and Cellier, (2000), revealed that "interruption...can reduce human reliability (p.537)". The hypothesis was proven through observational research by processing the time for work tasks and interruptions calculated from 150 hours data operators at a telecommunication office. The study result revealed that time cost was mostly related to interruptions without affecting the task performance. The approach employed by many people in management of interruptions for - telephone, email and other technological devices include ignoring or avoiding them altogether, turning-off the devices, working in quiet, technological-free environment.

In spite of the successes achieved by IMS, the primary aim to minimise the effects of interruption at work places still stands as an obstacle to the effective use of time. The above argument can be better understood by studying the four frequently encountered interruptions and their positive and negative consequences according to Andrew J. DuBrin, (2002) as illustrated in figure 2.

EXHIBIT 17-1 Four Types of Interruptions and their Positive and Negative Consequences

Type of Interruption	Negative Consequences for Person Being Interrupted	Positive Consequences for Person Being Interrupted
Intrusion (unexpected encounter)	Not enough time to accomplish the task leading to stress; disruption in concentration	Informal feedback and information sharing that otherwise might not be available
Break (planned or spontaneous recess from work)	Procrastination and/or significant amounts of time spent relearning essential details of work being performed	Alleviation of fatigue or distress; more job satisfaction; time for ideas to incubate; refreshed approach to task
Distraction (secondary activity that disrupts concentration)	Mediocre performance when work is complex and demanding, and requires full attention	Enhanced performance when the distraction increases stimulation levels on routine tasks
Discrepancy (inconsistency between what you expected and what is really happening)	Strong negative emotional reaction (such as from finding out that you have been working on improving a product that management has decided to drop)	Recognition of the need for change and triggering person into action

Source: Adapted and abridged from Quintus R. Jett and Jennifer M. George, "Work Interrupted: A Closer Look at the Role of Interruptions in Organizational Life," *Academy of Management Review*, July 2003, p. 497.

Figure 2. Types of Interruptions, positive and negation consequences Andrew J. DuBrin, (2010).

Next activity after an interruption

In an attempt to measure the activities that took place after the interruption as to whether the recipient returns to prior activity or there was disruption in the flow of work. O´Conaill and Frohlich, (1995), conducted a study on the next activity after interruption and revealed that a little over 55% of the cases did the recipient returned to their original activity.

The study failed to show whether recipient performance was affected by the interruption during task execution. However, the study revealed that in 4% of the cases the recipient was not engaged in any measurable work activity – coffee break, restroom visit, etc. In the case of repeated interruption, 14.4% of the recipients never return to their prior activity, 15.2% continue to work on the interrupt and 10.4% decide to work on another task, see figure 4 below. There was no prior indication that the task had been completed. The observed activities were studied in two scenarios, in which the first case, the initiator was provided time limit in the form of a joke fashion. Second, a request was made to a secretary to hold calls. This was executed when a tight deadline was fast approaching for completion of particular work.

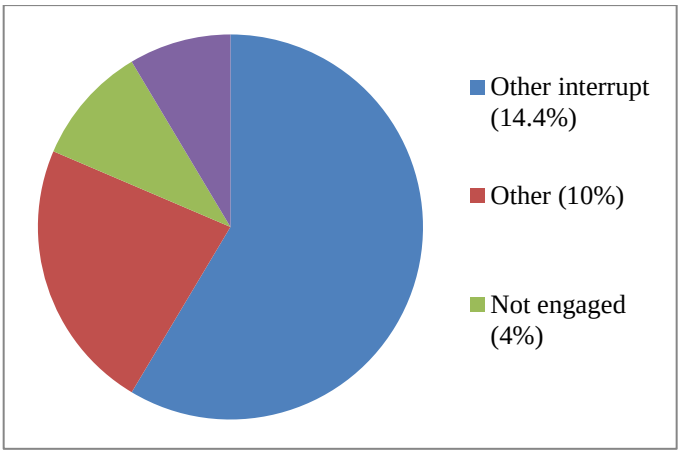

Figure 4. Next activity *Courtsey of O´Conaill and Frohlich, (1995).*

The collected theories provide context and framework for the thesis through the use of its vivid examples to explain different concepts surrounding interruptions for managers. The valuable information obtained from these theories will be used in comparison with the conducted investigation to produce the result of the study.

2.3 Management of Interruptions

Since in reality it is almost impossible to go without being interrupted at work, smart dealing with disturbances saves a huge amount of time that could have been wasted. Therefore, it is an essential skill to learn how to manage interruption for the purpose of making better use of time. The study in interruption management has interested many researchers and among the forefront runners is Latorella , (1999) who created a model of interruption management and defined interruption management as "...interruption management entails, detecting the annunciation stimulus, interpreting the stimulus in terms of the interrupting task performance requirements, and integrating the interrupting task and the on-going procedure task performance" (p.19). The article also covered different stages involved in interruption management such as; detection, interpretation, integration, and continuation of on-going task. The detection stage is characterised by a person engaged in performing a task when the annunciation of an interruption is introduced. In order to be detected by an individual, the stimulus of the annunciation (e.g. an instant message notification signal or ringing telephone) must be very important to gain the attention of the person being interrupted. In the integration stage, the individuals´ attention is directed to the annunciation stimulus, discovers the content of the interruption as well as it demands. This is followed by the individuals´ decision on how to handle interruption based on its demands. The integration stage is sub-divided into three i.e. pre-emption, performance (including scheduling) and resumption. The pre-emption stage highlights the process of weighing the benefits and costs of performing the interruption demands instantly or not. This is succeeded by the individual decision to either continue with instant performance of the interruption demands or schedule to perform the interruption demands some time later. Hence, the individual can only return to the original task on two conditions; after either performing or scheduling to perform the interruption demand, termed the resumption point. Toms et al, (2005) views on both ideas brought clarity in discussing interruptions from its modes of occurrence to management skills. The discussions provide readers the sense of awareness of what is considered as an

interruption, how it intrude in managers' task and the making of decision in response to the interruption.
In joint effort Latorella and McFarlane, (2002) threw light on the theoretical backed guidelines for the design of improved interruption management systems in which the later presented four types of interruption; immediate, negotiated, mediated and scheduled. Immediate interruption occurs without warning (e.g. telephone network break); negotiated interruption permits the interrupted individual to make a choice of reaction to the interruption (e.g. an intruder seeking attention); mediated interruption involves mediation by a person, machine or other object (e.g. use of a PDA to reach somebody); scheduled interruption involves plans agreed upon and planned well ahead of time (e.g. booking appointment). Like other researchers on the subject, Burmistrov and Leonova, (1996) and Eyrolle and Cellier, (2000) also, identified four main interruption Management Strategies (IMS) in their study:

- Process the first task to completion before starting the interruptive task
- Delay the processing of the interruptive task in order to complete the first task
- Identify the content of the interruptive task, complete the first task before processing the interruptive task
- Process the interruptive task immediately and complete the first task later (p.539).
- However, it was realized that the first two IMS reduced effects on interruption the most but are least applied when related to company polices.

This theory helps to complement the analysed modes of interruptions and improve interruption management by furnishing readers with deeper knowledge on the subject. It differs from the previously discussed theory in the sense that the former is primary while the latter is considered secondary. The former discusses about processes in handling interruptions while the latter deals with modes of occurrence. The benefits obtained from these theories are in actual fact similar to the precedent examples. All three issues aim to provide deeper knowledge on management of interruptions for managers. Examples of benefits obtained from the four management strategies include their serves as guidelines and references to tackle interruptions. These strategies will be applied in the observatory stage to produce the result of the study.

2.4 Effects of Interruptions

In an attempt to study the effect of interruptions on task performance, Burmistrov and Leonova, (1996) observed four activities involving text editing via telephone as means to develop a strategy to manage interruption. These included:
Nothing: participants made no attempt to complete original task, completed interruptive task immediately before returning to original task.
Completion: Participants attempted to complete original task either by avoiding addressing the interruptive task until done with the original task, attempting to complete original task during or parallel to interruptive task.
Memorizing: some participants applies memory aid in order to remember location at original task using software or hardware tools – placement of mouse cursor in document or by simple observation.
Preventing: participants often act to prevent possible errors in the long run, during performance of the interruption task or during resumption of the original task.

