

**FEATURES ON RESHAPING MODERN OFFICE RESILIENT
FOR TIME-CRISIS**

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(APPENDIX J)

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DECLARATION

I hereby declare that:

- (1) This undergraduate final year research project is the end result of my own work and that due acknowledgment has been given in the references to ALL sources of information be they printed, electronic, or personal.
- (2) No portion of this final year research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
- (3) The word count of this final year research report is

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DEDICATION

I want to thank Universiti Tunku Abdul Rahman (UTAR) for giving me the chance to conduct this research study and dedicate my effort to them. After conducting this study, I have gained a better understanding of the features of contemporary office designs that are able to resilient time-crisis situations, particularly following the Covid-19 pandemic based on the preferences of the employees.

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TABLE OF CONTENTS

Copyright Page..... 2

Declaration..... 3

Acknowledgement..... 4

Dedication 5

Table of Contents 6

List of Tables 9

List of Figures..... 10

List of Appendices..... 11

Preface..... 12

Abstract..... 13

CHAPTER 1. RESEARCH OVERVIEW..... 14

1.0 Introduction..... 14

1.1 Research Background..... 15

1.2 Problem Statement..... 17

1.3 Research Questions 19

1.4 Research Objectives 19

1.5 Hypotheses of The Study 19

1.6 Significant of Study..... 20

1.7 Chapter Layout 21

1.8 Conclusion 22

CHAPTER 2. LITERATURE REVIEW 23

2.0 Introduction..... 23

2.1 Office 23

2.2 Modern Office 25

2.3 Time-Crisis 26

2.4 Features of Modern Office Design..... 27

2.4.1 Open Layout Plan Office..... 27

2.4.2 Ergonomic Furniture.....	29
2.4.3 Colour of Office’s Wall.....	31
2.4.4 Modern Office Lighting.....	33
2.4.5 Relaxations and Recreations Areas.....	36
2.5 Review of Relevant Conceptual Models.....	38
2.6 Proposed of Conceptual Framework	39
2.7 Conclusion	39
CHAPTER 3. RESEARCH METHODOLOGY	40
3.0 Introduction.....	40
3.1 Research Design	40
3.2 Data Collection.....	41
3.2.1 Primary Data.....	41
3.2.2 Secondary Data	41
3.3 Sampling Design.....	42
3.3.1 Target Population	42
3.3.2 Sampling Location	42
3.3.3 Sampling Element	42
3.3.4 Sampling Technique	42
3.3.5 Sampling Size	43
3.4 Research Instruments.....	43
3.4.1 Survey Questionnaire	44
3.4.2 Questionnaire Design.....	44
3.5 Constructs Measurement	46
3.5.1 Nominal Scale	46
3.5.2 Ordinal Scale	46
3.5.3 Interval Scale.....	46
3.6 Data Processing	47
3.6.1 Data Checking	47
3.6.2 Data Editing.....	47
3.6.3 Data Coding.....	47
3.6.4 Data Transcription.....	48
3.7 Data Analysis.....	48
3.7.1 Content Analysis	48
3.7.2 Reliability Test	48

	3.7.3 Descriptive Analysis.....	49
	3.7.4 Relative Importance Index (RII)	49
	3.8 Conclusion	50
CHAPTER	4. DATA ANALYSIS	51
	4.0 Introduction.....	51
	4.1 Content Analysis	51
	4.2 Reliability Test	54
	4.3 Descriptive Analysis.....	55
	4.3.1 Respondent’s Demographic Profile.....	55
	4.4 Relative Importance Index (RII)	62
	4.5 Conclusion	67
CHAPTER	5. DISCUSSION, CONCLUSION, AND IMPLICATION	68
	5.0 Introduction.....	68
	5.1 Summary of Statistical Analysis	68
	5.1.1 Content Analysis	68
	5.1.2 Relative Importance Index (RII)	69
	5.2 Major Finding	70
	5.3 Implication of Study	74
	5.4 Limitation of Study	74
	5.5 Recommendation of the Study	74
	5.6 Conclusion	75
	REFERENCES.....	77
	APPENDICES.....	90

LIST OF TABLES

	Page
Table 2.1: Ergonomic Furniture and Features.....	30
Table 2.2: Colour of Office’s Wall.....	32
Table 2.3: Colour of Temperature.....	35
Table 3.1: Strength of Cronbach’s Alpha.....	49
Table 4.1: Result of Objective 1.....	51
Table 4.2: Result of Reliability Test.....	53
Table 4.3: Statistic of Respondent’s Gender.....	54
Table 4.4: Statistic of Respondent’s Age.....	55
Table 4.5: Statistic of Respondent’s Ethnic.....	56
Table 4.6: Statistic of Respondent’s Marital Status.....	57
Table 4.7: Statistic of Respondent’s Work Status.....	58
Table 4.8: Statistic of Respondent’s Response on Physical Distancing.....	59
Table 4.9: Statistic of Respondent’s Response on Reshape Modern Office.....	60
Table 4.10: Result of Relative Importance Index (RII).....	62
Table 5.1: Open Layout Plan Design.....	72
Table 5.2: Ergonomic Furniture.....	73
Table 5.1: Colour of Office’s Wall.....	73
Table 5.1: Relaxation Areas.....	73
Table 5.1: Recreation Areas.....	74
Table 5.1: Lighting in the Office.....	75

LIST OF FIGURES

	Page
Figure 2.1: Colour Temperature of Office’s Wall.....	32
Figure 2.2: Review of Conceptual Framework.....	38
Figure 2.3: Proposed Conceptual Framework.....	39
Figure 4.1: Percentages of Respondent’s Gender.....	55
Figure 4.2: Percentages of Respondent’s Age.....	56
Figure 4.3: Percentages of Respondent’s Ethnic.....	57
Figure 4.4: Percentages of Respondent’s Marital Status.....	58
Figure 4.5: Percentages of Respondent’s Work Status.....	59
Figure 4.6: Percentages of Respondent’s Response on Physical Distancing.....	60
Figure 4.7: Percentages of Respondent’s Response on Reshape Office.....	61

LIST OF APPENDICES

	Page
APPENDIX A: Survey Questionnaire.....	90
APPENDIX 3: Reliability Test Results.....	94
APPENDIX 4.1: Respondent’s Demographic Profile.....	96
APPENDIX 4.2: Relative Importance Index (RII) Results.....	100

Preface

The time-crisis that have happened recently which the Covid-19 pandemic outbreak started in Malaysia since year 2020 which has impacted the employees in Malaysia are working from home due to the MCO. In year 2022, the pandemic outbreak is getting controlled and started to run the businesses physically. Therefore, employees now encouraged to return to their workplace which these events have influence me to have a passion to learn what kind of office that employees desired the most that willing to return to their own workplace in post pandemic situation. As the pandemic has big influence to employee's working culture and behaviour which work from home now is become a new normal for them. In this case, this will motivate us to carry out the study on features of modern office resilient to time-crisis situation. It is significant that to make us continue advancing and improving by learning how to create a new modern workplace that resilient to Covid-19 pandemic crisis. Therefore, this study able is learn the employees now fond in which types of features that should include in a modern office and it able to resilient to the time-crisis situation which able to influence all organizations in Malaysia able to create an advance modern workplace that benefits to employees and each other.

Abstract

This study was carried out aim to understand what kind of a modern office that employees in Malaysia attract and willing to return physically after pandemic situation which by understanding the features of modern office that employees desired the most. However, there is a challenge which employees now in Malaysia are changed their working culture during the pandemic situation which work from home become a new normal of a workplace for them. This study has carried out to identify the office features design in the modern office and to analyse the modern offices features affected the employees to return in this post pandemic situation. This study has determined six major features of modern office that resilient time-crisis situation which included open plan layout design, ergonomic furniture, colour of office's wall, relaxation and recreation areas in available space in office as well as lastly the lighting in the office. This study has carried out by collecting the questionnaire that feedback from the employee respondents. Then, all the data collected will be analysed by using Relative Importance Index (RII) which to rank which features are the most important based on the feedback from the employees. The result has stated that the most important of the features that should include in a modern office is office lighting. Appropriate lighting temperature in office area which has great impact on employees to work productivity and benefit health and well-being. It is important to know that employees now are not able to work as previously anymore before pandemic, thus, after the pandemic which few changes must be made to create new type of working experiences.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This study is about reshaping a modern office resilient for time-crisis which focusing on determine and what are the features to reshape a modern office resilient for time-crisis. The quick summary of this research will be provided together with the supporting research background in detail. The study is related to whole nation including Malaysia. When discussing the study topic features of reshaping a modern office resilient for time-crisis which it is crucial as able to aid create a new workplace for employees after the time-crisis.

In this chapter, researcher will lay out the background of the research alongside with issues that arise in problem statement. An overview of research will determine on the research questions and developing of research objectives. Then, follow with discussion on significance of study, the chapter layout and conclusion.

1.1 Research Background

In past few years, whole global including Malaysia are facing a serious time-crisis which the World Health Organization (WHO) revealed on January 12th, 2020, that the SARS-CoV-2 new coronavirus was what caused this epidemic outbreak, naming the illness coronavirus disease 2019. (COVID-19). According to various research, the COVID-19 crisis has had an adverse effect on working conditions and increased the likelihood that employees may suffer from mental health issues like stress, depression, and anxiety. Fear of losing one's job and, therefore, their source of income, is one of the frequent stressors that study has identified (Tu & Scaroni et al., 2021).

Furthermore, during the Covid-19 pandemic, it has accelerated broad developments in consumer behaviour, corporate governance, and employment. Employers and employees have been compelled to reevaluate many presumptions about what they do, how they do it, and why they do it after months of alterations to work roles, timetables, routines, and priorities (Pazzanese, 2021). Few people have survived the pandemic with their professional lives unaltered. Many of individuals now work from home, are on vacation, or have lost their employment. While essential workers have remained in place, their workloads have frequently undergone significant adjustments due to new safety measures and an awareness of infectious diseases as a new working threat (Maslach & Leiter, 2022).

Moreover, the way that employees view their jobs and the workplace is beginning to change. They anticipate different working conditions and business models than they did in the year 2020. When the Covid-19 pandemic first started, many employees complained about how working from home affected their ability to maintain a healthy work-life balance. However, things have changed, if you request that they go back to working this case and it is clear that consumers now value the flexibility it provides. More employees experience loss than gain. For many employees, getting the call to come back to work means losing their freedom and sense of wellbeing (Osibanjo, 2022). Therefore, it is crucial to improve employee productivity by fixing what no longer functions and enhance the physical workplace or office with expectations. In the upcoming workplace, people, brands, cultures, and technologies will all be integrated. The outcome will be a brand-new, vibrant, engaging place that will lure employee's members in and encourage their return (Weckesser, 2022).

In addition to that, all of these contemporary workplace components must be taken into account when discussing the future of offices. Even when businesses use primarily digital means for

their employees training and development initiatives, this is still true. Even if companies are seriously contemplating work-from-home arrangements to provide employees members more freedom over their personal and professional lives, having an office space will still be essential to the long-term viability of the majority of enterprises. Despite the many advantages of the work-from-home approach, an office setting helps foster employee relationships, company values, and cultures while also enhancing collective abilities. Digitally articulating techniques may not be enough to support labour growth in the absence of a physical touchpoint like an office. (Galeas, 2022)

1.2 Problem statement

The Covid-19 pandemic has significantly and rapidly changed workplace culture. Assumptions regarding the nature of labour and corporate interactions have been challenged by the worldwide lockdown and travel restrictions. People have learned that they can complete the majority of tasks remotely and don't necessarily need to be in an office. They don't have to travel to work. Others have switched from being on the road to staying at home, with little impact on their business.

In post-pandemic situation, lot of the employees claim to love working from home and also claim that the employees are working more productive and effective than they were previously (Boland et al., 2020). There are many employees who were freed from lengthy commutes and travel discovered more useful ways to fill their time, had greater flexibility in juggling both their private and their professional living. Thus, it came to the conclusion that working from home is preferable to working in an office. In this case, the pandemic has changed the employee's working culture which work from home are now is a new normal for them as become an alternative workplace for them (Smite et al., 2022). We can observe that the office setting itself serves as a deterrent to reluctance. Most of the employees would alter the layout of their workspace. it became clear that the way offices are now configured is ineffective for employees in the modern business environment. Many people in the workforce are afraid to go back to their offices because of the pandemic and think that offices need to be closed off once more to give employees a private and safe space. Besides, the employees claim that not willing to return to their office as they compared with their workplace previously which they felt when working in the office are stressful and lack of flexibility. In this case, businesses that have called employees back to work are realising that require more than just a message to convince them (Kaysen, 2022). Nowadays, there are many activities may now be completed remotely, and the rate of resignation has will be increase that if an employee's requirements aren't met by their present company. Therefore, making employees feel at ease enough to return to the office again is a significant challenge that all businesses are currently facing, as many people have grown accustomed to working remotely (Whitman, 2020).

In addition to that, the pandemic crisis situation has affected the employees concerns about probable infection hazard when thinking returning to their office (Chafi et al., 2021). Thus, the employees now are not able to work as previously anymore before pandemic as the Standard Operation Procedure (SOP) are require for every workplace during or post pandemic

(Rowley, 2023) For instance, pandemic SOP are requiring every workplace to practice social distancing which affected the office lack of spaces and the design of the office are not met to practice the SOP which let the employees are not secure with their own workplace when they return. In this case, the employees rather staying at home to work instead return to their office which they think working at home are more safe and secure. the companies are now needs to make the changes as to provide a secure workplace where distancing is feasible. Although, working from home was preferred by most of the employees as they able to work comfortably and flexibility as well as they felt more secure work at home, however, the infrastructure or technology will be lacked and it affect the productivity of the employees when they work from home (Rahman, 2021). For instance, the pandemic has also made working from home more difficult for employees. Not all employees, particularly those in lower positions, have reliable internet access at home, especially in areas with poor high-speed broadband service

1.3 Research Questions

1. What are the office features design in the modern office?
2. How offices features affected the employees to return in this post pandemic situation?

1.4 Research Objectives

1. To identify the features of the modern office design.
2. To analyse the modern office features that employees would like to return in post pandemic situation.

1.5 Hypotheses of the Study

H1: Open layout plan is a modern office design feature that preferred by the employees.

H2: Replacing regular furniture to ergonomic furniture is a modern office design feature that preferred by the employees.

H3: The colour of office's wall is a modern office design feature that preferred by the employees.

H4: Relaxation areas in available office space is a modern office design feature that preferred by the employees.

H5: Recreation areas in available office space is a modern office design feature that preferred by the employees.

H6: Lighting in the office is a modern office design feature that preferred by the employees.

1.6 Significant of Study

The Significant of study is able to better understanding the changes of employee's culture when after the time-crisis affect them such as post pandemic Covid-19. Besides, it is also significant as to understand of how reshaping a modern office that able to resist after the time-crisis effect pandemic Covid-19. During the time-crisis COVID-19 outbreak has caused significant disruption throughout the world during the past year. The COVID-19 vaccine's successful development and distribution has made it easier to predict when the so-called "next normal" will appear. Leaders should start thinking about how the workplace will appear when it arrives (Gerald C. Kane, 2021). In this case, there is no turning around to return to the before pandemic workplace. Both individuals and organisations are forced to find new methods of operation.

