ADAPTING BRONFENBRENNER BIOECOLOGICAL MODEL AT THE
PRESCHOOL WITHIN THE DOUBLE STOREY RESIDENTIAL
BUILDING

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To Mama Siti with love,

Naily, Leia and Adele who I dearly love…

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ABSTRACT

With the release of TASKA and TADIKA 2012 Guideline, privately-owned preschool operators are allowed to operate their preschool at a residential building. However, the conversion of a residential building into an institutional building could affect the quality of childhood education due to limited classroom space. In most cases, classroom settings proposed by researchers such as the learning pockets could not be used as the number of children located in a classroom is quite high. However, quality education can still be afforded if children have a sense of place in the classroom. Suitable classroom settings could offer children a place for privacy, especially if chosen by children themselves as it will allow children to feel belonged to the space. Hence, this study investigates the elements and attributes of interaction to seek for possible preschool classroom setting in small spaces through children's active participation by revisiting Bronfenbrenner bioecological model. Forty five (N=45) children age 5 (n=20) and 6 (n=25) in a preschool in Kuala Lumpur were involved actively through lessons on 'Classroom Design' using the Inquiry Based Approach. Through active interaction and engagement, children have obtained the understanding about interior designing and classroom settings. The activities have allowed them to redesign and rearrange their classroom based on their preferences with practical considerations on its suitability and safety elements. Results were retrieved from the analysis of children's words and behavior during the inquiry session. Children's recorded words were transcribed and their video-recorded behaviors during classroom arrangement were categorized into three main elements, (i) furniture arrangement patterns, (ii) seat selection, and (iii) ingress and egress behavior. Observation showed that children's sense of place in a classroom was at their seating place and at the common area. Children were observed to have preferred to be seated together as a whole group with the opportunity to select their own seat instead of being clustered. This shows the need for intimacy interaction between children and the classroom community. Over time, although there are limited classroom space, children's sense of acceptance and belonging to the classroom and the preschool could still be developed as stated in the Bronfenbrenner formula of development.

ABSTRAK

Garis Panduan TASKA dan TADIKA 2012 telah menyediakan satu platfom rujukan kepada pengusaha prasekolah dalam perlaksanaan operasi bagi taska dan tadika di bangunan kediaman. Perubahan fungsi bangunan kediaman kepada institusi pendidikan didapati memberikan kesan kepada kualiti pendidikan memandangkan ia mempunyai ruang kelas yang terhad. Dalam kebanyakan kes, ruang pembelajaran yang dicadangkan oleh penyelidik seperti sususan tertutup atau *learning pockets* tidak dapat digunakan disebabkan oleh bilangan kanak-kanak di dalam kelas adalah tinggi. Namun begitu, pendidikan berkualiti masih mampu diadaptasikan sekiranya kanak-kanak ini memiliki rasa kepunyaan atau *sense of place* terhadap ruang pembelajarannya didalam kelas. Berdasarkan kajian, susunan ruangan kelas yang bersesuaian mampu menawarkan tempat peribadi atau *private places* kepada individu kanak-kanak melalui pemilihan individu kanak-kanak itu sendiri. Justeru itu, kajian ini menyelidik elemen dan artribut interaksi bagi mengenalpasti penyusunan ruangan yang bersesuaian khususnya ruang terhad menerusi penglibatan kanak-kanak berdasarkan Model Bioekologi Bronfenbrenner. Bagi tujuan tersebut sejumlah empat puluh lima (N=45) kanak-kanak prasekolah di Kuala Lumpur yang berusia 5 (n=20) dan 6 tahun (n=25) terlibat aktif dengan pembelajaran berkaitan topik 'Rekabentuk Kelas' menggunakan pendekatan pedagogi *Inquiry*. Berdasarkan interaksi ini, ia akan melahirkan tahap kefahaman kanak-kanak berkaitan keberkesanan susunan atur kelas. Justeru itu melalui aktiviti tersebut ia membolehkan penglibatan lansung kanak-kanak dalam merekabentuk dan menyusun tempat belajar dikelas berdasarkan keperluan mereka dengan mengambil kira aspek keselamatan. Keputusan diperolehi menerusi analisa yang dijalankan terhadap tingkahlaku dan perbualan kanak-kanak. Proses ini dirakam dan direkodkan secara bertulis sewaktu susun atur kelas dijalankan dan ia dikategorikan kepada tiga elemen utama, (i) susunan perabot, (ii) pemilihan tempat duduk, dan (iii) tingkahlaku keluar masuk kanak-kanak. Pemerhatian menunjukkan bahawa kecenderungan pemilihan lokasi tempat duduk atau *sense of placeness* oleh kanak-kanak di kelas adalah bergantung kepada tempat duduk bahkan ia dipengaruhi oleh faktor 'ruang bersama' atau kumpulan. Pemerhatian juga mendapati bahawa berdasarkan proses susun atur kelas yang di ubahsuai kanak-kanak ini lebih cenderung untuk duduk di dalam satu kumpulan yang besar berbanding kelompok kecil. Proses ini dilaksanakan dengan memberi peluang kanak-kanak memilih tempat duduk mereka sendiri. Ini jelas menunjukkan bahawa terdapat keperluan terhadap interaksi hubungan rapat di antara kanak-kanak. Dalam jangkamasa tertentu, dicatatkan walaupun ruang kelas adalah terhad, ia sebenarnya mampu membentuk perasaan penerimaan dan kepunyaan di dalam diri kanak-kanak terhadap kelas dan prasekolah mereka seperti yang dijelaskan oleh formula perkembangan Brofenbrenner.