2.5 Mitigation of Interruptions

Successful managers are constantly faced with challenges on how to apply management strategies to cope with interruptions. Since the research mainly focuses on investigating the subject of interruption for Project managers, strategies to cope with interruptions are very important to discuss in order to produce a qualitative and comprehensive study. These strategies will contribute in providing clarity in the subject.

Handling written and audio notifications

Universally, new email messages - written or audio notifications are the most common forms of distractions at workplaces. In spite of this, more user-friendly and helpful options are offered by the technology to mitigate interruptions. Technological features of the devices can be installed in an end to continuous notification mode but the personal urge to check inbox lies beyond the scope of the technology. In order to prevent our work routines from been interrupted by emails, it is best to allocate specific times to check and reply to mails. Moreover, it is even wiser to think about the importance of an email before opening it, instead of having it open and accessibly all the time, Mark Woods, Trapper Woods, (2012).

Setting-up limitations

The focus should be on maintaining open communications with colleagues rather than compromising relationships. This should include the sharing of daily schedules, indicating time and duration of breaks, also preferred time to be approached with problems or conversation. This will clearly spell out our availability for handling questions, issues, discussions or chitchats. Such limitations facilitate mutual respect among concerned individuals pace and style of work, Mark Woods, Trapper Woods, (2012). However, some kind of tolerance must be permitted to enable fellow workers to feel free to communicate important or urgent matters instantly.

Brief get-away

On many occasions individuals are not targeted for interruption but some common forms of distraction such as ringing telephones, person-to-person conversation, arriving visitors for interviews or meetings constitute part of the project manager's job routine. Breaks or brief get- away often serve as remedy to avoid work slowdown as a result of interruptions. Moving away from situations that cause decrease in productivity foster mental note taking for the work put on hold, time to strategies and what priorities need to be addressed. It also helps the individual to return to work with new motivation, greater ability to prevent distractions and better focus on the task, Mark Woods, Trapper Woods, (2012).

Silencing the phones

The undeniable benefits provided by telephone use have rendered it the most important communication device in every work place. The invention of the mobile phones with remarkable functions that pushes boundaries makes the device a fundamental resource at the workplace. However, this does not go without problems as not all calls are important, neither do they come in at the appropriate time. It is therefore necessary to have them in silence mode or in low ring volume particularly during productivity. A proactive means to prevent interruptions caused by ringing telephone is to keep them mute or silent, Mark Woods, Trapper Woods, (2012). Most mobile devices are designed to retrieve unanswered calls and messages after productivity periods. Moreover, it is thought unprofessional, annoying and rude for ringing phones to interrupt meetings.

Hold conversations short

There is always a tendency for prolong pointless conservation when co-workers meet. Often long conversations take toll on individual's behaviour on resumption to work - mode and work tempo. One appropriate means of avoiding long conversations is to use politeness to quickly discussed and distribute tasks to co-workers. As a result, it can help Project manager's return to work less taxing, Mark Woods, Trapper Woods, (2012). The process of how to mitigate interruption also coined as time wasting according Andrew J. DuBrin, (2010) is outlined in the list below, see figure 5.
This list differs from previous preventive measures examples on how to handle interruptions in the sense that it addresses the specific element of time. The factor "Time" is fundamental element of project management triangle (Iron triangle) with great importance to managers. Since projects result are in the management of time and cost. Time brought the element of sequence and order to the study which previous examples failed to consider.

EXHIBIT 17-2 **Ways to Prevent and Overcome Time Wasting**

Wasted time is a major productivity drain, so it pays to search for time wasters in your work activities. The following list suggests remedies for some of the major time wasters in the workplace.

1. Use a time log for two weeks to track time wasters.
2. Minimize daydreaming on the job by forcing yourself to concentrate.
3. Avoid using the computer as a diversion from work; resist sending jokes back and forth to network members, friends, and followers; avoid playing video games; and resist checking out recreational and shopping Web sites during working hours.
4. Batch similar tasks such as responding to e-mail messages or returning phone calls. For example, in most jobs, it is possible to be productive by reserving two or three 15-minute periods each day for taking care of e-mail correspondence. Checking e-mail too frequently is a major time waster unless it's necessary for your job.
5. Socialize on the job just enough to build your network. Chatting with coworkers is a major productivity drain and one of the reasons so many managers work at home part of the time when they have analytical work that must be done.
6. Be prepared for meetings; have a clear agenda and sort through the documents you will be referring to. Make sure electronic equipment is in working order before attempting to use it during the meeting.
7. Keep track of important names, places, and things to avoid wasting time searching for them. For example, designate a place for your keys and flash drive both at home and at work. Visualize where you place items; say to yourself, "I am putting my sunglasses over the visor on the driver's side of my car."
8. Set a time limit for repetitive tasks after you have done them once or twice.
9. Prepare a computer template for letters and documents that you send frequently. (The template is essentially a form letter, especially with respect to the salutation and return address.)
10. Avoid perfectionism, which leads you to redo a project "just a little bit more." Let go and move on to another project.
11. Make use of bits of time between appointments. Use those minutes to send a business e-mail or revise your to-do list. (Note the exception to the batch principle.)
12. Sort out your mail over a wastebasket or recycling bin. Immediately dispose of mail you have no need to open now or later. You save time by having less accumulated mail to sort through a second time.
13. Resist grabbing for your cell phone or smart phone at every conceivable moment, such as when you exit the building. Some of the time devoted to chatting on the cell phone could be invested in planning your work or searching for creative ideas. Many managers and corporate professionals consult their personal digital assistant for business instead of social purposes on the way to or back from lunch.
14. Minimize procrastination, the number-one time waster for most people.

Source: Suggestions 4, 5, and 6 are based on Stephen R. Covey with Hyrum Smith, "What If You Could Chop an Hour from Your Day for Things That Matter Most?" *USA Weekend*, January 22–24, 1999, pp. 4–5. Suggestion 7 is based partly on "How to Boost Your Brainpower," *TopHealth*, October, 2009, p. 2.

Figure 5. Ways to prevent and overcome time wasting Courtesy of Andrew J. DuBrin, (2010).

Key theoretical concepts to be used in the result

Undoubtedly, there is abundance of written material on the subject of interruption for managers as proven by theories used in this study. If a manager is to succeed on a project the discussed issues must all be fully treated fairly. These issues do not only serve as guidelines for managers to watch out for, but also put managers on guard for symptoms of interruption, prevention and handling. Since interruption is key factor to project management success, the subject has been investigated from different points of views; from non-professional to professional levels. As such, the thesis outline part of those views relevant to the questions under study and limits it focus to specific theories and conducted observations to produce the result. These theories include; issues of interruption arising from technological influence, human influence, consequences and remedies.

3 Research Methodology

This chapter presents the methodology use to conduct the study and explain the processes involved in collecting empirical data. The research process will be both theoretical and practical approaches with adaptation of qualitative methods.

3.1 Research approach

The study is conducted as a social research which will follow a classified systematic plan along qualitative dimension.

Qualitative Design
The qualitative dimensions focus on the understanding of the social phenomena through direct observation, communication with participants, analysis of recorded data and response subject to accuracy over commonality associated with quality. This involves a fairly structured approach through raw data compilation into systematic information, and categorizing interceded reliability. According to Gina Wisker, (2007), subjectivity do exist in such research methodology and liken to what could be termed ‘pure' scientific research wherein all experiment are well- managed and documented. Although most people feel safe with numbers and statistic which appear to relate the hard facts but for clear understanding of meanings, beliefs and experience it is wise to gather and interpret data qualitatively.
Hence, this study aims to produce valuable and reliable result, it therefore, adopts qualitative approach to under pin the actual work of the research.

1.2 Participants

The participants in this research are limited to the researcher (thesis author), the research supervisor and the PM at the environmental department of the company. Another participatory group include colleagues of PM that contributes to interruptions – senior management, junior engineers, clients, external monitors, etc. It is important to bear in mind that in each interruption scenario the PM is the individual in focus and that none of the PM’s colleagues serve as a source of information in the study.

