Open-plan layout: A Workplace Evaluation of Small Offices in Hong Kong

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DECLARATION

I hereby certify that the work embodied in this Dissertation Project is the result of original research and has not been submitted for a higher degree of any other University or Institution.

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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title Page</td>
<td>i</td>
</tr>
<tr>
<td>Declaration</td>
<td>ii</td>
</tr>
<tr>
<td>State of Originality Authorship</td>
<td>ii</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>iii</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>iv</td>
</tr>
<tr>
<td>Abstract</td>
<td>xii</td>
</tr>
</tbody>
</table>

## CHAPTER 1 - INTRODUCTION

1.1 Background                                         | 1    |
1.2 Issues                                             | 2    |
1.3 Research Questions and Aim                         | 3    |
1.4 Research Objective                                 | 4    |
1.5 Brief Methodology                                  | 4    |
1.6 Research Limitation/Scope of Work                  | 5    |
1.7 Structure of the Dissertation                      | 6    |

## CHAPTER 2 - LITERATURE REVIEW

2.1 Introduction                                       | 8    |
2.2 Office Layout History and Development              | 8    |
    2.2.1 Office in 19th Century                          | 8    |
    2.2.2 Office in the Industrialization Period         | 9    |
    2.2.3 Office in the 1950s to the 1970s – Beginning of the Open-plan Layout | 10   |
    2.2.4 Office in the 1980s to the 1990s               | 11   |
2.2.5 Green Offices

2.3 Open-plan Offices in Hong Kong

2.4 Advantages and Disadvantages of the Open-plan Office Layout
   2.4.1 Advantages of the Open-plan Office Layout
   2.4.2 Disadvantages of the Open-plan Office Layout

2.5 Key Office Environmental Factors for Open-plan Office

2.6 Summary

CHAPTER 3 - METHODOLOGY

3.1 Introduction

3.2 Research Approach

3.3 Research Design
   3.3.1 Experimental Design
   3.3.2 Cross-sectional Design
   3.3.3 Longitudinal Design
   3.3.4 Comparative Design
   3.3.5 Case Study Design

3.4 Research Method
   i. Synopsis
   ii. Sample
   iii. Data Collection
   iv. Interview
   v. Observation

3.5 Ethical Consideration
3.6 Data Analysis

3.7 Summary

CHAPTER 4 - CASE STUDY

4.1 Introduction

4.2 Case Selection and Reasoning
   i. Hong Kong as a Business Market
   ii. Marketing Services
   iii. Case Selection – Industry Sector

4.3 Offices in Hong Kong
   i. Business Districts in Hong Kong
   ii. Case Selection – Office

4.4 Case A – Company A
   4.4.1 Overview
   4.4.2 Organization
      i. Employees
      ii. Nature of the Industry
      iii. Job Description
   4.4.3 Outdoor Environment
      i. Location/District Environment
   4.4.4 Indoor Environment and Layout
      i. Building Type, Floor, Layout, Size, Separate Area and Rooms
      ii. Ventilation/Air Quality
      iii. Lighting/Window Access
iv. Desk Layout/Proximity

4.5 Case B – Company B

4.5.1 Overview

4.5.2 Organization

i. Employees

ii. Nature of the Industry

iii. Job Description

4.5.3 Outdoor Environment

i. Location/District Environment

4.5.4 Indoor Environment and Layout

i. Building Type, Floor, Layout, Size Separate Areas and Rooms

ii. Ventilation/Air Quality

iii. Lighting/Window Access

iv. Desk Layout/Proximity

CHAPTER 5 - ANALYSIS

5.1 Introduction

5.2. Interview Data and Intra-Case Analysis

5.2.1 Noise

5.2.2 Lighting/Natural Light

5.2.3 Thermal Condition

5.2.4 Privacy

5.2.5 Interaction

5.2.6 Distraction
5.3 Inter-Case Analysis and Discussion
   i. Noise 73
   ii. Lighting/Natural Light 74
   iii. Thermal Condition 75
   iv. Privacy 77
   v. Interaction 78
   vi. Distraction 79

5.4 Summary of Findings 80

5.5 Framework for small office environment in Hong Kong 82

CHAPTER 6 - CONCLUSION

6.1 Overview 83

6.2 Findings 85

6.3 Conclusion 88

6.4 Implication for Future Research 89

List of Figures

Figure 2.2.1 Cellular office layout in the 19th century in America 9
Figure 2.2.2 Bullpoint-style Office Layout 10
Figure 2.2.3 Open-plan Office Layout 11
Figure 2.2.4 Office with mixed spaces – Open space and Cellular Offices 12
Figure 2.3.1 Floor Plan of An Open-Plan and Cellular Office Layout 14
Figure 3.1 Procedure for data collection – Company A and Company B 30
Figure 3.2 Structure of Interview Questions 32
Figure 4.2.1 Location of Hong Kong 36
Figure 4.3.1 Map of Hong Kong

Figure 4.3.2 Rental price levels of different Hong Kong office sub-markets as of Q3 2013

Figure 4.3.3 Distance between Company A and the prime offices in Central

Figure 4.3.4 Distance between Company B and the prime offices in Tsim Sha Tsui

Figure 4.4.1 Organizational Chart of Company A – Office A

Figure 4.4.2 Map of Wyndham Street, Central

Figure 4.4.3 Image of Wyndham Street, Central

Figure 4.4.4 Floor plan – Company A

Figure 4.4.5 Building and lobby of Company A

Figure 4.4.6 Interior of Company A

Figure 4.4.7 Windows and A/C in Company A

Figure 4.4.8 A/C installed on the ceiling of Company A

Figure 4.4.9 Lighting in Company A

Figure 4.4.10 Desks in Company A

Figure 4.5.1 Organizational Chart of Company B – Office B

Figure 4.5.2 Map of Tsim Sha Tsui East, Kowloon

Figure 4.5.3 Image of Tsim Sha Tsui East, Kowloon

Figure 4.5.4 Floor plan of Company B

Figure 4.5.5 Meeting room in Company B

Figure 4.5.6 Lighting in Company B

Figure 4.5.7 Windows in the office of the CMO in Company B

Figure 4.5.8 Office entrance of Company B
List of Tables

Table 2.1 Office Layout History 13
Table 2.2 Advantages of the Open-plan Layout 16
Table 2.3 Disadvantages of the Open-plan Layout 18
Table 2.4 Summary of the Key Environmental Factors of the Open-plan Layout 20
Table 3.1 Differences between the quantitative and qualitative research strategies 24
Table 4.1 Grade of office building as defined by the R&V Department of the Hong Kong Special Administrative Region Government 39
Table 5.2 Identification Chart of the Participants 59
Table 5.2.1 Participant Demographic 59
Table 5.2.2 Summary of feedback on noise 60
Table 5.2.3 Summary of feedback on Lighting and Natural Light 62
Table 5.2.4 Summary of feedback on Thermal Condition and Quality 65
Table 5.2.5 Summary of feedback on Privacy 67
Table 5.2.6 Summary of feedback on level of interaction 69
Table 5.2.7 Summary of feedback on level of interaction 71
Table 5.3.1 Summary of Noise Impact on Office Environment 74
Table 5.3.2 Summary of Lighting on Office Environment 75
Table 5.3.3 Summary of Thermal Quality in Office Environment 76
Table 5.3.4 Summary of Privacy on Office Environment 78
Table 5.3.5 Summary of Interaction on Office Environment 79
Table 5.3.6 Summary of Distraction on Office Environment 80
Table 5.4.1 Summary of the findings 81


<table>
<thead>
<tr>
<th>List of References</th>
<th>91</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendices</td>
<td>96</td>
</tr>
<tr>
<td>Appendix 1 Individual Information Statement</td>
<td>95</td>
</tr>
<tr>
<td>Appendix 2 Individual Consent Form</td>
<td>100</td>
</tr>
<tr>
<td>Appendix 3 Organizational Information Statement</td>
<td>103</td>
</tr>
<tr>
<td>Appendix 4 Organizational Consent Form</td>
<td>107</td>
</tr>
<tr>
<td>Appendix 5 Human Research Ethics Committee Ethics Approval</td>
<td>110</td>
</tr>
<tr>
<td>Appendix 6 Interview Questions</td>
<td>114</td>
</tr>
<tr>
<td>Appendix 7 Key Office Indoor Environmental Factors</td>
<td>117</td>
</tr>
</tbody>
</table>
ABSTRACT

Hong Kong is a very densely populated city but offers an excellent environment for many business owners to run their business in South-East Asia region. However, the lack of space and great demand for office makes rental very expensive in Hong Kong. In order to save space and rents, many small to medium business may opt to find a cost effective solution for their office leading to increasing use of an open-plan office layout. This paper looks specifically at the end users perspective on their office layout such as an open-plan layout versus traditional cellular office. Six key environmental factors of office layout are derived from literature review namely, noise, lighting, thermal quality, privacy, interaction and distraction. These six factors are used to set up parameters to evaluate feedback of the employees from case studies of both open plan and cellular office layout in Hong Kong.

Face-to-face interviews with employees from case studies of open plan and cellular office are evaluated using intra-case and inter-case analysis. The results indicated that the open plan layout offered more advantageous in terms of the working environment as compared to the cellular office, but has concerned issues with noise and privacy. The open plan layout provided greater advantage in terms of allowing more natural light into the office and also better thermal quality as well as greater interaction. The level of distraction was indifferent between the two office layouts. The study suggested that a hybrid open plan office layout with a small private enclosed space will overcome both noise and privacy issues and will create a favorable workplace environment for employees in the small office in Hong Kong.
CHAPTER 1

1.1 Background

Hong Kong is “Asia’s world city,” serving as an international business hub, a top financial and trading center, and a gateway to Mainland China (HKGOV, 2008; DTZ, 2005). Located in the southeastern part of China, Hong Kong is conveniently located at the center of East Asia. Hong Kong is a city that offers and exercises free trade and free market with the freedom of capital, transparent regulations, low taxation, no trade barriers, and no discrimination (HKGOV, 2008). Research results on the Hong Kong government show that, as of 2008, overseas and Mainland companies in the city and people in the labor force amount to 6.612 million and 3.65 million, respectively, showcasing Hong Kong as a business friendly environment. Given the limited office space availability, the great demand for office space in the main business districts has given rise to rental growth in Hong Kong and has set a trend for offices to move away from business districts (DTZ, 2005). The main business districts in Hong Kong are Central, Sheung Wan, Wanchai, and Causeway Bay on Hong Kong Island and Tsim Sha Tsui in Kowloon Island (detailed locations are illustrated in Appendix 4.2). Companies that choose to stay in the main business districts are expected to either pay higher rent or occupy a smaller space in a lower grade office space. Organizations are then faced with the issue of finding a suitable office space within budget to operate their business in Hong Kong. The office space should also provide a suitable work environment, as one of the most important assets of an organization is its people. If employees do not perform well, the business is unlikely to perform just as well (Oseland, 2009). Many studies on work environment have examined how different factors affect employees’ thoughts and behavior (Dinc, 2009). Researchers have attempted to examine the effect of lighting, noise, temperature, and thermal quality on workers’ concentration (Banbury & Berry,
2005), job satisfaction and performance (Sundstrom et al., 1994), productivity (Mak & Lui, 2012), and organizational commitment (Wolfeld, 2010). Researchers have also studied the different types of office plan layouts and their relation to workers’ environment satisfaction level and performance (Brennan, Chugh, & Kline, 2002), focused attention (Jackson, Klein, & Wogalter, 1997), level of participation (Mohammad & Binyaseen, 2010), level of communication and privacy (Brennan, Chugh, & Kline, 2002), and difference in behavior of senior management (Crouch & Nimran, 1989).

1.2 Issues

Many offices are adopting the open-plan layout because of its many benefits, including reduced operation cost and maintenance (Herman Millar, 2008; Brennan et al., 2002). The open-plan office layout is defined as a work space design that places a greater number of people in a common area with lack of interior walls separating the space, often provided with necessary equipment and tools to perform the job tasks (Brookes & Kaplan, 1972).

In fact, the increasing real estate and building costs have forced a decrease in space allocated to each worker in Hong Kong, where space is limited and expensive. Therefore, many offices in Hong Kong have adapted office spaces with an open-plan design whether in a small or large scale (Pan & Cheung, 2007) to enable more flexibility for communication, space saving, and cost reduction compared with cellular offices. However, some research findings suggest that open-plan offices are associated with decreased level of perceived privacy, lowered job satisfaction, and reduced motivation (Smith-Jackson & Klein, 2009). Many studies on office layout are based on the U.S., European, or Australian context, and only a few are related to Asian office environment and in the context of Hong Kong. A research conducted by Pan and Cheung (2008)
examined larger offices in Hong Kong and used the case study method to compare the level of noise and distraction reported by people working in open-plan layouts and cellular offices. Results showed that the lower density in enclosed office spaces was generally preferred by the participants. However, not much research has been conducted on office layout in Hong Kong, specifically small offices. As of June 2014, small and medium enterprises (SMEs) in Hong Kong totaled to 320,000, accounting for over 98% of the total business units, and jobs were offered to almost 1.3 million people, which is about 47% of the total employment. By definition, non-manufacturing companies with less than 50 employees and manufacturing companies with less than 100 people are referred to as SMEs in Hong Kong (HK Gov, Census, and Statistics Department, 2014). As the productivity of small companies depends on the performance of employees working in small office environments, the findings of the present study, which specifically examines the effectiveness of small open-plan office spaces in Hong Kong, are important. The next section outlines the research questions and aims of this dissertation.

1.3 Research Questions and Aim

This study aims to explore employees’ perception of their effectiveness when working in a small open-plan office versus a cellular office layout in Hong Kong. The research identifies the employees’ evaluation of their small office layout in the context of the Hong Kong environment. The experiences of people working in open-plan and cellular offices are compared and contrasted to examine the layout and environment, to explore their perception of the current situation, and to determine if the ideal is different. Determining whether open-plan offices are perceived to be more effective than cellular offices in Hong Kong is necessary. The research specifically examines how people feel about the six office indoor environmental factors of the open-plan office layout derived from the literature, namely, noise, natural light, thermal quality,
privacy, interaction, and distraction, to study the effectiveness from the perspective of the people working in the office.

1.4 Research Objective

To address the research problem, this study aims

1. To investigate the workers’ perception on the following six office indoor environmental factors within the company:
   a) Noise: To explore the perceived level of noise in small offices in Hong Kong.
   b) Natural light: To explore the perceived level of natural light received by small offices in Hong Kong.
   c) Thermal Quality: To explore the perceived thermal quality in small offices in Hong Kong.
   d) Privacy: To explore the perceived level of privacy in small offices in Hong Kong.
   e) Interaction: To explore the perceived level of interaction among colleagues in small offices in Hong Kong.
   f) Distraction: To explore the perceived distractions in small offices in Hong Kong.

2. To compare open-plan and cellular office layouts in Hong Kong in terms of the six key performance factors.

3. To examine the effectiveness of a small open-plan office layout in the Hong Kong environment.

1.5 Brief Methodology

This research adopts the qualitative method, which is more interpretative and meaningful, to understand the behavior of those working in an open-plan office compared with a cellular office layout. Specifically, a case study approach is applied, which enables the participants to tell their
stories and the researcher to understand their viewpoints and behaviors. As the research involves the comparison of two different office layouts (i.e., open-plan and cellular office), intra-case analysis (within a single case) and multiple or inter-case study (between the two case studies) approaches are adopted to compare the participants’ opinions for analysis.

1.6 Research Limitation/Scope of work

This research has several limitations in terms of sample size, generalization, and cultural difference.

The first limitation is the sample size of the study. This research adopts the case study method and examines only two companies in Hong Kong because of limited time and resources. Both companies are located in the business districts of the city, with one company located in Central, Hong Kong, and another in Tsim Sha Tsui, Kowloon. These two companies represent the typical small offices in the Hong Kong environment, with one being an open-plan layout and the other a cellular office.

The second limitation is the issue of generalization. As only two companies are examined in this study, the result cannot be generalized across all industries in Hong Kong. However, the two companies are in the Public Relations and Sales & Marketing industries, which are key industries in Hong Kong that consist thousands of small companies operating in small offices, and therefore are able to give good insight into the effectiveness of small offices in the Hong Kong environment.

The third limitation is the issue of cultural differences. Both participating company owners are not of Chinese origin, and their business operation style and concepts may be different from those of local Chinese Hong Kong people. Nevertheless, the participants are mixed between non-
Chinese and Chinese origin and are a good representation of the mixed cultural background of the working population in the multinational city of Hong Kong.

1.7 Structure of the Dissertation
This dissertation is divided into six chapters:

Chapter 1: Introduction begins with an overview of the workplace and the issues arising from the use of an open-plan office layout around the world. The research problem and objective, summary of methodology, limitation of the research, and outline of the dissertation are presented in this chapter.

Chapter 2: Literature Review presents the history and development of the office layout around the world. The chapter focuses on the open-plan office layout by examining the advantages and disadvantages stated in the literature. The research gap in the workplace evaluation of small open-plan offices in Hong Kong is discussed, and the six office indoor environmental factors related to the open-plan office layout are identified.

Chapter 3: Research Method presents the different methodologies and research designs available and discusses the chosen method and supporting reasoning. Information on data collection procedures, including the sample and interview questions, is given. The ethical considerations for this research are also presented.