In addition to that, professionals can use this study as a reference when they making decision on reshaping a new modern workplace such as a modern office in term of design, layout, concept and include the safety procedure as a resistant of pandemic. Therefore, this study can be a guideline to create a new modern workplace as able to improve the productivity and the satisfaction of employee working in new workplace.

This study also can be used by all the leader and developer wish to reshape a new modern office workplace after time-crisis. This study able to aid the leaders to understand well on the criteria and design of a new modern office after the pandemic outbreak which preferred by the employees. In this case, leaders and developers able to reshape their office which benefits workers and themselves.

1.7 Chapter Layout

Chapter 1: Introduction

The purpose of Chapter 1 is to describe the research context for my studies. The study is briefly summarised in this chapter. Additionally, Chapter 1 will define the problem statement for my studies before going on to describe their goal.

Chapter 2: Literature Review

This chapter will go into detail on what it means features modern office resilient for time-crisis. In addition, this chapter describes the standards used in modern offices by young adults who are employed. The sources for this chapter were from journals, research gate, academia, published research papers, articles, and newspapers.

Chapter 3: Research Methodology

The research Methodology for this study will be covered in this chapter. In this chapter, the methods for data collection and analysis will be described. Furthermore, a survey questionnaire will be used to gather information for analysis.

Chapter 4: Data Analysis

The analysis of the data gathered will be explained detail in this chapter which by the data we gathered for Chapter 3. It is to accomplish the goals outlined in chapter 1; this data analysis will be employed.

Chapter 5: Discussion, Conclusion and Implication

This chapter will cover the findings from chapter 4. Additionally, this is the last phase of the investigation. Based on the data that have been analysed, interpretation of the findings and conclusion will be addressed. This Chapter is very important as to make sure the goals and research questions can be met. Finally, in order to support the findings of the study, conclusions will be discussed in this chapter.

1.8 Conclusion

In summary, Malaysia have facing pandemic crisis situation which huge impacted to all employees in Malaysia started working from home due to the quarantine lock down. The problem is when after the pandemic, employees not willing return to their own office as they changed their working culture work from home as a new norm for them. This may be a challenge for organizations and employers to convince employees return to the office. Lastly, the relationship of employee's preferences between the features of reshaping modern office design that resilient to time-crisis situation will be review in this study.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

An outline of the subject of this study will be provided in this chapter. An office and modern office will be review in this chapter together with time-crisis. Besides, this chapter aims to identify the features of reshaping modern office design resilient time-crisis situation which preferred by the employees in Malaysia. Further elaboration of the features of reshaping modern office design will be provided based on theory and research. Lastly, a review of conceptual models and proposed of conceptual framework will be covered in this chapter.

2.1 Office

Office is an important and necessary component no matter how big or small the organisation. According to Kapur, R. (2018), the existence of an office is essential for the proper operation of any type of organisation, whether it be a government institution, a trading or manufacturing organisation, a hospital, or an educational institution. In this case, many types of organisations need an office for work and productivity. Besides, an office is essential to most of the organisation which an office define as to a location where a specific type of business is conducted or a service is provided and an office are actually locations where an organization's activities are coordinated. It serves as both an administrative and communication centre (Misra,2016).

Besides that, not only office is necessary for small or big organisation, but also is an important workplace for employee. Having a job in an office helps one feel more connected and purposeful. Thus, it is critical to establish a workplace at work that encourages achievement and a sense of purpose. Individual purpose inside the organisation is reinforced when working in the same workplace with co-workers who have similar goals. The employee can see what other members are doing and feel like they are doing something in result employee can rejoice in victories together. Additionally, working in an office fosters a sense of community. An individual's sense of acceptance within an organisation is referred to as belonging. It can be challenging to construct, especially employee working through online such as Zoom meeting

or Microsoft Team (Kirkham, 2023). In this case, having an office is crucial because it enables employees to establish deep interpersonal relationships.

Furthermore, relationships between employee and colleagues or other members in same organisation is essential. In this case, office play an important role which can help employee building relationships each other while working in the same workplace. Employees can connect with colleagues they might not normally interact with by being in the office. For instance, when employee having impromptu talks over coffee or during a short break are quite beneficial. This is because, while employee is having in-person interactions rather than doing so online which allows them to read each other's emotions far more easily. This enables employee while working in same workplace able to learn more about each other's wellness and provide help when necessary. (Campbell, 2021). Therefore, employee may benefit from these occasions by learning more about the company, getting feedback from a sounding board, able developing more new ideas together and more easy collaborating with others which that helps them make better decisions and work more effectively.

2.2 Modern Office

A modern office can be defined as beside to appearances, the people who work there and the company culture are frequently what characterise a modern office. A modern office is likely to have light or white decorations, spacious layouts, and less furniture which giving it a modernistic feel. (House, 2021). Modern workplaces are frequently designed in accordance with agency culture to incorporate furnishings or accents that will appeal to employees and enhance their well-being. Therefore, when discussing a modern office which the focus is often on establishing an inspirational work environment for co-workers with the goal of maximising employees' retention and happiness.

In term of traditional workplace, there are used to be only one way to complete office tasks. Employees spend the morning at a desk, then try to stay awake in the afternoon meeting and also used to be set up so that employees could work in private offices or cubicles. This operational approach, however, is no longer as efficient. In this case, open workspaces are becoming more and more popular among businesses today. Modern office include open workspaces features on more focus on collaboration, flexibility and creativity are encouraged in this kind of office environment. It makes employee communication possible. Modern Open workplaces also tend to be cosier and more relaxed, which boosts productivity. Therefore, it has been demonstrated that modern office designs foster better morale, communication, and creativity which companies should create an office of more enjoyable and effective place to work by including these components. (Pavonetti, 2022). In this case, the modern workplace are utilising flexibility and practises to reduce expenses but increase creativity, production, and morale in the workforce. Therefore, the workspace has undergone tremendous change it is due to not all employees are the same, thus workplaces for designed for employee shouldn't be same too. The companies and employees should have the ability to modify how and where they work. (Wormald, 2021).

2.3 Time Crisis

A crisis is a significant, unforeseen event that poses a danger to the business and its stakeholders. (Massey & Larsen,2006). Crisis also refer to the ability of modern society to deal with crisis situations brought on by natural or artificial sources is a major concern. In other terms, a crisis is something unexpected that disrupts the workforce and causes instability inside the firm. An individual, a group, an organisation, or the entire society can be impacted by a crisis. According to the (Mehrotra, Znati & Thompson,2008), crisis is depending on the size of the disaster, crisis response may involve multiple levels of government, public agencies, commercial companies, volunteer organisations, media organisations, and the general people. In times of crisis, these entities cooperate as a loosely tied virtual organisation to save lives, protect the community's infrastructure and resources, and restore normalcy.

In addition, time crisis can be happened as results from failures in technology and mechanical failure as well as Internet issues, software malfunction, and password mistakes are all causes of the catastrophe. Besides, when employees disagree with one another and start fighting, a crisis results. Minor concerns left unattended can develop into significant crises, creating an unstable environment at work. The management must exercise total control over the workforce and must maintain a professional demeanour at all times (Fleischer, 2013). Besides, natural crises are caused by disturbances in the environment and in nature. For instance, earthquakes, landslides and floods can be happen in Malaysia.

2.4.0 Features of Modern Office Design

2.4.0 Open Plan Layout Office

An open plan office is a style of workplace arrangement in which every employee works on the same level in an open area. Office cubicles have virtually been rendered obsolete by open-plan workspaces in favour of a more collaborative and stimulating work atmosphere. Open plan office designs are frequently used in co-working spaces to promote productivity, flexibility, and networking opportunities. Instead, then isolating workers in offices or cubicles, an open-plan office makes use of the available space. Additionally, open workplaces normally provide areas for employees to have spaces for fun and relaxation, such as small lounges with couches, media rooms, libraries and more. These areas are designed to promote collaboration and innovative thinking among employee's members. (Levinson, 2020). Besides, the characteristics of open plan office which open office is one with few private offices, few interior barriers, a benching system or cubicles with low partitions, and a range of workstation options and meeting spaces that employees can use. Unassigned seating is frequently used in workplace designs which practicing the key features flexibility. (Reed & Stegmeier, 2017) Therefore, when open plan office design main focus on function flexibility, higher rate of verbal communication or interaction between each other, collaborative, productivity and innovative.

There are three type of open plan office concept which the first type is fully open plan office. There are essentially no physical boundaries and employees may walk around freely in an entirely open office (Salama & Courtney, 2013). This type of layout is common in contemporary businesses since it enables employees to socialise, exchange ideas, and select a comfortable area where they can work most effectively. While some individuals can operate in any environment, others could perform significantly better when given the freedom to select their own workstation. A completely open design can boost team morale by providing more possibilities for interaction. A conference room or two could be a good addition to the workplace layout to provide for private space, group activities, or client meetings. This type of workplace is ideal for small businesses, agile teams, and organisations with flat organisational structures that demand frequent team interactions.

Besides, the second type of open plan design is cubicle layout which individual cubicles with three partitions isolating themselves from the other workstations are available for employees to use (Durut, 2021). With this arrangement, the workplace will be quieter and the employees will have some solitude. This workplace design may be used by businesses to promote employee's movement while having talks. The surrounding walls of certain businesses are made of glass, which enables natural sunshine to illuminate the cubicles. For instance, employees may utilise the cubicle layout design to accept calls in privacy and concentrate on hiding payroll information. Companies can set up cubicles in a big space and make sure the walls are high enough to conceal work but low enough to allow employees to chat to one another if they want the work of their employees to remain secret. For those who like to keep their work private, this arrangement is useful.

In addition, the third type of the open plan design include partition wall open plan design. If a company wants their employees standing up and hold talks, they can utilise an office design with a partial wall (Rashid et al., 2009). For instance, team members can communicate while standing at their desks rather than moving to separate cubicles around the room. Although there are still cubicles in separated rows in this design, the glass walls are significantly lower, allowing employees to talk about projects. The half-partition office arrangement may be preferred over the cubicle layout for workers who need solitude for their work yet like connecting with co-workers. If the companies are desire more natural light in the workplace, they can select this option. By bringing in warm, natural hues, more sunshine may boost employee productivity and enliven the workplace. Without visual distractions all around them, people can concentrate on doing their task.

2.4.2 Ergonomic Furniture

Ergonomic furniture known as any piece of furniture, such as a chair, table, or desk, that is ergonomically engineered to prevent repeated stress injuries. Furniture designers who adhere to ergonomic design principles help individuals utilise the furniture in a way that promotes health and performance. Basically, ergonomic furniture refers to any piece of furniture that was created with the science and study of ergonomics in mind. (K. Schurman,2023). In term of ergonomics, ergonomics seeks to enhance the fit between the task and the employee to promote efficiency. This entails building workstations with the flexibility to support a variety of heights, working postures, and preferences, rather than the other way around, to tailor the environment to the worker and not the other way around. In order to provide a scientific, logical, and effective work pattern, current office furniture design must keep up with the development and improvement of modern office equipment.

Aside from its comprehensive and efficient office furniture, which has a powerful, beautiful form, colour, and personality, it is also simple to use. Systems must be relaxing, practical, rational, and aid in reducing fatigue so that people can be most satisfied when performing demanding tasks. (Xu & Zhang, 2012). Therefore, nowadays office should implement ergonomic features which not only consist appearance and designs but also cover benefit for workers by reducing fatigue and increase productivity when performing hard task. Ergonomic furniture can define as created expressly for the workplace to increase productivity and comfort (Hazlegreaves,2018). For instance, when compared to conventional office furniture, ergonomic chairs guarantee that the user's body is maintained in a secure and upright position to lessen stress on the spine, neck, and hips.

Table 2.1: Table of Ergonomic Furniture and features

Ergonomic furniture	Features
Ergonomic Chairs	<ul style="list-style-type: none"> • To accommodate the user's desired height, the chair seat's height should be adjustable. • The chair's backrest ought to recline somewhat and be vertically adjustable. The lower back should also have firm lumbar support in the chair. • The depth of the seats should be adjustable so that the user may sit comfortably. • The bases of the chairs ought to be quite solid, to prevent tripping or slipping. • The swivel feature of ergonomic chairs allows the user to move quickly without getting out of the seat.
Ergonomic Desks	<ul style="list-style-type: none"> • The desk should be set up so that when using the keyboard, the user's forearm does not rise over waist level. • The user should be able to sit comfortably with their knees bent at a 90-degree angle and their feet flat on the floor. • The desk should be made to be uncluttered and have easy access to all the necessary stationery and other materials. • To prevent glare, which could be caused by a glossy surface, the tabletop should have a matte texture. • The computer workstations have to have the space and adaptability to accommodate the placement of computer accessories at the preferred height.
Ergonomic Mouse	<ul style="list-style-type: none"> • Sized well fit to accommodate users' hand's size bigger or smaller

	<ul style="list-style-type: none"> • Reduce pronation and bone twisting which allow your hand to rest vertically or almost vertically. • Reduce the strain on your wrist by a change in muscle memory.
Ergonomic Split Keyboards	<ul style="list-style-type: none"> • designed to put the arms and wrists in a more neutral position by straightening them • low required force to press the keys • able to spread the keyboard out to a shoulder-width distance • easily positioned

2.4.3 Office’s Wall Colour Design

Most of the office workplace should have painted or designed with different colours. The significance of colour in the workplace and it also playing critical role in supporting not only able identifying a brand but also employees. Therefore, in big or small organisation have adopted colour as a tool to communicate their corporate branding and foster creativity as a result of an increased focus on wellness as part of company culture and a better knowledge of the influence of colour. (Atkinson, 2022). In this case, the use of colour in office design is essential for branding as well as for creating a space that inspires productivity and human connection. Next, colour choices and design when used effectively, colour may have an impact when it comes to creating workplaces and other workspaces. In this case, each colour conjures up a distinct set of meanings or feelings which colour psychology can also be noticed in the realm of design. For instance, if the employee spending the entire day in a colourless or grey office the employee might feel a little depressed in the office which this is the brain's reaction to colour in conjunction with the psychological effects and connections of one's environment. (Pia, 2021). Therefore, when utilised the colour in office design properly, there are many colours can have relaxing or energising effects, or even increase productivity. Understanding how to use colour psychology theories to the layout of the office will improve the atmosphere of wellbeing inside and attract and impress visitors. In generally, colours are distinguished of two type which is warm colour and cool colour. Warm colours are frequently employed to designate cosier, more private settings. Warmer

and brighter colours are frequently linked to vitality, fun, and enjoyment while Cool colours help to create a modern yet relaxing atmosphere which can bring about feelings of calm, relaxation, and freshness. (Quills UK, 2022)



Figure 2.1: Colour temperature of office’s wall

Source by (Mueller, 2020)

Table 2.2 Table of Colour Psychology

Colour Psychology			
Warm Colour	Meanings	Cool Colour	Meanings
Red-Violet	luxury, power, royalty	Violet	Creativity, ambition, royalty,
Red	Passion, love, strength	Blue-Violet	wisdom, justice, fairness,
Red Orange	Vitality, health	Blue	Calmness, spirituality, security, sadness
Orange	Vitality, enthusiasm, friendship, energy	Blue-Green	Communication, compassion, fresh
Yellow-Orange	Enthusiasm, happiness	Green	Calming, refreshing, nature, relaxing

Yellow	Happiness, cheerfulness, spontaneity, hope	Yellow-Green	Cheeriness, joy, growth youth
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According to the table 2.0, the colour psychology in office consists two type of colour psychology, warm colour and cool colour. In term of warm colour, which include colour of red-violet, red, red orange, orange, yellow orange and yellow. Besides, for cool colour which consist colour of violet, blue-violet, blue, blue-green, green and yellow green. According to article (Franklin, 2019), warm colours are related to the elements of the sun which more in represent vitality, excitement and power. They draw interest right away and exude enthusiasm and vitality. Warm colour gives the employees of a room a sense of intimacy, friendliness, and cosiness, making it appear welcoming. Besides, Cool colours assist to quiet the emotions and improve thinking by enabling employees mind to concentrate and function at its best. As a result, cool colours are consequently ideal for spaces that need to promote quiet, relaxation, and focus.

