

PRIVACY FACTORS OF HOUSE FRONTAGES IN MALAYSIAN TERRACE
HOUSES

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DEDICATION

This thesis is dedicated to my lovely parents, who have always believed in me.

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“In the name of Allah, the Most Gracious and Most Merciful”

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ABSTRACT

Privacy is significantly influenced by the manipulation of neighbourhood surroundings and environment. It is a valuable and necessary aspect in order to achieve conducive home living. Privacy does not depend solely on the design of a terrace house but it is also the result of the planning of a terrace house in a neighbourhood context. Currently, neighbourhood planning and layout for terrace houses follows typical neighbourhood planning where houses are arranged in close proximity with other houses and nearby neighbourhood facilities. The implication of this scenario is that the physical setting or location generates certain privacy drawbacks for the frontages of terrace houses. The lack of consideration on the role of distances in design guidelines for planning a neighbourhood causes privacy in terrace houses to be compromised. The role of distances should be recognized in neighbourhood planning and layout in order to achieve optimum privacy. This research aims to highlight the importance of neighbourhood planning and layout on residents' privacy in Malaysian terrace houses. These can be achieved by understanding the privacy factors, constraints and attributes in the frontages of terrace houses, particularly through neighbourhood planning and layout. A survey method was employed to evaluate the apparent privacy issues in real-life contexts. The use of checklist as the research tool was established based on the need to assess privacy factors comprising visual, acoustic and olfactory privacy. The evaluations were based on the distance of house boundaries to the source of privacy intrusions and activities. Five neighbourhoods of terrace houses were chosen as case studies. The findings revealed that there are 11 types of house frontages, namely 1) house facing another house unit; 2) house facing apartment blocks; 3) house facing commercial areas; 4) house facing an open market area; 5) house facing an institutional building; 6) house facing a service building; 7) house facing a worship building; 8) house facing green area; 9) house facing a playground; 10) house facing a football field and 11) house facing the main circulation. Each type of house frontage experienced different types and sources of privacy intrusion, depending on the distance of the source of intrusions and activities, from the immediate neighbours, passers-by, passing vehicles and the public. Based on the checklist, the privacy of houses facing another house unit and those facing commercial areas were the most affected, with mean values of distance 2.2 and 2.44 respectively. Houses facing other types of neighbourhood facilities were less affected as privacy considerations are present while houses facing green areas were the least affected even if the distance between them is smaller (mean value = 1.53). The results of the study conclude that the activities and distance of the source of intrusions from the houses affect the privacy factors. An appropriate distance based on the source of intrusions and activities is to be considered when planning the neighbourhood layout in order to improve privacy of the houses. The checklist would benefit the designers by having a better strategy to create better neighbourhood planning and layouts for terrace houses in relation to privacy factors, as macro planning also has a significant role in order to achieve optimum privacy.