Chapter 4: Case Study describes the case selected for this research along with the supporting reasoning. Each selected case (i.e., Company A and Company B) is described in detail, including the organization, industry, and nature of the business; the employees working at the company; the office layout; the building type; and the exterior environment of the area.
Chapter 5: Data Analysis and Discussion presents the data obtained from the case study participants in Company A and Company B. Feedback from the participants is analyzed within the case (intra-case) and across the two cases (inter-case) for comparison and contrasting. The discussion section summarizes the findings of the study.

Chapter 6: Conclusion states the findings and implications for the open-plan small office in the Hong Kong environment. The answers to the research questions and aims in evaluating the small offices in Hong Kong are presented. Recommendations for future research are also given.
CHAPTER 2

2.1 Introduction

This chapter is divided into five sections and provides an overview of the literature on office layout. Section 2.1 presents the introduction, and Section 2.2 discusses the history of the office layout since the 19th century until the 21st century, specifically focusing on the origin of the open-plan layout. It then examines the literature on office layout, illustrating the advantages and disadvantages of open-plan and cellular office layouts. Section 2.3 discusses the key indoor environmental factors of the office environment derived from scholarly research. Section 2.4 discusses the advantages and disadvantages of an open plan office. Section 2.5 provides the summary of the literature on office layout and the factors to be examined in this research.

2.2 Office Layout History and Development

Office layout in organizational literature has mainly been described as the traditional cellular office in 19th century but has shifted to the open-plan office contemprarily (Davis et al., 2010, Crouch & Nimran, 1989). To understand the major changes of office layout, this section will examine its history and development.

2.2.1 Offices in 19th Century

Traditionally, companies are composed of cellular offices (Figure 2.2.1) that are enclosed with four walls and can accommodate one occupant, providing the occupant with a station required to perform job tasks (Davis et al., 2010; Crouch & Nimran, 1989). Hoeflich (2003) describes an American law office in the 19th century as follows:
“A lawyer’s office would have been one or two rooms equipped with a desk, some bookshelves to contain the lawyer’s working library, a scrivener’s desk, some chairs, and some form of lighting so that those in the office could work at night.”

The law office would have two to three people working including the lawyer, and the office functioned as a place of producing, stringing, and retrieving documents.

Figure 2.2.1 Cellular office layout in the 19th century in America (source: Early Office Museum, 2000 & University of South Carolina School of Law, 2014; )

2.2.2 Office in the Industrialization Period

During the industrial revolution, a significant increase in white-collar workers became part of the workforce in industrialized nations, which gave rise to the formation of larger organizations that required wider spaces for their workers (Levin, 2007). To provide white-collar workers with a common place to work, the bullpen-style office was developed in the United States during the 1930s. The bullpen-style office (Figure 2.2.2) is a large open space with desks that are grouped according to their function or department (Baldry, 1997). Typically, the office comprised
numerous rows of desks in a large room, where the white-collar employees would work, and a few managerial staff would stay in cellular offices (Brand, 2009).

Figure 2.2.2 Bullpen-style Office Layout (Source: Early Office Museum, 2000 & Blog.neosusa - Staci, 2012)

2.2.3 Office in the 1950s to the 1970s – Beginning of the Open-plan Layout

The open-plan office, which resembles the bullpen style, is a working area with no internal walls shared with other people and in its purest form does not have any cellular cubical office (Sundstrom, Herbert & Brown, 1982; Crouch & Nimran, 1989; Davis et al., 2010). Open-plan offices (Figure 2.2.3) originated from Germany in the 1950s during the industrialization period. Eberhard and Wolfgang Schnelle introduced the Burolandschaft or “office landscape,” which had movable furniture and screens and was supposed to reflect an egalitarian management style (Baldry, 1997). The idea was developed to provide a flexible work space that meets the requirements of the fast-paced organizational environment and provides a suitable interior that promotes the egalitarian thought or equal working conditions for the workers during the industrialization period (Baldry, 1997; Roper & Juneja, 2008).
In Europe during the 1960s, the office was perceived as a “communication system” as an open floor plan promotes information flow across the open-plan office. A decade later, the rise of labor power and the articulation of users of their interests gave rise to the development of the workplace as a platform for “social engagement.” Open-plan offices became widespread in the United States during the 1960s (Davis et al., 2010). The offices were simpler, generic, and offered less individual control (Cabe, 2005). The open-plan office layout was also introduced to help generate efficient communication among the employees working together (Sundstrom, Herbert & Brown, 1982). The open-plan layout became the most popular layout in the 1970s, and it was widely used by corporations, as observed by many who shifted to this layout from the conventional design (Brennan et al., 2002).

2.2.4 Office in the 1980s to the 1990s

In the 1980s, people working in the open-plan layout began to feel that it lacked privacy and increasingly reported noise from their colleagues in the office. Thus, architects and interior
designers began to consider using cellular offices in combination with the open-plan layout (Davis et al., 2010) (Figure 2.2.4).

In the 1990s, a new revolution of workplace was introduced. Called the “new way of working,” this workplace recognizes that information technology has transformed the process of working. The digital and virtual world minimizes the need for people to stay together in a confined space to carry out a defined task (Cabe, 2005).

### 2.2.5 Green Office

An increasing number of studies have been conducted on sustainable design and green buildings, and these buildings have been regarded as the future of the building industry (Akadiri et al., 2012). The new buildings during this period had to meet energy regulations and were thus typically designed to have workspaces with more natural ventilation by putting small windows in cellular offices. Green design uses sustainable materials and methods in the construction of new buildings or renovation of old ones (Wiley et al., 2010). The Leadership in Energy and Environmental Design (LEED) was developed by the U.S. Green Building Council to guide and
encourage the use of sustainable practices, which include water saving, energy saving, choice of materials, sustainable development of site, and quality of the indoor environment (USGBC).

A study by Armitage and Murugan (2013) compared the responses from employees working in green and those in non-green office environments to examine if any social benefits could be derived from working in a green building. They concluded that great benefits could be obtained by those working in a green office environment. Specifically, the participants from green environments reported that they were significantly happier and healthier than those who worked in non-green environments. Greater satisfaction levels were also reported in terms of thermal comfort, natural light, views, air quality, and control in the green office. Healthier buildings increase productivity and reduce the number of employees calling in sick. An economic benefit can also be derived by managers who consider adopting green building practices in terms of retaining employees (Miller et al., 2008). Although green offices present many advantages to the end-users in the workplace, a challenge of this layout is that its application requires at least 5% increase in cost unlike in the building of non-green offices (David Langdon, 2008). Therefore, although green buildings are becoming more popular, they remain expensive.

The history of the office layout is presented in Table 2.1, which lists the different types of office layouts used during different periods.

Table 2.1 Office Layout History

<table>
<thead>
<tr>
<th>Office Layout History</th>
<th>Type of Office</th>
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</thead>
<tbody>
<tr>
<td>19th Century</td>
<td>Cellular Office</td>
</tr>
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<td>Industrialization (early 1900s)</td>
<td>Bullpen-style Office</td>
</tr>
<tr>
<td>1950s–1970s</td>
<td>Beginning of the Open-plan Office</td>
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<tr>
<td>1980s–1990s</td>
<td>Office with Mixed Open-plan and Cellular Offices</td>
</tr>
<tr>
<td>21st Century</td>
<td>Green Office</td>
</tr>
</tbody>
</table>
2.3 Open-plan Offices in Hong Kong

A limited supply of offices in Hong Kong forces business firms to purchase or rent small offices with a small space per person (Jayantha, 2014). Many businesses are faced with the high rental and operational costs because of the expensive cost of land and the shortage of space in Hong Kong (BKR International, 2013). Therefore, open-plan offices, which are recognized as the most cost-efficient layout, are among the popular options for business owners rather than cellular offices. As the study specifically looks into small companies occupying small office spaces, examining the open-plan layout, which is the most typical layout for small office spaces in Hong Kong, is valuable. Figure 2.3.1 shows the typical floor plan of an open-plan and cellular office layout. The next section reviews the literature on the advantages and disadvantages of the open-plan office layout.

Figure 2.3.1 Floor Plan of An Open-Plan and Cellular Office Layout (Source: Grapholite.com & Edrawsoft.com, 2015)

2.4 Advantages and Disadvantages of the Open-plan Office Layout

This section discusses the open-plan office layout and its advantages and disadvantages over the conventional cellular office layout and examines the literature in favor of and against the open-plan office layout to identify its advantages and disadvantages.
2.4.1 Advantages of the open-plan office layout

The open-plan office layout is ideally designed so that people working together are close enough to have efficient communication. Based on the social facilitation hypothesis, an office, which enables greater communication, can facilitate greater productivity (Brennan et al., 2002). The open-plan office is commonly perceived to require less floor space, enable easier access to daylight, and offer greater flexibility than a cellular office layout (Sundstrom et al., 1982). Moving furniture is significantly easier in an open-plan office than in a cellular office, thus implying greater flexibility and reduced cost when change is required in an organization (Davis et al., 2010). The open-plan layout reduces the cost of building and maintenance, as well as expensive and unusable spaces (Brennan et al., 2002; Jackson et al., 1997; Baldry, 1997). Table 2.2 summarizes the advantages of the open-plan office layout according to researchers. Proponents of the open-plan layout suggest that, when employees are relocated to an office with this layout, they increase the flow of information and their level of communication with other workers (Allen & Gerstberger, 1973; Jackson et al., 1997), engage in more social conversations (Ives & Ferdinands, 1974), and improve group unity (Brookes and Kaplan, 1972). Wah (1998) argued that the proximity of the team members to one another contributes to productivity. According to Gifford (1998), light and décor affect communication; therefore, setting a home-like décor and normal-bright lighting increases communication among users. In the study on window access conducted by Stone and Irvine (1994), a windowed room was reported to be more helpful in accomplishing creative tasks but least helpful with concentration tasks, such as filing. The results showed that the participants performing creative tasks felt positive about the tasks and the room when an access to a window was available. Stone and Irvine concluded that the higher performance levels were obtained for certain types of jobs, such as filing and creative
tasks, when a direct view was available. This finding suggests that the presence of a window does make the environment more stimulating for users. In his field study on office workers, Kaplan (1992) found that workers who had a window view of nature felt less frustrated and more patient, and that they reported a better overall life satisfaction and health than the workers who did not have visual access to the outdoors or whose view consisted of built elements only. Gilleard and Tam (2002) conducted a case study on a large organization that occupied a floor space of 5,000 square meters (53,000 square feet) in Hong Kong to examine the perception and feedback of its employees on the workplace redesign from a cellular plan to an open-plan layout. The results of the post-occupancy survey showed that the employees generally felt positive about their new office layout and facilities. The users reported that the desks and chairs were more comfortable and the lighting in their workstation was significantly better, which resulted in higher satisfaction levels as they were involved in choosing their own personal furniture and the height of the panels before the move. The cellular offices were demolished and constructed into meeting and function rooms. Thus, the users had higher satisfaction levels.

Table 2.2 Advantages of the Open-plan Layout

<table>
<thead>
<tr>
<th>Researchers</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brennan et al., 2002; Davis et al., 2010; Sundstrom et al., 1982</td>
<td>Greater productivity</td>
</tr>
<tr>
<td>Sundstrom et al., 1982</td>
<td>Less floor space, easier access to daylight</td>
</tr>
<tr>
<td>Brennan et al., 2002; Jackson et al., 1997; Baldry, 1997; Davis et al., 2010</td>
<td>Reduced cost of building, maintenance, and expensive and unusable spaces</td>
</tr>
<tr>
<td>Allen &amp; Gerstberger, 1973; Jackson et al., 1997; Brookes and Kaplan, 1972</td>
<td>Increases information flow and improves level of communication among workers</td>
</tr>
<tr>
<td>Brookes and Kaplan, 1972</td>
<td>Increased group unity and sociability</td>
</tr>
<tr>
<td>Ives &amp; Ferdinands, 1974</td>
<td>Increased social conversations</td>
</tr>
<tr>
<td>Vischer, 2005</td>
<td>Able to accommodate more people in one space</td>
</tr>
<tr>
<td>Wah, 1998</td>
<td>Proximity of team members to one another contributes to productivity.</td>
</tr>
<tr>
<td>Gifford, 1998</td>
<td>Light and décor affect communication, and normal-bright light increases communication among the users.</td>
</tr>
<tr>
<td>Stone and Irvine, 1994</td>
<td>Participants reported having more positive feelings about the tasks when the room had access to a window.</td>
</tr>
<tr>
<td>Kaplan, 1992</td>
<td>Workers who had window access felt less frustrated and more patient, with...</td>
</tr>
</tbody>
</table>
overall better health and greater satisfaction.

<table>
<thead>
<tr>
<th>Gillear and Tam, 2002</th>
<th>Workplace redesign from the cellular office to the open-plan layout resulted in the higher satisfaction levels of the users, especially as personal furniture was allowed and more function and meeting rooms were built.</th>
</tr>
</thead>
</table>

2.4.2 Disadvantages of the open-plan office layout

However, some research studies have suggested that the open-plan office layout adversely affects the employees in the office environment. Table 2.3 summarizes the disadvantages of the open-plan office layout according to researchers. The most prevalent complaint about open-plan office environments is noise annoyance, with ringing phones and conversations of other people being the most annoying sources of noise (Mak and Lui, 2012). The irrelevant background noise, with or without speech, has also been reported to affect performance on cognitive tasks (Banbury and Berry, 1998). This phenomenon was evident in the study of Jackson et al. (1997) conducted in United States. In the study, the participants performed editing tasks under three conditions: continuous and discontinuous and a no-speech context. The results showed that the participants performed better in the quieter condition. Brennan et al. (2002) conducted a longitudinal field study on an organization in Canada to examine the effect of an office shift from the traditional office to the open-plan office on the employees. They found that the participants reported a decrease in satisfaction with the physical environment, the lack of privacy, and the increased noise. In open-plan offices, employees perceive that they have less privacy, and they find having undisturbed and confidential conversations difficult (De Croon et al., 2005). This phenomenon is consistent with the findings of a case study by Sundstrom et al. (1982) on privacy and communication in an open-plan office involving 70 employees of a large U.S. corporation after they relocated to an open-plan office environment. The results of the study indicated a decline in the satisfaction with visual and acoustical privacy because of the decreased ability to have confidential conversations in the open area. Moreover, people with more demanding tasks were
negatively affected by the move. Sundstrom et al. (1980) argued that employees in open-plan workspaces often experience noise and distraction in the office and prefer to have privacy rather than accessibility. The open-plan office setting with the lack of dividing walls also fosters interaction or conversation, which is not controlled because the distance between co-workers is decreased, making eavesdropping difficult to avoid (Davis et al., 2010). Zalesny and Farace (1987) also reported that, as a result of the relocation of an office to an open-plan layout, managers felt a decrease in their privacy and felt less satisfaction with their physical environment. A cross-sectional study conducted by Davis et al. (2010) in Denmark found that people working in open-plan offices tend to perceive increased levels of thermal discomfort, poor air quality, and increased noise compared with people working in cellular offices. They concluded that an open-plan office might not be suitable for everyone.

Table 2.3 Disadvantages of the Open-plan Layout

<table>
<thead>
<tr>
<th>Open-plan Layout Literature</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banbury and Berry, 1998; Mak and Lui, 2012; Sundstrom et al., 1982; Davis et al., 2010</td>
<td>Noise annoyance, specifically phone ringing and conversation of other people</td>
</tr>
<tr>
<td>Brennan et al., 2002; Sundstrom et al., 1982; Zalesny and Farace, 1987; O’Neill, 1994; De Croon et al., 2005</td>
<td>Lack of privacy in terms of acoustic and visual aspects, difficulty in having private and undisturbed conversations</td>
</tr>
<tr>
<td>Sundstrom et al., 1982; O’Neill, 1994</td>
<td>Distraction</td>
</tr>
<tr>
<td>Davis et al., 2010</td>
<td>Poor air quality and thermal discomfort</td>
</tr>
<tr>
<td>Jackson et al., 1997</td>
<td>Performances of the participants were better in a quieter area</td>
</tr>
</tbody>
</table>

2.5 Key Office Environmental Factors for Open-plan Office

In a longitudinal study, Brennan et al. (2002) examined the satisfaction of employees with their office environment, their perception of physical stressors (lighting, temperature, noise, distraction, and privacy), and their level of satisfaction with the physical comfort of the environment. They also further considered the relations (interactions) of the team members and
the perception of employees on job performance relative to an office shift from a private office to an open-plan layout. The results showed that the employees were negatively affected by the move. The employees reported a decrease in satisfaction levels with the physical environment, an increase in physical stress, a decrease in team member relations, and a decrease in the perception of job performance.

Distraction can be defined as “a provocative stimulus that directs attention away from an ongoing activity” and is caused by factors such as noise, stress, and temperature, among others. Examples of distractions include background noise, inadequate lighting, limited desk space, and a colleague coming over to the desk of another to ask non-work-related questions (Roper & Juneja, 2008).

Indoor air quality is an important element for ensuring the health and comfort of occupants. This finding is supported by case studies conducted in Malaysia by Kamaruzzaman and Sabrani (2011), the results of which showed that occupants who were satisfied with the indoor air quality performed better at their job and reported lesser stress levels.

A brighter environment helps to increase both general and intimate communication (Gifford, 1988).