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LIST OF ABBREVIATION

ACECQA	-	Australian Children's Education and Care Quality authority
ECEC	-	Early Childhood Education and Care
gsf/c	-	Gross square feet per child
IBA	-	Inquiry based approach
ISKL	-	International School Kuala Lumpur
KPK	-	National Preschool Curriculum
KSPK	-	National Standard Preschool Curriculum
LINUS	-	Literacy and Numeracy Screening
MOE	-	Ministry of Education
MWFCD	-	Ministry of Women, Family and Community Development
NAEYC	-	National Association for the Education of Young Children
OECD	-	Organization for Economic Co-operation and Development
PPK	-	Curriculum Development Centre
RO1	-	Research Objective 1
RO2	-	Research Objective 2
RO3	-	Research Objective 3
SF/C	-	Square feet per child
SME	-	Subject matter expert
ZPD	-	Zone of proximal development

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1   Introduction

This chapter addresses the background of the study, research aim, objectives, research questions, significance of the study, research problems, gaps, scope of the study and the overall structure of the thesis.

1.2   Research Background

Over the years, the family system has changed gradually as both parents are becoming breadwinners to the family. The Tenth Malaysia Plan (2011-2015) has revealed a rise from 18.8% in 2004 to 30.5% in 2010 of women in the management positions in the public sector. In the private sector, the percentage doubled from 13 percent to 26.2 percent in the same period of time. To date, a total of 52.4% of women has enrolled in the working force (NKRA (KPWKM), 2014) which is due to the desire of bringing up the family status into the middle class bracket (Gomez, 2014 in The Malaysian Insider). As further reported by The Malaysian Insider (December, 2014), as in 2014, 51% of the Malaysian population has fell into the middle class group, where parents are having higher income, higher skilled jobs and providing better education experiences for their children. Having mothers to be in

the workforce due to family improvement and fulfilling the family needs and interest has contributed to the changes of roles and responsibilities of the abode in the home. These changes do not only affect the mothers, but also the child himself (Bronfenbrenner, 1979). To make the new family system works, parents started to look for child care alternatives. Gradually, the demand of early education and childcare services has increased. With the availability of these child care facilities, children were sent to the nursery and preschools at a very young age and unintentionally forcing them to be in a community system within the nursery and/or preschool environment. To date, the Ministry of Education has provided 8671 preschool classrooms, KEMAS with 10966 preschool centers, JPNIN with 1731 preschool centers and 7723 privately owned preschool centers. Looking at the context of preschools in the urban and sub-urban area, the number of the privately owned preschool centers has escalated to 200% from year 2000 to 2012 (EPRD, 2012) due to the demand of the family needs and preferences on their child's early education. In Kuala Lumpur specifically, most of the private preschool premises are located at the residential area. 65% of these preschools are located at the double storey residential building, 21% at the single storey residential building, 4% in the institutional building, 3% in the apartment, 3% at the commercial building and 4% are located at other places then the ones indicated (Salleh, et al. 2013). Figure 1.1 illustrates the percentage of the private preschool premises in Kuala Lumpur.
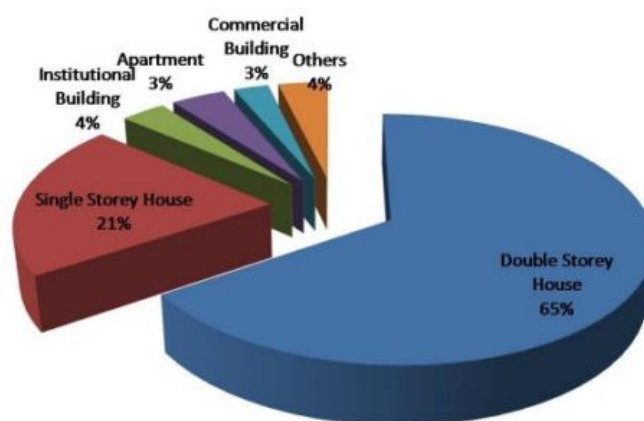
Figure 1.1 Type of private preschool premises in Kuala Lumpur