ABSTRAK

Privasi secara signifikan dipengaruhi oleh manipulasi kejiranan sekeliling dan persekitaran. Untuk mencapai sebuah kediaman yang kondusif, privasi adalah aspek yang sangat penting dan berharga. Privasi tidak bergantung hanya kepada reka bentuk sesebuah rumah namun ia juga merupakan hasil daripada perancangan rumah teres dalam konteks kejiranan. Dewasa ini, perancangan kejiranan dan susun atur tertakluk kepada perancangan kejiranan tipikal yakni rumah disusun terlalu dekat dengan rumah yang lain dan kemudahan sekitarnya. Implikasi daripada senario ini adalah susun atur fizikal atau lokasinya yang menyebabkan timbulnya kesan terhadap privasi tertentu terutamanya pada bahagian hadapan rumah teres. Kurangnya pertimbangan untuk menentukan jarak reka bentuk pada garis panduan merancang sesebuah kejiranan menyebabkan privasi di dalam rumah teres terjejas. Peranan jarak patut diambil kira dalam perancangan kejiranan dan susun atur demi mencapai privasi yang optimum. Matlamat kajian ini adalah untuk mengenal pasti kepentingan perancangan kejiranan dan susun atur bagi privasi rumah teres di Malaysia. Ini boleh dicapai dengan pemahaman faktor privasi, kekangan dan atribut bahagian hadapan rumah teres terutamanya melalui perancangan dan susun atur kejiranan. Kaedah kaji selidik diguna pakai untuk menilai isu privasi yang ketara dalam konteks sebenar. Senarai semak dibangunkan sebagai instrumen kajian berdasarkan faktor privasi yang terdiri daripada privasi visual, akustik dan bau. Penilaian adalah berdasarkan jarak diantara sempadan rumah sehingga punca gangguan privasi dan aktivitinya. Lima kawasan kejiranan rumah teres telah dipilih sebagai kajian kes. Dapatan kajian menunjukkan 11 jenis bahagian hadapan rumah seperti; (1) rumah bertentang rumah lain; (2) rumah bertentang blok apartmen; (3) rumah bertentang kawasan perdagangan; (4) rumah bertentang kawasan pasar; (5) rumah bertentang kawasan institusi pendidikan; (6) rumah bertentang bangunan servis; (7) rumah bertentang kawasan bangunan agama; (8) rumah bertentang kawasan terbuka; (9) rumah bertentang kawasan permainan; (10) rumah bertentang padang bola dan, (11) rumah bertentang jalan. Setiap jenis bahagian hadapan rumah mengalami gangguan privasi yang berbeza, bergantung kepada jarak diantara sempadan rumah dengan punca gangguan privasi dan aktivitinya; iaitu daripada jiran, orang lalu-lalang, dan orang awam. Berdasarkan kajian senarai semak, rumah bertentang rumah jiran dan rumah bertentang kawasan perdagangan menghadapi gangguan privasi yang paling terjejas dengan nilai min jarak 2.2 dan 2.44 secara khususnya. Rumah yang bertentangan dengan fasiliti kejiranan lain didapati kurang terjejas dengan gangguan privasi yang ada manakala yang bertentang kawasan hijau adalah yang paling tidak terjejas walaupun jarak di antara rumah dengan kawasan hijau adalah dekat (nilai min = 1.53). Dapatan kajian menyimpulkan bahawa jarak punca gangguan privasi dan aktivitinya yang mempengaruhi faktor privasi sesebuah kediaman. Jarak yang bersesuaian berdasarkan sumber gangguan dan aktiviti perlu diambil kira ketika merancang sesebuah kejiranan dan susun aturnya bagi memperbaiki privasi rumah. Senarai semak ini boleh membantu para pereka untuk mendapatkan strategi yang lebih baik dalam menghasilkan perancangan kejiranan dan susun atur untuk rumah teres yang berhubung kait dengan faktor privasi memandangkan perancangan makro turut mempunyai peranan yang signifikan untuk mencapai privasi optimum.

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LIST OF ABBREVIATIONS

NAPIC	-	National Property Information Centre
TNB	-	Tenaga Nasional Berhad
UBBL	-	Uniform Building By-Law
UiTM	-	Universiti Teknologi Mara
UTM	-	Universiti Teknologi Malaysia

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CHAPTER 1

INTRODUCTION

1.1 Background Study

A home represents sanctuary, security and safety. Othman, Aird, and Buys (2015) provided the idea of home as a physical symbolic place that provides the idea of comfort, domesticity and well-being through domestic intimacy and privacy. The concept of home does not totally limit by functional spaces, its decors and structures; it is an institution of creating an ideal environment for a family as a social environment, defines one's identity and provides security and sanctuary to one.

A conducive living environment is described as a balanced element between inwardly and outwardly factors in a living space that should be prescribed together for residents' well-being. These factors present a significant impact of the quality of life for residents. Shuaib and Enoch (2013) presented two types of factors; tangible (visible) and intangible (invisible). While tangible factors are comprised of the existence of humans, design features, built and nature environment, intangible factors refer to the social culture and requirement of the society, through the achievement of health, emotional needs, aesthetic satisfaction, and privacy (Ranson, 1988; Shuaib and Enoch, 2013).