2.4.4 Modern Office Lighting

The type of light that employees are exposed to has an impact on their mood, circadian cycles, physical health, as well as their productivity and creativity, regardless of whether the light source in the office is natural, artificial, bright and blue, or dim and yellow. (Wilson, 2021) Therefore, choosing a right and suitable lighting is crucial and its play important role for supporting employee. For instance, poor lighting at work can affect employees in a number of ways, including eye strain, fatigue, headaches, tension, and accidents. It can result in work errors, subpar work, and low productivity. Numerous studies indicate that better productivity and a decrease in errors are benefits of appropriate lighting in the workplace.

To save the earth's finite energy resources, modern lighting systems should be as energy-efficient as possible without sacrificing quality. Applying an energy-effective design approach to lighting installations can result in significant energy usage and, thus, cost savings while maintaining occupant comfort and task performance. (Bhusal, Tetri & Halonen,2006). Some of the promising energy-saving strategies include the use of occupancy sensors, the use of daylight, and

dimming in accordance with daylight. A modern office should significantly enhance efficiency as well as visual comfort and work performance of occupants by combining cutting-edge light sources and control technologies with natural lighting source.

The first characteristics of lighting in the modern office is natural lighting. Natural lighting play crucial role and lot of benefit for the organisation and employee working in the office. Natural lighting able to benefit the health of the employee, as the sunlight able to help employee sleep comfortable at night. Besides, when it come to an organisation, which helps a lot by minimising the cost or expensive in lighting category. Natural lighting able to support office energy efficiency by reduce the installation of lighting in the office.

Additionally, in spaces with computer screens, video monitors, tablets, and cell phones, intense light is especially annoying. These gadgets can be difficult to see with high glare, and intense light degrades the quality of their images. To guarantee that the illumination is where it needs to be in these regions, it is crucial to remove or modify it in this case. (Steele, 2021). Therefore, suitable brightness of lighting is important in the office as the right brightness of lighting can benefit employee increase concentration, mood and productivity of work.

Moreover, lighting colour temperature in the office is also one of the components that needed to be considered. In generally, colour temperature are measures in Kelvin (K) in three popular colour temperature ranges which are warm Light (2700K-3000K), Cool white (3000K-5000K) and Daylight (5000K-6500K). Warm Light has an orange or yellow hue that is similar to an incandescent. The spectrum of Cool White includes Yellow-White (3000K), White (4000K), and Blue-White (5000K). Bright blue to blue-white (5000K) is the range of daylight (6500K) (Lee et al., 2014). Therefore, each colour temperature has different diverse effects on sleep cycle, productivity, and mood, despite the fact that lighting preferences are totally subjective. Warm light has a calming effect that aids in relaxation and sleep preparation. Blue spectra, which are present in cool white and daylight, promote alertness, productivity, attention, and mood elevation (Flint, 2020).

Table 2.3: Table of Colour Temperature

Colour Temperature (K)	Appearance of Light	Colour of Light	Meanings
2700-3300K	Warm	Red, yellow, orange	Cosiness and warm atmosphere
3300-5300K	Cool	Less yellow, bluer and whiter	Calmness atmosphere
6500K	Daylight	Natural Sunlight	Healthy and vitality,

Sources by (Wan, 2023)

According to the table 3.0, the lighting colour temperature in range of 2700-3300K which represent warmer lighting colour. The warmer lighting likes red, yellow and orange colour of lights more suitable install in relaxation or recreation areas in the office as to enhance the areas cosier and more relaxing atmosphere. Therefore, the employees able to rest up and having fun in the relaxation or recreation areas. Besides, the next range of colour temperature is 3300-5300K which is represent as cool lighting. Cool light temperature which are brighter and gives the feeling of calmness atmosphere in the office areas. Blueish and whiter colour of lighting able can be place in meeting room or workstation areas in the office which able to enhance the concentration of employee which benefit increase in productivity. Lastly, the range of colour temperature 6500K which represent as daylight, the daylight lighting usually which provided by natural sunlight. In office areas, natural lighting is more encouraged as the natural lighting able to benefit the employee's health and well-being while working in the office.

2.4.5 Recreation and Relaxation Areas

Any size organisation must concentrate on raising work and productivity levels in order to meet and exceed goals. The leadership team of a company often determines its success rate, and employee's motivation and momentum always have a direct bearing on how rapidly the company advances, grows, and generates profits. Therefore, it's imperative to make sure that the employees have everything they require in the workplace in order to survive and do their duties as effectively as possible. The team members need the proper supplies, assistance, and support, as well as time allotted during the course of the day for them to unwind, recharge, and recover. They could feel stressed out and overworked if they eat their lunch or snacks at their desk. (Mia, 2021). Therefore, it's essential that a company offer a place away from the workplace where the employees may take a break and recharge before returning to work.

An office's relaxation room is a place where staff members may unwind and reenergize. It is a prevalent misconception that only large-scale international corporations can afford to construct workplaces in this way since these spaces offer a full range of luxuries (Machado, 2022). For instance, Google's office a large company who consist huge relaxation areas. These large-scale businesses have made the best efforts to ensure that their employees feel content, at ease, and hence more productive since psychological conditions have a huge impact on a person's capacity for creativity. Google offers various type of relaxation areas such as gyms, rest rooms, massage areas, and gaming rooms. In this case, these relaxation areas let employees to relax and have fun before returning to work. Although, it looks wasting time and resources, however, the benefits much outweigh the costs. Promoting this attitude also entails teaching others how to strike the correct balance between job and mental health.

The mere provision of facilities for recreational activities can improve the emotional and physical well-being of workers. Employee cooperation and creativity are credited by the majority of the most successful businesses as being the key to their long-term success (Tomar, 2021). After all, they do encourage their employees to put in the effort and enjoy hard. There are few trends can be provided in available space areas for relaxation and recreation activities (Anjum et al., 2005). In relaxation areas, a small lounge with comfortable couches can be built for employees to rest up or works which able to reduce stress and fatigue. Besides, small kitchen is can be built as the employees can have the

coffee breaks or having snacks and lunch during break hour. Next, Nap room can be built also in available space in office which able to let employee to take a small nap or rest during break hour to regain their energy. Small library can be built also in the office which able to reduce employees feeling bored. Employees can read any topic books which they are interested that able to let them relax on their mind by not just focusing on their works.

In addition to that, in recreation area which a space for leisure activities and boost creativity and collaboration for team employee's members. In this case, mini ping-pong table or football table can be place in recreation areas which provide a little fun activity in the office. As employees easily feeling bored and unmotivated when they working, especially after pandemic affected their working behaviour. Therefore, these activities can increase productivity and attract employees to return to their office. Besides, a mini pool table can be place at recreation area which a small games boost team collaboration and communication. Lastly, a small gym can be built as enable to let employees to work out during break hour or after working.

2.5.0 Review of Relevant Conceptual Models

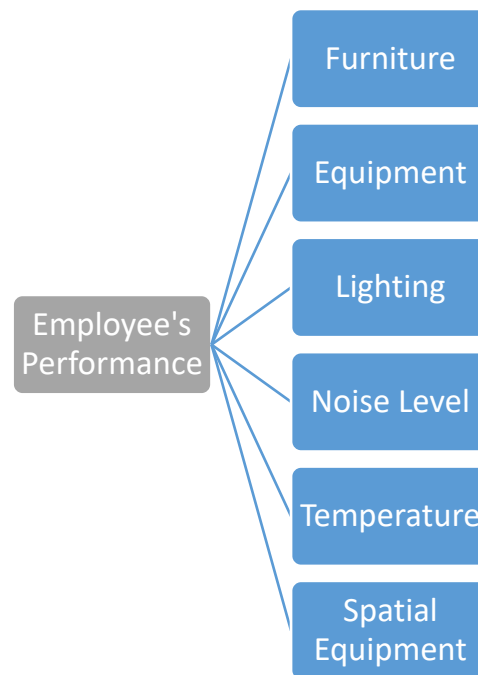


Figure 2.2: Review of Conceptual Framework
Source: Adopted from (Riaz et al., 2017)

According to the figure 1.0 above, the conceptual framework is based on the how the workplace design that able to improve or increase the employee's performance. The workplace design includes furniture, equipment, lighting, noise level, temperature and spatial equipment. This conceptual framework is relevant to this study as to understand how workplace design able to increase the employee's performance while this study objectives to learn what the features of the modern office that resilient to time crisis situation.

2.6 Proposed Conceptual Framework

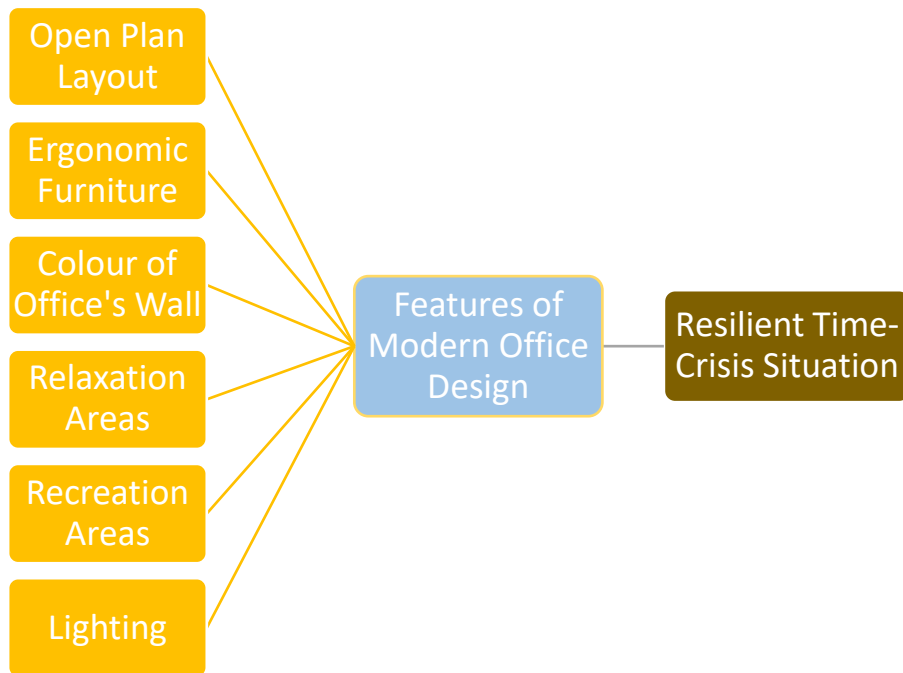


Figure 2.3: Proposed Conceptual Framework

Source: (Developed for Research, 2023)

According to figure 1.1, this figure is proposal conceptual framework for this study which based on relevant conceptual models on figure 1.0. The proposed framework for this study which about what the features of modern office design that able to resilient time-crisis situation in Malaysia. The features of modern office design include open plan layout of the modern office, ergonomic furniture, colour of office's wall, relaxation and recreation areas in available space in the office and lighting in modern office.

2.7 Conclusion

In summary, this chapter has explained and reviewed the research journal articles related to features of reshaping modern office design that resilient time-crisis situation. Lastly, a relevant of conceptual models has been reviewed and proposed a conceptual framework for this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

This chapter will cover the method used to analyse the survey data. The main research methodology, including the research design, data collection, sampling design, research instrument, constructs measurement, questionnaire design, reliability test, data processing and analysis will be covered in this chapter.

3.1 Research Design

In quantitative study, numerical facts are gathered and examined. It is perfect for spotting patterns and norms, formulating hypotheses, vetting connections, and extrapolating findings for sizable groups (Fleetwood, 2023). Through the collection of measurable data and the application of statistical, mathematical, or computational methods, quantitative research is the methodical study of events. By sending out online questions, surveys, and polls, as well as using sampling techniques, quantitative research gathers data from current and prospective employees.

3.2 Data Collection

The technique chosen for gathering data is determined by the study topic being addressed, the kind of data required, and the time and resources available. Primary data gathering methods and secondary data collection methods are two categories for data acquisition techniques.

3.2.1 Primary Data

The term "primary data" refers to information that has not previously existed. The research's original results are primary material. When compared to secondary data study, primary data gathering and analysis generally take more time and effort to complete. Quantitative and qualitative primary data gathering techniques can be separated into two categories (Bhandari, 2022). Methods for gathering quantitative data are founded on a variety of mathematical computations. Closed-ended surveys, methods of correlation and regression, mean, mode, and median, among other techniques, are all used in the gathering and study of quantifiable data.

3.2.2 Secondary Data

Data that has already been released in secondary sources, such as books, newspapers, magazines, journals, internet sites, etc (Simplilearn, 2023). Regardless of the nature of the study topic, there is a wealth of information about it in these sites for business studies. In order to increase the degrees of research validity and dependability, it is crucial to apply the right set of factors when choosing the secondary data to be used in the study. These factors include, but are not limited to, the date of release, the author's credentials, the source's dependability, the text's quality of discussion and depth of analysis, and how much it has contributed to the growth of the research field. The Literature Review chapter's discussion of secondary data gathering is more in-depth. Methods for gathering secondary data have a number of benefits, including cost, time, and effort savings. They do, however, have a significant drawback. Particularly, supplementary research does not add to the body of books by generating new data.

3.3.0 Sampling Design

The act of choosing a subset of a community is called sampling. Sampling design involves five steps: finding the population, establishing the sampling frame, choosing the sampling methods, figuring out the sample size, and carrying out the sampling procedure. These processes assist in determining whether individuals are eligible to take the poll.

3.3.1 Target Population

According to this study's questions, this study target population is only including the employees that work at the office. After post-pandemic, the employee that required to return to their office which are suitable as the target population for this study. As this study's objective is to rank the features of office desire from employees which is important to conduct survey on right target population to receive the reasonable data. According to Department of Statistics Malaysia, the Selangor's population consist of 3,446,500 employees. Thus, these aspects able to aid for the study sample size and location.

3.3.2 Sampling Location

The sampling location will cover in area of Selangor. In Selangor which consist of high population of employees that is suitable to conduct this study sample (Chong, 2020). Selangor state is one of the most popular states in Malaysia as the state consist high population of skilled employees and fresh graduated students which will increase the population of high knowledges skilled of employees in Selangor state. In this case, this study will more focus on employees in Selangor area which due to Selangor consist of high population of employees that works at the office, and also some of the employees are work from home or hybrid mode.

3.3.3 Sampling Element

The study participant can be including the employees that working at the office. Besides, there are employees that working in hybrid mode which either can work from home and return to the office, and these employees able to participant to this study. Those employees that does not work at the office at all are unable to become research participant in this study.

