THE INFLUENCE OF HOUSING ATTRIBUTES ON HOMEBUYERS' SATISFACTION: A STUDY ON LANDED RESIDENTIAL PROPERTY

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DECLARATION

I hereby declare that:

(1) This research project is the result of my own effort, and all information sources, whether printed, electronic, or personal, have been properly acknowledged in the references.

(2) No portion of this study project has been submitted in support of an application for another degree or certification from this university, another university, or other higher education institutions.

(3) This study report has a word count of **22695.**

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ABSTRACT

In the ever-evolving landscape of real estate, the pursuit of understanding homebuyer satisfaction has gained prominence, particularly within the context of landed residential properties. This research delves into the complex interplay between distinct housing attributes and the levels of satisfaction experienced by homebuyers in this unique segment of the housing market. Landed residential properties, characterized by their ownership of both dwelling and land, present a distinctive avenue for exploration.

The study employs a multifaceted approach, combining qualitative analyses of individual homebuyer experiences with quantitative assessments of the diverse attributes that define these residential spaces. Architectural housing design, neighbourhood amenities and characteristics, public infrastructure, environmental attributes, utilities services and various other factors are scrutinized to unravel their individual and collective impacts on overall satisfaction.

By leveraging the sampling, feedback from a diverse group of homebuyers, and utilizing the Analytic Hierarchy Process (AHP) data analysis techniques, this research seeks to provide nuanced insights into the factors that significantly influence the satisfaction of homeowners in landed residential properties. In this study, a total of 50 survey forms were distributed via face-to-face interactions between January 2024 and February 2024. However, only data from 31 completed surveys were included in the analysis. Both descriptive analysis and the Analytic Hierarchy Process (AHP) were employed to assess the significance of various housing attributes and to compare the findings with those reported in the existing literature.

As the housing market continues to witness shifts in preferences and demands, the outcomes of this study aspire to offer practical implications for real estate developers, urban planners, and policymakers. Understanding the dynamics of satisfaction within the context of landed residential properties is not only crucial for meeting the current needs of homeowners but also for shaping the future development and sustainability of residential communities. This research serves as a comprehensive exploration, contributing valuable knowledge to the existing literature and fostering a deeper understanding of the intricate relationship between housing attributes and homebuyer satisfaction in the context of landed residential properties.

DEDICATION

I wish to seize this moment to dedicate my research project to my supervisor, spouse, and children. Their continuous guidance and unwavering support were instrumental in steering me through the entire research process, ultimately resulting in the successful completion of this project.

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PREFACE

This research project, conducted by a Master of Real Estate Development (MRED) student as part of the MKOR29906 Research Project unit, serves as the culmination of their master's program. The thesis focuses on "The Influence of Housing Attributes on Homebuyer Satisfaction: A Study on Landed Residential Property." It reflects the student's intellectual curiosity and critical thinking skills, contributing to the integration of theoretical elements and the application of capabilities and abilities acquired during their postgraduate studies.

The primary objective of this research project is to explore the impact of housing attributes, treated as independent variables, on homebuyers' satisfaction with residential properties. The study identifies five variables for investigation: Housing Design, Neighbourhood Amenities, Utilities Services, Public Infrastructure, and Environmental Attributes.

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LIST OF ABBREVIATIONS

BNM	Central Bank of Malaysia
CAGR	Cumulative Annual Growth Rate
FDI	Foreign Direct Investment
HOC	House Ownership Campaign
MM2H	Malaysia My Second Home
NAPIC	National Property Information Centre
NCCC	National Consumer Complaints Centre
OPR	Overnight Policy Rate
PR	Permanent Residents
RGPT	Real Property Gain Tax
RMMJ	Rumah Mampu Milik Johor
SJKP	Jaminan Kredit Perumahan Berhad
SOP	Standard Operating Procedure

CHAPTER 1

INTRODUCTION

1.0 Introduction

In this chapter, an overview of the research will be provided. It commences with an exploration of the research background, followed by the problem statement, research questions, research objectives, significance of the study, and concludes with a layout of the subsequent chapters.