Privacy is recognized as one of the significant factors to assure human comfort and satisfaction. According to Marda and Acharva (2014), the basic notions of privacy usually perceived as "bodily privacy, privacy within one's home and privacy resulting out of private property". However, it is now plausible that an invasion of one's privacy does not only confined physically, but to breach one's privacy without actually trespassing their space (intangible factor).

Privacy is taken into consideration as the main factor in a dwelling. In general, the subject of privacy plays a crucial role in housing architecture. In each society, religious and cultural values seriously affect the sort of privacy that the people in that society would require (Hashim and Abdul Rahim, 2010). A Shari'ah scholar, Yusuf Al Qardawi describes a house as, "the place in which an individual protects himself from the climatic elements and in which he finds freedom from the restriction and pressure of society and it is a place of rest for the body and relaxation for the mind". Islam emphasizes individual rights to be freed from any circumstances of encroachment and intrusion. The Holy Book of Quran and Hadith deliver concerns when it comes to privacy, such as private property, protection of private communications, personal autonomy, modesty and domestic life, and the basic idea of surveillance.

In Malaysia, terrace houses are a common design that was adopted during the early British colonial rule. Saji (2012) states that the design bears a variation of resemblances to the British counterparts and of course has been altered to adapt to this country's tropical weather and this design has been in demand since 1940s, and construction continues to thrive throughout the twentieth century.

The perceptions of privacy in residential context concern about living close proximity with neighbours. The taxonomy of privacy is spacing, or distance, where one forms appropriate boundaries to distance them from others. In a report by Mulholland Research and Consulting in 2013, houses that had a better privacy protection from people surrounding (neighbours, and passer-by) had a wider distance between them and the sources of intrusion while a report by Hallak (2000) mentions that close distance between houses or sources of privacy created infringement on residents' privacy. This goes back to the practice of securing appropriate distance between houses in kampong context, where each house is located far apart from one another to protect familial privacy.

A typical neighbourhood planning of terrace houses is planned in grid-like network infrastructure, consisting a several main roads and secondary roads. Terrace houses are built in rows, with a service lane in between and often arranged either

facing another set of rows or facing non-residential lot; such as reserved areas and open areas. Many authors believed that the design of terrace houses does not comply with Malaysian culture, particularly from the Islamic perspectives (Abdul Rahim, 2015). From a design perspective, the arrangements of houses affected visual privacy of a family particularly due to direct visual exposure between fronting units (Hashim, Abdul Rahim, Syed Abdul Rashid, and Yahaya, 2006).

Terrace houses in Malaysia is a prototype of the modern Western terrace houses. However, since it is utilising industrialized construction material and is based on western codes and regulations, this type of housing forced socio-cultural changes and intrusions of privacy amongst the Malaysian (Md. Zahri, 2010). A house design ought to be supportive to the needs of its resident's personal relationship, activity and function, the control of physical comfort and privacy. Yet, the physical constrictions in terrace houses planning may hinder these needs. In this study, privacy is focused as the main factor in a dwelling as the subject of privacy plays a crucial role in housing architecture.

1.2 Problem Statement

Privacy is a significant factor that greatly affected by the selected layout of the scheme as much as by the architecture that might be influenced within individual house unit. When designing the pattern of in a neighbourhood form, a designer ought to consider the impacts of locating adjacent spaces or buildings around the house in order to avoid any form of violation of privacy. Buildings location in a context with others greatly affects families' visual and society (Malik and Mujahid, 2016). Saji (2012) adds in her literature review, neighbourhood territoriality is a part of consideration for privacy. She supports the conclusion with Deasy (1985) statement, that in order neighbourhood to be clearly recognized, it must present clear boundaries.

In a house design, the design of openings, screenings and space planning can affect one's privacy. A study by Hashim and Abdul Rahim (2010) finds that terrace

houses designs and planning do not only intrude family privacy at private level but affects greatly at public level as well due to the close arrangement of houses. Thus, privacy does not depend solely on the design of a terrace house; it is a result from the planning of a terrace house in a neighbourhood context. The external elements of a house set significant privacy parameters, to some extent may even affect the privacy within a house and that of characteristics of a house location generates different types of privacy attributes. Existence of public activities around a dwelling can either facilitate or impede privacy intrusions, depended on the vigorous of activities. Therefore, there is a substantial need to control activities in order to promote better privacy experience through the concept of distance in neighbourhood planning and layout.