1.3 Collection of Information

This section describes how the research information was collected throughout the study.

Information grouped into different themes
The study data will be collected through conducted observation and one-to-one interview (information from individual). This will entail shadowing activity whereby the author will closely follow and observe the manager as he executes his daily work routine over a time period. The Pm’s behavior, opinion, actions and explanations for his actions will be reflected in the result of the study Elizabeth Quinlan, (2008). In order to gather information into different themes, the research is schedule for a period of three weeks. The first week will be used for familiarization of the work environment, the second week for observation (shadowing) and the third week will entail two hours of interviews and compilation of collected data. The observation period of 5 days with the manager will have an average duration of 8 hours – legal

working week of 40 hours in the United States of America. The manager is expected to start work between the hours of 7:30 and 9:30 at an average of 8:30. Flexibility will be allowed by compensation – early arrival goes with early departure. Ensuring that the stipulated 40 hours per week is fulfilled. During the week of observation all interruptive activities encountered by the PM will be recorded as part of the study.

Extracting information from the gathered material

Information will be extracted from gathered and reviewed materials of existing theories. Through the process of reviewing exiting knowledge, information will be extracted from textbooks and internet search engines. This information will entail previous evaluations and research; using findings from evaluation and research studies carried on the same study or relatively close areas.

These are information extracted from the direct observation of individuals thorough watchful and documentation of incidence objects and/or behavior of the individual. This occurred in the form of non-participant observation whereby the researcher refrain active involvement than observe the participants. The observations are done by shadowing the manager - observing human as well as non-human activities, human interactions with technology while executing managerial duties. In this research, the observatory site will be the manager's office. A layout plan of the office is constructed for the purpose of visualizing the manager and interrupts movements, see chapter four of this thesis.

The researcher will observe the manager from an adjacent sitting position and carefully observe as the manager work on his computer – reading and responding to correspondents, scheduling appointment, planning for meetings with stakeholders, or walk besides the manager in the office. Hence non-participatory observation means meeting fieldwork experience and gaining understanding of the most fundamental process of social existence, the method requires specific approach for the documentation of observations. All information collected through the observatory process will be recorded for later use in the analysis. This information can be equated to those obtained from formal research techniques - interviewing, structured observation, and the use of questionnaires and formal elicitation techniques, Kathleen M. DeWalt et al, (2011).

Also, information will be gathered from the interview entailing probing questions to gather detailed responses from the manager beyond initial answers and administering questionnaires in real time by the researcher reading the questions. The interview will be semi-structured with open and closed questions. One questionnaire will prepared for use in two interview sessions. The reason for doing this is simply base on limited free time on the part of the manager for interviews. The anonymity of the PM and Projects will be kept confidential in compliance with the manager's company policy. However, details of the subject descriptor – gender and job position will be outlined on the questionnaire.

Analysis of the collected information

The extracted data (information) will be analyzed through careful examination and evaluation processes. This will involve the process of finding out how the collected data can be interpreted to produce the desired result.

The conducted interview will be complemented by the observations to produce the result of the study. Thus, the prepared questions will be mostly based on observed interruptive activities and behaviours aiming to get detail responses from the manager.

The questions will be designed in an open-ended manner to encourage the interviewee to discuss the answers.

Working with the collected material
The gathered information will be treated in some situation as information from the group; existing knowledge, observation and interview. One of the methods to be employed in working with the gathered material is to show how the different ideas on the subject under investigation relate to each other. The study will work on the gathered material by focusing on the following observations: working on task, space, interruption, accept/ignore, who, what was the interruption, duration, tasks after the interruption, scope of task. It will also include; how many people are working on the task, space, mode of interruption, accepted or rejected the interruption, who was the interrupter, content of the interruption, duration, tasks after the interruption and scope of the task.
All observed activities will be listed and described in the Finding chapter of this thesis under the subtitle observations.
An Interview guide is provided as a working document to direct the interview process. The interview will be based on the study of managing interruptions for Project managers with the aim to explore how and when do interruptions occur, and its´ effect on Managers? It will also, probe what management strategies the manager employed in coping with reorganizing his work? The interview will proceed in the following manner:

- Self-introduction of Interviewer and research topic
- Interview questions
- Interviewee Respondent

For the interview questions, see annex page to this thesis.

Respondent
The trustworthiness of this study will rely on the observation and interviewee. Respondent from the interview together with related ideas from existing knowledge and observation will be used to produce the study result.

Validity and Reliability of the study
Many decisions were made in an attempt to prove the validity and reliability of the research. The first decision faced by the researcher was ‘how to measure the concept” - observational, self-report, interview, etc. The author preferred to observer ongoing activities, self-report measures like questionnaires with open-ended or close-ended, semi-structured interviews. Secondly, what population was the measure intended? The decisions made here do not totally rely on typical theoretical examples but rather on the research question investigated. Lastly, what was the purpose of the measure? In other words, what the research intend to do with the measure? This discussion will provide answers to the validity and reliability of the study and takes the study to the next level - information gathering.
With the uniqueness of each work in the study of interruptions for Project managers, this thesis employs Qualitative design approach to bring out peculiarity to its result. The information used in this thesis has been gathered from different sources such as reliable websites from the internet, textbooks, articles and thesis on the subject or construction industry.

Financial compensation
No financial compensations are being paid to any of the participants either for their time or any form of activity. A vote of thanks at the end of the research period honorarium acknowledged the time and effort of the participants.

4 Findings

The presented data on this chapter originated from findings done on the research. This includes observation and conducted interview with the Pm. Both activities were carried out within the environmental setting of the Pm's office, see Figure 6 below.

4.1 Office background – company description

A brief background of the company is presented here to give readers an insight of the Pm's work environment. In doing so, detail information of both the Pm and company are kept confidential with regards to the employee policy.
The study was carried out at an internationally recognized consulting firm that provides environmental engineering services. The firm is located in a north east coastal city of the United States of America. It has over 60 years of reputation to its clients for been a devoted and trusted partner, with strategic vision and an entrepreneurial spirit, in developing innovative solutions to the world's most challenging problems. The company provides services to federal, state and local government clients as well as to international multilateral institutions and commercial industry. A total of twelve workers were working on hazardous and toxic waste management project during the period of study. This number entails the Project manager, an Assistant Project manager, two environmental engineers, senior laboratory technicians and seven junior technicians. Both managers were responsible for the smooth running of the project in terms of project budget, quality and delivery time. The engineers were responsible for all site activities whiles the senior laboratory technician and his team were responsible for soil sample testing.

The work environment
The Office layout plan illustrates both the PM's movement and that of his co-workers during work hours. This movement is marked with double arrows to indicate the back and forth movement and common sources of interruptions. These movements took place at the company's facility and the people involved include the shadowed Project manager, junior Engineers, Secretary, clients, other stakeholders.

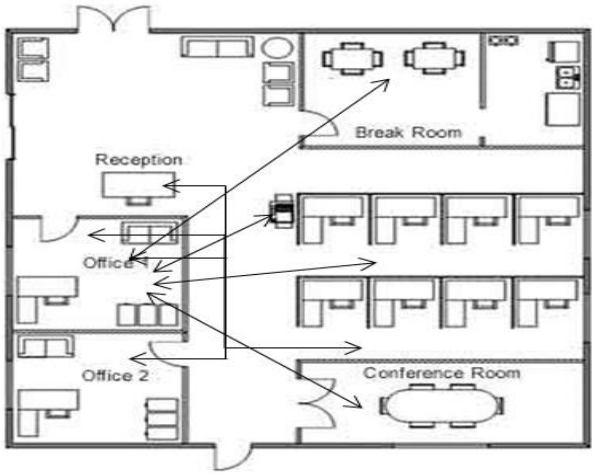

Figure 6. Pm's Office layout plan Courtesy of http://www.mehve.net

4.2 Observations

Office setting

The study is based on organizational research conducted in a natural environment where work proceeds normally with easy access for observation process. The office plan layout in figure 7 shows the PM's sitting position from where most activities were observed and recorded.
Owning to the size of the company each department was furnished with a Pm which implies that this research was carried out in one of these departments.