Six key indoor environmental factors have been identified from the literature review: noise, natural light, thermal quality, privacy, interaction, and distraction. A detailed list of the arguments of the researchers about these six key indoor environmental factors is tabulated in Appendix 7. Table 2.4 summarizes the findings of researchers on these six key indoor environmental factors for the office environment. This study uses these factors as a framework to investigate the effectiveness of the open-plan office layout for small offices in Hong Kong.
These factors are also used to compare and contrast the open-plan and cellular office layouts to determine the more effective layout in the mindset of workers in small offices in Hong Kong.

Table 2.4 Summary of the Key Environmental Factors of the Open-plan Layout

<table>
<thead>
<tr>
<th></th>
<th>Noise</th>
<th>Natural Light</th>
<th>Thermal Quality</th>
<th>Privacy</th>
<th>Interaction</th>
<th>Distraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brooks &amp; Kaplan, 1972</td>
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<tr>
<td>Allen &amp; Gerstberger, 1973</td>
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<tr>
<td>Ives &amp; Ferdinands, 1974</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Sundstrom et al, 1982</td>
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<td>*</td>
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<tr>
<td>Zalesny &amp; Farace, 1987</td>
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<td>*</td>
</tr>
<tr>
<td>Banbury &amp; Berry, 1998</td>
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<tr>
<td>Crouch &amp; Nirman, 1989</td>
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<tr>
<td>Kaplan, 1992</td>
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<tr>
<td>O’Neill, 1994</td>
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<td>*</td>
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<tr>
<td>Jackson et al., 1997</td>
<td>*</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Banbury &amp; Berry, 1998</td>
<td>*</td>
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<td>*</td>
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<tr>
<td>Gifford, 1998</td>
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</tr>
<tr>
<td>Wah, 1998</td>
<td></td>
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<td>*</td>
</tr>
<tr>
<td>Gilleard and Tam, 2002</td>
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</tbody>
</table>
2.6 Summary

This chapter briefly examined the history of the office layout from the 19th century to the 21st century and illustrated the development in the office layout literature. First, the chapter considered the 19th century when majority of the offices in the era were simple cellular offices with a few people working together. The industrialization era gave rise to the use of the bullpen-style office layout to accommodate the increased number of workers joining the labor force. The open-plan layout was introduced and became popular during the 1950s to the 1970s to increase internal communication and sharing of ideas and to reduce building and maintenance costs. In the 1980s to the 1990s, office spaces with both open-plan and cellular offices were used to overcome the disadvantages of the individual layouts. In the 21st century, green buildings were
introduced to meet the standard of environmentally friendly requirements. Green buildings were reported to provide workers with more satisfaction, productivity, and health benefits. As discussed in Chapter 1, because of the high rental prices and the limited supply of new green buildings in Hong Kong commercial districts, majority of office layouts for small businesses are mainly either cellular or open-plan layouts in existing buildings. Given the importance of open-plan and cellular office layout, it is essential to understand how the people feel in terms of the effectiveness when working in these office environments. In order to explore this matter, the research will consider the advantages and disadvantages of the open-plan layout of small offices in Hong Kong using the six key office indoor environmental factors such as noise, natural light, thermal quality, privacy, interaction, and distraction taken from the literature. This will be beneficial to providing a good exploratory insight into the topic of small open-plan offices and its perceived effectiveness as compared to the cellular offices in the context of Hong Kong environment. The next chapter will discuss the research methodology that uses these six key office indoor environmental factors as a framework to study the effectiveness of small offices in Hong Kong.
CHAPTER 3

3.1 Introduction

The chapter on the literature review discussed the studies on the open-plan office layout and its effectiveness to users in the United States and European contexts. The six key environmental factors for office layout that influence the perception of workers on the effectiveness of their job performance were identified from previous research. The perception of the participants working in small offices in Hong Kong on the six factors of office layout and environment has yet to be examined. This chapter discusses the selected research methodology, the reasons for the choice of the method, and the chosen research design. Next, the data collection procedure is described and the ethical considerations are discussed.

This chapter is divided into six sections. The introduction in Section 3.1 is followed by the research approaches in Section 3.2 and the discussion on the research design for this study in Section 3.3. Section 3.4 describes the data collection procedure, and Section 3.5 discusses the ethical considerations. The chapter ends with a summary of the research method used in this study in Section 3.6.

3.2 Research Approaches

According to Bryman and Bell (2011), a research method is a technique used to collect data and can be qualitative or quantitative. The qualitative research method attempts to understand the behavior and feelings of individuals and focuses on words, rather than numbers, as data for analysis, offering depth to the research study (Leedy, 1993). Qualitative data are interpretative, are often used to generate concepts or theories, and have an ontological position of constructionism, which states that social phenomena are accomplished by social actors (McDowell and MacLean, 1998; Bryman and Bell, 2011). Bryant (2006) argued that the
A qualitative technique is a useful research method for researchers to explore and analyze organizational events. He adopted the method of qualitative research using a semi-structured interview with open-ended questions for his study to gather in-depth descriptions of the situation from the participants and enable them to tell their stories from their point of view and experience.

By contrast, the quantitative research method focuses on the quantification of data using numbers, rather than words, for analysis (Leedy, 1993). Quantitative data are collected with minimal biases, coded, and analyzed as numerical values to generally test a theory using natural science models (McDowell and MacLean, 1998; Bryman and Bell, 2011). The fundamental differences between quantitative and qualitative research strategies are presented in Table 3.1. As shown, quantitative research involves the deductive and testing of a theory using a natural science model with an objectivism orientation whereas qualitative research emphasize the inductive reasoning for the generation of theory using interpretivism and positivism orientation.

This study aims to explore the experiences and perceptions of employees working in an open-plan office versus a cellular office layout. It compares and contrasts the differences among the experiences of senior, middle, and junior employees in two different office spaces and explores whether they perceive the current layout to be different from the ideal layout. As this research examines human behavior and attempts to understand the minds and actions of people, the qualitative approach emphasize the inductive reasoning with an interpretivism orientation is adopted.

Table 3.1 Differences between the quantitative and qualitative research strategies

<table>
<thead>
<tr>
<th></th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fundamental differences</strong></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Principal orientation to the role of theory in relation to research | Deductive; testing of theory | Inductive; generation of theory
---|---|---
Epistemological orientation | Natural science model, particularly positivism | Interpretivism
Ontological orientation | Objectivism | Constructionism

(Source: Bryman and Bell, 2011)

### 3.3 Research Design

A research design is a framework for obtaining and analyzing data for a study (Bryman and Bell, 2011). This section examines the five different research designs: experimental design, cross-sectional design, longitudinal design, comparative design, and case study.

#### 3.3.1 Experimental Design

Experimental design involves a field or a laboratory experiment to examine the reaction of two different study groups with the use of manipulation. The experimental group receives treatment, whereas the control group does not (Bryman and Bell, 2011). Experimental design is not commonly used in business research because of the challenge of controlling the organizational behavior. Moreover, this design is typically associated with quantitative research and thus will not be applied for this research study.

#### 3.3.2 Cross-sectional Design

Cross-sectional design involves the collection of data on more than one case at a given time to gather either qualitative or quantitative information related to two or more variables so that any pattern and association are identified. Researchers using the cross-sectional design often use the survey method in the form of questionnaires or structured interviews. These tools collect quantitative data from more than two cases, thus resulting in more variations in the variables.
being examined (Bryman and Bell, 2011). This research requires gathering qualitative information, and thus this method is not applicable.

### 3.3.3 Longitudinal Design

Longitudinal design is usually referred to as an extension of the survey method using questionnaires and structured interviews in the cross-sectional design. The sample is surveyed for more than one occasion. This design considers the time variable, thus enabling researchers to identify possible causal relationships among the variables (Bryman and Bell, 2011). For the current study, longitudinal design is not applied because the study requires qualitative data and because of limited resources and time constraints.

### 3.3.4 Comparative Design

Comparative design is used when researchers want to consider two or more cases to expand on an existing theory or generate new insights by examining the contrasting results obtained from the comparison (Bryman and Bell, 2011). According to Hantrais (1996), comparative research uses the same methods to study a particular issue of phenomenon in two or more countries. For example, Hofstede (1984) used comparative research to examine differences among IBM workers in different countries (Bryman and Bell, 2011). In the current study, only the small offices located in Hong Kong are examined, and thus comparative design is not applied.

### 3.3.5 Case Study Design

Case study is used when an in-depth investigation of a phenomenon is required. This design is often used in research on business and social studies and can take place in a single organization,
in a single location, and at a single event, or be about a single person (Bryman and Bell, 2011; Feagin, Orum, & Sjoberg, 1991 and Tellis, 1997). A case study should be applied when the research attempts to answer the “how” and “why” questions and when the behaviors of the participants cannot be manipulated (Rowley, 2002). This design is also used when the context of the study is relevant to the phenomenon and when boundaries are unclear between the context and the phenomenon (Baxter and Jack, 1998; Yin, 2003). Accordingly to Baxter and Jack (1998), the case study approach requires a close interaction between the researcher and the participants. This closeness allows the participants to tell their stories and share their viewpoints, so that the researchers can better understand the situation and the behavior. The most common type of case study takes place in the same geographical location, such as the workplace. The method is also common in business research to compare and contrast the data obtained from each case. Case study helps researchers to consider the similarities and the differences across cases (Bryman and Bell, 2011). Case studies are classified into two: holistic or embedded. For holistic studies, a case is examined as one unit, whereas for embedded studies, a case involves examining several sub-units (Rowley, 2002).

According to Rowley (2002), a single - (one) case design is used in special cases in which an important testing of an established theory or revealing something unique is required. Researchers commonly use a single-case design as an introduction to multiple studies. With single-case designs, generalizations can be limited and biases can be involved. To overcome the issues of the single-case design, researchers also prefer multiple-case designs because the studies will produce outcomes that can “establish or refute a theory” (Rowley, 2002).
i. **Single Case with Embedded Units**

According to Yin (2003), the ability to consider sub-units in one case is more eminent when one understands that data can be analyzed separately within the sub-units (within case analysis), between the different sub-units (between-case analysis), or across all of the sub-units (cross-case analysis). As long as the researcher does not deviate from the main research problem and only focuses on the individual sub-units, the case analysis should be rich.

ii. **Multiple-case studies**

Multiple-case study design is used when more than one case is involved in the research. A multiple-case study enables the researcher to analyze data in each setting and across settings. By contrast, a holistic case study with embedded units only enables the researchers to understand one unique case. In a multiple-case study, examining several cases is possible in understanding the similarities and differences between the cases (Yin, 2003).

A multiple-case study enables the researcher to explore differences within and between cases. The goal is to replicate findings across cases. Cases should be chosen carefully because comparisons would be drawn and so that the researcher would be able to anticipate similar results across cases or to predict contrasting results based on a theory (Yin, 2003).

This study adopts the case study design using the multiple-case study approach to better understand the situation in the workplace context by comparing and contrasting the differences among people within an organization as well as across cases.

### 3.4 Research Method

This study adopts the case analysis, intra-case analysis, and inter-case study approaches (Bryman and Bell, 2011), which attempt to compare and contrast the differences among the cases. These
approaches consider the different dimensions of the office layout and the unique and common perceptions of the employees toward their working environment, specifically in an open-plan office layout (Company A) and a cellular office layout (Company B) of small offices in Hong Kong. Chart 3.1 outlines the procedure for data collection.

i. Synopsis

Potential data sources may include documentation, recording, interviews, and observations.

According to Yin (2003), a case study design should be considered when

(a) the focus of the study is to answer “how” and “why” questions; (b) you cannot manipulate the behavior of those involved in the study; (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and content.

ii. Sample

The sample for qualitative research should be selected with the purpose of providing rich information instead of randomly selecting cases, and it should be more concerned with obtaining representative data, similar to the quantitative sampling case (Meyer, 2001). Therefore, the two cases selected for this study are purposely chosen to examine the research problem closely.

Two small companies in Hong Kong are chosen for this research, one with an open-plan layout and another with a cellular office layout. The participants are full-time employees of the company, and any part-time employees, such as cleaners and interns, are not considered. Three employees from different levels, namely, the managerial, senior, and junior levels, from each company are invited to participate.

iii. Data Collection
First, the Participant Information Statement is presented to potential interviewees. Second, upon their approval, an interview session with the participants is organized to collect relevant data for the research.

![Figure 3.1 Procedure for data collection – Company A and Company B](image)

**iv. Interview**

Interviews are one of the most important sources of case study information. The interview can take one of several forms: open-ended, focused, or structured. In an open-ended interview, the researcher asks for the opinion of the informant on events or facts (Bryant, 2006). This method serves to corroborate previously gathered data. In a focused interview, the respondent is interviewed for only a short time, and the questions asked can come from the case study protocol. The structured interview is particularly useful in studies on neighborhoods where a
formal survey is required. The use of tape recorders during interviews is left to the discretion of the parties involved. Bryant (2006) used a semi-structured interview to enable the participants to share their viewpoints and experiences on organizational change. The current study adopts the semi-structured interview method with open-ended questions to obtain qualitative data from the participants working in small offices in Hong Kong, particularly from those who use open-plan and cellular office layouts.

The participants are interviewed either in their office or at an outside venue for a period of one hour. The interviews are in the form of structured interviews divided into seven sections with 5 to 10 open-ended questions each and are recorded with a recording device (Figure 3.2). The questions include some general questions about their work, such as position, nature of work, and the industry. They are asked about the current condition and environment of their workplace and their feelings and views about whether they are suitable in terms of the level of noise, access to a window, thermal quality, level of privacy, level of interaction, and level of distraction, as well as how these factors affect their work performance. Please see Appendix 6 for the approved interview questions.

v. Observation

After the interviews, the researcher observes the workplace in terms of the layout, temperature, location of the desks, proximity between each desk, access to a window and daylight, and condition of lighting in the office. The researcher then takes photographs of the office, the building entrance, and the nearby surrounding environment.

3.5 Ethical Consideration
Therefore, the Human Ethics application of this research study first goes through the peer review process by the faculty. Once approved, it is submitted to the University’s HREC for review.

Figure 3.2 Structure of Interview Questions
The approval of the University of Newcastle HREC was granted prior to the commencement of the research to comply with the regulatory and legislative requirements and university policies related to human research. A copy of the approval is included in Appendix 5. The approved Individual Information Statement (Appendix 1), Individual Consent Form (Appendix 2), Organizational Information Statement (Appendix 3) and Organizational Consent Form (Appendix 4) are presented to the participants prior to the interview. The participants are given enough time to consider and decide once they show initial interest to participate in the study. All the participants participate on a voluntary basis and are allowed to withdraw from the research at any time without having to give reasons. The participants are assured that their identities will not be disclosed, and the information collected will be stored safely and eventually destroyed to ensure confidentiality.

In summary, high ethical standards are maintained throughout the process and in all aspects of the research to ensure an ethical treatment of the respondents.

3.6 Data Analysis

The data collected from the case study are compared across the cases to help identify any similarities. Specifically, we perform an intra-case analysis comparing and contrasting the results from the feedback of the participants working in the same office. This process involves the comparison of the feedback on the six environmental factors of office layout from Manager A to Supervisor A and Subordinate A for Company A and from Manager B to Supervisor B and Subordinate B for Company B. Afterwards, the inter-case analysis compares and contrasts the results of the participants from the two companies to examine the similarities and differences in the case of small offices in Hong Kong. This method includes the comparison of feedback on the
six environmental factors of office layout from Manager A, Supervisor A, and Subordinate A versus Manager B, Supervisor B, and Subordinate B.

3.7 Summary

This chapter examined the different types of research methodology. We chose the qualitative method, which is suitable for examining the perspective of the individual participants being studied in the research and asking their viewpoints on the key environmental factors of an office. The case study method was chosen to consider closely the two companies with small offices of which one is an open-plan and another is a cellular office layout. The use of case study will be useful in comparing and contrasting with the findings within the individual company, with another company as well as with the findings from the previous researches. It is predicted that the results from this study will show some similarity and some difference to the findings from other researches. Finally, the chapter also described the data collection process and discussed the ethical considerations for this research.
4.1 Introduction

The previous chapter described and supported with reasoning the chosen research methodology for this study. Chapter 4 is divided into four sections, beginning with a discussion about the case selection for this study in Section 4.1. Case selection and reasoning are discussed in Section 4.2. The selected cases, that is, Companies A and B, are described in-depth in Sections 4.3 and 4.4, respectively, including the nature of the organizations, the industries to which they belong, their employees, building quality, and both the interior and exterior physical environments.

4.2 Case Selection and Reasoning

According to Rowley (2002), case selection should be determined in accordance with the research problem and with the applicable constraints. These constraints include accessibility, resource, and time availability. This section discusses the case selection conducted and the reasoning followed by this research.

i. Hong Kong as a Business Market

Hong Kong is located at the heart of Asia and is surrounded by neighboring cities that are also exciting business markets (Investhk, 2014). The city is four hours away from the key markets of Asia and five hours away from half of the population of the world (Figure 4.2.1). Hong Kong is also known as the gateway to Mainland China and is a popular choice of city for business owners to establish their companies in. The Hong Kong business environment has many attractive characteristics, and the city offers great public transportation service to simplify commuting for people. The telecom infrastructure is excellent and allows users to work efficiently via telephone,
mobile, and the Internet. The city implements a low and simple tax regime that is coupled with a trusted legal system based on the British Common Law, as well as a fully independent judiciary system that provides a protective environment for business owners. Hong Kong is also known to support freedom of information and capital flow. It offers advanced financial infrastructure and an effective regulatory regime. Thus, it is among the largest banking centers in the world (Investhk, 2014). In sum, Hong Kong is characterized by many fundamentals of the business environment.