Hallak (2000) in his study compares the changes of residents' behavioural in different house locations, those in house facing undeveloped area or less public street are more confident in their privacy than those living in house closer to community areas with vigorous activities. In terrace houses context, Abdul Rahim (2015) states that residents living in a house facing green area, playground or a road achieve more privacy satisfaction compared to those who are facing their neighbours. Thus, it can be deemed that privacy should be a complement element between the design of a house only (micro-planning) and the design of the whole neighbourhood planning and layout (macro-planning).

If a house is deprived of its design attributes and physical features in relation to privacy, they can cause more than discomfort to a family. When a designer is presented with a planning layout in a development site, the designer should consider privacy of residents as the foremost aspect in the design phase. A common first response is to design the pattern of paths, followed by the forms of the houses. However, current neighbourhood planning and layout for terrace houses follows the typical neighbourhood planning where the houses are arranged in sets rows, but with a higher number of houses facing each other rather than facing non-residential lot. Furthermore, each component in the neighbourhood is often set at a distance that can intrude residents' privacy due to the surrounding activities. Figure 1.1 is an example of current residential planning for terrace houses in Malaysia.



Figure 1.1 Map of Taman Bukit Rahman Putra 7(2) in Sungai Buloh

The neighbourhood is located in Bukit Rahman Putra, Sungai Buloh, Selangor. This neighbourhood is comprised rows of houses, commercial buildings, a school, a *surau*, an apartment and an electrical substation. The presence of non-residential activities around and within the neighbourhood has created privacy intrusions for the residents. More than 70% of houses are facing each other. This causes the compromising of privacy, which will allow some surveillance and intrusion from neighbours' houses. One of the preliminary interviewees explained that she had to resort to relocate her front door to avoid being seen by neighbours and passing cars while another interview opted for solid fence and gates to avoid from being overlooked. Few houses were arranged facing two-storey commercial buildings. Even though a fence-like structure were built and vegetation were planted for demarcation between the areas, those houses are still suffering from privacy intrusions due to the public activities. Even though these neighbourhood facilities are

provided to enrich residents' quality of life, privacy should not suffer over convenience.

Privacy is somewhat intangible, with another physical factors in urban design and planning and architecture, is a dependant relationship. In this scenario, privacy intrusions are caused by the proximity of both residential and non-residential activities over the house boundary, causing in house frontages to suffer privacy loss. The need of privacy, both architecture of the house, and the neighbourhood planning and layout, is to be managed together simultaneously with relation to their physical socio-cultural and physical contexts.

The focus of this study will evaluate privacy factors – visual privacy, acoustic privacy and olfactory privacy- in different house frontages in a terrace house context. Based on the research gap in the next section, macro setting, or in this context; neighbourhood planning and layout, has not been a particular subject of privacy among the researchers and authors.

1.3 Research Gap

Table 1.1 has tabulated the related studies done in relation to privacy regulations. From the literature review and from the summary of the focus study, no study has been carried out to signify the role of neighbourhood planning and layout in promoting the level of privacy in terrace house units. It has been mentioned by several researchers that dwelling form, spatial use and organisation has an immense impact on privacy, starting from the neighbourhood scheme followed by the internal layout of house units but most researchers are focusing on the design layout of a house. However, most researchers overlooked the fact that neighbourhood planning plays one of the major roles to increase privacy.