Observation notes
It was observed that a great deal of the Pm's time was spent in his office; coordinating project activities between clients and creatives through telephone, internet, and other electronic devices. Another part of the managers' job includes monitoring workers, discussing and controlling work in progress. Despite the fact that managers' job includes sites work, they are more or less office workers, (Buser, 2013).
Among the events observed includes: working on task, space, interruption, accept/ignore, who, what was the interruption, duration, tasks after the interruption, scope of task. The abbreviated list denotes different activities observed with the Pm as well as that which happened around him at work place;
A (working alone); the manager was observed working alone on his computer; writing notes and reading project documents on his desk.
W (walking); the manager was observed walking out of his office to attend to project and non-project issues.
P (photocopy); part of the walking included to and -from movement to the photocopy machine.
CF (cafeteria); the cafeteria was also part of the walking activities. It was visited at least twice a day.
CM(coffee machine), the coffee machine accounts also for walking activity as more coffee was consume in the colder months of winter.
Ph (phone); a great deal of the manager's time was spent on talking on the phone.
H (human); include activities associated with the use of the restroom, yawning, limes stretching, etc.
E (Emails); emails served as key means of communication between parties involved in the project at hand. These included; clients, sub-contractors, external monitors, internal management, and other stakeholders. The manager also received emails from past as well as prospective projects.
WE (WebEx, skype); this online communication allowed stakeholders to participate in conference meetings. The manager used WebEx to involve stakeholders in project meetings online.
B (Break); as parts of the normal work routine, breaks were used for cooling off. The manager was observed using this period to deal with private errands; communicate with his wife.
Interaction with Cw (Co-workers)/IM (Internal management), Jr. Eng. (Junior Engineers) occurs at social as well as official levels. The difference between WE and interaction with Cw, Jr. Eng. is mostly determined by the prevailing circumstance. Interactions during breaks were less formal as compared to interactions during meetings.
TM (Technical Managers), EMT (External Monitors and regulators, other stakeholders); involved mainly activities related to the project at hand.

Other interruptive activities observed include; DR (data request), request or exchange of data was observed to occur between the manager and his co-workers as well as with other stakeholders.
ND (New project development, Meeting with Monitors and regulators),
TT (Help to perform technical task) / RC (response to comments from client, Monitors and regulators and other stakeholders), among the behavioural pattern observed in the office of the Pm was the case of junior colleagues interrupting to ask for help to perform technical tasks.
NWI (Non-work related issues), as a way of letting off the steam the Pm holds side talks with colleagues and stakeholders.
SP (Solve problem during / after using the phone pending on the need for urgency), the phone was very instrumental for the work of the Pm. Most communications are done or complimented with the use of the phone between the Pm and stakeholders.
GB (PM goes back to main task); issues with Pm returning to previous task after an interruption is a very important part of this study. During the period of observation the Pm was seen returning to previous task pending on the urgency of task at hand and amount of time spent on attending to the interrupt.
DTT (Do a third thing), this situation was also observed with the Pm moving on to another task after attending to an interruption. Again, this occurs as a butterfly effect caused by the interruption.
PS (Plan field sampling data evaluation for presentation to stakeholders and community groups), this was part of the work handled by the Pm during the period of observation. The activities surrounding these task are presented on the activity data , see table 2 as well as the manager's response to the interview is appended to the thesis.
The task at hand during the week of observation period was data analysis and sampling. These activities were executed in multiple offices within the department. At any given time 4 – 5 people work in team on data analyses task. However, for task related to sampling activities, as many as 20 people can work on such task. It was also, observed that around 11 people work with the Pm on the task at hand but this can vary pending on the size and duration of the task. Task lasted from a couple of hours, to days and for highly analytical tasks like numerical modelling can take up to a month to complete. The mode of communication used by the PM includes; technologies such as Email, phone, conference calls, WebEx, Fax and in person communication. Often the PMs' work encounter interruptions that usually emerges from client, internal management meetings, junior engineers and technical managers and occurred in the office as well as at construction site. They occur in the form of phone calls, SMS, emails and impromptu visits. This happened on daily basis during project initiations or as project continues to develop. The main reasons for this was attributed to new dew development taking place, the need to respond to questions such as to get people to complete their tasks. The most common kinds of interruptions encountered were phone calls from client to discuss new development on projects, meeting with regulators; internal management meetings, junior engineers requiring assistance to perform technical task.

One-third of the work was done sole by the manager. This entailed mostly managerial tasks that rest on the shoulders of the manager. The rest of the work was subdivided into areas of specialties and executed by small groups; engineers and laboratory technicians. Difference was observed between managing interruptions for the individual working alone or in group. When the manager was interrupted every work

in hand comes to a stand-still. Working alone means that the manager handle one issue at any particular time in the midst of other on-going activities. In stark contrast, engineers or technicians working in groups hardly stop working because of interruption. Since, most of the interruptions that occurred are handled by a member of the group.

4.3 Amount of work done alone, in group and difference made in terms of management of interruptions

Another interesting finding of this study was that the interruptions observed during work hours were hardly similar in context to any task in progress. Many a times they are haphazardly linked to other subjects. Constant encounter with activities such as helping junior colleagues with task, collecting printed materials from the printer, talking on the phone with stakeholders, working on the computer on project task mark the job of the manager. When these activities were interrupted they forced the manager to shift to a third task - from one task to the other, known and unknown, expected and unexpected.

Use of technological devices

There is no doubt that email messages be it written or audio notifications are the most common forms of distractions at workplaces. In spite of this, more user-friendly and helpful options are offered by the technology to mitigate interruptions. Managers often utilize technological features installed in the devices to silence continuous notification as means to prevent distractions particularly during meetings. Another alternative solution employed to prevent work routines from been interrupted by emails was the manager allocate specific times to check and reply to mails. In this research it was revealed that the manager have pop-up notifications that provide senders information. This helps him to sift mails – important and unimportant. He adhere to Mark Woods & Trapper Woods, (2012) advice that, it is wise to think about the importance of emails before opening it, instead of having it open and accessibly all the time.

The invention of the mobile phones with its remarkable functions that pushes boundaries makes the device a fundamental resource at the workplace. However, this does not go without problems as not all calls are important, neither do they come in at the appropriate time. As a proactive means to prevent interruptions caused by ringing telephone it is best to keep them mute/ silent or in low ringing volume particularly during productivity, Mark Woods & Trapper Woods, (2012). Most mobile devices are designed to retrieve unanswered calls and messages after productivity periods. Moreover, it is thought unprofessional, annoying and rude for ringing phones to interrupt meetings.

Undeniable benefits provided by the telephone have rendered it the most important communication device in every work place. Mobile cell phones in particular are equipped with remarkable functions that push boundaries and serves as fundamental resource at workplaces. Nonetheless, phones are not problems free as not all calls are important, neither do they come in at the appropriate time. As proactive means to prevent interruptions caused by ringing telephone, managers often have them in silence mode or low ring volume particularly during productivity. The same attitude was employed by the observed manager in this study reflecting the ideas of Mark Woods, Trapper Woods, (2012). Most mobile devices are designed to retrieve unanswered calls and messages after productivity periods. This privilege offer

managers the opportunity to select between the above options. It could be considered unprofessional, annoying or rude for ringing phones to interrupt meetings.

Activity data collection

The observation relates to various project activities that took place at the office of the manager, with co-workers or through telephone conversations with other stakeholders in attempt to resolve problems that might hinder project success. Other interruptive activities occurred also while the manager was on the phone - alarm notification to charge phone battery or steered at the screen of a ringing phone.

It was observed that the manager rarely had free moments in his schedule and when such moments occurred the manager was seen doing some other activities like grab a cup of coffee, texting, listening to answering machine, discussing future projects while waiting on others to start an activity or sending emails while waiting for someone to answer his phone call. Table 2 below denotes detailed account of recording related to 15 activities carried out by the manager. These activities were executed and observed under normal working conditions – stress free.