Figure 4.2.1 Location of Hong Kong (Source: Investhk, 2014)

ii. Marketing Services

According to Hong Kong Trade Development Council, Hong Kong is known as the “marketing services capital of Asia”. It offers a wide range of professional services, such as public relations (PR), event organizing, market research, and advertising. It is also abundant in agencies and in marketing service talents (HKTDC, 2014).

iii. Case Selection – Industry Sector

According to HKTDC (2014),
Market Research involves studying people as buyers, sellers and consumers, examining their attitudes, preferences, habits, and purchasing power. Market research is also concerned with the channels of distribution, promotion and pricing, and the design of the products and services to be marketed.

Public Relation involves PR professionals helping clients to develop communication and understanding with the target audiences. Services include media relations, marketing, copy-writing, press office, sponsorship, events and conference management etc.

For the purpose of this study, two companies are selected from the marketing services industry. One focuses on market research and the other on PR.

4.3 Offices in Hong Kong

i. Business District in Hong Kong

The main business districts in Hong Kong include Central, Admiralty, and Tsim Sha Tsui. Central and Admiralty are on Hong Kong Island side, and Tsim Sha Tsui is on Kowloon side across from Hong Kong. These sides are separated by the Victoria Harbor in between (Figure 4.3.1).

According to the Rating and Valuation (R&V) Department, the total stock of office space in Hong Kong in 2005 was approximately 105.2 million sq ft (approximately 9.77 million sq m). Grade A offices occupied 58.7%; Grade B constituted 26.4%; and Grade C occupied 16.2% (HKSAR, 2005). In terms of geographic distribution, Hong Kong Island houses a total of 65.9 million sq ft of the office stock (approximately 6.1 million sq m); Kowloon covers 32.6 million sq ft (roughly 3 million sq m); and New Territories claims the remaining 6.7 million sq ft
(622,451 sq m) (kindly refer to Appendix 4.1 for the geographical distribution of office stock in Hong Kong).

Many large corporations in the banking, accounting, legal, and corporate fields choose to establish their offices within Grade A buildings in the Central, Admiralty, and Tsim Sha Tsui areas. The rental prices of such locations are high, but they offer high-quality finishes, specialized property management, and various business services (Investhk 2014; R&V, 2005, HKSAR, 2005). The grades of the office buildings in Hong Kong are summarized in Table 4.1, and rental prices per sq ft are listed in Figure 4.3.2 in Hong Kong dollars.

Figure 4.3.1 Map of Hong Kong (Source: Google Map, 2014)

Table 4.1 Grade of office buildings as defined by the R&V Department of the Hong Kong Special Administrative Region Government
## Grade Description

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>Modern with high-quality finishes; flexible layout; large floor plates; spacious, well-decorated lobbies and circulation areas; effective central air-conditioning (A/C); good lift services zoned for passengers and deliveries of goods; professional management; normally available parking facilities</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>Ordinary design with good-quality finishes; flexible layout; average-sized floor plates; adequate lobbies; central or free-standing A/C; adequate lift services, good management; unessential parking facilities</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>Plain with basic finishes; minimally flexible layout; small floor plates; basic lobbies; generally, without central A/C; barely adequate or inadequate lift services; minimal to average management; no parking facilities</td>
</tr>
</tbody>
</table>

(Source: HKSAR, 2005)

Figure 4.3.2 Rental price levels of different Hong Kong office sub-markets as of Q3 2013

(Source: KimEng, 2013)

ii. Case Selection – Office
This research focuses on small and medium enterprises (SMEs) in Hong Kong because they have accounted for over 98% of the total business units in 2014, according to HKSAR. By definition, SMEs are enterprises that have fewer than 100 employees for manufacturing companies and fewer than 50 employees for non-manufacturing enterprises (HKSAR, 2014). The selected companies are located within Grade B buildings at central business areas. This type of building is below Grade A, with a lower rental fee. It offers an ordinary layout and adequate property management and services. Specifically, one company is selected from a Grade B building at the Central area of the business district of Hong Kong Island. This specific building has an open-plan layout (Figure 4.3.3). The office of Company A is located at approximately 10 minutes to 15 minutes walking distance from the Central and Hong Kong MTR stations, where many of the prime or Grade A offices are situated. Another company is selected from a Grade B building with a cellular office layout in the Tsim Sha Tsui area of the business district of Kowloon (Figure 4.3.4). The office of Company B is located at approximately 10 minutes to 15 minutes walking distance from the Tsim Sha Tsui MTR station and the East Tsim Sha Tsui Train Station, where many of the prime or Grade A offices are situated.

The following section describes the selected Companies A and B in detail.

4.4 Case A – Company A

This section elucidates Company A, including an overview of the organization, the employees and their job descriptions, the outdoor and indoor environments, and the office layout.
Figure 4.3.3 Distance between Company A and the prime offices in Central (Source: Google Map, 2014)

Figure 4.3.4 Distance between Company B and the prime offices in Tsim Sha Tsui (Source: Google Map, 2014)

The following section describes the selected Companies A and B in detail.
4.4.1 Overview

Company A was founded by a Scottish businesswoman in 2011 and is a boutique PR agency that specializes in communication strategies in Hong Kong, Taiwan, China, Singapore, Indonesia, Southeast Asia, and Australia. Aside from the headquarters in Hong Kong, this company also has small offices in Singapore and Indonesia. It offers professional services to travel, lifestyle, and art clients, such as boutique hotels, renowned artists and sculptors, and spas. The company helps promote client products and services to the media, such as through the management of media relations, press announcement creation and dissemination, media meetings, strategy development, and crisis management. The agency is the most important linkage between the clients and the media.

4.4.2 Organization

i. Employees

Company A has a total of 17 permanent employees across its offices in Hong Kong, Singapore, Indonesia, and Australia. For additional support, it also employs several interns depending on the school terms. The company is overseen by a managing director (MD), who is in her 40s and has over 20 years of PR expertise in the United Kingdom and in Dubai. Working directly under the MD is a senior account manager (SAM), who is in her late 20s and has been with the company since the beginning (Chart 4.4.1). Two senior account executives (SAEs) joined the company around the same time after the SAM did. Each of these executives is supported by two account executives (AEs). Therefore, a total of nine employees are working in the Hong Kong office. For the purpose of this research, the Singapore and Indonesia offices are not examined.
ii. Nature of the Industry

The company is a PR agency, and day-to-day communication with the clients, media, and among colleagues is integral to company operations. Constant conversation, interaction, and discussion among the colleagues comprise the daily routines, and instantaneous feedback is valued in the organization.

iii. Job Description

Employees are encouraged to set up meetings with the media and to share client news with them for potential coverage and exposure. A large part of the job requires the use of computers for e-mail correspondence, document preparation through Microsoft Office, phone conversations, and attending client and media meetings. Several senior members are required to leave the office for meetings more often than the junior employees are whether in Hong Kong, Singapore, or Indonesia. The MD is generally out of the office because of client meetings taking place abroad.
and to maintain other regional offices. The SAM is normally in the office unless he/she is on a business trip, and he/she oversees the office during the constant travels of the MD. The two SAEs are in the office unless they are travelling for business or attending meetings outside. The AEs spend most of their time in the office.

4.4.3 Outdoor Environment

i. Location/District Environment

Central is the hub and center for businesses ranging from small companies to large corporations because of its geological location and connectivity. Among the most popular modes of transportation in Hong Kong is the MTR, and the rental prices of buildings close to stations are expensive. Company A is located on Wyndham Street in Central, Hong Kong near the Wyndham Street Post Office (Figure 4.4.2 & 4.4.3). This street is located between the upper part of Lan Kwai Fong and SOHO, which is an area with a very high concentration of restaurants, bars, lounges, and clubs.

![Map of Wyndham Street, Central](Source: Google Map, 2014)
4.4.4 Indoor Environment and Layout

i. Building Type, Floor, Layout, Size, Separate Areas, and Rooms

Company A occupies the entire ninth level of a building on Wyndham Street. It is a 700 sq ft (70 sq m) open-plan office layout without separate rooms (Figure 4.4.4). The building is grade B and was built in 1981, with a total of 13 floors. Security are situated in the lobby next to the lift (Figure 4.4.5). The main entrance can be accessed from street level with the door remain open throughout the day with. The steel gate at the entrance is closed after 7pm. Furthermore, the lobby is not air-conditioned, as is the lift.

Company A has its own toilet and a backdoor to the staircase. It also has sole access to the lift on the ninth floor. The office has white walls, a ceiling, and a floor. Four sets of windows line one of the walls. The desks are red-colored on top, with white shelves and legs. All chairs and computers are black (Figure 4.4.6). The office has a total of 10 sets of desks and chairs, among
which is a spare used by part-time interns. Each desk has a separate telephone and line connected by the telecom system. The desks are not separated by partitions, and only computer screens and document trays divide them. A few plants are also placed in the office at random.

Figure 4.4.4 Floor plan of Company A

Figure 4.4.5 Building and lobby of Company A
ii. Ventilation/Air Quality

The building uses a split-type A/C system. In Company A, four sets of windows line one side of the wall across the main entrance. This entrance faces northwest. The windows can be opened or closed easily according to preference (Figure 4.4.7). The office contains three A/C systems with separate controllers, and the two installed on top of the windows are most regularly used (Figure 4.4.8). No heater system is installed in Company A, which is typical of small offices in Hong Kong given the tropical climate and long period of hot weather.
iii. Lighting/Window Access

Company A is illuminated by soft/warm yellow light (Figure 4.4.9). As mentioned previously, the office of Company A displays a wall of windows. These windows allow natural lighting into the office space, especially during good weather with much sunshine. Four sets of window blinds are installed to block the sun during sunny days.
iv. Desk Layout/Proximity

Desks are arranged in a classroom setting (Image 4.4.10). The desk of the accountant is next to that of the MD, and both desks are placed at one end of the office. The other desks face the same director at the other end, where the remaining employees are seated.
4.5 Case B – Company B

This section describes Company B in detail, including the overview of the organization, the employees and their job descriptions, the outdoor and indoor environments, and the office layout.

4.5.1 Overview

Company B is a family-owned toy manufacturing and marketing business from New Zealand that was founded in 2004. Although the company is family-owned, the business has a well-defined organizational structure and each person has a clear set of job responsibility and role in the team. Half of the concepts is developed in-house, and the other half originates from other companies and inventors. These concepts are developed, manufactured, and marketed. The company provides toy design and manufacturing services, as well as sales and marketing. Its main customers are toy distributors and large consumer markets, such as Wal-Mart.

4.5.2 Organization

i. Employees

The company has a total of four offices located in Hong Kong, Shenzhen, Guangzhou, and the United States, as well as a factory in China that manufactures the toys. The chief executive officer (CEO) is the eldest brother in the family, the chief operation officer (COO) is the elder sister, and the chief marketing officer (CMO) and president is the younger brother. The middle management layer includes a merchandising manager, a marketing and support manager, and the managers of other functions, such as shipping and logistics. Another layer of staff performs all day-to-day tasks. The middle managers report directly to the CMO, and each manager is responsible for different geographic territories.

In the Hong Kong office, five permanent employees work together. The office manager (OM), the senior sales and marketing manager (SSMM) for Latin America and the Middle East, the sales and marketing manager (SMM) for Europe, and an assistant of sales and marketing (ASM)
report to the CMO (Figure 4.5.1). For the purpose of this research, the other offices and factory staff are neither examined nor included.

![Organizational Chart of Company B - Office B](image)

**Figure 4.5.1 Organizational Chart of Company B - Office B**

ii. Nature of the Industry

Company B seeks out ideas for toys, manufactures, markets, and sells them. In the Hong Kong office, the main focus is on new product development, research and development, new business development, inventor relations, marketing, and sales. All of the manufacturing is performed in the factory in China.

iii. Job Description

The members of all four offices in different regions are bound by the same values and work closely together by communicating effectively. In the Hong Kong office, the majority of the employees is responsible for sales and marketing, which requires constant e-mail
correspondence, phone conversations, and client meetings. Thus, senior employees are required to travel more often than the junior employees are.

4.5.3 Outdoor Environment

i. Location/District Environment

Company B is located in a building on Science Museum Road near the Hong Kong Science Museum, Tsim Sha Tsui East, Kowloon (Figure 4.5.2 & 4.5.3). Tsim Sha Tsui East is approximately a 10 minute walk from the Hung Hom Train Station and from the Tsim Sha Tsui MTR station. This area has many restaurants, bars, and cafes to meet the needs of nearby office workers and of tourists (Hong Kong Tourism Board, 2014).

4.5.4 Indoor Environment and Layout

i. Building Type, Floor, Layout, Size, Separate Area, and Rooms

Company B has a semi-open office layout with a separate showroom, a meeting room, and a cellular office for senior managers (Figure 4.5.4). As per the requirement of a showroom and a meeting room, the organization leased two units occupying a total of 1600 sq ft (148.64 sq m) and renovated them according to their need for separated space. The office in which the senior managers work does not have a door because it was removed by the CMO as a means to minimize barriers to his staff. The showroom is in a separate area and leads to the meeting room (Figure 4.5.5), which has a closed door. The meeting room houses a six-seat table with chairs. Toys are showcased along three sides of the wall, and the remaining side consists of a large window.
Figure 4.5.2 Map of Tsim Sha Tsui East, Kowloon (Source: Google Map, 2014)

Figure 4.5.3 Image of Tsim Sha Tsui East, Kowloon

Figure 4.5.4 Floor plan of Company B
Figure 4.5.4 Floor plan of Company B

Figure 4.5.5 Meeting room in Company B
ii. Ventilation/Air Quality

The office has a manually controlled A/C system that is separate from that of the building. Nonetheless, the A/C in the different sections of the entire office is controlled centrally by one system. Therefore, the entire office space is affected when the temperature is lowered, for example, because the temperatures in separate sections cannot be controlled individually. No heater is installed in the office, which is typical of small offices in Hong Kong because of the long period of hot weather in this country.

iii. Lighting/Window Access

Company B is lighted by soft, white energy-saving light bulbs. The light in the showroom and in the meeting room is enhanced by inserting additional yellow lights (Figure 4.5.6).

Windows face northwest only in the meeting room and in the office of the CMO (Figure 4.5.7). The windows are covered with a slightly tinted UV blocking film.

iv. Desk Layout/Proximity

Four sets of desks and chairs are assigned to the employees in the area outside the private office. Desks are lined up next to the wall in a row, and all face the same direction (Figure 4.5.8 & 4.5.9). These desks and chairs are black. The staff members are required to bring their own laptop computers to work, and no computer screen is provided on the table. Each desk space is separated by a gray partition, the height of which is approximately 30 cm above the desk. The staff can decorate their working space freely.
Figure 4.5.6 Lighting in Company B

Figure 4.5.7 Window in the office of the CMO in Company B
Figure 4.5.8 Office entrance of Company B

Figure 4.5.9 Desks in Company B
CHAPTER 5

5.1 Introduction

This chapter presents the data obtained from Companies A and B for the comprehensive face-to-face interviews conducted with the senior managers, middle-level staff, and junior members of the organization.

Yin (1994) asserted that “Data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence to address the initial propositions of a study”. Accordingly, case study analysis focuses on the pattern of variables within a case, examining areas that relate to the issue. The cases are also cross examined when more than one case is required to be explored (Kohn, 1997). In this study, the variables or key performance factors identified in Chapter 2 are examined within Companies A and B. The data from these companies are then compared across all cases to identify any similarities and patterns (Kohn, 1997).

This chapter consists of three sections. Following the Introduction (Section 5.1), Section 5.2 introduces the presentation of the data collected from the participants and the intra-case analysis that compares and contrasts the results between the participants working in the same office. Section 5.3 discusses the inter-case analysis, which compares and contrasts the results between the participants from two different offices. Finally, Section 5.4 is summarizes the chapter.

5.2. Interview Data and Intra-Case Analysis

For confidentiality and ethical reasons, the names of the chosen organizations and participants involved in this study were not disclosed in the paper. Instead, an identification chart is presented in Table 5.2 in reference to these partakers. In Company A, the managing director, senior accounts executive, and account executive who were interviewed are referred to as Manager A,
Supervisor A, and Subordinate A, respectively. In Company B, the senior strategy project manager, sales and marketing manager, and assistant sales and marketing who were interrogated are referred to as Manager B, Supervisor B, and Subordinate B, respectively. Companies A and B both have separate regional offices in Asia; yet, for ease of reference, their Hong Kong office is pertained to as Offices A and B, respectively.