Table 1.1 Research gap in the study of privacy in houses context

No	Author	Year of Publication	Location	Type of Housing	Area of Study (Privacy)							
					Psychological		Physical Environment					
					Culture Aspects	Behavioural Adaptation	Macro-Planning		Micro-Planning			
							Neighbourhood Planning	Landscape	Space Arrangement	Opening	Screening	Renovation
1	Abdul Rahim	2015	Malaysia	Terrace House	/	/		/		/	/	
2	Abdul Rahim & Hashim	2010	Malaysia	Traditional Malay House		/		/	/			
				Terrace House				/	/	/	/	
3	Abdul Rahim & Hashim	2012	Malaysia	Terrace House		/			/	/	/	/
4	Al-Khateeb	2015	Saudi Arabia	Traditional House	/	/			/	/	/	
5	Al-Kodmany	1999	Middle East	Modern House		/	/	/	/	/	/	
6	Al-Thahab	2014	Iraq	Traditional Quarter					/			
				Contemporary House				/		/		
7	Bahammam	1987	Saudi Arabia	Detached House	/		/	/	/	/	/	/
8	Bekleyen & Dalkilic	2011	Turkey	Indigenous Courtyard House					/	/	/	
9	El-Agouri	2004	Libya	Traditional Houses Contemporary Houses	/	/		/	/	/	/	
10	Hallak	2000	Canada	Detached House		/	/	/	/	/	/	/
				Townhouse		/	/	/	/	/	/	/
11	Hashim et al.	2006	Malaysia	Traditional House					/	/	/	
				Terrace House		/			/	/	/	/
12	Hashim, Ali, & Samah	2009	Malaysia	Terrace House	/	/			/	/		
12	Hashim, Ali, & Samah	2009	Malaysia	Traditional Malay House					/			
				Traditional House				/	/	/		
13	Hwaish	2016	Worldwide	Traditional House			/	/	/	/		
14	Ismail, et al.	2017	Malaysia	Contemporary House				/	/	/		
15	Malik & Mujahid	2015	Worldwide	Contemporary House				/	/	/		
16	Memarian, Toghr Oljerdi & Ranjbar-Kermani	2011	Iran	Shahr Quarter					/	/		
17	Mohd. Razali & Talib	2013	Malaysia	Traditional Malay Melaka House		/			/	/	/	
18	Mohd. Zahri	2010	Malaysia	Terrace House				/	/	/	/	/
				Traditional Malay House	/	/			/	/		
19	Mulholland Research and Consulting	2003	United Kindom	Terrace House				/	/	/	/	
20	Nouri	2015	Iran	Contemporary House	/	/		/	/	/	/	
21	Omar, Endut & Saruwono	2016	Malaysia	Terrace House					/		/	
22	Othman	2016	Australia	Detached House		/		/	/		/	
				Townhouse	/				/			
23	Othman, Aird & Buys	2015	Worldwide	Traditional Houses				/	/	/		
24	Saji	2012	Malaysia	Terrace House					/		/	
25	Sazally, Omar, Hamdan & Bajunid	2012	Malaysia	Terrace House				/	/	/	/	
26	Sobh & Belk	2011	Qatar	Detached House	/			/	/	/	/	
27	Wahid & Kohezai	2008	Iran	Traditional House					/	/		
28	Yaman, Adnan, Isa & Ishak	2012	Malaysia	Terrace House					/			
29	Masran (2017)	2017	Malaysia	Terrace House		/	/	/	/	/	/	

1.4 Research Aim and Objectives

This research aims to highlight the awareness on the importance of neighbourhood planning and layout on residents' privacy in Malaysian terrace houses. These can be achieved by understanding the privacy factors and its constraints and attributes in terrace houses designs, particularly through neighbourhood planning and layout. The need on privacy from the house frontage design is to ascertain that neighbourhood planning and layout is a necessary mean for residents to achieve the particular optimum privacy that they require. The research can lead to establish theoretical understanding of architectural characteristics in terms of privacy achievement that are fundamentally influenced by the overall design of neighbourhood planning and layout. The objectives of the research are:

- i. To identify the privacy factors in terrace houses neighbourhood planning and layout.
- ii. To evaluate privacy factors in different types of house frontages in Malaysian terrace houses.
- iii. To recommend macro design strategies for better neighbourhood planning and layout by considering the house frontages.