3.3.4 Sampling Technique

In this study, the purposive sampling technique will be used for this study survey. Purposive sampling is a non-probability technique that used for researchers makes decisions about which aspects include in the sample (Etikan et al., 2016). Purposive sampling may be done in a pretty simple manner. Simply excluding those participants from the sample who do not meet a specific profile is all that is required. Purposive sampling can be used in either qualitative or quantitative research for the study (Tongco, 2007). The method's intrinsic bias contributes to its effectiveness, and it maintains its reliability when put to the test against random chance sampling. The selection of the purposive sampling technique is crucial to the accuracy of the data collected as a result, the informant's dependability and competency must be guaranteed. Therefore, purposive sampling technique are suitable to use in this study as to aid the survey and research on employees that working at the office or alternatively.

3.3.5 Sampling Size

The sample size is the number of participants needed to complete the study. Therefore, the sampling size for this study must be calculated after determined the target population, location, and technique. Choosing a sample size is one of the first stages in creating a trial to answer the study question. In this case, 100 samples size are determined for this study, due to 100 samples are typically used in most study circumstances. For the majority of investigations, a sample size of larger than 30 and fewer than 500 is appropriate (Mumtaz et al., 2020). According to Department of Statistics Malaysia, the Selangor's population consist of 3,446,500 employees. Returning to this study, gather information from 100 sample size, which is an acceptable size for this study to have.

3.4 Research Instrument

A research instrument is a device that for researcher may use to gather, quantify, and examine data relevant to the research objectives. In order to evaluate patients, clients, students, instructors, employees and more, these instruments are most frequently employed in the social sciences, health sciences, and educational fields (Wilkinson & Birmingham, 2003). A research instrument may be in the form of a questionnaire, survey, interview, checklist, or straightforward test. The researcher will decide which the exact research instrument tool to utilise. It will also have a significant impact on the actual methodologies employed in the particular study.

3.4.1 Survey Questionnaire

quantitative survey questions known as an objective question used to elicit thorough responses from respondents on a survey study topic. A research report is produced using the quantitative data based on the analysis of the responses to these quantitative survey questions (Bork & Francis, 1985). These inquiries serve as the survey's main focus and are used to collect numerical data to calculate statistical outcomes. Quantitative inquiries are closed-ended and often require the respondent to select an answer from a list of alternatives. These questions don't fatigue the participants because they require little time to answer. In order to avoid responder bias, a good questionnaire should be simple and clear (Frery, 1996). To provide a peaceful environment for respondents to answer questions, surveys must be presented consistently. In order for everyone who will be responding to understand and reply as efficiently as possible, simple and direct questions are suggested.

3.4.2 Questionnaire Design

For the questionnaire design in this study will start by including the questionnaire's cover page. To make it easier for respondents to understand the questionnaire, all research objectives, topics, and goals will be included on the front page. Before enabling the respondents to complete the questionnaire, a simple personal data for the respondents is required. The questionnaire's questions are designed in simple sentences to make respondents for easy to understand. Each responder estimated should need five minutes to complete the questionnaire. By generating the survey questionnaire for this study, the Google Forms will be used as the forms is a survey administration programme which will be delivered in English.

In this survey questionnaire, the question will be divided into two section which is section A and section B. in section A, the question will be based on the demographic of the respondents and also some information about the physical distancing is required which reflected to Standard Operating Procedure in the office design. The total question in section A will be seven questions, which the question requires the respondents to tick in the box on which to choose and answer. In section A, these questions are to learn about the respondent's basic personal information and to learn their current working style as well as their current workplace located. This is due to every respondent has their own working styles and location of the workplace. According to this study topic, the last question in section A will ask about the respondent to learn about whether the respondent after pandemic is required to return to their workplace office. Thus, this information will be important to help this study to learn the respondent are returning to their own office and analyse based on this study's objective.

Besides, in section B survey question will include total of 6 factors in it, for each factors have at least of two questions to maximum seven question are consisted in the question section B. The survey questions in section B will be answers by circle to each statement applied five (5) Likert scales to indicate to what extent the respondents that begin from strongly disagree (1) to strongly agree (5) to each statement.

A Likert scale is a rating system used to quantify attitudes, actions, and views. Following a statement or a question, there are a set of five or seven response statements (Betterton & Hale, 2017). Respondents select the choice that most accurately reflects their feelings towards the statement or topic. Likert scales are excellent for capturing respondents' levels of agreement or their thoughts towards the issue in a more nuanced manner since they provide respondents a variety of viable replies. However, because of weariness, social desirability, a propensity for extreme reaction, or other demand features, Likert scales are vulnerable to response bias, in which respondents either agree or disagree with all of the assertions.

3.5.0 Constructs Measurement

3.5.1 Nominal Scale

The identity property of data is defined by the nominal scale of measurement. Although this scale has some qualities, there is no numerical value attached to it. Although the data may be categorized, it cannot be multiplied, split, added to, or removed from other data. Additionally, it is impossible to quantify the variation between data points. Therefore, a nominal scale is used in Section A in the survey questionnaire, which offers a demographic profile. The respondent's gender, age, ethnic, marital status, work status and physical distancing is required which reflected to Standard Operating Procedure in the office design are all determined by this.

3.5.2 Ordinal Scale

The ordinal scale defined as the data that is arranged in a certain order. Although each value is graded, it is not clear what separates the categories from one another. These settings cannot be increased or decreased. It is widely used to describe abstract ideas like contentment, frequency, and happiness. In Section A and B from this survey questionnaire, the Ordinal Scale will apply in these two sections of questions design. In section B, the questions are regarding the six factors of features design desire by employees in a modern office. There are five possible options in section B which include "Strongly Agree," "Agree," "Neutral," "Disagree," and "Strongly Disagree." Besides, in section A, there is only one question is used the ordinal scale which regarding whether respondents are agree to reshape the office become a modern office resilient for pandemic crisis. The question options will be include being extremely disagree, and being extremely agree.

3.5.3 Interval Scale

Although the interval scale has characteristics of nominal and ordered data, it also allows for quantification of data point differences. The variables' actual positions in the order as well as their differences are both displayed by this form of data. They can be combined or split, but not added to or removed from. The scale assessments utilised in this study are Likert Scales which in section A and B. There are five ranges: (1) SD, (2) D, (3) N, (4) A, and (5) SA are used to gauge respondents' likelihood to agree or disagree with the allegation in section B. Besides, in section A there is one question is used with Likert scales design which consist 10 range used to gauge respondents' likelihood to extremely agree or extremely disagree.

3.6 Data Processing

3.6.1 Data Checking

When information is gathered and transformed into useable form, data processing takes place. Data processing must be done appropriately in order to avoid having a detrimental impact on the final result, or data output, and is often carried out by a data scientist (Fleetwood, 2022). The initial stage in the processing of data is to make sure that all surveys are fully completed to avoid omissions. Data verification is done to lessen and ultimately eliminate the potential of getting data that is ambiguous and so compromises the study goal. The accuracy of the information and the calibre of the responses from the target respondents depend on data verification. The analysis can be impacted if the project has errors or inconsistencies. Furthermore, the acquired data must be complete and correct in order to be used as input for a test of reliability. The researchers confirmed the respondents' age and place of residence before asking them to fill out the questionnaire to make sure they complied with the study's strict criteria. After compiling responses to questionnaires, researchers checked to see whether any of those who responded had given implausible responses.

3.6.2 Data Editing

The responses from the surveys could be missing, inaccurate, or incomplete. Data editing is the use of checks to find missing, inconsistent, or invalid information or to identify possibly incorrect data records. No matter what kind of data are dealing with, different stages or phases of data gathering and processing include different modifications.

3.6.3 Data Coding

Any procedure that gives a response a value is called coding. In other words, coding comprises either giving an answer a code or evaluating a selection of codes and choosing the most appropriate one that best describes the response. The code might be a string of characters or a number. For this study survey, the coding will be utilised to input data into a database using Microsoft Excel. The data include the demographic information of respondents is obtained and classified depending on the row of the response in Section A of the questionnaire. Besides, in the section A, there is one question consist Five-Point Likert Scale was used with extremely disagree to extremely agree coding as 1 until 10. Next, the Five-Point Likert Scale was used

from Sections B which consist of six factors A to F, with "SD" coding as 1, "D" coding as 2, "N" coding as 3, "A" coding as 4, and "SA" coding as 5.

3.6.4 Data Transcription

Data transcription is the process of input the data to a software so that can be interpreted and examined. The data will be analysed after being correctly entered into the programme with all of the necessary data. Thus, for this study the coding will apply and transfer to the SPSS software from the Microsoft Excel.

3.7.0 Data Analysis

3.7.1 Content Analysis

A popular quantitative research method for examining material and its aspects is content analysis. It is a method for quantifying qualitative information by grouping data and contrasting various informational components to condense it into meaningful information (Erlingsson & Brysiewicz, 2017). Simple phrases, text, and images can be used in the material, as well as information from websites, books, journals, and social media. Many of researchers are employing content analysis more frequently to go beyond surface-level analysis by automatically labelling and tagging material using computers and machine learning.

3.7.2 Reliability Test

The constancy or reliability of test results is measured by reliability. It may also be viewed as the capability of a test or a set of results from research to be replicated. Prior to the official survey, a reliability test run was conducted on 30 samples to improve the dependability of the questions and find issues with the question design. Before conduct the actual distribution of the survey questionnaire to the respondents. Reliability test is important to be conducted as to ensure the questionnaire are ready to distribute without any error. According to the journal article (Bujang et al., 2018), concluded that given the scale items' high correlations, a sample size of 30 may be used to test reliability using Cronbach's alpha. Therefore, for this study are takes 30 from the sample and using with the Cronbach's Alpha method for reliability test.

Table 3.1: Strength of Cronbach’s Alpha

Cronbach’s Alpha	Strength
0.9000-1.000	Excellent
0.8000-0.8999	Good
0.7000-0.7999	Acceptable
0.6000-0.6999	Questionable
0.5000-0.5999	Poor

Source: adopted from (Tavakol & Dennick, 2011).

Internal consistency, or how closely connected a group of things are to one another, is measured by Cronbach's alpha. It is regarded as a gauge of scale dependability (Tavakol & Dennick, 2011). Even if alpha has a "high" value, the measure may not be one-dimensional. Between 0 and 1, it represents the consistency of a scale and measures it. Cronbach's alpha levels between 0.7000 and 0.95 are regarded as suitable. However, a value between 0.60 and 0.70 is viewed as a suspect variable, one between 0.50 and 0.59 as a poor variable, and one less than 0.5 as an inappropriate variable for the study (Taber, 2018). For this study, there are six variables were examined in this reliability test. The six factors for this reliability test are considered as an appropriate variable.

3.7.3 Descriptive Analysis

By explaining the connection among characteristics in a population or sample, descriptive analysis is used to organize summarise data. creating inferential statistical comparisons should never take place before calculating descriptive statistics, which is an essential first step in conducting research (Thompson, 2009). The researchers should prepare to explain their sample first which need to mention the sample's crucial demographic details, such sex, age, and ethnicity.

3.7.4 Relative Important Index (RII)

Based on participant responses, Relative Importance Index (RII) analysis enables the identification of the majority of critical criteria. It is also a suitable method for ranking indicators according to Likert scales (Rooshdi et al., 2018). Relative Importance Index (RII) which is method to support this study to bring the outcome of the research on this study by

rank the most important features covered in the study. The formula of Relative Importance Index is based on research journal (Aziz et al., 2016). The formula is:

$$RII_k^i(\%) = \frac{1n_1 + 2n_2 + 3n_3 + 4n_4 + 5n_5}{5(n_1 + n_2 + n_3 + n_4 + n_5)} \times 100$$

According to the formula, where n_1 number of respondents are response strongly not agree. Besides, n_2 is number of respondents are response not agree and n_3 are response for neutral, Lastly, n_4 is number of respondents are response for agree and n_5 is number of respondents are response for strongly agree.

3.8 Conclusion

The strategies employed in this study to accomplish the goal were described in this chapter. The analysis of all the data will be covered in the next chapter. The following chapter will also describe the results.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

The data analysis for this study is presented in this chapter. The SPSS programme is used to examine all the data gathered from the questionnaire. The SPSS programme was used to input pertinent and helpful data, which was then subjected to many analyses. This chapter highlights the findings from the Cronbach Alpha Reliability Test, Descriptive Analysis, and Relative Importance Index.

4.1 Content Analysis

Table 4.1: Result of Objective 1

Features	Item in Questionnaire	Reference(s)
OPEN PLAN LAYOUT OFFICE DESIGN		
Reduced Partition walls	S.B, Factor 1, Q.1	Shafaghat, A., Keyvanfar, A., Lamit, H., Mousavi, S. H., & Majid, M. a. A. (2014).
Large Tables and desks	S.B, Factor 1, Q.2	
Freedom to Move	S.B, Factor 1, Q.3	
Natural Lights Accessibility	S.B, Factor 1, Q.4	
The size of workstation	S.B, Factor 1, Q.5	
The size of meeting room	S.B, Factor 1, Q.6	

The decoration of meeting room	S.B, Factor 1, Q.7	
REPLACE REGULAR FURNITURE TO ERGONOMIC FURNITURE IN MODERN OFFICE		
Ergonomic office chair	S.B, Factor 2, Q.1	Marquardt, C. J. G., Veitch, J. A., Charles, K. E., & Construction, I. F. R. I. (2002).
Ergonomic sit-stand desk.	S.B, Factor 2, Q.2	
Seat pan depth	S.B, Factor 2, Q.3	Kroemer, A. D., & Kroemer, K. H. (2016).
Adjustable arm rests for height and width	S.B, Factor 2, Q.4	
Ergonomic mouse	S.B, Factor 2, Q.5	
Ergonomic keyboard	S.B, Factor 2, Q.6	
COLOUR OF OFFICE'S WALL		
Warm colours	S.B, Factor 3, Q.1	Potočnik, J., & Košir, M. (2020).
Cool colours	S.B, Factor 3, Q.2	
RELAXATION AREAS IN AVAILABLE OFFICE SPACE		
Small lounges	S.B, Factor 4, Q.1	Martens, Y. (2011).
Small Kitchen	S.B, Factor 4, Q.2	Kohl, A. (2019).

Nap room	S.B, Factor 4, Q.3	
Office small library	S.B, Factor 4, Q.4	
RECREATION AREA IN AVAILABLE OFFICE SPACE		
Mini ping-pong table.	S.B, Factor 5, Q.1	Dzidowski, A. (2016).
Mini football table	S.B, Factor 5, Q.2	
Mini pool table.	S.B, Factor 5, Q.3	
Small gym room	S.B, Factor 5, Q.4	
LIGHTING IN THE OFFICE		
Natural lighting	S.B, Factor 6, Q.1	Soori, P. K., & Vishwas, M. (2013).
Cool range colour temperature lighting	S.B, Factor 6, Q.2	Lin, C., & Huang, K. (2014).
Warmer range colour temperature.	S.B, Factor 6, Q.3	
The level of lighting	S.B, Factor 6, Q.4	

4.2 Reliability Test

Table 4.2: Result of Reliability Test

No	Construct	Cronbach's Alpha	No. of item	No. of Respondents	Strength
1.	Open Layout Plan	0.9244	7	30	Excellent
2.	Ergonomic Furniture	0.9035	6	30	Excellent
3.	Colour of Wall	0.8115	2	30	Good
4.	Relaxation	0.8556	4	30	Good
5.	Recreation	0.8352	4	30	Good
6.	Lighting	0.8752	4	30	Good

For this study, the result of reliability test from the 30 of sample are taken to run for the test. Based on the table 3, the scale measurement is followed for Cronbach's Alpha method for the first variables (Open Layout Plan) value of 0.9244 which are fall into the excellent reliability. Following by second variable (Ergonomic Furniture) which fall under category of excellent reliability with value of 0.9035. Moving on to the third variable (Colour of wall) which the value is 0.8115 are considered as a good reliability. Then, for the fourth variable (Relaxation) value of 0.8556 also considered as a good reliability. Fifth variable (Recreation) are also fall in good reliability which the value is 0.8352. Lastly, the sixth variable (Lighting) which the last one is fall into as a good reliability as the value of the variable is 0.8752.