The high percentage of preschool premises located at the residential building is due to its location, that is within the family residence area. With the establishment of the Malaysia Nursery and Preschool Establishment Guideline, 2012), the government has encouraged operators to set up at least a preschool and child care

facility in every 200 residential building. This is to provide families with young children early education and child care services who are residing within the allocated perimeters (Malaysia Nursery and Preschool Establishment Guidelines, 2012). These centers are home-like, where it duplicates the residential architectural design within the area. Indirectly, the center is not only located near the family residence, but provide the child with a home-like atmosphere (Moore, 2002). With careful planning on the physical environment, it will not only offer children with a child friendly atmosphere (Moore, 2002) but it could also provide children with a sense of identification (Stankovic, 2008) and familiarity. However, from the percentage in Figure 1.1, it shows that most of the operators are more interested in operating a preschool at the double storey residential building compared to the single storey residential building. This is because the double storey residential building has more space and thus can accommodate higher number of children at one time. Based on a study by Zainol and Sahimi (2014), the average number of children that is enrolled in a preschool at the residential area is approximately 70 for it to sustain. Thus, to accommodate such number of children within a residential building, the selection to operate a preschool at the double storey residential building has been the main selection for the operators. Thus, it would be necessary to investigate further how this premis could offer children a condusive learning environment as the premis is the main selection for preschool operators.

The conversion of the residential building into an institution however, require detail and careful planning considerations. Spaces that are initially designed to fit the function of family routine and daily activities (London Borough of Lambeth Unitary Development Plan, 2008; Malaysia Ministry of Housing and Local Government, 2002) need to be changed into learning spaces, play areas, staff room and dining area and able to accommodate an adequate number of children in a space at a time. This consideration is important to support multiple teaching pedagogies and learning programs (Kuuskorpi, et al., 2011) and to encourage children to make choices, discoveries and developing various skills (Moore, 2002). Thus, to make teaching and learning more effective, suitable classroom settings need to be planned to suite to the residential physical structure. However, having a good preschool physical environment is not enough to support the child's