1.5 Research Questions

As a result of the shortcomings identified in the literature and in practice, this research has raised the following research questions:

- i. What are the privacy factors in the context of terrace houses planning and layout?
- ii. What are the types of house frontages in terrace houses planning and layout in Malaysia?

- iii. How the privacy factors relate to distance of activities over the house boundaries at different types of house frontages in Malaysian terrace houses?
- iv. What are the recommended neighbourhood planning and layout by considering the house frontages to achieve optimum privacy for residents living in Malaysian terrace houses?

1.6 Brief Findings

The planning and design of a residential environment should aim at the satisfaction of socio-cultural and psychological needs of users. Every aspect of privacy requirement is to be carefully orchestrated into designs to ensure the safety of the occupants. Separation between private life and public life from is to start from inception of the process; the macro planning of the neighbourhood, to the micro planning of the houses, whether through spatial arrangements or through physical arrangements with the aids of architectural elements such as doors, windows, partitions and fences.

The brief finding configures the relationship between privacy and the neighbourhood planning and layout of terrace houses by examining into house frontages and its relationship to the surrounding distance of activities over the house boundary. The basic theory of privacy in a house compound is security and freedom to carry out activities comfortably. Thus, the desire for privacy is be reflected through the arrangement of houses and layout planning in terrace houses.

In order to further cement the theory of privacy with neighbourhood planning and layout, it is expected to discover the privacy factors in different house frontages of terrace houses. Further evaluation on privacy factors is to confirm the needs of privacy through neighbourhood planning and layout through house frontages and surrounding distance of activities over the house boundary. This is to enable the induction of privacy into the integral process of planning, design and development of future terrace houses.

1.7 Scope of Study

The scope of this study is limited to two-storey terrace houses. Two-storey terrace houses are the most demanded landed properties in Malaysia and has a higher tendency of privacy encroachment than a single storey terrace house. Such are being overlooked by the neighbours, sharing a larger portion of party wall and the proximity of each terrace houses with other terrace houses. At the same time, privacy intrusion in 2-storey terrace houses happens from both first floor and ground floor, giving an advantage for one to be overlooked from the first floor.

The privacy parameter in this research is focuses on personal privacy that are being experienced by the residents living in a housing context. The privacy parameter is identified into three factors; visual privacy, acoustic privacy and olfactory privacy. These privacy factors are important to ensure a better quality of life for the residents and should be taken into consideration when designing a residential area. Chapter 2 will discuss further on these three privacy factors.