4.3 Descriptive Analysis

4.3.1 Respondent Demographic Profile

Section A: Demographic

1. Gender

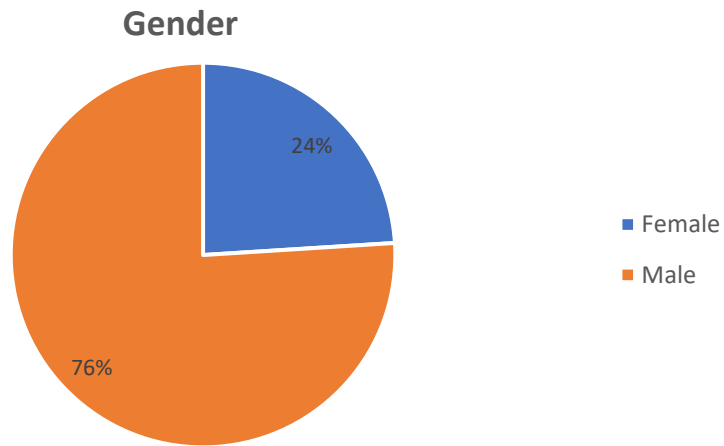


Figure 4.3: Percentages of Respondent's Gender

Table 4.3: Statistic of Respondent's Gender

Gender	Frequency	Percentage (%)	Cumulative Percentage (%)
Male	76	76	76
Female	24	24	100
Total	100	100	

In total of 100 respondents, there are consist of 76% which 76 of respondents are male gender. Besides, there are 24% which 24 of respondents are female gender.

2. Age

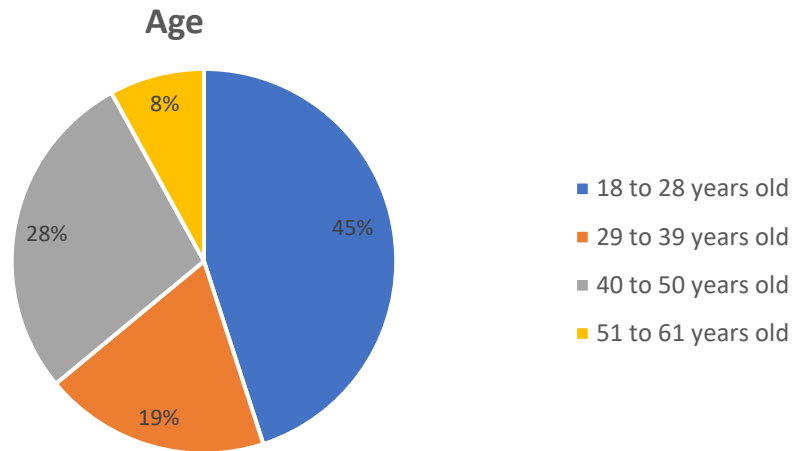


Figure 4.3.1: Percentages of Respondent’s Age

Table 4.4: Statistic of Respondent’s Age

Age	Frequency	Percentage (%)	Cumulative Percentage (%)
18 to 28 years old	45	45	45
29 to 39 years old	19	19	64
40 to 50 years old	28	28	92
51 to 61 years old	8	8	100
Total	100	100	

In total of 100 respondents, the majority age ranges are from 18 to 28 years old consist of 45% which there are 45 of respondents age range is from 18 to 28 years old. Besides, for age ranges from 29 to 39 years old consist of 19% which there are 19 of respondents age range is from 29 to 39 years old. Next, the age ranges from 40 to 50 years old consist of 28% which there are 28 of respondents age range is from 40 to 50 years old. Lastly, the age ranges from 51 to 61 years old consist of 8% which there are 8 of respondents age range is from 51 to 61 years old.

3. Ethnic

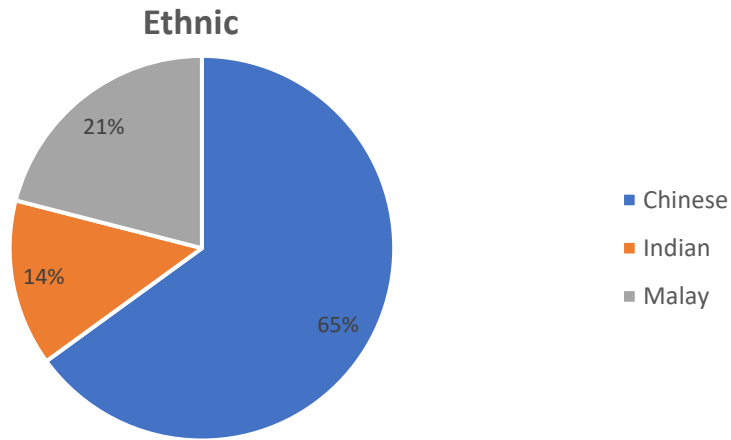


Figure 4.3.2: Percentages of respondent's Ethnic

Table 4.5: Statistic of Respondent's Ethnic

Ethnic	Frequency	Percentage (%)	Cumulative Percentage (%)
Chinese	65	65	65
Indian	14	14	79
Malay	21	21	100
Total	100	100	

In total of 100 respondents, the majority of respondents consist of 65% which there are 65 of Chinese respondents. Next, there are 14 of respondents which are Indian which consist of 14% in 100 respondents. Lastly, there are 21 of respondents which are Malay consist of 21% in 100 respondents.

4. Marital Status

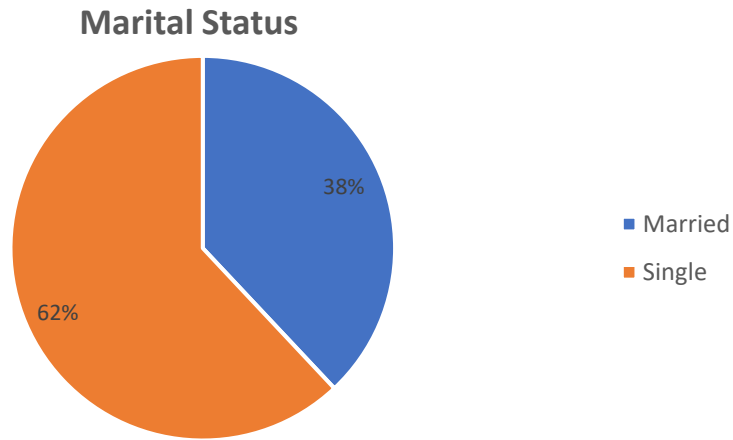


Figure 4.3.3: Percentages of Respondent’s Marital Status

Table 4.6: Statistic of Respondent’s Marital Status

Marital Status	Frequency	Percentage (%)	Cumulative Percentage (%)
Married	38	38	38
Single	62	62	100
Total	100	100	

According to table 4.4, the majority of marital status in total of 100 respondents which is single covered for 62% which consist of 62 of single respondents. Besides, there are 38% of respondents are married which consist of 38 of married respondents.

5. Work status during the Movement Control Order (MCO)

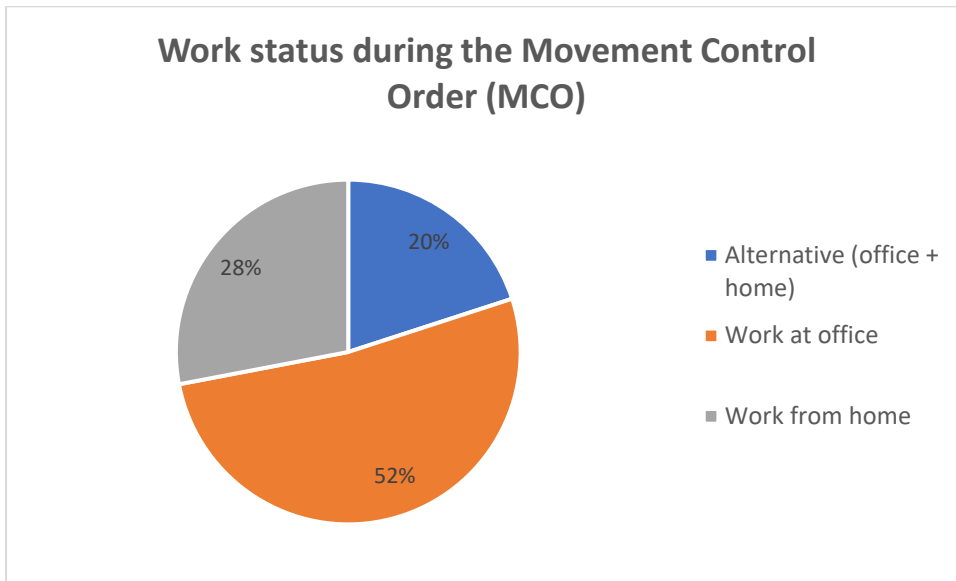


Figure 4.3.4: Percentages of Respondent’s Work status during the Movement Control Order (MCO)

Table 4.7: Statistic of Respondent’s Work Status During the Movement Control Order (MCO)

Work Status	Frequency	Percentage (%)	Cumulative Percentage (%)
Alternative (Office + home)	20	20	20
Work at Office	52	52	72
Work from Home	28	28	100
Total	100	100	

Based on table 4.5, there are 3 group of work status from the respondents which the first majority group covered of 52% and there are 52 of respondents are work at office. Next, there are 28% which consist 28 of respondents are work from home. Lastly, there are 20% which consist 20 of respondents are work alternatively at office and home.

6. Physical distancing is required which reflected to Standard Operating Procedure in the office design is important after post pandemic.

Physical distancing is required which reflected to Standard Operating Procedure in the office design is important after post pandemic.

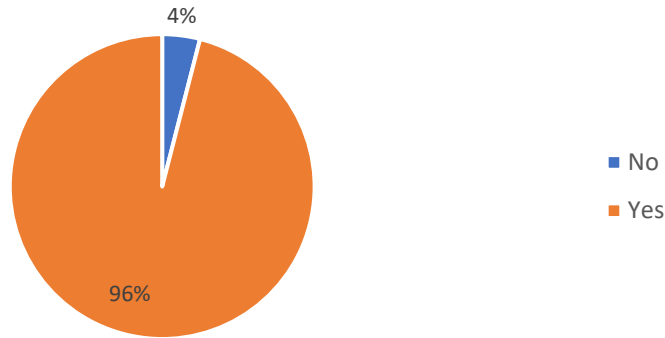


Figure 4.3.5: Percentages of Respondents responses on Physical distancing is required which reflected to Standard Operating Procedure in the office design is important after post pandemic.

Table 4.8: Statistic of Respondent Respond on Physical Distancing is Required which Reflected to Standard Operating Procedure in the office design is important after post pandemic.

Physical Distancing	Frequency	Percentage (%)	Cumulative Percentage (%)
Yes	96	96	96
No	4	4	100
Total	100	100	

According to table 4.6, in total of 100 respondents which the majority of respondent's responses are agree to physical distancing is required which reflected to Standard Operating Procedure in the office design is important after post pandemic. The respondents who agree which covered for 96% from the total 100 of respondents. Besides, the remaining of 4% of the respondents which are not agree.

7. In order to let employees back to office, reshape the office to become a modern and resilient for pandemic crisis is necessary to create a new modern working space and comfortable environment for employees.

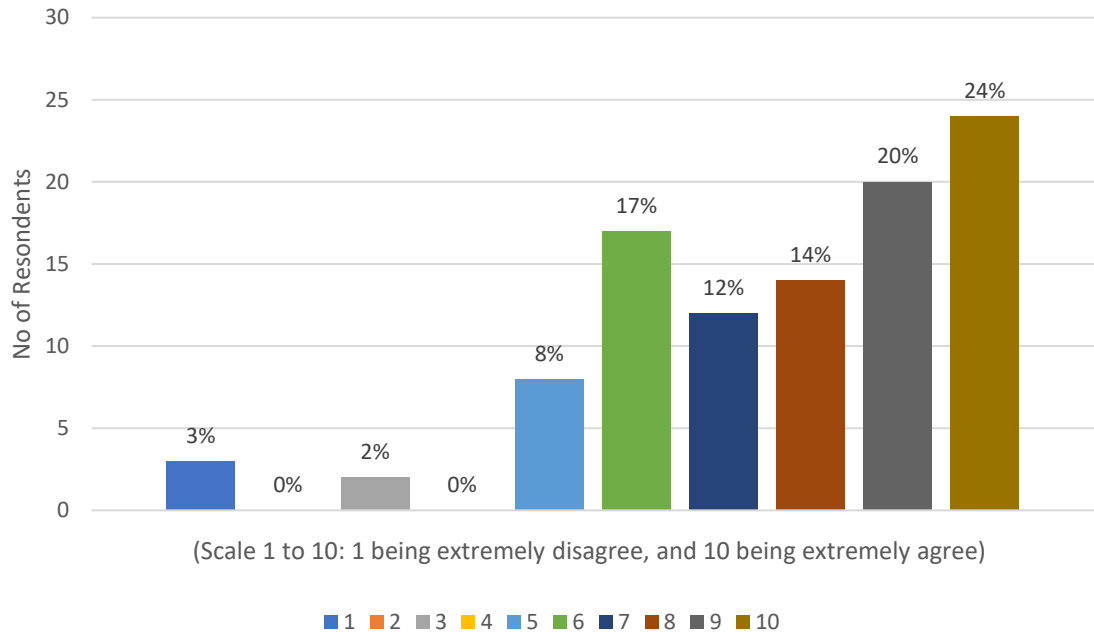


Figure 4.3.6: Percentages of respondent’s respond reshape the office to become a modern and resilient for pandemic crisis is necessary

Table 4.9: Statistic of Respondent’s respond on reshape the office to become a modern and resilient for pandemic crisis is necessary

Reshape the Office (Scale 1 to 10, extremely disagree to extremely agree)	Frequency	Percentage (%)	Cumulative Percentage (%)
1	3	3	3
2	0	0	3
3	2	2	5
4	0	0	5
5	8	8	13
6	17	17	30

7	12	12	42
8	14	14	56
9	20	20	76
10	24	24	100
Total	100	100	

Based on the table 4.7, the measure of scale of the question is 1 extremely disagree to 10 agree. The majority of respondents are responded on scale on 10 extremely agree to reshape the office after pandemic is necessary which consist of 24% from total of 100 respondents. Next, there are 20% of the respondents are rate on scale to 9 which considered as strongly agree to reshape the office after pandemic. Besides, there are 17% of respondents also rate on scale 6 which also considered as agree to reshape the office. Moreover, there are 14% of respondents are also agree with rate the scale on 8. Next, there are 12% of respondent rate on scale 7 which also considered agree to the question. Furthermore, there are 8% of respondent which are on neutral state scale on 5 which not disagree and not agree to reshape the office after pandemic is necessary. Besides, there are only 2% of the respondents respond on scale 3 which disagree to reshape the office is necessary. Lastly, there are 3% of respondents are extremely disagree to reshape the office is necessary which rate the scale on 1.