development. It is equally important to provide children with a preschool system that could offer a community of caring people, that promote strong families engagement, and connects the child with his world and the larger community (Greenman, 2001, 2003). Only when such environment is presented, the child will be able to feel safe and emotionally stable, which then allowing them to develop relationships with others and gradually becoming active learners. In other words, a holistic view of the preschool need to be understand, for adults to support children's development by providing them a place where they can feel at home and belonged. Over time, the child has to adapt to the brand new system in fulfilling the family needs and demands which could influence the child's development as described in the Bronfenbrenner bioecological model (Figure 1.1).
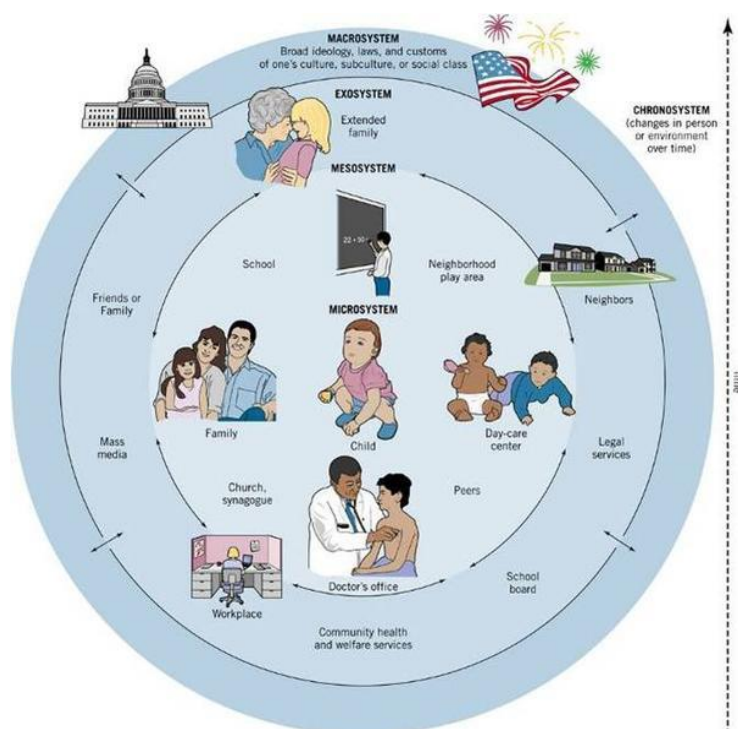
Figure 1.2 Bronfenbrenner bioecological model (1979)

The Bronfenbrenner bioecological model provides the understanding of the elements within the social system that could influence the child's development (Bronfenbrenner and Morris, 1998) through experiences and interactions with people and places that happens around him. Here, the context of people and places that was described are those which the child interacts regularly, like the home, school, parents and their siblings as well as those that he has never been or interact

before, like the parents workplace (Bronfenbrenner, 1979). These elements of social interaction could influence the child's development, either immediately or over a period of time, which could further shape the child's behaviour within himself and towards the social environment (Bronfenbrenner and Evans, 2000). To understand how the changes could affect the child, Bronfenbrenner (1979) has described the bioecological model of human development which consists of a series of nested and interconnected structures of social systems. It consists of the child at the heart of the nest, moving outwards; the micro-, meso-, exo- and macro- system. The chronosystem which is part of the social system is not nested, but runs across it. Each nest has its own elements that could change and/or affect the other elements in the inner nest of the model, which eventually will reach the child (Bronfenbrenner, 1989). Looking at the bioecological model (Figure 1.1), it can be explained how changes in the family system could affect the child. In the case of working mothers, work demands and office schedules will influence mothers to look for childcare while she is at work. Thus, the child will no longer be staying at home, but placed in a new environment for a period of time. The child will need to adapt to the new environment and the new system which will affect their development (Berk, 2013). For a child, time and interaction with the people and environment are the important elements for them to be able to adjust, adapt and accept the new system (Bronfenbrenner, 1989). Besides the family system, the Bronfenbrenner bioecological model should also be applied to the context of the preschool system. This is because, the preschool itself contains a set of its own social system where children interacts with the people and the environment within. By applying the model to the preschool context, it will provide the understanding on how the social system between people and environment in the preschool at the residential building are nested and interconnected. Besides, these understanding are important as it could contribute to the designing process of a preschool setting. Looking on the classroom entity, where children spend time the most when in school (Bergin and Bergin, 2012), by understanding how, with whom and where children interacts frequently, it could contribute to the process of designing classrooms suitable for young children. However, it is believed that this process would be more meaningful when both educators and designers could work together (Ghaziani, 2012) to meet a certain standard (Moore, 2007) and for it to be suitable to the children (Higgins et al. , 2005). Thus this study is to see how in the context of

education, by understanding the attributes of interaction within the preschool social system could influence the selection of the elements of classroom settings. In the other hand, in the context of architecture, how does the elements in the classroom setting could foster interaction between children and the environment within the attributes of interaction of the social system in the Bronfenbrenner bioecological model in the preschool context to develop children's sense of acceptance to the preschool.

1.3   Context

The context of this study is among preschool children and the preschool community located in a preschool center at the terrace house residential building.

1.4   Research Aim

The aim of this study is to investigate children's acceptance to the preschool with a possibility to develop a sense of belongingness through classroom settings by revisiting the Bronfenbrenner bioecological model.