Table 5.2 Identification Chart of the Participants

<table>
<thead>
<tr>
<th>Managerial level of Participants</th>
<th>Office A</th>
<th></th>
<th></th>
<th>Office B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Management</td>
<td>Managing Director</td>
<td>Manager A</td>
<td>Senior Strategy Project Manager</td>
<td>Manager B</td>
<td></td>
</tr>
<tr>
<td>Middle Level Staff</td>
<td>Senior Accounts Executive</td>
<td>Supervisor A</td>
<td>Sales and Marketing Manager</td>
<td>Supervisor B</td>
<td></td>
</tr>
<tr>
<td>Junior Level Staff</td>
<td>Accounts Executive</td>
<td>Subordinate A</td>
<td>Assistant Sales and Marketing</td>
<td>Subordinate B</td>
<td></td>
</tr>
</tbody>
</table>

The six participants from Companies A and B included the employees who have Chinese and non-Chinese origin and are female and male aged 20 to 50 years old (See Table 5.2.1). This condition was considered because the researcher intends to obtain the data from participants who could represent the general work force of Hong Kong (see Appendix 5.1).

Table 5.2.1 Age, Ethnicity and Gender of the Case Study Participants Working in Company A & Company B

<table>
<thead>
<tr>
<th></th>
<th>Manager A</th>
<th>Supervisor A</th>
<th>Subordinate A</th>
<th>Manager B</th>
<th>Supervisor B</th>
<th>Subordinate B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Range</td>
<td>40 to 50 years old</td>
<td>20 to 30 years old</td>
<td>20 to 30 years old</td>
<td>30 to 40 years old</td>
<td>30 to 40 years old</td>
<td>20 to 30 years old</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Non-Chinese</td>
<td>Chinese</td>
<td>Chinese</td>
<td>Non-Chinese</td>
<td>Non-Chinese</td>
<td>Non-Chinese</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td>Female</td>
<td>Female</td>
<td>Male</td>
<td>Male</td>
<td>Female</td>
</tr>
</tbody>
</table>

This section closely examines the key performance factors of the office environment of Companies A and B and analyzes the data collected from these organizations. First, the feedback
from the managers, supervisors, and superiors working in the companies involved in this study are internally analyzed.

5.2.1 Noise

The participants were asked to describe their office, including the level and types of noise within their facility (See Table 5.2.2). The questions included are as follows: a) Can you describe the level of noise in your office?; b) Do you feel that the currently level of noise is affecting your work performance? If yes, do you feel that by adjusting the level of noise to a suitable level would help you perform better at your work?; c) Do you have the control over the level of noise you receive in your office? Is it important that you do?

Table 5.2.2 Summary of feedback on noise

<table>
<thead>
<tr>
<th>Noise</th>
<th>Manager A</th>
<th>Supervisor A</th>
<th>Subordinate A</th>
<th>Manager B</th>
<th>Supervisor B</th>
<th>Subordinate B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you describe the level of noise in your office?</td>
<td>Outdoor construction noise; colleague’s ongoing discussion and conversation</td>
<td>Different kinds of noise, including phone, construction, conversation</td>
<td>Construction noise from the renovation upstairs; other colleagues voice and conversation</td>
<td>Not much phone call during the days</td>
<td>Generally quiet; the noise only comes from the CMO when he is in the office</td>
<td>There is noise, but it is generally not noisy</td>
</tr>
<tr>
<td>Do you feel that the current level of noise is affecting your work performance?</td>
<td>- No</td>
<td>- Not all the time</td>
<td>- Yes, mostly during phone calls</td>
<td>- Not much unless CMO is on the phone</td>
<td>- Not always, depending on how long the phone call is</td>
<td>- It does not significantly affect my performance. Nonetheless, when phone calls are long, the noise becomes distracting</td>
</tr>
<tr>
<td>If yes, do you feel that by adjusting the level of noise to a suitable level would help you perform better at work?</td>
<td>N.A</td>
<td>Performance will remain the same, but efficiency will increase</td>
<td>- Yes and by placing a partition between the desks</td>
<td>N.A</td>
<td>N.A</td>
<td>N.A</td>
</tr>
<tr>
<td>Do you have the control over the level of noise you receive in your office? Is it important that you do?</td>
<td>No control</td>
<td>No control</td>
<td>- No control, particularly over the outdoor construction noise</td>
<td>- I can have control over it by placing earphones in my ears</td>
<td>- No control unless the colleague goes to the meeting room</td>
<td>- If other colleagues are having long conversation, they would go into the meeting room</td>
</tr>
</tbody>
</table>
Office A

*Manager A* reported that the primary source of noise in their office comes from the outdoor construction and from the ongoing discussion and conversation of his other colleagues that cannot be controlled.

*Supervisor A* detailed that their office endures considerable noise, including the phone conversations of Manager A that cannot be regulated as well.

*Subordinate A* provided answers similar to those of Manager A (i.e., noise comes from outdoor construction and renovation upstairs) and admitted that the voice of his colleagues also produce substantial noise in the office.

All three respondents working in Office A reported to hear noise in their office, in which the most common types are those that come from the outdoor construction and phone conversations of employees.

Office B

*Manager B* revealed that the most regular type of noise in their office is produced by the CMO, who arrives at the workplace about three to four times a week. In particular, the CMO is observed to produce considerable noise when he is in a conference call. This situation can be controlled by listening to music with earphones.

*Supervisor B* relayed that the phone conversations of his colleagues, particularly the voice of the CMO during phone calls, can be boisterous. This particular instance cannot be controlled unless the person taking the call goes to the meeting room.

*Subordinate B* described that noise is constantly perceived in their office, but it is not extremely rowdy. The employees who are taking a conference call would normally go outside or into the meeting room until they have completed the call.
On the whole, the three respondents working in Office B shared that it is not considerably noisy in their office. The only type of noise that was commonly reported was the conversation of employees, particularly the voice of the CMO. The CMO has been mentioned to have loud voice and tends to take long conference calls in the office. The CMO stays in his office to take calls; yet, his voice can be clearly heard in the common area because his office is not enclosed with a door. Moreover, in the cellular office of Company B, noise can still be detected unless the meeting room is fully utilized.

5.2.2 Lighting /Natural Light

The participants were asked questions about their office and were instructed to describe the lighting and level of natural light in their office (See Table 5.2.3). The questions included are as follows: a) Can you describe the condition of lighting in your office?; b) Are you satisfied with the current condition of lighting in your office? If not, how can it be improved?; c) Do you think that improving the condition of lighting would help you perform better at your work?; d) Do you have control over the lighting condition at your office? Is it important?; e) Do you get natural light in your office? Your desk?; f) Do you feel it is important for you to have access to natural light?; g) Do you feel that you will perform better in your day-to-day job if you have access to natural light?

Table 5.2.3 Summary of feedback on Lighting and Natural Light

<table>
<thead>
<tr>
<th>Lighting / Natural Light</th>
<th>Manager A</th>
<th>Supervisor A</th>
<th>Subordinate A</th>
<th>Manager B</th>
<th>Supervisor B</th>
<th>Subordinate B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you describe the condition of the lighting in your office?</td>
<td>- We receive enough natural light</td>
<td>- Our office receives substantially enough daylight</td>
<td>- Our office receives substantially enough daylight</td>
<td>- Only a minimal amount of natural light enters our office because of the tinted windows in another room</td>
<td>- There is adequate light</td>
<td>- Enough light</td>
</tr>
<tr>
<td>Question</td>
<td>Yes</td>
<td>Extremely satisfied</td>
<td>Satisfied, but providing extra lighting such as lamp would be good</td>
<td>No</td>
<td>Yes, but it would be nice to have more natural light in the office</td>
<td>Satisfied, but I would like to receive some natural light that could help my work performance</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------</td>
<td>---------------------</td>
<td>-------------------------------------------------------------------</td>
<td>------</td>
<td>---------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Are you satisfied with the current condition of lighting in your office? If not, how can it be improved?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you feel that improving the condition of the lighting would help you perform better at work?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have control over the lighting condition at your office? Is it important?</td>
<td>Yes</td>
<td>Not entirely</td>
<td></td>
<td>No</td>
<td>Not entirely</td>
<td>N/A</td>
</tr>
<tr>
<td>Do you get natural light in your office? Your desk?</td>
<td>Yes</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
<td>Not at my desk</td>
</tr>
<tr>
<td>Do you feel it’s important for you to have access to natural light?</td>
<td></td>
<td>It is essential</td>
<td></td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Do you feel that you will perform better in your day to day job if you have access to natural light?</td>
<td>Definitely</td>
<td>Yes, if the weather outside is nice</td>
<td></td>
<td>Yes</td>
<td>It could be a distraction to have a view, but I would like to receive more natural light</td>
<td>At present, I am already receiving adequate natural light, but it would be beneficial to receive more</td>
</tr>
<tr>
<td><strong>Office A</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Manager A*, who is satisfied with the current lighting condition in their office, asserted that it is important to receive a significant amount of natural light at work.

*Supervisor A* mentioned that, although their office receives considerable amount of daylight, the sunshine can be exceedingly bright in the afternoon that it cannot be completely blocked by the blinds. This certain instance has been considered a problem.

*Subordinate A* reported that there is enough daylight in the office and the level is satisfactory. Moreover, this employee stated that if one’s workstation is next to the window, it would be even better because it is perceived to positively influence the mood of working.
All three respondents of Office A reported that their office receives adequate amount of natural light. In this event, the open-plan layout seems to allow sufficient amount of daylight into the office space and is well received.

**Office B**

*Manager B* claimed that only a limited amount of natural daylight is received in their hub because of the tinted windows. Acquiring a window access from the desk is deemed nice, but it can also be a source of a distraction from work.

*Supervisor B* admitted that the current level of lighting in their office is adequate; yet, to receive more natural light it would be better.

*Subordinate B* contrarily reported that their office does not receive natural light and having some would be nice because it potentially improves the mood of employees and help enhance their work performance. In terms of the lighting condition, the brightness is enough and may even be excessive.

All the interviewed participants from Office B suggested that the current lighting condition in their office and the natural lighting it receives can still be improved. The meeting room was purposely assigned to an area with many windows, whereas the common working area without. Such a condition has resulted in the lack of access to natural light in the common area, and the workers are considered not completely satisfied.

### 5.2.3 Thermal Condition

The participants were asked to describe the thermal condition and quality in their office (See Table 5.2.4). The questions involved under this category are as follows: a) Can you describe the
thermal quality at your office?; b) Do you have control over the A/C in your office?; c) Do you feel it is important for you to have the control over the thermal condition of your office?; d) Do you feel that having a suitable temperature and indoor quality would help you perform better at work?

Table 5.2.4 Summary of feedback on Thermal Condition and Quality

<table>
<thead>
<tr>
<th>Thermal Condition</th>
<th>Manager A</th>
<th>Supervisor A</th>
<th>Subordinate A</th>
<th>Manager B</th>
<th>Supervisor B</th>
<th>Subordinate B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you describe the thermal quality at your office?</td>
<td>- Window access to fresh air and A/C available</td>
<td>- Summer is fine, but it becomes stuffy during winter</td>
<td>- Summertime is satisfactory, but winter can become extremely cold, which cannot be controlled</td>
<td>- We get exceedingly cold when a meeting is held in the separate room</td>
<td>- Can become cold during winter</td>
<td>- Can get cold during winter</td>
</tr>
<tr>
<td>Do you have control over the A/C in your office?</td>
<td>- Yes, we have control of the A/C</td>
<td>- Yes, we have control of the A/C</td>
<td>- Yes, we have control of the A/C</td>
<td>- I simply put on jacket to stay warm</td>
<td>- During winter, I simply wear jacket to keep warm and turn on the A/C during summer</td>
<td>- We cannot control the temperature in wintertime, during which everyone gets considerably cold</td>
</tr>
<tr>
<td>Do you feel it is important for you to have control over the thermal condition of your office?</td>
<td>- Important</td>
<td>- Important</td>
<td>- Important</td>
<td>- Important (being extremely cold can distract one from working proficiently)</td>
<td>- N.A</td>
<td>- Yes</td>
</tr>
<tr>
<td>Do you feel that having a suitable temperature and indoor quality would help you perform better at your work?</td>
<td>- Yes</td>
<td>- Yes</td>
<td>- Yes, would like to have better circulation in the office</td>
<td>- Yes</td>
<td>- I would not affect my overall work performance</td>
<td>- It would not significantly affect my work performance</td>
</tr>
</tbody>
</table>

Office A

Manager A imparted that the A/C in their office can be controlled and therefore does not see any issues in the current thermal condition at their workplace.

Supervisor A reported that one can access the A/C, which can be accordingly controlled, and disclosed that their office can get stuffy during wintertime, and if the window is opened, it can become exceedingly cold.
Subordinate A revealed that the thermal condition in their office is fine during summertime, but it can get severely cold during winter. Subordinate A also mentioned that the employees prefer a better air circulation in the office.

The respondents that work in Office A all reported that the thermal condition at their workplace is important to them. During summer, the thermal condition in their office is acceptable because the members can access and control the A/C. However, during winter, it can get severely cold in the office. In this event, window access is considered beneficial when the room becomes stuffy, allowing some outdoor air into the office.

Office B

Manager B reported that when a meeting held in the meeting room, the A/C is turned on for a longer time to cool the room. This situation negatively affects the thermal condition in the main working area, which shares the same A/C system with the meeting room. Meanwhile, the temperature can become extremely cold in their office and distract the employees. Such a situation can generally be controlled by putting on a jacket.

Supervisor B stated that during winter, it can get severely cold in their office, which does not have any heater. The most common means of staying warm during this period is by wearing a jacket, during which one’s overall job performance will not be influenced.

Subordinate B revealed that it can get exceedingly cold in their office during winter because the A/C cannot be controlled, adversely affecting their work performance.

All these respondents from Office B shared that it can get severely cold in their office. Given that the meeting room requires more A/C than in the common area, the employees have reported to feel exceedingly cold even during summer. The problem with the centrally controlled A/C is that once the temperature is set, it will affect the whole office area. In winter time, it can also get
significantly cold in their office because there is no available heater in their facility. It should be noted that central heating systems in buildings are a rarity in Hong Kong and it is not perceived as a necessity (Squarefoot, 2015).

5.2.4 Privacy

The participants were asked to describe the level of privacy in their office (See Table 5.2.5). The questions included are as follows: a) How important is it for you to have privacy at your work?; b) Do you think that the current layout of your office provides enough level of privacy? If not, what do you think can be done to help increase the level of privacy for you?; c) Do you have control over the amount of privacy you can have in your office? Is it important for you?

Table 5.2.5 Summary of feedback on Privacy

<table>
<thead>
<tr>
<th>Privacy</th>
<th>Manager A</th>
<th>Supervisor A</th>
<th>Subordinate A</th>
<th>Manager B</th>
<th>Supervisor B</th>
<th>Subordinate B</th>
</tr>
</thead>
<tbody>
<tr>
<td>How important is it for you to have privacy at your work?</td>
<td>- Not important</td>
<td>- Not remarkably important at work</td>
<td>- We do not need considerable level of privacy</td>
<td>- Depends</td>
<td>- Slightly important</td>
<td>- Slightly relevant</td>
</tr>
<tr>
<td>Do you think that the current layout of your office provides enough level of privacy?</td>
<td>- Not an issue at work</td>
<td>- No privacy due to proximity</td>
<td>- No privacy when talking on the phone</td>
<td>- Offers the partitioned space, but does not offer complete privacy</td>
<td>- Yes</td>
<td>- Yes</td>
</tr>
<tr>
<td>If not, what do you think can be done to help increase the level of privacy for you?</td>
<td>- I can go to a more private room when making a personal call</td>
<td>- I would like to have a partition between the meeting room and pantry</td>
<td>- We should determine the right time to take private phone calls (i.e., lunch time)</td>
<td>- N.A</td>
<td>- N.A</td>
<td>- N.A</td>
</tr>
<tr>
<td>Do you have control over the amount of privacy you can have in your office? Is it important for you?</td>
<td>- It is not relevant at work</td>
<td>- Yes, by doing personal tasks at lunch time</td>
<td>- No preference</td>
<td>- The meeting room can be used for taking private/imporant long calls</td>
<td>- For important calls, one can access the meeting room</td>
<td>- One can go to the meeting room for private conversations</td>
</tr>
</tbody>
</table>
**Office A**

*Manager A* claimed that privacy is not important and is not an issue in their office. If there is a need to take private phone calls, one can step out for the conversation.

*Supervisor A* reported that an employee cannot completely enjoy his privacy in their office because of the desk arrangement and proximity between colleagues. Ideally, the desks should have partition, a room should be separately assigned as a meeting area, and a pantry should also be allocated for food and drinks.

*Subordinate A* admitted that there is no privacy when people are walking pass the desk and when one takes a phone call because others can easily listen in.

The above summarized answers of the respondents from Office A imply that they have varied opinions on the privacy condition in their office. Privacy was reported to be more important for Subordinate A than Supervisor A or Manager A. The reason for such a case could be the seat location, in which people can easily have access to the desk of Subordinate A and can see what he is doing.

**Office B**

*Manager B* mentioned that each desk is separated by individual partitions, providing the employees with a space of their own. However, this condition does not offer the privacy required when making private phone calls. Accordingly, one should leave his desk to take private calls in a separate meeting room.

*Supervisor B* provided a similar feedback, that is, having privacy at the workplace is not remarkably important and if and when required, for example taking important calls, the employees can simply go to the meeting room for some privacy.
Subordinate B gave an answer similar to that of Supervisor B, in which privacy in the office is not considered an exceedingly important factor. One can go to the meeting room when there is a need to take personal calls.