Main activity	**Sub categories**	**Comment**
Data Analysis	Office work	Pm made a phone call to sub-contractor for pending work on the project.
Data Analysis	Office work	Scroll e-mails on computer while talking with sub-contractor.
Data Analysis	Interruption Social discussion	Interrupted by Junior engineer demanding a file from the Pm's computer and explanations on project related matters
Data Analysis	Within the office	Pm ends phone conversation and went to collect prints from the printer
Data Analysis	Within the office	Pm noticed an instant message from a friend, replied and returned to his office.
Data Analysis	Office work	Open document file in the computer to check on an inventory file.
Data Analysis	Discussion about the project	Once more, the Pm got interrupted by the Assistant Project manager for matters related to project.
Data Analysis	Discussion about difficulty	Pm joked with the Assistant manager while trying to locate file on the computer
Data Analysis	Responded to Assistant managers need	Answer few more questions from his assistant, closed the matter and dismisses him.
Data Analysis	Office work	Interruption by the assistant manager resulted to the Pm making several phone calls to stakeholders.
Data Analysis	Phone call to a Senior laboratory technician	Pm rang up the senior laboratory technician concerning results of sample material sent to him for test.
Data Analysis	Telephone call from technical manager	Technical manager interrupted the conversation between the Pm's and Senior laboratory technician.

Data Analysis	Pm returned to last caller	Pm returned to the conversation with Senior laboratory technician.
Data Analysis	Pm called client	Pm called client on the phone to notify him of the results from tested material sample.
Data Analysis	Pm returned to previous task	Pm settled down to continue with his inventory task.

Table 2. Detail account of managers' activities using the following tools; cell phone, computer, printer. *Courtesy of Richard Kamara*

Table 2 above is explain as follow; a phone call made by the manager to check on a sub-contractor for pending works was interrupted by a junior engineer who demanded a file in the manager's computer and some explanations. Due to the urgency of the task at hand the manager continued with the telephone conversation while attending to the engineer – interruption lead to superimpose activities. As soon as the manager turned off his phone he jumped to his feet to collect print materials from the printer outside his office – new activity. Just when he was about to pick up the printed materials his phone notify him of an incoming message. He looked at it and realized that a close friend wanted to chat with him. He picked up the printed materials and replied to the friend on his way to the office room – simultaneous activity. Back at his desk the manager opened his computer to continue on the task of checking an inventory - resumption of previous task. Reading half way through the inventory the assistant manager entered the office manager and interrupted him - he needed help with the project. The Project manager been fully aware of the urgency, he decided to prioritize the need of the assistant manager over his reading. In the process of opening the requested project file on his computer the Project manager was seen making joke with his Assistant Project manager. When finally the file opened, the Project manager clarified the doubts, closed the matter and dismissed the Assistant Project manager. The interruption caused by the Assistant manager lead the manager to make telephone call to the senior laboratory technician. As usual these phone calls often start or end with some form of social interaction - outside business talk. Just at the point of ending their discussion the Project manager and senior laboratory technician got interrupted by another caller. This time it was the Technical manager who wanted to confirm the results of the sample material with the Project manager. The senior laboratory technician was put on-hold while the manager nodded his head in affirmative to the technical managers' question. Eventually the Project manager returned to the senior laboratory technician but he was no longer on the telephone line since the main issue of their conversation was already discussed. To end the triggered telephone interruption effect the Project manager called on the clients phone to inform him of the test results before he settled down to continue with his inventory work. In general, it was observed that the time taken by the manager to respond to interruptions varies gradually between the kind and urgency demanded by the task in hand as explained above in table 2.

Example to show how interaction occurred between the Pm and interrupters
Interestingly it was observed that most interaction between the manager and co-workers often occurred for project benefit. Such situation unfolded with the manger busy with work in his office, and then suddenly a co-worker knocked at door asking for help on a task. The manager may opt to respond instantly or delay in respond depending on the task at hand and need for urgency demanded by the interrupter. Reacting to the first option, the manager abandons his task to assist the co-worker.

However, this behaviour does not prevent others from interrupting as often was the case a key stakeholder may call to ask for the explanation of a vital decision adopted in the project. When such situation occurs the manager prioritize the stakeholders call over the co-worker‘s need. He puts the co-worker on hold and answers to the stakeholders call. Thereafter, the manager will return to continue with the co-worker’s need. The second option saw the manager delayed in responding to the co-workers need by putting the co-worker on-hold while trying to complete a task. Many a times the manager never completed the task before returning to assist the co-worker. This situation was a common and repetitive scenario throughout the observation period.

Summary

It is crystal clear that with the numerous kinds of interruptions recorded in the study, the Pms’ work environment cannot be totally free from stress. However, it was observed that the stress incurred by the Pm at the time of the study posed no threat to his mental or physical health. As such, the study did not record any stress for the manager in any of the situations that demanded immediate attention during the observed period.

Among the difficulties observed in the study was the manager having to differentiate between levels of interruptions – not too urgent, urgent and very urgent. Hence, interruption status (irrelevance or relevancy) varies in magnitude. The managers’ strategy to resolve issues of interruptions were mostly dependent on how much stake interrupters have in a task/project and the demand for attention needed by an interruption which in turn defined the order or sequence of preference in treatment. As such, it is difficult to make sense of the manager’s action in terms of how he ordered or prioritizing interruptions.

5 Results

This chapter presents the result of the study with focus on the thesis's theme; managing interruptions for project managers. The subject of study is limited to a sole project manager, whose daily practices were carefully observed and questioned. The result chapter serves as a fundament for comparison between the studied data and theoretical framework. In an attempt to investigate the subject of Interruptions for managers, the author put forward two questions; how and when do interruptions occur and what effect it does has on Managers? Also, what management strategies are employed by Managers in coping with reorganizing their work? Having done the ground work of observation and interviews the author went further to analysis his findings.

5.1 Results obtain from comparison

In response to the question, *"how and when do interruptions occur and what effect it does have on Managers?"* the study arrived at the following answer: A manger's work is activity oriented; involving lot of coordination, monitoring and respondent. In this context, a manager's workplace is deemed as any 21st century work environment that entails performance of several tasks whose paths intertwined with interruptions. Interruptions occur in different kinds. This includes; immediate interruption that occurs without warning (e.g. telephone network break); negotiated interruption permits the interrupted individual to make a choice of reaction to the interruption (e.g. an intruder seeking attention); mediated interruption involves mediation by a person, machine or other object (e.g. use of a PDA to reach somebody); scheduled interruption involves plans agreed upon and planned well ahead of time (e.g. booking appointment). The study found discovered that it was difficult to predict when interruptions occur for the manager but when they do, they happen for many reasons; often in connection to the task at hand. In order to get deeper understanding on how and when interruptions occur the author uses observation and interview data illustrated in the activities table 2. The study arrived at the result that, interruptions are commonly perceived as threat to project success, despite serving as positive contributing factors to the achievement of goals. As such interruptions have both positive and negative effects on managers. The study also discovered that in the majority of the cases, the manager gained from interruptions while in almost half of the cases he never return to preoccupied task before being interrupted. The study also discovered that positive effects influence the duration of task, minimise error and gave great feelings to all parties.

Also, the study arrived at the following result in relation to the question *"what management strategies are employed by Managers in coping with reorganizing their work?"* by identifying the most common forms of distractions at workplaces; communication devices - written or audio notifications and human activities. As part of the discoveries made, the manager employed certain coping strategies in order to minimize or eliminate interruptions from the specialist groups by ignoring or avoiding interruptions altogether, turn-off the devices and work in technological-free environment. In dealing with interruptions caused by co-workers, the manager usually shut his office door or put up notice to caution interrupters. The most useful management strategy employed by the manager in coping with interruptions was the utilization of experience and available resources to deal with issues of interruption.

However, despite the manager's effort to keep co-workers from interrupting and the successes achieved by IMS, the aim to minimize interruption effects at work places still stand as obstacle to the effective use of time.