1.5   Research Objectives

To achieve the aim, the following research objectives are formulated:

RO1: To identify the important attributes of interaction among children in developing a sense of acceptance to the preschool,

RO2: To identify the gaps between teachers and children when making classroom setting, and

RO3: To propose possible classroom settings suitable for preschools located in the double storey residential building.

1.6   Research Questions

The research questions dealt here are:

1. What are the attributes at the preschool that would make children feel comfortable and accepted?

2. What are the children's and teachers perceptions, interests and concerns when re-arranging the learning spaces in the classroom?

3. What are the suitable settings in a preschool that could offer children a conducive learning environment with a sense of belongingness to the learning space?

1.7   Significance of Study

The study is significant in order to response to the problem statement and research gap that has been mentioned earlier in the research proposal:

1. The study will provide teachers and preschool operators' ideas and setting consideration when preparing learning spaces in the classroom that is suitable for the children.

2. The study will add to the existing Malaysian Preschool Establishment guidelines to help preschool operators to make classroom settings and to create a home-like learning environment for the children using the Bronfenbrenner formula of development within the preschool bioecological context.

1.8 Research Problem

The preschools at the double storey residential building can be viewed as a place personalized for children and families, as it has the imagery of the child's own house, that offer the same residential community and if carefully designed and planned, it could be a child's second home. Looking specifically at the converted residential building, children's learning spaces are not only limited to the classroom but learning activities can happen in each space made available and accessible. These spaces are not only delivered by the objects and materials in the environment, but its relationship with the children (Lawton, 1999). Each space will provide children a sense of understanding that the environment is available for them to explore, make new discoveries and engage in activities that they are interested to do. The beauty of the residential building converted into an institution can be seen in a study by Sahimi (2010), where every part of the building could bring excitement to the children and it could serve children as a place to hide and express their emotions. In other words, when designed carefully, the residential building can provide children with a quality learning environment, with a sense of familiarity. Although there might be a debate that the residential building could not offer sufficient amount of space to accommodate a huge number of children, unlike the specifically designed preschool building, size is not only the indicator to a quality child care and education (Nicholson, 2005). The quality of the

architecturally planned built environment (Higgins, et al., 2005) and the organization of the physical environment (Higgins, et al., 2005; Moore, 1986) also play a major contribution. As reported by Sugiyama and Moore (2005), the quality of a preschool education is its physical characteristics to address the developmental needs of the children (Philips, 1987). Thus, to support these needs providing a classroom with appropriate and suitable setting is important. Research has found that student attentiveness in classroom activities and achievement are affected by the desk setting (Higgings, et al., 2005), as it illustrate the classroom characteristics, limitations and flexibility if the curriculum (Edwards 2005).

Besides, the classroom setting is also important to facilitate and engage children in classroom activities, where it can be either territorial (space organized by individual desk ownership) or functional (space organized by a specific activity). In the residential building, classroom space is often limited, and thus, effective ergonomically designed learning spaces are important to enable activities to be conducted. Edwards (2005) reviewed four different classroom settings, which include the shoe box, L-shaped, horseshoe and the open-plan (Chapter 2, Section 2.3). These layouts were discussed to look at possibilities of classroom settings in the preschool located at the residential in conducting large group activities, small group activities as well as individual work. In addition, Moore (2002) suggested the modified open plan setting which consists of self-contained space, known as activity pockets. Regardless of the various settings proposed, it is a challenge to identify which setting is the most appropriate for a particular classroom. It is also a question of how big is too big and how small is too small of a space for children. A space that is too large could afford lots of aimless, random behaviour, reduced attention span and more adult supervision is required (Moore, 1996). On the other hand, a space that is too small could leave children with a feeling of living in a closet, with more aggressive behaviour (Moore, 1996; Maxwell, 2006) and less thoughtful when solving age appropriate tasks (Maxwell, 1996). Thus, creating a suitable classroom setting is indeed an important aspect as it could affect children learning activities and behaviour. Due to space sizes and number of children ratio, it is difficult to specify which of the above would make the most appropriate classroom setting. However, regardless how the teacher would change the physical

environment, it is important to bear in mind that each setting could affect the child's future attitude towards school.