4.4 Relative Importance Index (RII)

Table 4.10: Result of Relative Importance Index (RII)

A: Open Plan Layout Office Design	RII	Rank	Average RII
1. Partition walls should be reduced in the modern office which can provide space for communication between employees.	0.8460	6	0.8577
2. Tables and desks at the open space should be large which can improve collaboration and teamwork in the office.	0.8600	4	
3. Open space area should have more freedom to move when redesign or rearrange the furniture and layout.	0.8520	5	

4. The layout arrangement should able to access more natural lights which benefit for employee's health.	0.8360	7	
5. The size of workstation should be reasonable and sufficient.	0.8620	3	
6. The size of meeting room should be reasonable amount of people.	0.8780	1	
7. The decoration of meeting room should be interactive to encourage employees in producing ideas and enjoy during meeting.	0.8700	2	
B: Replace Regular furniture to Ergonomic Furniture in Modern Office	RII	Rank	Average RII
1. Fully adjustable ergonomic office chair with Intelligent backrest that can flex to support the posture.	0.8620	4	0.8647
2. Height adjustable ergonomic sit-stand desk.	0.8600	5	
3. Seat pan depth allows clearance for knees.	0.8740	2	
4. Adjustable arm rests for height and width which allow arms and shoulders to be relaxed and supported.	0.8440	6	
5. Ergonomic mouse with mimic natural curves of your hand	0.8840	1	
6. Ergonomic keyboard with curved design with large wrist support	0.8640	3	
C: Colour of Office's Wall	RII	Rank	Average RII
1. Warm colours represent fun, vitality, enjoyment and energized which should painted at the recreation and relaxation areas.	0.8500	2	0.8590
2. Cool colours represent calm, relaxation and freshness should painted at working areas.	0.8680	1	
D: Relaxation Areas in Available Office Space	RII	Rank	Average RII
1. Small lounges with couches can be built as Relaxation area in available space in office.	0.8660	3	0.8615

2. Small Kitchen can be built as relaxation area in an office for employee having coffee or tea during at work.	0.8700	2	
3. Nap room can be built for relaxation in office which employee can rest up during break hour.	0.8740	1	
4. Office small library can be built as relaxation area in office which employee can read books or other related activities.	0.8360	4	
E: Recreation Area in Available Office Space	RII	Rank	Average RII
1. Mini ping-pong table can be place at recreation area which employee can have fun during the time break or releasing their stress.	0.8460	4	0.8630
2. Mini football table can be place at recreation area which other funs activity can be enjoyed.	0.8780	1	
3. Mini pool table can be placed at recreation area which employee can play together having fun.	0.8520	3	
4. Small gym room can be built as recreation area which employee can work out during break hour.	0.8760	2	
F. Lighting in The Office	RII	Rank	Average RII
1. Natural lighting should be encouraged which able to decrease depression and increase mood of the employees.	0.8660	2	0.8660
2. Cool range colour temperature lighting should install at working area which gives feeling of attentive, focused, and productive.	0.8620	3	
3. Warmer range colour temperature should be installed at recreation and relaxation area which gives feeling of comfort and relaxation.	0.8700	1	
4. The level of lighting should be suitable to each space in the office and not impacted to eye strain.	0.8660	2	

Based on the table 4.4.1, the analysis result from the feedback of respondent's based on Relative Importance Index (RII). There are results of six features of modern office design from

the respondent's feedback. Therefore, the analysis will be analysed by rank based on the average Relative Importance Index (RII) to determine which features that most important in a modern office that resilient to time-crisis situation.

First of all, the first rank from the result is the features of lighting in the modern office which has the highest average RII of 0.8660 from these six features. From the result, we able to learned that majority of respondents are more agree that lighting features is most important in a modern office. This is due there are when it comes to office lighting, there should not use single of lighting fits to all approach. The type of ambiance we want to create at work will determine how the lighting is designed (Peek, 2023). The other reason of majority agrees the lighting in the office should be control and adjust well which is poor lighting at work can affect employees in a number of ways, including eye strain, fatigue, headaches, tension, and accidents. On the other side, excessive lighting can also lead to security issues as well as health issues including stress and headaches. Both can result in job errors, subpar work, and low productivity (Soler, 2020). Most of employees when they return to works at the office not just one or two hours only, therefore having excellent lighting at work increases productivity and lowers mistake rates. There are four sub-elements in the features of lighting in the office, which the first rank of the sub-element 0.8700 is the warmer range colour temperature should be installed at recreation and relaxation area which gives feeling of comfort and relaxation. Warmer range colour temperature lighting is much cosier atmosphere which let the employees feeling relax and home vibe (Huebner et al., 2016). Due to the pandemic crisis, the pandemic has impacted the employee's working culture and behaviour which work from home is new norm for them. In this case, reshaping a modern office that include the element of cosiness and relaxing which create a workplace for employees feeling they are working at home while they are in the office.

In addition to that, the second most important of the features that should include in the modern office is replace regular furniture to ergonomic furniture in modern office. We able to learn by this feature are rank in second place with average RII 0.8647. By comparing working at office and work from home, the furniture is slightly difference when the employees are working at home (Ahmed et al., 2022). They will use or choose their own comfortable furniture for work such as sitting and laying down on sofa or sofa bed while working. However, at the office doesn't provide such freedom or variety of furniture to them to choose. Thus, in order to let employees willing to return to their office, which replacing furniture to ergonomically is important. This is because ergonomics not only makes things more comfortable, but it also boosts performance and reduces stress. Lacking ergonomics in the office, workers are likely to

experience aches and pains, fatigue, and other health problems (Todd, 2021). The first rank of sub-element in this feature which is ergonomic mouse with mimic natural curves hand. Mouse is a tool that most employees are using every day and every time, thus, by enabling employees to work efficiently, ergonomic design increases their ability to generate high-quality work. They can operate more effectively and safely because the tools they require are made to match their demands (Helander, 2003).

Furthermore, the third rank of the features in a modern office is recreation areas in available office space. The recreation areas are quite important as well due to pandemic; the workplace is not able to work as previously anymore (Henn, 2022). Reshaping an innovative and creativity workplace which able to attract the employees return to their office after the pandemic has affected their working culture. Based on the table 4.4.1, the sub-element of recreation area features which the first rank from the respondent's feedback is the office should include a mini football table which provide a fun activity in the office. A recreation area is a place where employees may escape the difficult situations they encounter at work and recharge when they are feeling worn out (Mehra, 2020). Businesses that depend on the employee's inventiveness to produce cutting-edge goods require recreational spaces. Since the pandemic outbreak has impacted employees are working from home, which they recreation areas such as football table can used as one of the finest strategies to manage employees and boost team morale at work is to have a recreational space. It able creates a strong workforce and icebreaking session among the employees which benefit to improve team collaboration and reduce stress in the office.

Moreover, the fourth important of the feature in modern office is relaxation areas with average RII 0.8615. A space in the office should be include an area for employees to relax and rest. Post-pandemic situation has impacted the behaviours of employees which they now wish to integrate home feeling vibe in the office (Mudditt, 2022). Therefore, relaxation areas can be important to include in the modern office which create a space in available office space that able to let employees stay calm and reduce stress. The majority of the respondent's feedback are agreed which a nap room should increase in the office space. Nap room which a space for employees to taking a small nap and rest during break hours. This able to regain the energy and boost the productivity of the employees.

Besides that, the fifth important of the feature of modern office which is the colour of office's wall with average RII 0.8590. The modern office walls should not just apply for one single colour, this may impact the employees feeling unmotivated and not willing to return to their

office (Sheng, 2020). The function of colour will have in the after-the-pandemic office by showing how the appropriate colour may improve pleasure, health, and productivity (Hill, 2018). Choosing appropriate wall colour able to support the working atmosphere in the office, by following the colour psychology which differentiate warm colours represent fun, vitality, enjoyment and energized while cool colours represent calm, relaxation and freshness. Therefore, colour of office's wall can be a great feature as a support to create a great modern office for employees, however, it's not the most important features that need to be include based on the feedback from the respondents.

Lastly, the last rank of the important of the feature of modern office is open plan layout design. These features are rank is least important with average 0.8577. Open plan layout design which has the most influence to an office design after pandemic situation where most of the employees prefer flexibility and freedom that has characteristic of minimalist partition walls, and collaborate large desk and table together which to create a flexibility workplace and freedom as well as team collaboration benefits (Vanecko, 2022). However, due to Standard Operating Procedure, social distancing is required which has affected some of the respondents think is not applicable to a modern office (Samani & Alavi, 2020). Besides, some of the employees their own office is already practicing the open plan layout design office which they now focusing on other features element that can be improve and include in a modern office after pandemic such as lighting and ergonomic furniture. Therefore, open plan layout design is still important and agree by the respondents, however, lighting in the office and ergonomic furniture are more important.

4.5 Conclusion

In conclusion, by summarizing this chapter which before actual distribution of the questionnaire to the respondents, 30 of the sample respondents are collected in order to conduct reliability test by using Cronbach Alpha method to analyse for final confirmation of questionnaire is ready to distribute. 100 of respondent's feedback are collected in Selangor area, all the respondents are the employees that either work at office or alternatively. The result collected from the respondents are crucially and significant which aid in study objectives. The result from the respondents is analysed by using Relative Importance Index (RII) to calculate and to rank the most important features of the modern office design resilient to time-crisis situation. Relative Importance Index (RII) has analysed which the most important features of modern office design are the lighting of the modern office.

CHAPTER 5: DISCUSSION, CONCLUSION, AND IMPLICATION

5.0 Introduction

In this chapter will finalise and conclude the discussion of the data analysis collected from the respondent's feedback and the content analysis. The content analysis will be discussed and summarise regarding the all the features of the modern office design that resilient to time-crisis situation. Next, the all the data analysed from the respondent's feedback which will conclude and summarise in this chapter. Implication and limitation of the study will be discussed in this chapter. Lastly, the recommendation of the study will be recommended to future researchers for their future study research.

5.1 Summary of Statistical Analyses

5.1.1 Content Analysis

Firstly, by summarising the content analysis which there total of six major features of modern office design in this study. The content of these features is from the literature review which brought over to conclude there are six features of modern office design which the first features is the open layout plan office design. Open layout plan office design is one of the major features of modern office and have total of seven sub-elements included and supported by journal articles (Shafaghat et al., 2014). Moreover, the second major of the features of modern office design which is ergonomic furniture. This feature is about replacing the regular furniture to ergonomically furniture. There are six of sub-element that covered in this ergonomic furniture feature which supported by two books (Marquardt et al., 2002) and (Kroemer & Kroemer, 2016).

In addition to that, the third of the major features which is the colour of office's wall. There are two sub-elements in this colour of office's wall features. The features are supported by one of other researchers (Potočnik & Košir, 2020). Besides, the fourth major features which is relaxation areas in available office space. There are four sub-elements of the features included which cited by other two researchers (Martens, 2011) and (Kohll, 2019). Following by fifth major features which is recreation area in available office space. There are also have four sub-

elements included in this feature and supported by one of researcher (Dzidowski, 2016). Lastly, the sixth of the major features of modern office design is the lighting of the office. There are four sub-elements included which supported by other researchers (Soori & Vishwas, 2013) and (Lin & Huang, 2014).

These six major features of modern office design are crucial and significant on this study. These features of modern office design that discussed by other researchers which these are the six major features able to create a modern office that resilient time-crisis situation especially the Covid-19 pandemic crisis situation that recently happened.

5.1.2 Relative Importance Index (RII)

According to table 4.4.1 above, it can be convinced that employees have their own preferences of features that should include in a modern office. However, the six major features included in the questionnaire which in order to learn the importance of each of features of modern office that based on the respondents.

In this case, by using Relative Importance Index (RII) which calculated the data collected from the respondents and the result outcome will be ranked as which type of features modern offices design that most important in these six major features. The result outcome shows that the first rank of the features of modern office is the lighting in the office features. Therefore, in six major features of modern office design which able to learn that lighting of the office is most importance as most of the respondents are strongly agreed with this feature should include in a modern office design that resilient to time-crisis situation.

5.2 Major Findings

The major finding in this study is all the six major features of modern office design that resilient to time-crisis situation are relatively important which employees returning to their own office after pandemic situation. The six features of modern office design which included the open layout plan design, replacing the regular furniture to ergonomic furniture, colour of office's wall, relaxation area and recreation area in available office space as well as lighting in the office. The result of data analysis has shown that employees after pandemic crisis situation are more concerning on lighting in the office. Lighting in the office is the most crucial features or assets that provide sufficient or appropriate visual performance for the employees in the office (Van Bommel & Van Den Beld, 2004). Employees now have changed their perspectives on lighting which the lighting function now are different from previously before pandemic crisis situation (Chang et al., 2021). This is due to the impact of pandemic situation has affected the employees changed their working culture as they work from home become a new norm for them which reason of health and well-being and minimising the risk of infection. In this case, all this factors which employees after pandemic are concern more on health and well-being so that they think lighting in the office should not just have function that provide sufficient visual performance for them and it is important the lighting now in a modern office after pandemic which should include element of benefit for employees in health and well-being. Therefore, we able to know that choosing the right temperature of lighting able to benefit employees on their productivity and well-being.

Based on the result of sub-elements from the lighting office features, it shows that most of the respondent agreed which the warmer and cool range temperature of the lighting install in a modern office has significantly benefits to employee's productivity and health or well-being. The lighting should not just fit one type anymore in the office, but to place appropriate lighting in each area in the office to support the environment (Despenic et al., 2017). The range of temperature of lighting has been convinced which different temperature range of lighting has their own psychology effect that benefit employee's health and well-being. Cooler range of temperature lighting has agreed that placed in the workstation areas which has benefit of increase the employee's productivity by reducing employee risk of eyes strain. Warmer range of temperature lighting which agreed that should be placed on relaxation or recreation areas in office space which to support the environment of the office space area. Relaxation or recreation areas which is the areas for employees to reduce their stress and regain energy, thus, warmer

range temperature lighting should place in that particular areas which able to benefit employees relax in optimal condition. Lastly, the healthiest lighting that should include in the office areas which is natural lighting. The respondents agreed which natural lighting has huge benefits on employee's health and well-being. Natural lighting has benefits on providing vitamin D to employee and employees are necessary to expose to sunlight which able to help the employee's sufficient sleep at night (Ascott, 2022).