Privacy is generally not considered significantly important by the participants who are working in Company B. The desks of these employees are already equipped with a partition, separating each desk from one another and providing a sense of individual space. The availability of the meeting room in this company further provides its workers with privacy, particularly those who want to take personal calls.

5.2.5 Interaction

The participants were also instructed to describe the level of interaction in their office (See Table 5.2.6). The questions included are as follows: a) Does the nature of your job require constant communication and close interaction with your colleagues?; b) How often do you interact/communicate with your colleagues?; c) Do you think the current office layout is suitable for facilitating the right level of interaction with your colleagues?; d) Do you feel that it is important for you to have many interactions with your colleagues?

Table 5.2.6 Summary of feedback on level of interaction

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Manager A</th>
<th>Supervisor A</th>
<th>Subordinate A</th>
<th>Manager B</th>
<th>Supervisor B</th>
<th>Subordinate B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the nature of your job require constant communication and close interaction with your colleagues?</td>
<td>- Highly important</td>
<td>- Highly important</td>
<td>- Highly important</td>
<td>- More on virtual interaction with Mainland China colleagues via email and sometimes with the colleagues in the office</td>
<td>- Significantly important, all day</td>
<td>- I have great amount of interaction with my colleagues</td>
</tr>
<tr>
<td>How often do you interact/communicate with your colleagues?</td>
<td>- Throughout the day</td>
<td>- Remarkably frequent</td>
<td>- Half of the times</td>
<td>- More on the social level; I am primarily interacting with the CMO</td>
<td>- I constantly communicate with my subordinates</td>
<td>- All day, and maybe 15 min of silence</td>
</tr>
</tbody>
</table>
Do you think the current office layout is suitable for facilitating the right level of interaction with your colleagues?

- The current layout is satisfactory
- The current layout is suitable for interaction
- We have a good level of interaction, but can be improved
- The desks are too closely positioned

Do you feel that it is important for you to have many interactions with your colleagues?

- Yes, it is essential
- Yes, it is necessary
- Yes, it is important
- Yes, mainly with the CMO

Office A

Manager A affirmed that interaction with colleagues is highly important at work, and the current office layout of their workplace is good in terms of facilitating interaction.

Supervisor A responded that interaction with colleagues is relevant, and the current layout of their workstation is suitable for facilitating the right level of interaction in the office.

Subordinate A indicated that the current layout of their office can be improved because the desks are very closely positioned from one another.

All respondents from Office A reported that they are satisfied with the current layout of their office and feel that it facilitates the right level of interaction among employees. Accordingly, the open-plan of Office A allows easy access to other colleagues and promotes further interaction.

Office B

Manager B regarded that the colleagues working in the same office do not remarkably interact with one another. Instead, the most frequent interactions occur among employees from Mainland China via email and also with the CMO.

Supervisor B reported that he is constantly communicating with Subordinate B almost every day.

Subordinate B revealed that a substantial amount of interaction occurs every day and all day at their workplace. Only about 15 min of silence transpires in the office due to constant communication.
The three participants from Office B essentially provided a mixed feedback on the level of interaction in their office. A considerable amount of interaction transpires more between Supervisor B and Subordinate B than with Manager B.

5.2.6 Distraction

The participants were advised to portray the level of distraction they get in their office (See Table 5.2.7). The questions included are as follows: a) Do you feel that you get distracted easily? b) Do you feel that you get many distractions at work? If yes, what is the most common type of distraction?; c) Do you think that the current layout of your office is suitable for minimizing the level of distraction at your work? If not, what do you think can be done to help minimize the level of distraction?

Table 5.2.7 Summary of feedback on level of interaction

<table>
<thead>
<tr>
<th>Distraction</th>
<th>Manager A</th>
<th>Supervisor A</th>
<th>Subordinate A</th>
<th>Manager B</th>
<th>Supervisor B</th>
<th>Subordinate B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you feel that you get distracted easily?</td>
<td>- I do not get distracted easily</td>
<td>- I am quite easily distracted</td>
<td>- Yes, I get distracted easily</td>
<td>- Yes</td>
<td>- No</td>
<td>- I can generally focus on work</td>
</tr>
<tr>
<td>Do you feel that you get many distractions at work? If yes, what is the most common type of distraction?</td>
<td>- There is no distractions at work, but sometimes may pick up on another conversation in the background during calls</td>
<td>- Many distractions</td>
<td>- Other people’s action can interrupt what one’s doing at the moment</td>
<td>- I get distracted by social conversation</td>
<td>- CMO’s long phone conversation can be distracting</td>
<td>- CMO’s conversation can be distracting - no distraction from Supervisor B</td>
</tr>
<tr>
<td>Do you think that the current layout of your office is suitable for minimizing the level of distraction at your work?</td>
<td>- Yes, because it allows easy access to people</td>
<td>- The space is too open and prone to many distractions</td>
<td>- Not really</td>
<td>- Yes</td>
<td>- No</td>
<td>- Not entirely</td>
</tr>
</tbody>
</table>

71
Office A

Manager A admitted that he cannot be easily distracted and feel that there is only little distraction in the office, particularly when taking conference calls and when colleagues are discussing in the background.

Supervisor A disclosed that he does not get easily distracted, but claim that there are many distractions in their office.

Subordinate A noted that he can be easily distracted and interrupted by the action of his colleagues at times.

All respondents from Office A demonstrated that they encounter some distractions in their office. Considering that the open-plan of Office A allows easy access to everyone in the office, it can also become a distraction. The action or conversation of an employee can easily be picked up by the colleagues working in close proximity and can be perceived as a distraction, which cannot be controlled.

Office B

Manager B stated that he cannot be easily distracted. At work, however, Manager B believes that the social conversation of employees acts as the primary source of distraction.

Supervisor B claimed that he easily gets distracted and that the most common source of distraction in their office is the long phone conversations of the CMO.
Subordinate B reported that he cannot be easily distracted in general and can focus well. Similar to the answer of Supervisor B, Subordinate B considers that the main source of distraction in their office is the conversations of CMO. The phone conversations of Supervisor B were not reported to be a source of distraction.

The participants from Office B do not get easily distracted at work and commonly reported that the primary source of distraction at their workplace is the phone conversation of the CMO. Manager B also reported that social conversation can sometimes be a distraction. The reason for this situation is the fact the Supervisor B and Subordinate B tend to have more interaction with each other, thereby distracting Manager B. The existence of a separate cellular office does not positively affect the perception of workers on the distraction in the office.

5.3 Inter-Case Analysis and Discussion

i. Noise

Company A

When there is noise in the office, particularly when colleagues are having a discussion or phone conversation, the other employees cannot control the situation. Company A does not have a separate meeting room; hence, one cannot leave the shared space to take long phone calls or conduct team meetings.

Company B

The employees of this company can go to the meeting room when taking long phone calls or for client meetings. In this event, the noise level in the shared space is decreased, which is desirable for the participants.
Summary of the responses on the noise impact on office environment working in Company A and Company B is listed in Table 5.3.1.

In this case study, the level of noise in Company A was reported to be greater than that in Company B. The reason for such a condition is the case that the desks in Company A are located at a close proximity to one another and do not have walls to separate the confined area for phone conversation and meetings. The existence of an enclosed cellular room in Company B is beneficial to minimizing avoidable noise in the office. Therefore, the availability of an enclosed meeting room in Company B offsets the disadvantage of noise issue in Company A by providing its workers an option to go to the room and complete their long calls in a more private manner.

<table>
<thead>
<tr>
<th>Noise</th>
<th>Office A</th>
<th>Office B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside noise</td>
<td>No control</td>
<td>No control</td>
</tr>
<tr>
<td>Noise from phone conversations</td>
<td>Affecting performance at all levels</td>
<td>No problem</td>
</tr>
<tr>
<td>Noise affecting performance</td>
<td>Does not affect the manager and supervisor level, but influences the subordinates</td>
<td>No effect at all levels</td>
</tr>
<tr>
<td>Control over noise</td>
<td>No control</td>
<td>Go to meeting room</td>
</tr>
</tbody>
</table>

### iii. Lighting/Natural Light

Company A

Company A is reported to receives sufficient amount of daylight and/or natural light. The windows on one side of the wall allow the shared open space to receive daylight without any blockage since there are no walls separating the shared space. Natural light is highly valued in Company A; hence, the participants from this company are satisfied.

Company B

The participants working in Company B claimed to have received inadequate daylight in their individual working area since the existence of walls in the office is acting as a blockage to bring
in the natural light from the windows into the space. Natural light is generally valued in Company B, and it is therefore ideal if their office layout allows more daylight to satisfy the employees.

Summary of the responses on the lighting on office environment working in Company A and Company B is listed in Table 5.3.2.

In this case study, the open-plan office with a greater shared space without any wall division seems to allow better access to natural light. The respondents in Company A are more satisfied because the windows allow a considerable amount of natural light into their office, and no walls block their access to natural light from the outside. By contrary, in Company B, natural light is only available inside the meeting room or in the room of the CMO. The common area in this firm does not receive substantial amount of daylight because a wall blocks the passage of sunlight. Therefore, Company A with the open-plan layout provides its employees with more natural light than Company B, which is confined by many walls.

Table 5.3.2 Summary of Lighting on Office Environment

<table>
<thead>
<tr>
<th>Lighting</th>
<th>Office A</th>
<th>Office B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor Lighting</td>
<td>Adequate, but could add desk lamps</td>
<td>Too much lighting</td>
</tr>
<tr>
<td>Natural Light</td>
<td>Abundant</td>
<td>Not enough</td>
</tr>
<tr>
<td>Importance of Natural Light</td>
<td>Important</td>
<td>Important</td>
</tr>
<tr>
<td>Level of Satisfaction</td>
<td>High</td>
<td>Adequate to low</td>
</tr>
<tr>
<td>Control over lighting</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**iii. Thermal Condition**

Company A

The thermal condition during summer is manageable because the A/C can be adjusted and controlled according to the users’ preference. However, during winter, the circumstance can be troublesome because the thermal condition cannot be adjusted or controlled without the heater in place.
Company B

The thermal condition of this firm is similar to that of Company A, in which the A/C can be controlled during summer, but the office can become extremely cold during winter. This certain situation can then be a source of distraction. The fact that the A/C in the separate room is linked to the other areas of the office makes it significantly difficult to manage and control the overall temperature and may cause irritation to everyone in the office.

Summary of the responses on the thermal quality in office environment working in Company A and Company B is listed in Table 5.3.3.

In this case study, Companies A and B both use the centralized A/C system; yet, the former with an open-plan office layout can maintain a better temperature and thermal condition than the latter with a cellular layout, which does not have walls to inhibit air circulation. The window access also allows the employees of Company A to have further control of the thermal condition in the office when it gets stuffy. The participants from both companies reported similar experience, in which the thermal condition during summer is generally acceptable; yet, the situation during winter worsens because it can become severely cold due to the absence of heater in both offices. However, the employees of Company A have further control over the thermal condition and can open the windows when the office gets stuffy.

Table 5.3.3 Summary of Thermal Quality in Office Environment

<table>
<thead>
<tr>
<th>Thermal Quality</th>
<th>Office A</th>
<th>Office B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Conditioning</td>
<td>Centrally controlled</td>
<td>Centrally controlled</td>
</tr>
<tr>
<td>Temperature</td>
<td>Fine during summer and stuffy during winter</td>
<td>Fine during summer, but can get severely cold during winter</td>
</tr>
<tr>
<td>Importance thermal quality</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Window</td>
<td>Yes, can open the window when office gets suffocating</td>
<td>No</td>
</tr>
<tr>
<td>Heater</td>
<td>Not equipped, but would like to have one</td>
<td>Not equipped, but would like to have one</td>
</tr>
</tbody>
</table>
iv. Privacy

Company A

All participants from this firm shared that privacy is not a significantly important factor at work because the employees are working during office hours and do not handle personal matters. Personal calls can either be taken outside the office or during lunch time. However, two of the participants mentioned that the open-plan layout does not provide a substantial level of privacy during work hours because the other colleagues can view their computer screens and listen to their phone conversations. The workstation of Manager A is situated in the same space as the other employees. This arrangement may contribute to the perception of participants on the level of privacy at their work space. Adding a partition between the desks is deemed helpful for minimizing the perceived issue of privacy.

Company B

By contrary, privacy is not an important element for the participants working in Company B. These respondents reported that the current layout of their office with individual partitions provides them with enough privacy. If and when private call is required, the private room can be accessed. The CMO has a separate room and is therefore an advantage to the open-plan layout setting.

Summary of the responses on the privacy in office environment working in Company A and Company B is listed in Table 5.3.4.
In general, the participants from Companies A and B do not consider privacy to be an extremely relevant factor for work. However, the participants from Company B reported to enjoy more privacy because of the separate meeting room where employees can take private phone calls. In Company A, there is no separate room for taking private calls and was reported incapable for providing a considerable level of privacy.

Table 5.3.4 Summary of Privacy in Office Environment

<table>
<thead>
<tr>
<th>Privacy</th>
<th>Office A</th>
<th>Office B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance of privacy</td>
<td>Not significantly important at work</td>
<td>Not significantly important at work</td>
</tr>
<tr>
<td>Phone calls</td>
<td>Cannot take private calls in the office</td>
<td>Can go to the meeting room to take private calls</td>
</tr>
<tr>
<td>Partitions</td>
<td>No</td>
<td>Partition helps provide some privacy</td>
</tr>
<tr>
<td>Desk arrangement</td>
<td>Fine with manager and supervisor, but subordinate enjoy lesser privacy</td>
<td>Fine at all levels</td>
</tr>
</tbody>
</table>

v. Interaction

Company A

Many constant interactions among all colleagues occur every day, and the open-plan layout is satisfactory for facilitating such an interaction at the right level.

Company B

Not all participants require interaction with other colleagues every day; hence, the current office layout is satisfactory.

Summary of the responses on interaction in office environment working in Company A and Company B is listed in Table 5.3.5.

In this case, interaction is more important for participants working in Company A, and open-plan layout offers easier access to colleagues for communication. Meanwhile, the employees of
Company B do not require considerable amount of interaction with colleagues, and the cellular office layout is considered adequate that no longer needs additional separate offices.

Table 5.3.5 Summary of Interaction in Office Environment

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Office A</th>
<th>Office B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance</td>
<td>Remarkably important at all levels</td>
<td>Not important for the manager, but more important for supervisor and subordinate</td>
</tr>
<tr>
<td>Frequency</td>
<td>Every day</td>
<td>Not often for manager, but frequent between supervisor and subordinate</td>
</tr>
<tr>
<td>Access to colleagues</td>
<td>Easy</td>
<td>Fine</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Satisfied</td>
<td>Fine</td>
</tr>
</tbody>
</table>

vi. Distraction

Company A

The majority of the participants felt that there are many distractions in their office, including the background conversation and the actions and movements of other colleagues.

Company B

The main source of distraction comes from the voice of CMO while having a phone conversation in his office, which is not enclosed with a door.

Summary of the responses on distraction in office environment working in Company A and Company B is listed in Table 5.3.6.

In this case study, distraction was equally reported to exist in both offices, in which the primary source is the conversation among colleagues. It did not make a huge difference that Company B had a cellular office, where the CMO sits. The cellular room can only be helpful in lessening noise distractions by having a door, which can then provide a completely enclosed area; otherwise, it will simply be a part of the open and shared space. Therefore, the level of distraction is similar between Companies A and B. This finding supports the claims presented in the literature, that is, the open-plan office layout is perceived to offer less privacy than the
cellular office. However, the level of noise and thermal quality are similar between the two office layouts. Meanwhile, the natural light, thermal quality, and the level of interaction are greater in the open-plan office layout than those in the cellular office layout.

Table 5.3.6 Summary of Distraction in Office Environment

<table>
<thead>
<tr>
<th>Distraction</th>
<th>Office A</th>
<th>Office B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easily distracted</td>
<td>Not easy</td>
<td>Not easy</td>
</tr>
<tr>
<td>Casual conversation</td>
<td>Yes can be distracting</td>
<td>Yes can be distracting</td>
</tr>
<tr>
<td>Phone conversation</td>
<td>Yes can be distracting</td>
<td>Although there is a separate room, employees are still distracted because the room has no door</td>
</tr>
</tbody>
</table>

5.4 Summary of Findings

This chapter discusses the demographics of the participants and analyzes the data derived from the individual face-to-face interviews. The same set of questions was presented to both companies and was asked during the individual interviews with the senior manager, supervisor, and junior staff.

The data obtained from each company were internally analyzed to compare and contrast the feedback between the three participants working in the same environment. The data were then compared and contrasted between the two companies in terms of level of noise, amount of natural light received in the office, level of interaction with colleagues, level of distraction, level of privacy, and thermal quality condition (See Table 5.4.1).

The respondents working in a cellular office reported to have more privacy and noise level because the primary source of interruption comes from the conversation of their colleagues. When long phone calls can be taken in a separate area, it minimizes the overall negative effect on the office environment. These observations are consistent with the findings from the literature, in which the open-plan layout is often criticized for its noise annoyance, with ringing phones and other peoples’ conversation as the most annoying sources of noise (Mak and Lui, 2012), and less
privacy (De Croon et al., 2005), thereby affecting the work performance of employees (Banbury and Berry, 1998).