In relation to Bronfenbrenner formula of development (1989, 2002) a child's engagement and interaction with the people and environment is important to develop their feelings and attitude towards the preschool. A preschool center that welcomes a child, where he would feel accepted and wanting to be there is important, as it could affect the child himself and his family. The preschool can be a place where he might be spending most of his time during the day, when both parents are at work. Although the preschool environment is no longer new to the children, each child will go through a process of separation and adaptation to the environment and people each day. Therefore, it would be crucial for adults to create a place where children can feel accepted and belonged. As mentioned by Stankovic (2008, p.g. 1) it is "the space in which is happy, and regrets leaving it and feels dissatisfied when it has to go". In other words, the preschool should be a place for children to remember, a place when they leave and return to fondly, including their unconscious memories of special places (Moore, 1998; Olds, 1987), and most importantly a second place where they could call "home".

1.9   Research Gap

In the current Malaysian preschool condition located at the residential building, allocation of space is always the main problem for teachers and school principles. Children are distributed into smaller groups based on their age and were located in one of the rooms available in the building. As the physical structure of the residential building is not usually available to be modified due mainly to cost restriction, and ownership of the building, in most cases, it is difficult for the principal to meet the requirement of allocating 1.4 m^2/c of space for per child (referring to the Malaysia Nursery and Preschool Establishment Guidelines, 2012) when the group of children is located in one of the smaller bedrooms in the building. This situation will then lead to a poor classroom setting, resulting in a

shoe-box environment, with limited movement, inadequate number of learning materials, which could result with a rigid curriculum.

Looking at the possibility of having more parents sending their children to the residential preschool due to their convenience, and the positive home-like environment that the building could offer, a suitable classroom setting guideline could be proposed to guide the center operators and teachers in preparing a more conducive environment for the children, without putting aside the building limitations and restrictions. However, in most cases, adults are trying their best to prepare a comfortable and engaging preschool environment but it is the children who knows their environment best; such as which spot to hide the best or which area do they really feel like home. Hence, taking into account children perspectives and preferences about their preschool environment is important for teachers to understand each child's feelings and thoughts about the environment. In the other hand, understanding adult's perspectives are equally important to fill in the gap between what adults intend to offer and how children actually feel about it. This could possibly compliment to a better classroom settings which could provide children with a more meaningful environment that offer interactive learning sessions with a potential to develop a sense of belongingness.

Although many scholars has mentioned that the development of sense of belongingess can be created when a child interacts with people and environment that welcomes her and allow her to dwell in comfortably, the use of Bronfenbrenner formula of development has never been used to explain the development of a child's sense of attachement and belongingness to a place. Even though the formula has been used in the field of child development, it could be used in the field of architecture when designing spaces for children.

1.10   Scope of Study

Participating children are those who are five and six years old, who are enrolled either in a full day or half day program at the selected preschool. The

selected preschool is located at a double storey residential building in a neighborhood in Wangsa Maju, Kuala Lumpur. This residential building has been transformed into a preschool to accommodate a substantial number of children for the institution to sustain. The study involved children's and adults, which include teachers, researcher and other staffs at a preschool center. It focuses on the interaction between people and the preschool environment both specifically in the classroom and holistically in the preschool centre.

1.11   Method

This study uses a holistic approach to understand children's and adults' interaction with each other as well as the preschool environment. It uses a sequential triangulation method where a structured process has been outlined. It involve various methods which include teacher's informal interview, authophotography, children's drawings, construction of design board and manipulation of Floor Planner. Data were analyzed for each method using the content categorization method to look for patterns and similarities of the social norms and behavior.

1.12   Thesis Structure

Chapter 1: Provide an introduction about the study, the research objectives, research questions, research aim, research gap and its significance.

Chapter 2: Explains the past and current literature on classroom settings and children's learning environment.

Chapter 3: Discusses the underpinning theories for this study which include Bronfenbrenner bioecological model, Bronfenbrenner formula of development, Vygotsky's Zone of Proximal Development and Maslow third hierarchy of needs. This chapter also explains the theoretical framework of this study which is the application of Bronfenbrenner formula of development into the preschool context to develop attachment and sense of belongingness to the preschool.

Chapter 4: Explains the methodology of this study, data collection and analysis process.

Chapter 5: Provide discussions on the results obtained from the data collected and the application of the theories discussed in Chapter 3.

Chapter 6: This chapter provides the conclusion of the findings and the achievement of the research aim of this study.

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