Another result arrived at on the effect of interruption for the manager relates to stress issues. The influence of stress was completely under the control of the manager during the period of observation. However, there were times when the work demands much more commitment but that was well handle by the manager. No signs of illness were observed with the manager.

Not the least, the nature of assistance demanded by co-workers and creatives varies in degree from issues demanding extremely urgent to less urgent attention and positive and negative consequences of interruptions are inseparable in most of the situations. Lastly, it was also discovered that interruptions provide both positive and negative/feelings for the manager depending on the type of interruptions.

5.2 Comparing the result to theoretical framework

In an attempt to compare between the observed Pm's behavioural pattern and theoretical framework, the author relates his observations and interviews to the literature of other researchers on the subject of interruptions for Project managers. The author uses simple techniques to carry out his analysis; avoiding sophisticated tool such as CAQDAS. Thus, the analysis chapter links the theoretical framework to the collected data.
The Pm's job routine is difficult to plot on a graph afterwards it is constantly threaten by interruptions and disruptions. Like any other major subject of study, interruption is divided into many parts i.e. the characteristic of the interruption itself, how it is handled by the interrupted/affected individual, its' effect on both the individual and task. Earlier studies by McFarlane and Latorella, (2002) explored in-depth the characteristics of interruption - Source and modality.
Here below the researcher uses some key 'borrow' theoretical frame concepts or explanations to discuss emperies on interruptions for Project managers.
A study conducted by O´Conaill and Frohlich, (1995) on the nature of interruptions in the workplace, revealed that in the majority of the cases, 64%, recipient gained from interruptions while little over 40% of recipient never return to preoccupied task. In order to achieve the gainful percentage, managers must organise their work such that they can keep up with tight schedules in spite of the belief that interruptions are detrimental to productivity. Most of the situations observed repeated interruptions as the manager executes his managerial duties often seen switching between human interruption - Clients, other stakeholders and co-workers, and technological interruptions - cell phones, Personal Digital Assistances (PDA), laptops and instant messages (IM) as he progresses with his work. As most of the interruptions occurred via technology, managers enjoy the privilege of easy and fast communication and the advantage for multi-tasking. This correspond with earlier study carried out by Hudson, Christensen, Kellogg and Erickson (2002), that despite interruptions could be annoying, expected and unexpected it is often for the good of the task as well as for the interrupter and interrupted. When the observed manager was asked about his view on the positive effect of interruption, he responded "in reality he interacts with colleagues (one-on-one) or via technology on daily basis to ensure that folks are on

track to finish tasks within budget and on time. Failure to respond to interruption can affect budget and timely delivery of critical component of the task".
A general notion about interrupted task is they are more difficult to complete, Bailey, Konstan, & Carlis, (2000). Interruption is also thought to last longer to process and create difficulties for managers to return to previous task when the interruption is non-related to the task at hand Curtrell, Czerwinski, & Horvitz, (2010). Furthermore, Eyrolle and Cellier, (2000) revealed that "interruption...can reduce human reliability (p.537)". In support of this it was found that added memorial load makes it difficult to resume abandon task which can lead to difficulties to remember previous task being processed before the interruption Burnistrov & Leonova, (1996) and Dix, Ramduny, & Wilkinson, 1995). As part of the negative consequences of interruption the observed manager was asked if he had suffered any health problems from interruptions, he responded in the affirmative, that he sometimes suffered from headache and fatigue when meeting deadlines.
The common belief interruptions that occur at the point of meeting deadlines are stressful and affect performance is ascertained by the fact that users perform slower on interrupted tasks. This is strong in the minds of some managers despite the existence of evidence that an interruption may in reality accelerate task completion, Zijlsta, Roe, Leonara, & krediet, (1999). Another important factor is time. This may not have adverse effect on interruptions emerging early during a search task but causes the interrupted to forget the primary task goal arriving at a later time Cutrell et al, (2001). The manner in which the interruption is presented is also important – Interruptions presented aurally are given quicker attention than visual stimuli. As such, auditory task in progress are less vulnerable to interruptions than visual tasks Latorella, (1996). Certainly so, an interruption may be deemed negative to ongoing task but pending on the individual performing the task it may not have any detrimental impact on the entire task.
The observed manager's approach in dealing with management of interruptions for - telephone, email and other technological devices include ignoring or avoiding them altogether, turning-off the devices, working in quiet and technological-free environment. In spite of the successes achieved by IMS, the primary aim to minimise the effects of interruption at work places still stands as an obstacle to the effective use of time. The above argument can best be understood by studying four frequently encountered interruptions and their positive and negative consequences according to Andrew J. DuBrin, (2002). Certain types of interruptions serve beneficial purposes; alert and warning, reminders, notifications and suggestions. All types of disruptions are considered as interruptions when they cause change or disturbance in a person's activity or behaviour, Walji, F.M. et al, (2008).
The term notification is often described as the process of informing an individual and defined as "the most generic type of interruptions, the least degree of importance or urgency", Walji, F. M et al, (2008). Notification may be informational in purpose with no clear instruction for action – a notice to inform the manager about the lab results that the requested order is ready as in the case of this research. They may call for actions absolutely without any particular instructions – a lab test with indications that a sample needs immediate analysis. Hence, the notifications may lead to action. The reaction of the observed manager to notifications was presented by his response to the interview question, if he usually turns off his phone or mail system to avoid being interrupted? His response was "he does not turn off his phone. Hence, he is directly responsible for responding to client and the company runs a client oriented business. However he can choose to ignore a call if he does not recognize the number or if the

call is coming from a college not tasked with current deadline. If the interruption is internal he uses communication tools like skype and Lync to indicate he is busy"
These notifications may be notices to inform the manager about completed task or some pending task that needs his immediate attention.
A key important aspect of the concept of interruption is the next activity undertaken after an interruption. Studies on this issue shows little over average did recipients returned to their original activity.
In the case of the observed manager, this scenario can be related to the interview question about how the manager prioritize and reorganize task(s) between what he is currently doing and the content of the interruption(s) requires? He responded that generally most tasks are tied to deadline for completion. Any intervened interruption was assessed in terms of urgency relative to the work load and deadlines, and reorganized tasks as when necessary. The Pm succeeded in most cases to return to prior task before the interruption.
As key a theme to this research and an important issue for managers, management of interruption demands greater attention. Since, it is almost impossible to perform a task without being interrupted at any work environment, smart dealing with disturbances can effectively save huge amount of time. Therefore, it is important to learn how to manage interruption for the purpose of making better use of time. The study in interruption management has interested many researchers and among the forefront runners is Latorella, (1999) who created a model of interruption management and defined interruption management as "...interruption management entails, detecting the annunciation stimulus, interpreting the stimulus in terms of the interrupting task performance requirements, and integrating the interrupting task and the on-going procedure task performance" (p.19).
Other researchers like, Burmistrov and Leonova, (1996) and Eyrolle and Cellier, (2000) also, identified four main Interruption Management Strategies (IMS) in their study which the author exemplified with the manager actions and referred to the theory.

- *The manager observed responded that, as an organization they always put the client's need above everything else. Therefore, when the interruption is from a client, they generally accept the call or respond as soon as possible. However, if the interruption is from other employees, the response can be either immediate or not depending on whether the employee is working on a task with an urgent client deadline.*
  Process the first task to completion before starting the interruptive task

- *Here also, the manager observed responded that, he is flexible when it comes to interruptions e.g. from clients. In the cases of internal interruptions he easily assigned deputy managers to address the interruption.*
  Delay the processing of the interruptive task in order to complete the first task

- *The observed manager responded that, he has to adjust if the interruption is really important and if it's from an important client. Client satisfaction is a key to consulting work.*
  Identify the content of the interruptive task; complete the first task before processing the interruptive task.

- *He responded that he applies professional means using politeness to quickly discuss and resolve key issues of interruptions.*
  Process the interruptive task immediately and complete the first task later.