The finding from this study illustrates that the respondents working in an open-plan office have better access to natural light and thermal condition and enjoy a considerable amount of interaction with colleagues. As posited by previous literature, window access (Kaplan, 1992; Stone & Irvine, 1994), better indoor quality (Kamaruzzaman & Sabrani, 2011), more communication and information flow (Allen & Gerstberger, 1973; Jackson et al., 1997), and proximity to team member (Wah, 1998) can all improve the work performance of employees. Gifford (1998) also discovered that brighter environment helps increase both the general and intimate communication. The open-plan layout can provide an environment that offers these characteristics.

Distraction was reported to be similar between the two office layouts. Nevertheless, this certain finding specifically found in this case study is different to the conclusions presented by Sundstrom et al. (1980), that is, employees in open-plan workspaces occasionally experience distraction in the office. The employees working in cellular office in this case study did report similar level of distraction in the office, and it did not appear that they were significantly better than those working in an open-plan office layout.

Table 5.4.1 Summary of the findings

<table>
<thead>
<tr>
<th></th>
<th>Noise</th>
<th>Natural Light</th>
<th>Thermal Condition</th>
<th>Privacy</th>
<th>Interaction</th>
<th>Distraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open-plan Office</td>
<td>Better – With more natural light</td>
<td>Better – With window and less wall for air circulation</td>
<td>Better – With easier access to colleagues</td>
<td>Same</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cellular Office</td>
<td>Better – With the meeting room</td>
<td>Better – With partition</td>
<td>Same</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

81
5.5 Framework for small office environment in Hong Kong

Based on the results of the inter-case analysis (Table 5.4.1), open-plan office offers more advantages as opposed to the cellular office for small offices in Hong Kong. The findings further reveal that the open-plan office layout is better in four out of the six key office environment factors. However, the ideal office layout should incorporate both the benefits of an open-plan and a cellular office to provide its employees the best suitable working environment. The results cited in Table 5.4.1 indicate that a “hybrid” open-plan office, which offers an open-plan office space in principle and provides a small enclosed area in the corner of the office, would overcome the adverse effects of the open-plan office layout and brings in the advantages of a cellular office layout. This small enclosed area should be partitioned with transparent glass panels instead of a solid partition wall to allow an equal amount of natural light to enter into the office and maintain the same thermal condition in the enclosed room. This enclosed area can offset the disadvantage of the open-plan office by providing a private room for long phone conversations or by serving as a meeting area. However, since the enclosed walls are not solid partitions similar to those used in a traditional cellular office, a hybrid open-plan office can still maintain all the benefits of the traditional open-plan office. Employees can also be more satisfied with the hybrid open-plan office layout because this workspace provides an option to use the enclosed room for minimizing noise and distraction when needed and for maintaining the advantageous of good interaction, natural lighting, and thermal condition.
CHAPTER 6

6.1 Overview

Chapter 1 presented Hong Kong as a business friendly city that acts as an international business hub and a gateway to Mainland China. Hong Kong offers a free market with the freedom of capital, transparent regulations, low taxation, no trade barriers, and no discrimination (HKGOV 2008). Given that several businesses are set up in Hong Kong, the office spaces become scarce and the rental price becomes expensive. This phenomenon led small and medium sized businesses to move away from the prime business districts. Moreover, these businesses find solution to cope with the issue of office rents such as utilizing an open plan office layout. The study on the effectiveness of small offices in the Hong Kong environment is important for managers and business owners to understand the viewpoint of their employees and provide them an optimal working environment.

On this basis, Chapter 2 discussed key literature related to office layout including the history and development, types, and the environmental factors that affect the workers. Chapter 2 also discussed the advantages and disadvantages of open plan office layout. The six key environment factors of office layout identified were noise, lighting, thermal condition, privacy, interaction, and distraction.

Chapter 3 discussed the study adopting a qualitative research using case study method to explore two types of small offices in Hong Kong, namely, open plan and cellular office layout. Case study method is suitable for examining the similarities and differences in feedback from people within the same office versus people from another office with a different office layout. This study was done by comparing and contrasting the feedback of participants working in an office either in an open plan or a cellular office layout. The comparison is conducted after face-to-face
interviews where participants were asked to answer questions surrounding the six office environmental factors, which are important in understanding the perception of the participants on the office layout.

Chapter 4 discussed the two cases chosen for this study. One is a boutique Public Relations agency located in Central area with an open plan layout, and the other is a toy sales and manufacturing company located in Tsim Sha Tsui area with a cellular office layout. The two chosen companies belong in either services or sales industry, which is a very common type of business in Hong Kong. The two companies are both located in two of the main prime business districts of Hong Kong. However, both offices are located farther from the center, which fits well to represent the small offices in the city. Interviews with senior management, middle management, and superior staff in each company were conducted to gather data related to the office layout.

Chapter 5 presented the analysis of the data gathered from the two case studies in Chapter 4. The feedback from each participant on the six key environmental factors including noise, lighting, thermal quality, privacy, interaction, and distraction were compared and contrasted within the case and across the two cases. The results from intra-case and inter-case analysis showed that the level of distraction was similar between the two offices. The open plan office layout offered more advantages including allowing more natural light in the office, ease in maintaining suitable thermal quality, and the layout that is suitable for easy interaction between employees. The disadvantages of open plan office layout include greater level of noise and less privacy. A framework of office layout is suggested to use a “hybrid” open plan office layout for the small offices in Hong Kong, including an open plan office layout in principle with an additional small enclosed area to overcome the noise and privacy issues.
6.2 Findings

In Chapter 1, three objectives of the study were derived to examine the research problem surrounding whether the small open plan office is perceived to be more effective than small cellular office in Hong Kong context. This section will provide answers to the three objectives identified earlier.

**Objective 1 To investigate the perception of worker on six key environmental factors of office layout**

i) Noise

Noise is generally present in small offices in Hong Kong, whether in the form of external noise such as construction and traffic and internal noise such as phone calls and conversation. These noises can affect performance if not controlled. Similar to the literature, noise is one of the main factors that affect perceived performance of employees if not controlled. Regardless of which type of office an enterprise chooses to utilize, the management should make sure that the level of noise is kept to a minimum or a space should be provided where employees can conduct noise-inducing activities, such as taking long calls or holding meetings.

ii) Lighting

Lighting is important for employees working in small offices in Hong Kong, especially natural light from windows. Similar to the literature, lighting would have an effect on the perceived performance of employees. In an open plan office layout, more employees can receive natural lights, whereas only the employees (or managers) sitting next to the windows can receive natural lights in a cellular office layout. In general, workers prefer to receive more natural light at their desk for better mood and performance.

iii) Thermal Quality
Thermal quality is important for employees working in small offices in Hong Kong. Moreover, if the condition is unsatisfactory, then thermal quality may in turn affect job performance. In an open plan office layout, the thermal quality can be controlled, whereas the employees do not have as much control to make changes in a cellular office layout. Individual having control over the thermal condition of the office is generally preferred.

iv) Privacy

Personal privacy is generally perceived to be insignificantly important for employees working in small offices in Hong Kong. In terms of work privacy, the office layout would have an effect on the level of privacy, but would indirectly affect work performance. If unavailable, individuals would generally prefer to have some level of privacy at work by installing partitions between desks and providing a separate enclosed area for private calls. However, this factor is insignificantly important for employees to perform better at their jobs.

v) Interaction

Interaction is important for a certain industry, especially for companies that require constant communication. However, this factor is unnecessary for a few industries and may also vary between departments depending on the nature of their works. Interaction in small offices is quite easy because of proximity to colleagues. A space allowing good interaction is preferred by the workers in small offices in Hong Kong.

vi) Distraction

Distraction is present in small offices in Hong Kong, but the level of distraction may vary from person to person. A few people are more easily distracted than others. A few distractions are unavoidable, such as social conversation with colleagues. This situation is true in small offices in Hong Kong, considering the close proximity with colleagues.
Objective 2 To compare open plan and cellular office layout considering the six factors influencing the small offices in Hong Kong

i) Noise

In general, open plan office layout is more prone to having higher level of noise because the space is shared by everyone working in the same office. The noise is unable to be masked without any walls dividing the space. Therefore, cellular offices would be able to minimize noise from phone conversation.

ii) Lighting

Open plan office layout is able to spread out the natural light better through the windows into the shared space, considering that no walls divide or block the natural light. By contrast, only the managers will benefit from the natural light in the enclosed cellular office, given that the offices of managers are usually near the windows.

iii) Thermal Quality

Thermal condition is better in a small open plan space, given that the circulation of air flow is good. Moreover, controlling the temperature is easier in the open plan office layout as compared with the cellular office layout, especially if the air conditioning is centrally controlled.

iv) Privacy

Privacy is greater in cellular offices where a separate enclosed area is provided for employees to conduct personal activities, such as long phone conversation or meetings. Open plan office layout lacks a private area for employees to comfortably take private calls, conversation, or meetings.

v) Interaction
Interaction is greater and easier in open plan office layout, especially in small offices in Hong Kong. Considering that each individual is at close proximity, each individual is more prone to facilitating interaction with colleagues either in the form of work or social conversation and interaction.

vi) Distraction
Distraction is highly dependent on each individual. This factor depends on whether the individual would be easily distracted or unaffected. However, in terms of the layout, getting distracted is more possible in an open plan area where individuals are at close proximity. In addition, open plan office layout is more prone to visual or audio distraction.

**Objective 3 To examine the effectiveness of small open plan office layout in Hong Kong environment**

Small open plan offices offer more benefits than cellular offices when examining the six key environment factors, including natural lighting, thermal quality, and interaction. However, open plan office layout has a few disadvantages, such as noise and privacy issues. From the inter-case analysis of case studies of small offices in Hong Kong, a small hybrid open plan office layout combining the benefits of both the open plan and cellular office layout would be suitable to offer a more favorable environment for employees in a Hong Kong environment. This layout is able to maintain the benefits of the open plan office layout and provide the benefits of the cellular office layout.

**6.3 Conclusion**

This qualitative research has explored the effectiveness of small open plan office layout in Hong Kong using a case study method. Data collected from the individual face-to-face interviews with
offices showed that open plan office layout offered more benefits to managers, supervisors, and superiors working in two typical small offices as compared with the cellular offices in the Hong Kong environment. The benefits include more interaction with colleagues, better thermal quality, and more natural light. Notably, privacy was the only performance factor that the cellular office layout tended to offer and that the open plan office layout failed to provide. However, privacy was not reported to be highly important among all the respondents in the case study. Meanwhile, the level of distraction is similar in both office layouts. However, open plan office layout offered a more favorable condition for the employees, such as better thermal quality, more natural light, and room for interaction.

This research suggests that in the cases of sales and marketing and public relations industries occupying small offices in Hong Kong, adopting a hybrid open plan office layout (open plan office layout with a private enclosed area preferably divided by transparent glass walls) would be beneficial and also perceived by the employees to positively influence their work performance.

6.4 Implications and Future Research

The findings of this research have clear implications for business managers of small offices in Hong Kong. Business managers can benefit from this research by realizing that their employees are often affected by the noise in the office, access to natural light, lack of privacy issue, and the thermal condition during winter. Therefore, an office should be designed considering the mindset of the end users, their needs, and their requirements for better performance. Whenever possible, an office should provide a separate area that allows privacy and minimizes noise generated from personal long phone conversation. As mentioned in Chapter 5, a hybrid open plan office layout with a glass wall space divider would be a good option to help minimize the noise level, offer
privacy, allow more natural light throughout the office, maintain a good level of thermal condition, and promote interaction between colleagues. Further empirical research to this hybrid office layout should be conducted against the six key office environment factors to refine the framework for small office environment in Hong Kong.

Although this research is only confined to case study research project, this research is a good exploratory base for future research. Apart from the industries considered in this research, future research can investigate different major industries nature of small businesses in Hong Kong, such as trading companies and real estate agencies. Apart from Central and Tsim Sha Tsui area, other future research should study other districts of Hong Kong, such as Wanchai and Mongkok. In addition, future research should explore other office environmental factors, both external and internal. Wanchai is two MRT stations away from Central and rental price is reasonable in this area. Therefore, companies may choose to set up their offices in Wanchai as an alternative to Central area. Similarly, Mongkok is three MRT stations away from Tsim Sha Tsui area and rental price is reasonable. A few companies may choose to operate in Mongkok because of convenience and cost effectiveness. Another study would be to conduct more case studies of Chinese owned small companies in Hong Kong, which is the business type of the majority of small companies in Hong Kong. Given the difference in culture and the environment the local owners were brought up, the way companies are set up may be different to foreign owned businesses. The company culture may also be different, given that the company is owned and run by a local. Therefore, finding out if the six key environment factors would show different results is interesting.
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91


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Appendix

Appendix 1 Individual Information Statement
Information Statement

Information Statement for the Research Project:
Effectiveness of office layout: A case study of small offices in Hong Kong
Document Version 3; dated 19/11/2013

You are invited to participate in the research project identified above which is being conducted by Dr. Michael Mak and Ms. Anita, In Yee Lam studying Doctorate of Business Administration programme from the Newcastle Business School at the University of Newcastle.

Why is the research being done?
This research is to explore the effectiveness of office layout in Hong Kong based small offices, particularly focusing on the open-plan office layout and the private cellular offices. An interview will be conducted with employees working at an organisation with an open-plan office and another organisation with private cellular offices to understand their perceptions of their office layout and effectiveness.

Who can participate in the research?
If you work in small organizations in Hong Kong in either a managerial or non-managerial position, you can participate in this research. Please be advised that the organizational consent has been provided.

What choice do you have?
Participation in this research is entirely your choice. Only those organizations and individuals that consent to involvement will be included in this research. By signing the attached consent form, you consent to participating in the research. Whether or not you decide to participate, your decision will not disadvantage you or affect your relationship with your organisation. If you do decide to participate, you may withdraw from the project at any time without giving a reason and have the option of withdrawing any data which identifies you.

For further information:
Dr Michael Mak
University of Newcastle
Faculty of Engineering and Built Environment
+61-2-492 17450
Michael.Mak@newcastle.edu.au
What would you be asked to do?

If you agree to participate, you will be asked to take part in an interview about the environment and layout of your office. The interview will take place after working hours in a coffee shop nearby your office. The interview will be audio-recorded and transcribed. You will have an opportunity to review and edit the interview transcription.

How much time will it take?
The interview will take about one hour to complete.

What are the risks and benefits of participating?
There will be no short term benefits for the participants, however, it is hoped that the research will lead to better understanding of the effectiveness of the open-plan and private office layout from the perceptions of the employees working in small offices in Hong Kong. There are no direct risks for the individual associated with participating in the interview. However, there may be potential risks such as the impact of unequal relationships.

How will your privacy be protected?
The data that is collected through this research will be de-identified during the analytical process by the student researcher Anita In Yee Lam who conducted the interviews as well as the study supervisor Dr. Mak at University of Newcastle. This means that no information identifying individuals or firms will be included in any of the outputs of this research such as reports or journal articles. Information regarding the identity of participants will be known only to the researchers. All soft and hard copies of the data and associated records will be kept in the locked filling cabinet or password-protected PC of the researchers, in secure premises, and will be disposed of in accordance with the University of Newcastle’s policy and procedures for the confidential disposal of confidential material. Access to the data will be limited to the researchers except as required by law. The transcription services referred to will be bound by confidentiality agreement.

How will the information collected be used?
The data collected for this research will by included in academic papers (conference papers and journal articles), and may be included in reports. A member of the research team will transcribe the interviews. No individual participants or participant organizations will be named in any reports or papers or any other output of the research. A report of the research findings will be available to participants on request to Anita In Yee Lam (email: anita.lam.iy@gmail.com, telephone +852 93228223). If you would like to receive such a report, please contact any of the researcher at the contact details above. You will also be provided the opportunity to review the transcripts to edit or erase your contribution.

What do you need to do to participate?
Please read this Information Statement and be sure you understand its contents before you consent to participate. If there is anything you do not understand, or you have questions, contact the researcher.

Further information
If you would like further information please contact Dr Michael Mak at the address at the beginning of this document.
Thank you for considering this invitation.
Dr Michael Mak  
Chief Investigator  

Anita In Yee Lam  
Student Researcher  

Complaints about this research  
This project has been approved by the University’s Human Research Ethics Committee, Approval No. H-2013-0334.

Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 49216333, email Human-Ethics@newcastle.edu.au. Local contact: Anita In Yee Lam, telephone (852) 9322 8223, email anita.lam.iy@gmail.com.
Appendix 2 Individual Consent Form
Consent Form for the Research Project:
Effectiveness of office layout: A case study of small offices in Hong Kong
Document Version 2; dated 19/11/2013

I agree to participate in the above research project and give my consent freely.

I understand that the project will be conducted as described in the Information Statement, a copy of which I have retained.

I understand I can withdraw from the project at any time and do not have to give any reason for withdrawing.

I consent to
- Participating in an interview, which will be recorded and transcribed.

I understand that my personal information will remain confidential to the researchers involved in this project.

I understand that I will be have to receive a summary of the finding upon request.

I understand that I will be provided the opportunity to review the transcript to edit or erase my contribution.
I have had the opportunity to have questions answered to my satisfaction.