Besides, the other five major features of modern office design also considered an important feature that should include in a modern office design. Based on the table 4.4.1 above, the average of Relative Important Index (RII) of other major features which considered as important as well which more than 0.800. The ergonomic furniture is significantly benefiting the employees in term on support their task performance and increasing the productivity by reducing the fatigue and pain. Ergonomic furniture which included the daily furniture or tools that employees always in the use such as keyboard, mouse, chair, table and desk. By replacing the regular into ergonomically which have function to support the employee's posture and improve the employee's health and wellness. Besides, the next of the major features which is recreation areas in available in office space is also play important role to support and benefit the employee in term on team collaboration and reducing the stress. The recreation areas which include small fun activities that employees able to enjoy together during break hour which they can improve on themselves team collaboration and ice breaking session to know each other colleague. It seems that including the recreation areas in the office is wasting on cost, however, it can provide huge advantages to a modern office (Dyes, 2016). A modern office that includes the features of recreation areas which giving the home feeling vibe and environment that employees not only just return to their office to work but able to enjoy fun and communicate with colleague members. Especially after pandemic situation affected the employees desire on more innovative and enjoyable environment to work effectively.

In addition to that, a workplace that provide a space for rest and regain energy will significantly improve the employee's work performance. Relaxation areas in available in office space which is a great feature that respondents agreed should be include in a modern office design. Similar to recreation areas which relaxation areas also able to attract the employee willing to return to their office without any burden or issue. Relaxation areas which have a characteristic of providing a small break and rest for employees. For instance, nap room, small kitchen, small library and small lounge which a sub-elements features that can be place in a modern office. Next, the appearance of a modern office which also have function that significantly support the

environment of an office that can improve the mood of the employees. Thus, colour of office’s wall is crucial as the employee’s work performance and moods can be affected on the colour of office’s wall design. By following colour psychology which warm and cool colour has different vibe and mood when paint on office’s wall. Warm colour which represents on more vitality and energetic which suitable apply on workstation areas as to support and improve the mood of employees for better work performance (Mueller, 2020). Besides, cool colour of wall represents calm and relaxation vibe and mood which suitable apply on relaxation and recreation areas in office space. Thus, with applying suitable colour of wall which to support the environment of each space that able to provide optimum advantages for the employees. Lastly, after the pandemic situation has impacted the employee’s working behaviours which the employees now are more prefer on flexibility and remote working. In this case, design a modern office with lot of spaces which employees gain more flexibility to work. Open plan layout design is playing important role which design the layout of a modern office become open space which minimalist of partition wall that create more freedom for employees work in the office. In this case, open plan layout design feature which has significantly matching with the employee’s working culture or behaviours as the employees more prefer in flexibility and freedom.

5.2.1 Features of reshaping modern office design resilient to time-crisis

Table 5: Open Layout Plan Design

Hypothesis	Result
H1: Open layout plan is a modern office design feature that preferred by the employees.	Accepted

The result of hypothesis is accepted. The result is related to research concluded by (Shafaghat et al., 2014). All the sub-elements in the open layout plan features which are preferred by the employees. The data collected shown that the employees are agreed that modern office should include open layout plan design.

Table 5.1: Ergonomic Furniture

Hypothesis	Result
H2: Replacing regular furniture to ergonomic furniture is a modern office design feature that preferred by the	Accepted

The result of hypothesis to this feature is accepted as it's based on researches (Marquardt et al., 2002) and (Kroemer & Kroemer, 2016). The sub-elements of this features are preferred by the employees after the pandemic should include in a modern office design. The data collected shown that these features are ranked for second most important features in modern office design.

Table 5.2: Colour of Office's Wall

Hypothesis	Result
H3: The colour of office's wall is a modern office design feature that preferred by the employees.	Accepted

The result hypothesis in this feature is also accepted. The result which based on researches (Potočnik & Košir, 2020) which the sub-element in this colour of office's wall features is preferred by the employees. Warm and cool colour of wall that employees which agreed that should paint on modern office's wall as to support the environment to increase the productivity.

Table 5.3: Relaxation Area

Hypothesis	Result
H4: Relaxation areas in available office space is a modern office design feature that preferred by the employees.	Accepted

The result of hypothesis on this feature is accepted. This result is based on the researches (Martens, 2011) and (Kohll, 2019) which conclude that these sub-elements in this feature that agreed that benefit and attract the employees when they returning to office after pandemic.

Table 5.4: Recreation Area

Hypothesis	Result
H5: Recreation areas in available office space is a modern office design feature that preferred by the employees.	Accepted

The result of hypothesis on this feature are accepted. The result which based on (Dzidowski, 2016) and the data collected from the respondents which concluded employees are agreed recreation areas should include in a modern office with the sub-elements in the features.

Table 5.5: Lighting in the Office

Hypothesis	Result
H6: Lighting in the office is a modern office design feature that preferred by the employees.	Accepted

Lastly, the result of hypothesis on the last features is accepted. The result has shown that based on researches (Soori & Vishwas, 2013) and (Lin & Huang, 2014) which together supported with the respondent’s feedbacks which conclude that this features and the sub-elements included is most preferred by the employees. This feature is ranked as the most importance among on this six major features.

5.3 Implication of Study

This study is about how features of modern office that able resilient to the time-crisis situation. This study is applicable to the employers as a reference, which employers can refer to this study to learn how a recently time-crisis situation Covid-19 pandemic has changed on the employee’s working culture and behaviours. Then, the employers able to understand what are the needs and requirements of employees that willing to return to their office. In this case, the employers able referring by these to reshape their own office in an appropriate way that able to retain their employees.

In addition to that, this study also able to support or gives the future researchers sufficient and helpful information on their future study or research. Not only that, this study also provided reliable information for developers as they wish to build a new commercial office space in future. Learning the trends of the features of modern office design desired by employees which able to assist developers in future to create a new type of workplace that able to have function resilient to time-crisis situation that possibly will occur in future.

5.4 Limitation of Study

The limitation of this study is this study only limited to 100 of sample size of the respondents. The future researchers may has limited to refer to this study if the future researchers take for more than 100 of sample size of their study. Besides, only numerical data may be produced through quantitative research; however, the replies of respondents cannot be further analysed. There are only a certain number of options for each answer on the form. Only the options provided in the questionnaire are available to respondents, thus they may not represent the respondents most accurate responses.

5.5 Recommendation of the study

In this study, there are still feasible to conclude this study due to limitations that were found over the course of the study. There are few of the recommendations provided for next future researchers. The first recommendation which is the future researchers can conduct a study that cover for larger sample size of the respondents. This is due to this study only limited to 100 sample size of the respondents; thus, future researchers conduct more than 100 sample size which able to increase and improve the quality of research in future and more accurately. Furthermore, future researchers also can enhance the study by focusing on one of the features of modern office. By focusing one of the features can create a more details and deep study on the research.

5.6 Conclusion

In summary, after the pandemic crisis situation has impacted most of the employees in Malaysia where the employees now have changed their working culture and behaviour. Most of the employees are not willing to return to their own office as they now are prefer working from home which due to the MCO quarantine has become a new norm for them. Therefore, the office after pandemic crisis should not be same with previously anymore, new changes of office

design should be made as the employees also has changed a lot in their working culture and behaviour. Therefore, it is important to learn what kind of features modern office design that employees are desired that willing to return and it resilient to time-crisis situation. The result of content analysis has shown that there are six of the major features of modern office design that preferred by the employees. The features including open layout plan, ergonomic furniture, colour of office's wall, relaxation area, recreation area and lighting in the office.

Lastly, based on the result from Relative Importance Index (RII) which show that lighting in the office is most important of the feature that should include in a modern office design. In conclusion, it is important that future developers, organizations, businesses and others to learn about on what kind of a modern office that can be built which based on the employee's preferences and resilient to time-crisis situation. This Covid-19 pandemic situation has given a huge opportunity for us to improve the workplace in Malaysia become better.

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Appendix A: Survey Questionnaire



**FACULTY OF ACCOUNTANCY AND MANAGEMENT
BACHELOR OF BUILDING AND PROPERTY MANAGEMENT (HONOURS)**

**FINAL YEAR PROJECT
SURVEY QUESTIONNAIRE
A STUDY ON RESHAPING MODERN OFFICE RESILIENT FOR TIME CRISIS**

Dear Respondents,

I am Ng Wei Bin, a final year undergraduate student from Universiti Tunku Abdul Rahman (UTAR) who is currently pursuing in Bachelor of Building and Property Management (Honours). This survey aims to evaluate the employee's workplace design after post pandemic by designing a new office environment.

A set of questionnaires will require 10 minutes to be completed. This questionnaire consists of **TWO SECTIONS**, which are **Section A** and **Section B**. Section A is about respondent profile while Section B is regarding the perception by respondents towards workplace design.

Information obtained is strictly confidential and will be used for statical and mathematical analysis for the purpose of study only. Your kind participation in this study is highly valued and appreciated. Should you have any enquiry regarding this study, kindly contact me through this email: ahbin431999@utar.my

Thank you for your time and input in this research.

Please tick in the box below to proceed with the survey.

I hereby consent on my voluntary participation in this survey which will be conducted anonymously. (As proposed accordingly by Personal Data Protection Statement - UTAR)

- | | |
|--------------------------|------------------------------------|
| <input type="checkbox"/> | Yes, proceed to the questionnaire. |
| <input type="checkbox"/> | No, thank you for your time. |

Section A: Demographic

INSTRUCTION: Please tick in the box next to your answer of your choice or write in the space provided.

1. Gender
 - Male
 - Female

2. Age
 - 18 to 28 years old
 - 29 to 39 years old
 - 40 to 50 years old
 - 51 to 61 years old

3. Ethnic
 - Chinese
 - Malay
 - Indian
 - Others: specify _____

4. Marital Status
 - Single
 - Married

5. Work status during the Movement Control Order (MCO)
 - Work at office
 - Work from home
 - Alternative (office + home)

6. Physical distancing is required which reflected to Standard Operating Procedure in the office design is important after post pandemic.
 - Yes
 - No

7. In order to let employees back to office, reshape the office to become a modern and resilient for pandemic crisis is necessary to create a new modern working space and comfortable environment for employees. Circle your decision to which extend you are agree with this suggestion. (Scale 1 to 10: 1 being extremely disagree, and 10 being extremely agree)

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Continue to next page for Section B.

Section B: Reshaping modern office.

This section requires your opinion regarding your perception on reshaping the modern office to be suited and comfort for the time crisis. For this section, please circle your answer to each statement using five (5) Likert scales to indicate to what extent you agree or disagree with each statement.

(1) = Strongly Disagree (SD), (2) = Disagree (D), (3) = Slightly Agree (SLA),
 (4) = Agree (A), (5) = Strongly Agree (SA)

No.	Factors	SDA	D	SLA	A	SA
A: Open plan layout office design						
1.	Partition walls should be reduced in the modern office which can provide space for communication between employees.	1	2	3	4	5
2.	Tables and desks at the open space should be large which can improve collaboration and teamwork in the office.	1	2	3	4	5
3.	Open space area should have more freedom to move when redesign or rearrange the furniture and layout.	1	2	3	4	5
4.	The layout arrangement should able to access more natural lights which benefit for employee's health.	1	2	3	4	5
5.	The size of workstation should be reasonable and sufficient.	1	2	3	4	5
6.	The size of meeting room should be reasonable amount of people.	1	2	3	4	5
7.	The decoration of meeting room should be interactive to encourage employees in producing ideas and enjoy during meeting.	1	2	3	4	5
B: Replace Regular furniture to Ergonomic furniture in modern office						
1.	Fully adjustable ergonomic office chair with Intelligent backrest that can flex to support the posture.	1	2	3	4	5
2.	Height adjustable ergonomic sit-stand desk.	1	2	3	4	5
3.	Seat pan depth allows clearance for knees.	1	2	3	4	5
4.	Adjustable arm rests for height and width which allow arms and shoulders to be relaxed and supported.	1	2	3	4	5
5.	Ergonomic mouse with mimic natural curves of your hand	1	2	3	4	5
6.	Ergonomic keyboard with curved design with large wrist support	1	2	3	4	5
C: Colour of office's wall						
1.	Warm colours represent fun, vitality, enjoyment and energized which should painted at the recreation and relaxation areas.	1	2	3	4	5
2.	Cool colours represent calm, relaxation and freshness should painted at working areas.	1	2	3	4	5
D: Relaxation areas in available office space						

1.	Small lounges with couches can be built as Relaxation area in available space in office.	1	2	3	4	5
2.	Small Kitchen can be built as relaxation area in an office for employee having coffee or tea during at work.	1	2	3	4	5
3.	Nap room can be built for relaxation in office which employee can rest up during break hour.	1	2	3	4	5
4.	Office small library can be built as relaxation area in office which employee can read books or other related activities.	1	2	3	4	5
E. Recreation area in available office space						
1.	Mini ping-pong table can be place at recreation area which employee can have fun during the time break or releasing their stress.	1	2	3	4	5
2.	Mini football table can be place at recreation area which other funs activity can be enjoyed.	1	2	3	4	5
3.	Mini pool table can be placed at recreation area which employee can play together having fun.	1	2	3	4	5
4.	Small gym room can be built as recreation area which employee can work out during break hour.	1	2	3	4	5
E: Lighting in the office						
1.	Natural lighting should be encouraged which able to decrease depression and increase mood of the employees.	1	2	3	4	5
2.	Cool range colour temperature lighting should install at working area which gives feeling of attentive, focused, and productive.	1	2	3	4	5
3.	Warmer range colour temperature should be installed at recreation and relaxation area which gives feeling of comfort and relaxation.	1	2	3	4	5
4.	The level of lighting should be suitable to each space in the office and not impacted to eye strain.	1	2	3	4	5

----- Thank you for your participation -----

Appendix 3: Reliability Test Results

Reliability Test (Cronbach's Alpha)

No	Construct	Cronbach's Alpha	No. of items	No. of Respondents	Strength
1	Open layout	0.9244	7	30	Excellent
2	Furniture	0.9035	6	30	Excellent
3	Colour	0.8115	2	30	Good
4	Relaxation	0.8556	4	30	Good
5	Recreation	0.8352	4	30	Good
6	Lighting	0.8752	4	30	Good

Cronbach's Alpha	Strength
0.9000-1.000	Excellent
0.8000-0.8999	Good
0.7000-0.7999	Acceptable
0.6000-0.6999	Questionable
0.5000-0.5999	Poor