From the above responses of the manager observed there is no doubt that the strategies very are well utilized.
The analysis in brief explained possible means to mitigate interruptions; handling written and audio notifications, setting-up limitations**,** brief get-away, silencing the phones and holding conversations short.
A common observation between this study and other empirical studies on the subject of interruption is that, managers often try to hold telephone conversations short. This is due to fact there was always a tendency for prolonging pointless conservation when colleagues meet in person/on the phone. Moreover, long conversations take toll on manager's behaviour to resume to work. Many a times manger's mode and work tempo changes after unavoidable long discussions with co-workers or stakeholders. This counts as a negative effect of interruptions. In order to resolve such issues the manager applied professional means through the use of politeness to quickly discuss and settle key issues of interruptions. As such managers can easily return to work without thinking too much of what their previous task was or simply perceive the whole situation less taxing.

5.3 Pms' movement in the office

All observations were made from the office layout plan as shown in figure 7 above. A significant observation made was that the Pm hardly skips interruptions owning to factors influenced by his work environment. These include, personal reasons, working equipment and work colleagues that constantly intercept ongoing work. When these occur, they often call for movement within or out of the office.
Working equipment can demand movement – collecting printed materials from printer, scanning or faxing of documents. A practical example is the printer placed along the corridor adjacent to the Pms' room, see office layout plan. It was observed that the printer was often the cause of movement for the Pm - collect prints, photocopy, scan, and fax documents. The frequency of running to the printer varies with the urgency of the task at hand. Considerable amount of time was spent by the manager on the printer particularly during the process of scan, photocopy and fax several documents.
Among the most noticeable activities observed was the constant in-and out movement of work colleagues to the Pms' office. Most of the interruptions caused by these colleagues were not considered negative, since they were job related issues. Such positive interruptions influenced project's success by eliminating errors, shortening project delivery time and cost cutting.
Some personal reasons that caused the Pm to leave his office were result of self-craving satisfaction – using the rest room, short coffee breaks, meeting family needs etc. It was not uncommon to see the Pm leaving his room to attend to personal issues – lunchbreaks, grab a cup of coffee or meet co-workers to chat over non-work related issues or simply catch fresh air.
How the Pms' responded to telephone calls, SMS, email, web surfing and human interruptions, forms was an interesting part of the research.

Among the devises observed to cause most frequent interruptions was the telephone. Since telephone usage is not only limited to making and receiving calls, SMS instant messages notifications has proved to be the most common form of interruptions for users. This fact applies to both the manager observed in this study and earlier researches.

The analysis revealed respondent from the interviews correspond with the theoretical framework. Many of the answers reflect facts already discussed in the theoretical chapters of the thesis. These highlight difficulties encountered by managers in terms of handling interruptions, resumption as well as reorganizing activities. Also, worth mentioning is the change in speed that occur in the process of executing task at particular moment of the day and week. It was observed with the manager that speed increases with the urgency placed on a task. The most productive moment took place between the early hours of the day. Such moment saw the manager occupied with managerial duties such as coordinating monitoring and directing errands between clients, co-workers and other stakeholders in person or via mobile cell phone, responding to correspondents on the computer as well as keeping track records of accomplished task. The rest of the day was observed to be used for site visits and meetings. This pattern repeat itself for most working days in the week but the level of urgency of a task often force the manager to reschedule some tasks.

6 Discussion

It is an undisputed fact that the observed Project managers' job is fragmented and susceptible to significant levels of disruptions. This reality has being revealed by the result arrived upon by this thesis through the use of concise research methodology; relevant reference materials, internet search engines, observations and interviews. Other factors also used to determine the result reached includes; how the interruptions were defined, the analysis of its management and the unit used for the analysis. The main feature used in this thesis is the management analysis which account for interruptions with respect to interrupter(s), prioritization of interruptions/urgency and reorganisation of work. The unit analysis accounts for mainly the major entity that is being examined in the study – the Project manager.
This study is carried out in the United States of America were working under the name of overtime is unpopular among employees; since some employers do not want to pay employees premium for overtime work or not permit more than two weeks holidays per annum. Against this backdrop, the manager observed did not settle for any extra time, so no overtime was recorded in the study. This lead to one of the results produced in this study that the manager working time does not exceed the stipulated 8 hours work per day. This contradicts other researchers view that managers demand extra work time to compensate for periods of non-productivity caused by interruptions and the likes. As such Project managers apply professionalism by being flexible in handling interruptions from clients; such that it favours both project success as well as help in promoting company's image to potential customers.
It is seen from the explanation of table 2 in the finding chapter that, Interruptions enhance superimpose activities; it creates avenues for new activities that require simultaneous or sequential attention before the resumption of previous task. In this respect, the manager prioritized the interruption from the Assistant Project manager over the senior laboratory technician. The situation craved urgency so as to minimize error and keep the project on track – the manager had to call the client to notify him of the test results.

Taking a closer look at the development of the day's work, around 4 - 5 tasks are usually targeted for completion - contaminated site management, site investigation and assessment, sampling design and sample collection techniques. Mainly these are activities the manager prioritized in the absences of meetings or other issues that require his involvement. It was observed also, that some activities do not require the manager's immediate response; planning, controlling, monitoring and reporting. This valuable opportunity provides manager the possibility to handled interruptions, engage in other errands or delay with activities without impacting project delivery time. In principle managers' are constantly faced with challenges among them is how to bring together, organize, prioritize and respond to the various spontaneously arising tasks as well as the continuous reorganization of activities already planned for, Martine Buser, (2013). This notion is ascertain by this study to which the observed Project manager is no exception.
To justify the reason for using some of the points on the data labelling in section 4.1 is to elucidate those issues that best described happenings that are particularly important and interesting for both thesis and readers. The other points are not considered for the simple reason that they weighed less in terms of importance.

7 Conclusion

The investigation of how and when do interruptions occur and what management strategies are employed by managers to cope with reorganizing their work, has been closely linked to the use of time and organization but fail to capture Project managers' work practice, grasp on managers' activities specifically those involving interruptions through identification of their causes and how they are mitigated. There is no science to predict how and when interruptions do happen. Often is the case that interruptions occur when they want to occur and rationally determined by the urgency of the task in hand. Earlier research from different disciplines on the subject suggested various management strategies for managers on how to cope with the process of reorganizing their work. Literally, these are just theories that constitute ideal situations. In practice, every situation is unique and requires special strategy that will in turn place demands on managers to be quick in responding to the constant flow of interruptive activities. This thesis has employed observation and interview methods to investigate the topic management of interruptions for Project managers through the process of shadowing, interviewing, as well mapping out the managers' practice routine.

As a conclusion to the study, the result revealed situation(s) where the Pm accept/not accept interruptions from; phone calls, co-workers, SMS, emails and other electronic devices were determined by many factors; how must stake the interrupter has on the project, the relevancy of the cause of interruption to the task and the magnitude of attention needed. Some activities demanded much more attention than others; particularly those that can hinder projects progress and success. Response from the interviews revealed that the manager have client's interest as priority over all other stakeholders. For interruptions from other stakeholders and co-workers working on a task, the response can be either immediate or not pending on the urgency to meet delivery time.

The result also, revealed that the reorganization of task was a continuous process. Every time the manager was interrupted and has to suspend an on-going activity, he immediately returned to the previous activity after the interruption. As tasks are always accompanied with deadline for completion, any interruption encountered is assessed in terms of urgency relative to the work load. As such reorganization of tasks will only be done if necessary for the satisfaction of client.

The conducted observations and interviews provided better grasp of the managers' activities and how he mitigated interruption. Both activities utilized key aspects of the thesis - the theoretical framework and methodology to fast track causes of interruptions and eroded the belief that managers spend most of their time in responding to interruptions – clients, other stakeholders, co-workers and electronic devices. The observation and interviews were well planned and executed as to provide the desired results for this thesis. Without the combination of observation and interview it would have been difficult to get a complete understanding of what managers go through in exercising their job routines.

Furthermore, the result shows remarkable observed behaviour and response by the manager in terms of the manner he displayed maturity and experience in handling issues of interruptions. As mentioned earlier in the thesis there was not a moment of panic noticed during the period of observation neither in the manager's responses to questions

about interruptions. Since urgency cannot be separated from stress, the observation and interview responses showed that the manager does not suffer any severe physical or mental illness due to stress. However, experiences of slight headache and fatigue are not uncommon when there are too many interruptions in the midst of urgency to meet deadlines.