Print Name: _______________________________________________________________

Signature: _______________________________________________________________

Date: _______________________________________________________________

Contact: _______________________________________________________________
Appendix 3 Organizational Consent Form
Organizational Information Statement

Organizational Information Statement for the Research Project:
Effectiveness of office layout: A case study of small offices in Hong Kong
Document Version 1; dated 19/11/2013

Your organisation is invited to participate in the research project identified above which is being conducted by Dr. Michael Mak and Ms. Anita, In Yee Lam studying Doctorate of Business Administration programme from the Newcastle Business School at the University of Newcastle.

Why is the research being done?
This research is to explore the effectiveness of office layout in Hong Kong based small offices, particularly focusing on the open-plan office layout and the private cellular offices. An interview will be conducted with employees working at an organisation with an open-plan office and another organisation with private cellular offices to understand their perceptions of their office layout and effectiveness.

Who can participate in the research?
If your organisation is a small organisation in Hong Kong, the employees working at your organisation can participate in this research. Please be advised that the individual consent has been provided.

What choice do you have?
Participation in this research is entirely your choice. Only those organizations and individuals that consent to involvement will be included in this research. By signing the attached organizational consent form, you consent your organisation to participating in the research. Whether or not you decide to participate, your decision will not disadvantage you or affect your relationship with your organisation.

If your organisation does decide to participate, your employees may withdraw from the project at any time without giving a reason and have the option of withdrawing any data which identifies you.
What would you be asked to do?
If you agree to participate, your employees will be asked to take part in an interview about the environment and layout of your office. The interview will take place after working hours in a coffee shop nearby your office. The interview will be audio-recorded and transcribed. You will have an opportunity to review and edit the interview transcription.

How much time will it take?
The interview will take about one hour to complete.

What are the risks and benefits of participating?
There will be no short term benefits for the participants, however, it is hoped that the research will lead to better understanding of the effectiveness of the open-plan and private office layout from the perceptions of the employees working in small offices in Hong Kong. There are no direct risks for the individual associated with participating in the interview. However, there may be potential risks such as the impact of unequal relationships.

How will your privacy be protected?
The data that is collected through this research will be de-identified during the analytical process by the student researcher Anita In Yee Lam who conducted the interviews as well as the study supervisor Dr. Mak at University of Newcastle. This means that no information identifying individuals or firms will be included in any of the outputs of this research such as reports or journal articles. Information regarding the identity of participants will be known only to the researchers. All soft and hard copies of the data and associated records will be kept in the locked filling cabinet or password-protected PC of the researchers, in secure premises, and will be disposed of in accordance with the University of Newcastle’s policy and procedures for the confidential disposal of confidential material. Access to the data will be limited to the researchers except as required by law. The transcription services referred to will be bound by confidentiality agreement.

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What do you need to do to participate?
Participating employees should read this Organizational Information Statement and be sure you understand its contents before they consent to participate. If there is anything you do not understand, or you have questions, contact the researcher.
Further information
If you would like further information please contact Dr Michael Mak at the address at the beginning of
this document.
Thank you for considering this invitation.

Dr Michael Mak
Chief Investigator

Anita In Yee Lam
Student Researcher

Complaints about this research
This project has been approved by the University’s Human Research Ethics Committee, Approval No. H-
2013-0334

Should you have concerns about your rights as a participant in this research, or you have a complaint
about the manner in which the research is conducted, it may be given to the researcher, or, if an
independent person is preferred, to the Human Research Ethics Officer, Research Office, The
Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone
(02) 49216333, email Human-Ethics@newcastle.edu.au. Local contact: Anita In Yee Lam, telephone (852)
9322 8223, email anita.lam.iy@gmail.com.
Appendix 4 Organizational Consent Form
Organizational Consent Form

For further information:
Dr Michael Mak
University of Newcastle
Faculty of Engineering and Built Environment
+61-2-492 17450
Michael.Mak@newcastle.edu.au

Organizational Consent Form for the Research Project:
Effectiveness of office layout: A case study of small offices in Hong Kong
Document Version 1; dated 19/11/2013

Our organisation agrees to participate in the above research project and give my consent freely.

Our organisation understands that the project will be conducted as described in the Organizational Information Statement, a copy of which I have retained.

Our organisation understands we can withdraw from the project at any time and do not have to give any reason for withdrawing.

Our organisation consent to
• Participating in an interview, which will be recorded and transcribed.

Our organisation understands that the personal information of the participants will remain confidential to the researchers involved in this project.

Our organisation understand that we will be have to receive a summary of the finding upon request.
Our organisation understands that we will be provided the opportunity to review the transcript to edit or erase my contribution.

Our organisation has had the opportunity to have questions answered to my satisfaction.

Print Name: _______________________________________________________________

Signature: _______________________________________________________________

Date: _______________________________________________________________

Contact: _______________________________________________________________
Appendix 5 Human Research Ethics Committee Ethics Approval
**Notification of Expedited Approval**

<table>
<thead>
<tr>
<th>To Chief Investigator or Project Supervisor:</th>
<th>Doctor Michael Mak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cc Co-investigators / Research Students:</td>
<td>Miss Anita In-Yee Lam</td>
</tr>
<tr>
<td>Re Protocol:</td>
<td>Effectiveness of office layout: A case study of small offices in Hong Kong.</td>
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<tr>
<td>Date:</td>
<td>04-Dec-2013</td>
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<td>Reference No:</td>
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<td>Date of Initial Approval:</td>
<td>03-Dec-2013</td>
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Thank you for your **Response to Conditional Approval** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under **Expedited** review by the Chair/Deputy Chair.

I am pleased to advise that the decision on your submission is **Approved** effective **03-Dec-2013**. In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research, 2007, and the requirements within this University relating to human research.

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. **If the approval of an External HREC has been “noted” the approval period is as determined by that HREC.**

The full Committee will be asked to ratify this decision at its next scheduled meeting. A formal **Certificate of Approval** will be available upon request. Your approval number is **H-2013-0334**.

**If the research requires the use of an Information Statement, ensure this number is inserted at the relevant point in the Complaints paragraph prior to distribution to potential participants**. You may then proceed with the research.

**Conditions of Approval**

This approval has been granted subject to you complying with the requirements for **Monitoring of**
Progress, Reporting of Adverse Events, and Variations to the Approved Protocol as detailed below.

PLEASE NOTE:
In the case where the HREC has "noted" the approval of an External HREC, progress reports and reports of adverse events are to be submitted to the External HREC only. In the case of Variations to the approved protocol, or a Renewal of approval, you will apply to the External HREC for approval in the first instance and then Register that approval with the University’s HREC.

- **Monitoring of Progress**

Other than above, the University is obliged to monitor the progress of research projects involving human participants to ensure that they are conducted according to the protocol as approved by the HREC. A progress report is required on an annual basis. Continuation of your HREC approval for this project is conditional upon receipt, and satisfactory assessment, of annual progress reports. You will be advised when a report is due.

- **Reporting of Adverse Events**

1. It is the responsibility of the person **first named on this Approval Advice** to report adverse events.
2. Adverse events, however minor, must be recorded by the investigator as observed by the investigator or as volunteered by a participant in the research. Full details are to be documented, whether or not the investigator, or his/her deputies, consider the event to be related to the research substance or procedure.
3. Serious or unforeseen adverse events that occur during the research or within six (6) months of completion of the research, must be reported by the person first named on the Approval Advice to the (HREC) by way of the Adverse Event Report form (via RIMS at [https://rims.newcastle.edu.au/login.asp](https://rims.newcastle.edu.au/login.asp)) within 72 hours of the occurrence of the event or the investigator receiving advice of the event.
4. Serious adverse events are defined as:
   - Causing death, life threatening or serious disability.
   - Causing or prolonging hospitalisation.
   - Overdoses, cancers, congenital abnormalities, tissue damage, whether or not they are judged to be caused by the investigational agent or procedure.
   - Causing psycho-social and/or financial harm. This covers everything from perceived invasion of privacy, breach of confidentiality, or the diminution of social reputation, to the creation of psychological fears and trauma.
   - Any other event which might affect the continued ethical acceptability of the project
5. Reports of adverse events must include:
   - Participant's study identification number;
   - date of birth;
   - date of entry into the study;
   - treatment arm (if applicable);
   - date of event;
   - details of event;
   - the investigator's opinion as to whether the event is related to the research procedures; and
   - action taken in response to the event.
6. Adverse events which do not fall within the definition of serious or unexpected, including those reported from other sites involved in the research, are to be reported in detail at the time of the annual progress report to the HREC.

- Variations to approved protocol

If you wish to change, or deviate from, the approved protocol, you will need to submit an Application for Variation to Approved Human Research (via RIMS at https://rims.newcastle.edu.au/login.asp). Variations may include, but are not limited to, changes or additions to investigators, study design, study population, number of participants, methods of recruitment, or participant information/consent documentation. Variations must be approved by the (HREC) before they are implemented except when Registering an approval of a variation from an external HREC which has been designated the lead HREC, in which case you may proceed as soon as you receive an acknowledgement of your Registration.

Linkage of ethics approval to a new Grant

HREC approvals cannot be assigned to a new grant or award (ie those that were not identified on the application for ethics approval) without confirmation of the approval from the Human Research Ethics Officer on behalf of the HREC.

Best wishes for a successful project.

Professor Allyson Holbrook

Chair, Human Research Ethics Committee

For communications and enquiries:

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Research Integrity Unit
The Chancellery
The University of Newcastle
Callaghan NSW 2308
T +61 2 492 17894
F +61 2 492 17164
Human-Ethics@newcastle.edu.au

Linked University of Newcastle administered funding:

<table>
<thead>
<tr>
<th>Funding body</th>
<th>Funding project title</th>
<th>First named investigator</th>
<th>Grant Ref</th>
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</table>

Appendix 6 Interview Questions

**Project title:**
Open-plan layout: A Workplace Evaluation of Small Offices in Hong Kong

**Objective:**
To obtain an understanding of how employees in senior, junior and supervisor position perceive their office layout and environment. Both cases of an open-plan office and a cellular private office will be examined, understanding the employees' perception of the productivity looking at the quality of lighting, thermal quality, level of noise and distraction, level of privacy and interaction among the employees. This study will further explore how the workers perceive their work performance in relation to the office layout in both open-plan and a private cellular office in Hong Kong.

**Demographic questions:**

1. What is your position in the organization?
2. What is the industry of your organisation?
3. Your organizational structure?
4. Size of your organisation? Number of employees?

**Interview Questions:**

1. **Office Layout**
   a) Can you describe the layout of your office? (i.e. Open space/Closed private office, partitions etc.)
   b) How do you feel about the layout of your office?

2. **Level of participation/interaction**
   a) Does the nature of your job require constant communication and close interaction with your colleagues?
   b) How often do you interact/communicate with your colleagues?
   c) Do you think the current office layout is suitable for facilitating the right level of interaction with your colleagues?
   d) Do you feel that it is important for you to have many interactions with your colleagues?

3. **Level of distraction**
   a) Do you feel that you get distracted easily?
   b) Do you feel that you get many distractions at work? If yes, what is the most common type of distraction?
c) Do you think the currently office layout is suitable for minimizing the level of distraction at your work? If not, what do you think can be done to help minimize the level of distraction?

4. Level of Privacy

a) How important is it for you to have privacy at your work?

b) Do you think the currently layout of your office offers enough level of privacy? (visual privacy, conversational privacy, workstation size and distance between co-workers) If not, what do you think can be done to help increase the level of privacy for you?

c) Do you have control over the amount of privacy you can have in your office? Is it important for you?

5. Level of Noise

a) Can you describe the level of noise in your office? (i.e. outdoor noise and indoor noise – phone calls, conversation)

b) Do you feel that the currently level of noise is affecting your work performance? If yes, do you feel that by adjusting the level of noise to a suitable level would help you perform better at your work?

b) Do you have the control over the level of noise you receive in your office? Is it important that you do?

6. Temperature/Thermal quality

a) Can you describe the thermal quality at your office? (i.e. temperature, access to window)

b) Do you have control over the A/C in your office?

c) Do you feel it is important for you to have the control over the thermal condition of your office?

d) Do you feel that having a suitable temperature and indoor quality would help you perform better at your work?

7. Quality of Lighting

a) Can you describe the condition of lighting in your office? (i.e. lighting quality, quantity of light on the desk quantity of light for computer work, computer glare and access to a view)
b) In your opinion, do you feel satisfied with the current condition of lighting in your office? If not, how can it be improved?

c) Do you feel that improving the condition of lighting would help you perform better at your work?

d) Do you have control over the lighting condition at your office? Is it important?

e) Do you get natural light in your office? Your desk?

f) Do you feel it is important for you to have access to the natural light?

g) Do you feel that you will perform better in your day to day job if you have access to natural light?
### Appendix 7 Key Office Indoor Environmental Factors

<table>
<thead>
<tr>
<th>Literature</th>
<th>Noise</th>
<th>Lighting</th>
<th>Thermal Quality</th>
<th>Privacy</th>
<th>Interaction</th>
<th>Distraction</th>
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<tbody>
<tr>
<td>Brooks &amp; Kaplan, 1972</td>
<td></td>
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<td></td>
<td></td>
<td>When moving to open-plan office, employees</td>
<td>improve group unity</td>
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<td>Allen &amp; Gerstberger, 1973</td>
<td></td>
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<td></td>
<td>Increases information flow and improves level</td>
<td>of communication among workers</td>
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<td>Ives &amp; Ferdinands, 1974</td>
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<td></td>
<td>When moving to open-plan office, employees</td>
<td>engage in more social conversations</td>
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<td>Sundstrom et al, 1982</td>
<td>Employees experience noise in open plan</td>
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<td>Employees prefer privacy over accessibility</td>
<td>Employees experience distraction in</td>
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<td>office</td>
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<td>open plan office</td>
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<td>Zalesny &amp; Farace, 1987</td>
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<td></td>
<td>relocation of an office to an open-plan layout,</td>
<td>managers felt a decrease in their privacy and</td>
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<td>managers felt a decrease in their privacy and</td>
<td>felt less satisfaction with their physical</td>
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<td>felt less satisfaction with their physical</td>
<td>environment.</td>
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<td>Banbury &amp; Berry, 1998</td>
<td>Irrelevant background noise, with or without</td>
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<td></td>
<td>speech, has also been reported to affect</td>
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<td></td>
<td>performance on cognitive tasks</td>
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<td>Crouch &amp; Nimran, 1989</td>
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<td></td>
<td></td>
<td>Friendliness was found to be lower among</td>
<td>managers who occupied closed offices than in</td>
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<td>managers who occupied closed offices than in</td>
<td>open offices.</td>
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<td>Kaplan, 1992</td>
<td>Workers who had window access felt less</td>
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<td>frustrated and more patient, with overall</td>
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<td></td>
<td>better health and greater satisfaction</td>
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<td>O’Neill, 1994</td>
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<td></td>
<td>Employees experience distraction in</td>
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<td>open plan office</td>
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<td>Jackson et al., 1997</td>
<td>Performances of the participants were</td>
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<td>better in a quieter area</td>
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<td>Reference</td>
<td>Statement</td>
<td>Conclusion</td>
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<tr>
<td>Banbury &amp; Berry, 1998</td>
<td>Noise, with or without speech, can disrupt performance on the work tasks</td>
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<td>Gifford, 1998</td>
<td>Light and décor affect communication, and normal-bright light increases communication among the users.</td>
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<td>Wah, 1998</td>
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<td>proximity of the team members to one another contributes to productivity.</td>
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<td>Gilleyard and Tam, 2002</td>
<td>lighting in their workstation was significantly better after moving to open-plan office</td>
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<td>Brennan et al, 2002</td>
<td>Move to open plan office resulted in increase in noise level</td>
<td>Move to open plan office decreased privacy</td>
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<td>De Croon et al., 2005</td>
<td></td>
<td>Employees feel less private in open-plan offices</td>
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<td>Vischer, 2005</td>
<td></td>
<td>Able to accommodate more people in one space</td>
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<td>Yildirim et al, 2007</td>
<td>Sitting near the window increase the positive perception of the space</td>
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<td>Roper &amp; Juneja, 2008</td>
<td>Increase in noise</td>
<td>Perceived benefit of interaction in the office environment is evident</td>
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<td>Pan &amp; Chan, 2007</td>
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<td>Showsed evidence of the potential disadvantage of distraction</td>
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<td>Haynes, 2008</td>
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<td>Perceived benefit of interaction in the office environment is evident</td>
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<td>O'Neill, 2008</td>
<td>Privacy is No. 1 benefit of enclosed space/work environment. Makes workers feel secure and it also help minimize noise level,</td>
<td>Increase learning and development opportunities for younger employees.</td>
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<td>Hameed &amp; Amjad, 2009</td>
<td>Lighting was found to be the major factor affecting the daily and overall productivity of employees in offices</td>
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<td>Wang &amp; Boubekri, 2010</td>
<td>Privacy and control were factors that didn't receive much attention from subjects as did view and sunlight</td>
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<td>Davis et al, 2010</td>
<td>Increased level of noised in open plan office</td>
<td>Workers in open plan reported increased level of thermal discomfort</td>
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<td>Mak &amp; Lui, 2012</td>
<td>Phone ringing &amp; other people’s conversation is the most annoying sources of noise</td>
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<td>Armitage &amp; Murugan, 2013</td>
<td>Enjoy natural light, fresher air and higher sense of control - attributes correlated to high overall satisfaction level</td>
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<td>Improvement in thermal comfort would benefit workers</td>
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