1.8 Research Flowchart

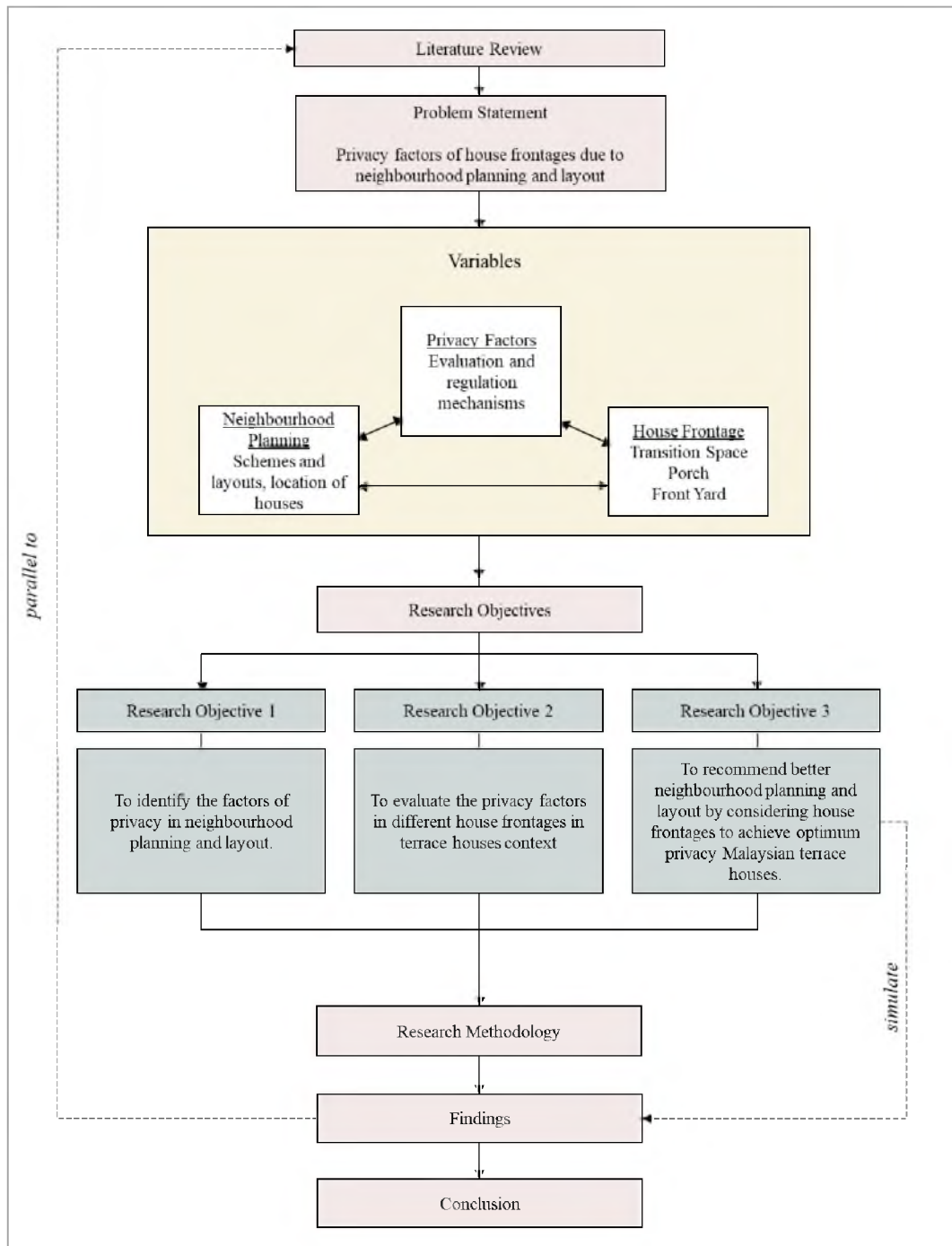


Figure 1.2 Research Flowchart

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Appendix A Checklist form

NEIGHBOURHOOD								
TYPE	HOUSE FRONTAGE			ATTRIBUTE				
Factor of Privacy	No	Attributes Affecting Privacy		Distance (m)				
				0- Not Applicable	1- Very Near	2-Quite Near	3- Near	4- Quite Far
Visual Privacy	1	Distance of Immediate Neighbours						
	2	Distance of Passers-By						
	3	Distance of Open Public Activities						
Acoustic Privacy	1	Immediate Neighbours	Distance of noise from social activities					
	2		Distance of noise from domestic activities (vacuuming, trimming, etc.)					
	3		Distance of noise from pets (barking dogs and cats)					
	4		Distance of noise from audible alarms (car alarm, burglar alarm, motion alarm)					
	5		Distance of noise from non-fixed machines (stereo, radio, television)					
	6		Distance of noise from fixed machine (domestic air conditioner and cooler)					
	7		Distance of noise from motor vehicle					
	8	Passers-by	Distance of noise from social activities					
	9		Distance of noise from motor vehicle					
	10	Open Public	Distance of noise from social activities					
	11		Distance of noise from motor vehicle					
	12		Distance of noise from public activities (cars in carpark, deliveries, waste collection, continual machinery noise, etc.)					
Olfactory Privacy	1	Immediate Neighbours	Distance of odour from daily chores (cooking, washing, etc.)					
	2		Distance of odour from unkempt surrounding (rubbish, cigarette smoke, trash, pets)					
	3		Distance from smoke pollution (vehicles)					
	4		Distance from open burning activities					
	5	Open Public	Distance of odour from public activities (commercial activities, night market)					
	6		Distance of odour from unkempt public environment (littering, lack of maintenance)					
REMARKS								