**Reliability
Statistics**

Cronbach's Alpha	N of Items
0.924	7

**Reliability
Statistics**

Cronbach's Alpha	N of Items
0.903	6

**Reliability
Statistics**

Cronbach's Alpha	N of Items
0.811	2

**Reliability
Statistics**

Cronbach's Alpha	N of Items
0.856	4

**Reliability
Statistics**

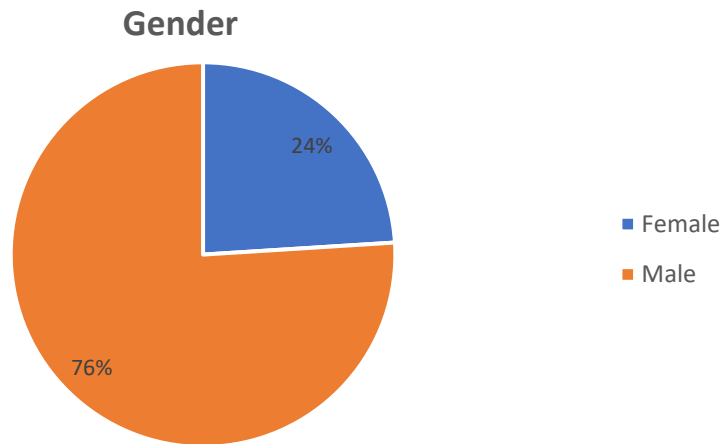
Cronbach's Alpha	N of Items
0.835	4

**Reliability
Statistics**

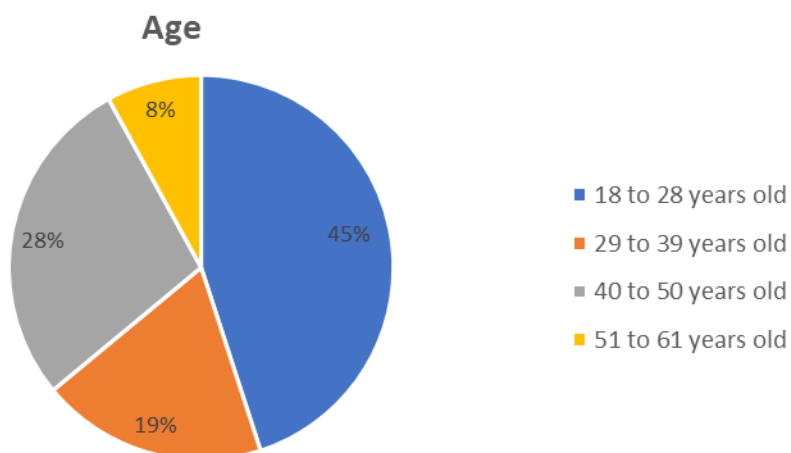
Cronbach's Alpha	N of Items
0.875	4

Appendix 4.1: Respondent's Demographic Profile

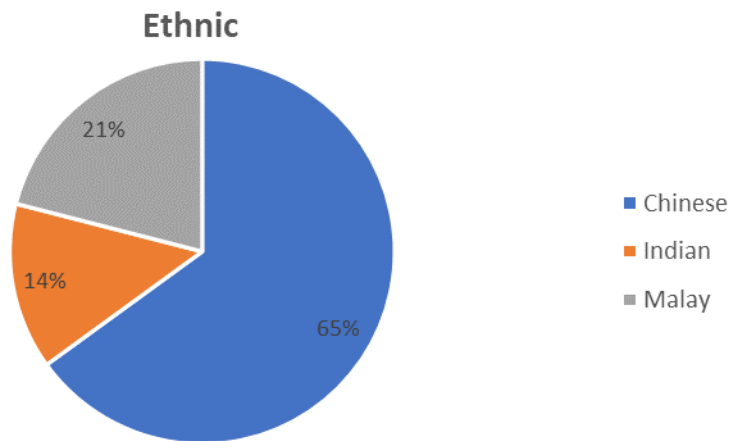
4.1.1 Respondent's Gender



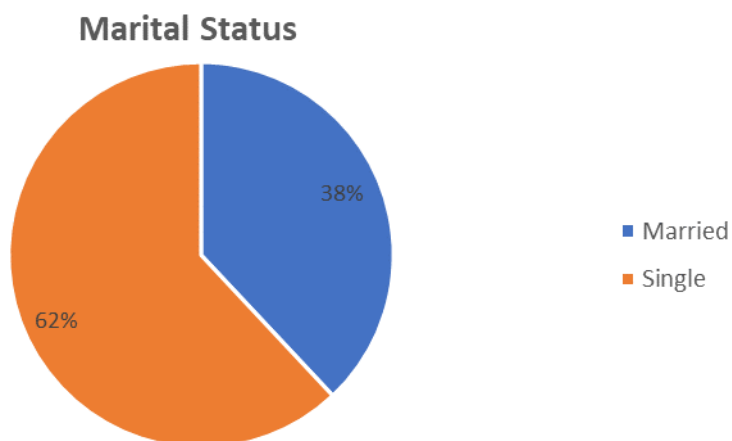
4.1.2 Respondent's Age



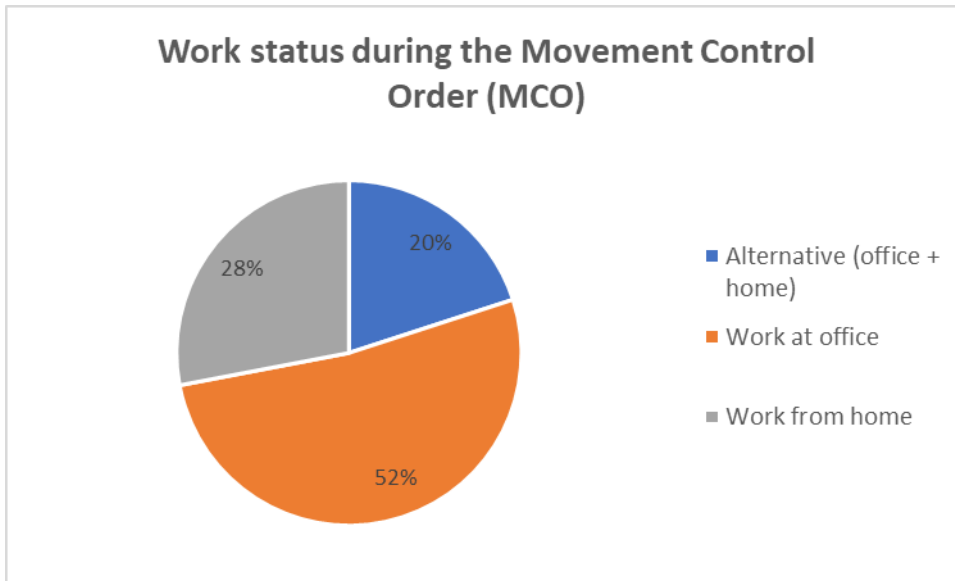
4.1.3 Respondent's Ethnic



4.1.4 Respondent's Marital Status

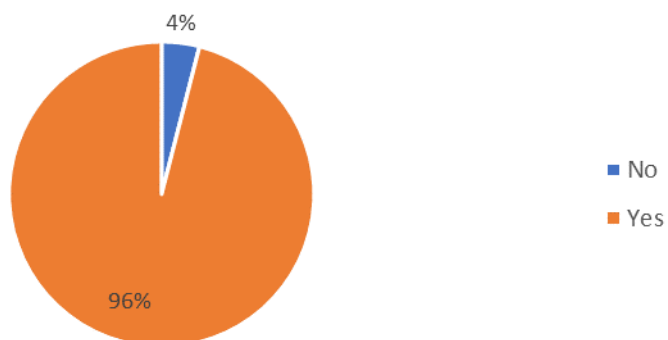


4.1.5 Respondent's Work Status

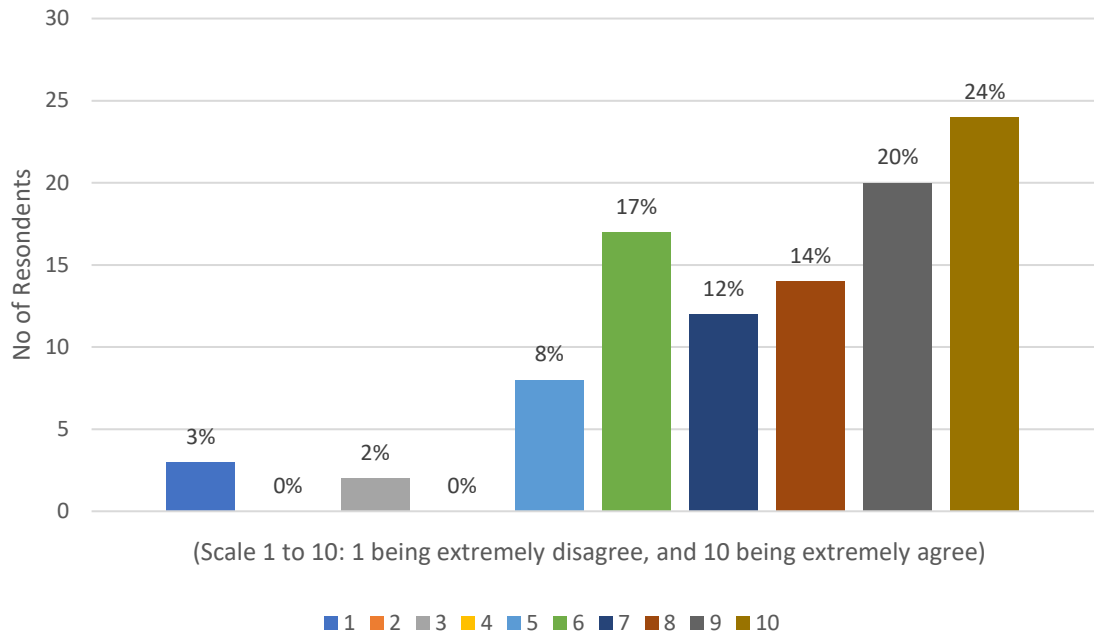


4.1.6 Respondents response on Physical Distancing

Physical distancing is required which reflected to Standard Operating Procedure in the office design is important after post pandemic.



4.1.7 Respondents response on Reshape Modern Office Resilient Pandemic Crisis



Appendix 4.2: Relative Importance Index (RII) Results

1. Partition walls should be reduced in the modern office which can provide space for communication between employees.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	15	15.0	15.0	16.0
	4	44	44.0	44.0	60.0
	5	40	40.0	40.0	100.0
	Total	100	100.0	100.0	

2. Tables and desks at the open space should be large which can improve collaboration and teamwork in the office.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	13	13.0	13.0	14.0
	4	41	41.0	41.0	55.0
	5	45	45.0	45.0	100.0
	Total	100	100.0	100.0	

3. Open space area should have more freedom to move when redesign or rearrange the furniture and layout.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	15	15.0	15.0	15.0
	4	44	44.0	44.0	59.0
	5	41	41.0	41.0	100.0
	Total	100	100.0	100.0	

4. The layout arrangement should be able to access more natural lights which benefit for employee's health.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	2.0	2.0	2.0
	3	11	11.0	11.0	13.0
	4	54	54.0	54.0	67.0
	5	33	33.0	33.0	100.0
	Total	100	100.0	100.0	

5. The size of workstation should be reasonable and sufficient.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	11	11.0	11.0	11.0
	4	47	47.0	47.0	58.0
	5	42	42.0	42.0	100.0
	Total	100	100.0	100.0	

6. The size of meeting room should be reasonable amount of people.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	10	10.0	10.0	10.0
	4	41	41.0	41.0	51.0
	5	49	49.0	49.0	100.0
	Total	100	100.0	100.0	

7. The decoration of meeting room should be interactive to encourage employees in producing ideas and enjoy during meeting.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	8	8.0	8.0	8.0
	4	49	49.0	49.0	57.0
	5	43	43.0	43.0	100.0
	Total	100	100.0	100.0	

1. Fully adjustable ergonomic office chair with Intelligent backrest that can flex to support the posture.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	12	12.0	12.0	12.0
	4	45	45.0	45.0	57.0
	5	43	43.0	43.0	100.0
	Total	100	100.0	100.0	

2. Height adjustable ergonomic sit-stand desk.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	13	13.0	13.0	13.0
	4	44	44.0	44.0	57.0
	5	43	43.0	43.0	100.0
	Total	100	100.0	100.0	

3. Seat pan depth allows clearance for knees.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	2.0	2.0	2.0
	3	11	11.0	11.0	13.0
	4	35	35.0	35.0	48.0
	5	52	52.0	52.0	100.0
	Total	100	100.0	100.0	

4. Adjustable arm rests for height and width which allow arms and shoulders to be relaxed and supported.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	7	7.0	7.0	8.0
	4	61	61.0	61.0	69.0
	5	31	31.0	31.0	100.0
	Total	100	100.0	100.0	

5. Ergonomic mouse with mimic natural curves of your hand

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	9	9.0	9.0	9.0
	4	40	40.0	40.0	49.0
	5	51	51.0	51.0	100.0
	Total	100	100.0	100.0	

6. Ergonomic keyboard with curved design with large wrist support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	9	9.0	9.0	10.0
	4	47	47.0	47.0	57.0
	5	43	43.0	43.0	100.0
	Total	100	100.0	100.0	

1. Warm colours represent fun, vitality, enjoyment and energized which should painted at the recreation and relaxation areas.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	12	12.0	12.0	13.0
	4	48	48.0	48.0	61.0
	5	39	39.0	39.0	100.0
	Total	100	100.0	100.0	

2. Cool colours represent calm, relaxation and freshness should painted at working areas.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	7	7.0	7.0	8.0
	4	49	49.0	49.0	57.0
	5	43	43.0	43.0	100.0
	Total	100	100.0	100.0	

1. Small lounges with couches can be built as Relaxation area in available space in office.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	9	9.0	9.0	9.0
	4	49	49.0	49.0	58.0
	5	42	42.0	42.0	100.0
	Total	100	100.0	100.0	

2. Small Kitchen can be built as relaxation area in an office for employee having coffee or tea during at work."

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	9	9.0	9.0	10.0
	4	44	44.0	44.0	54.0
	5	46	46.0	46.0	100.0
	Total	100	100.0	100.0	

3. Nap room can be built for relaxation in office which employee can rest up during break hour.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	12	12.0	12.0	12.0
	4	39	39.0	39.0	51.0
	5	49	49.0	49.0	100.0
	Total	100	100.0	100.0	

4. Office small library can be built as relaxation area in office which employee can read books or other related activities.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	17	17.0	17.0	18.0
	4	45	45.0	45.0	63.0
	5	37	37.0	37.0	100.0
	Total	100	100.0	100.0	

1. Mini ping-pong table can be place at recreation area which employee can have fun during the time break or releasing their stress.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	2.0	2.0	2.0
	3	9	9.0	9.0	11.0
	4	53	53.0	53.0	64.0
	5	36	36.0	36.0	100.0
	Total	100	100.0	100.0	

2. Mini football table can be place at recreation area which other funs activity can be enjoyed.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	11	11.0	11.0	11.0
	4	39	39.0	39.0	50.0
	5	50	50.0	50.0	100.0
	Total	100	100.0	100.0	

3. Mini pool table can be placed at recreation area which employee can play together having fun.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	12	12.0	12.0	12.0
	4	50	50.0	50.0	62.0
	5	38	38.0	38.0	100.0
	Total	100	100.0	100.0	

4. Small gym room can be built as recreation area which employee can work out during break hour.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	8	8.0	8.0	8.0
	4	46	46.0	46.0	54.0
	5	46	46.0	46.0	100.0
	Total	100	100.0	100.0	

1. Natural lighting should be encouraged which able to decrease depression and increase mood of the employees.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	8	8.0	8.0	9.0
	4	48	48.0	48.0	57.0
	5	43	43.0	43.0	100.0
	Total	100	100.0	100.0	

2. Cool range colour temperature lighting should install at working area which gives feeling of attentive, focused, and productive.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	9	9.0	9.0	10.0
	4	48	48.0	48.0	58.0
	5	42	42.0	42.0	100.0
	Total	100	100.0	100.0	

3. Warmer range colour temperature should be installed at recreation and relaxation area which gives feeling of comfort and relaxation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	8	8.0	8.0	8.0
	4	49	49.0	49.0	57.0
	5	43	43.0	43.0	100.0
	Total	100	100.0	100.0	

4. The level of lighting should be suitable to each space in the office and not impacted to eye strain.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.0	1.0	1.0
	3	8	8.0	8.0	9.0
	4	48	48.0	48.0	57.0
	5	43	43.0	43.0	100.0
	Total	100	100.0	100.0	