If the same thesis is to be re-written, I would like to initiate changes in the use of communication devices that counts as the most common sources of interruption. One way of doing this, is to program mobile phones to ring or signal notifications only for stakeholders and family members doing busy moments. But since there is no science to predict the occurrence of interruptive activities and that constant streaming of interruptive activities can offset managers from their busy schedule; it is the best of idea to utilize planned time to limit interruptions. Project managers shall have to manage interruptions by prioritizing interrupters, urgency and the urge to resume prior task before the interruption. In that sense, I am suggesting that managers not only write day today work plans but use other aids to constantly remind them of their days plan.

7.1 Future research

This thesis has provided additional arguments in managing interruptions for Project managers, reflecting both reality and theory. But judging from this thesis's findings and conclusions, several points can be further addressed. For example, two possible questions could be:

* What are the best practices in managing interruptions for Project managers?

* What are the challenges for making decisions in interruptions for managers?

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Appendix

1.1 Interview questions

Gender – Male

Job Position – Project manager

1. In what situation(s) does the Pm accept/not accept interruptions from; phone calls, people in the office, SMS, emails and other electronic devices?

2. What are the criteria as to how he decides to handle interruption instantly or not for new large task(s)?

3. Who is/are the interrupter(s) e.g. clients, coworkers, boss, personal network, etc.? What are the interruption about, its urgency and size?

4. Have the Pm criteria as to how he prioritizes interruptions i.e. emergency versus general; easy to deal with versus time consuming task(s)?

5. How does the Pm prioritize and reorganize task(s) between what he is currently doing and the content of the interruption(s) requires?

6. Does the Pm spare some time during the day to answer to interruption(s) (e.g. unexpected questions from colleagues, calls, etc.)?

7. Is there any part of the work day where he does/not accepts interruption(s); early morning, before/after lunch, in the afternoon?

8. Does he answer phone calls during break, lunch or not?

9. Does he turn off his phone or mail system to avoid being interrupted? Does he feel stressed by the interruptions? On a scale of 1 – 5 what level of stress does the PM experience with the different forms of interruptions?

10. In average how much of the work day is spent answering interruptions?

11. How many different tasks can the PM handle at the same particular time?

12. What does the PM when his schedule is suddenly interrupted?

13. How does the PM manage distraction and constant questioning?

14. How flexible is the PM in relation to being accessible and how much time he can spare for interruption(s)?

15. In general how does the PM view interruption in the workplace?

1.2 Interview respondents

1. In what situation(s) does the Project manager accept/not accept interruptions from; phone calls, people in the office, SMS, emails and other electronic devices?

   Response: As an organization we always put the client's need above everything else. Therefore, when the interruption is from a client, I generally accept the call or respond as soon as possible. If the interruption is from other employees, the response can be either immediate or ignored depending on whether the employee is working on a task with an urgent client or deadline.

2. What are the criteria as to how Pm decides to handle interruption instantly or not for new large task(s)?

   Response: 1) Depends on deadline of the current task, 2) availability of staff or other resources to help with response.

3. Who is/are the interrupter(s) e.g. clients, co-workers, boss, personal network, etc.? What are the interruption about, its urgency and size?

   Response: clients, co-workers. Interruptions can include: an urgent request from a client in which you have to drop what you are doing and divert your attention to respond. Interruptions can also include reviewing urgent modification in real time for a field assignment. The size and urgency can vary depending on the magnitude of the task and the legal implications.

4. What are the Pm's criteria for prioritizing interruptions i.e. emergency versus general; easy to deal with versus time consuming task(s)?

   Response: Interruptions are classified as: 1) Emergency to be done now – in which case the Pm put all other work aside and deal with the interruption as soon as possible, 2) Emergency to be done soon because its time consuming – a schedule is developed to get it done. 3) General or non-emergency – can be done later.

5. How does the Pm prioritize and reorganize task(s) between what he is currently doing and the content of the interruption(s) requires?

   Response: In general most tasks have a deadline for completion. Any interruption that comes will be assessed in terms of its urgency relative to the workload and deadlines, and reorganization of tasks will only be done if necessary for client satisfaction.

6. Does the Pm spare some time during the day to answer to interruption(s) (e.g. unexpected questions from colleagues, calls, etc.)?

   Response: In general the Pm has a list of items to complete each day, but the list of items may not be completed depending on interruptions from clients or colleagues. It is therefore critical for Pm to be able to delegate work to others for a more efficient operation. Delegating this work provides Pm with time to interact with

colleagues who are performing the work and also to respond to interruption from clients.

7. Is there any time during work hours the Pm does/not accepts interruption(s); early morning, before/after lunch, in the afternoon?

   Response: There is no particular time of the day when interruptions are accepted or ignored. All response to interruptions depend entirely on deadlines, or whether Pm is on a client call or other conference call. However, a notice to prevent unnecessary interruption hangs on the Pm's office door stating permited periods for interruptions.

8. Do the Pm answer phone call during break, lunch or not?

   Response: The Pm do respond to calls during break, lunch or evening after hours depending on what he perceives the call will be about. Typically, when deadlines approach employees can work very late and the PM therefore has to respond if a colleague has a question at odd hours or if a client has task related comments that need to be addressed immediately.

9. Does the Pm turn off his phone or mail system to avoid being interrupted? Does he feel stressed by the interruptions? On a scale of 1 – 5 what level of stress does the Pm experience with the different forms of interruptions?

   Response: The Pm does not turn his phone off as he is directly responsible to respond to client since the company runs a client oriented business. However, the Pm can choose to ignore a call if he does not recognize the number or if the call is coming from a colleague not tasked with current deadline. In the case of internal interruption the Pm can use communication tools like skype and Lync to indicate that he is busy. The level of stress depends on the need to be able to meet client expectation when an interruption occurs. If a deadline is in jeopardy and a client interrupts the stress level will be 5 if the client expresses dissatisfaction with a certain aspect of the work. A stress level of 1 occurs when deadline will be met and initial client expectation is satisfactory. In special cases where the Pm is in charge of multiple projects or tasks, the stress level from colleagues can reach 5 if everyone is waiting for direction from the Pm at the same time.

10. On average how much of the work day is spent answering interruptions?

    Response: On average interruptions can vary from as little as 2 hours to 8 hours a day. In a case of scheduled sampling event that depends on rainstorm for example, interruptions about the probability of rain, crew safety, and ability to complete task in time for shipment of samples can result in constant interrupted phone calls and emails throughout the day.

11. How many different tasks can the Pm handle at the same particular time?

    Response: The Pm can handle up to 4-5 tasks at a time, but he delegates the details to other colleagues. Therefore, the Pm focuses on tracking progress and making sure colleagues have the resources and time to get tasks completed.

12. What does the Pm do when his schedule is suddenly interrupted?

    Response: The Pm has to reorganize his work or reschedule some tasks if the interruption is really important or it is from an important stakeholder. Client satisfaction is the key to consulting work. The Pm often delegates some tasks to his assistant (Deputy Pm) to help get things done faster.

13. How does the Pm manage distraction and constant questioning?

    Response: The Pm typically writes an email to clarify things and avoid repetition.

14. How flexible is the Pm in relation to being accessible and how much time he can spare for interruption(s)?

    Response: The Pm is flexible when it comes to interruptions from stakeholders. For internal interruptions, the Pm can easily assign the deputy Pm to address certain interruption issues. However, because the company's business is client oriented the Pm has to be available to clients and give clients the confidence that their needs will be met.

15. In general how does the Pm view interruptions in the workplace?

    Response: When someone becomes Pm, his/her job description is to make sure that the project runs smoothly and clients' needs are met. Therefore, the role of the Pm is service oriented and intertwined with significant portion of interruption. In fact, the Pm is constantly interrupted by colleagues on daily basis inorder to minimise error, ensure project is on task, within budget frame and time. Failure to respond to interruption can affect budget, timely delivery of critical component of the task as well as quality.