1.1 Research Background

Malaysia property sector manages to experience steady growth over the years due to continuous initiatives and efforts of Malaysia government in encouraging the growth of this sector. However, it should be noted that the growth of property sector is heavily depends on government policies. This can be shown where in 2007, the elimination of real property gain tax (RPGT) on all transactions related with properties had led Malaysia property market to become extremely attractive to purchasers regardless to buy for own stay or for investment. Another example is the implementation of Malaysia My Second Home (MM2H) program where government has uplifted restrictions on foreign investment in Malaysia property market and it has resulted in the influx of foreign investment on Malaysia property market. It is further added where House Ownership Campaign (HOC) has launched on 1 January 2019 to encourage more people to have their dream homes in Malaysia and at the same time to minimise the

number of overhang properties in Malaysia. Under the Home Ownership Campaign (HOC), first-time homebuyers are eligible for stamp duty exemption on residential properties priced below RM1 million. Additionally, they can benefit from a 50% stamp duty exemption on residential properties priced between RM1 million and RM2 million. Besides, the eligible homebuyers will also be entitled for 10% discount on property purchase price. Aside from that, all properties will enjoy further stamp duty exemption on Instrument of Securing Loan (Property Guru, 2021). In the meanwhile, government has increased guaranteed loans under Syarikat Jaminan Kredit Perumahan Berhad (SJKP) of RM10 billion to be benefited to 40,000 first-time homebuyers and borrowers who do not have steady income level such as gig workers, freelance workers, small business owners or entrepreneurs.

Real Property Gain Tax (RPGT) has introduced in 1995 and the changes on RPGT has made over the year. The latest amendment was made during Budget 2022 where Malaysians or Permanent Residents (PR) who sell off their properties in sixth years and subsequent years are no longer need to pay RPGT of 5%. Nevertheless, it is given up to the first three residential properties per individual. Below shows the summary on latest RPGT rate with effective from 1 January 2022:

Table 1.1: Malaysia RPGT Rate (with Effective From 1 January 2022)

RPGT Rates	Individuals – Malaysian Citizens & PRs	Individuals – Non-Citizens & Foreigners	Companies
Disposal in 1st year	30%	30%	30%
Disposal in 2nd year	30%	30%	30%
Disposal in 3rd year	30%	30%	30%
Disposal in 4th year	20%	30%	20%
Disposal in 5th year	15%	30%	15%
Disposal in 6th year & beyond	0% (Reduced from 5%)	10%	10%

(Source: Property Guru, 2023)

In 2002, Malaysia government has introduced Malaysia My Second Home (MM2H) programme with objective to enable foreigners to obtain long-term visa and purchase property to stay in Malaysia for long-term (Migrate Malaysia, n.d.). However, the program was halted in August 2020 when the government led by Tan Sri Muhyiddin Yassin and the program was reactivated on September 2021 but comes with stricter conditions where the applicant's monthly offshore income requirement has increased from RM10,000 to RM40,000. Besides, the individual's minimum fixed deposit has increased from RM150,000 to RM1 million and the applicant must prove that the applicant himself or herself possesses liquid assets of RM1.5 million and above (Tan, 2021). The sudden huge changes have eliminated the applications from middle-income level foreigners or retired foreigners which it has proven that there is a 90% drop in number of applications since MM2H program is reactivated as most of them unable to fulfil the monthly income requirement (Yusof, 2023). From perspective of FDI, the enforcement of stricter requirements will discourage FDI inflow as only foreigners with high net worth are eligible to apply. From the perspective of rich people, they might not consider Malaysia as the place for long-term staying as there are some other countries which possess better conditions such as United Kingdom and Australia. The condition has relieved when latest Budget 2024 presentation by latest prime minister, Dato Seri Anwar Ibrahim which indicate that government agreed to loosen MM2H program requirements (Property Guru, 2023). For instance, the minimum age of applicant has reduced from 35 years old to 30 years old. Besides, the minimum fixed deposit amount has reduced from RM1 million back to RM500,000 (Yusof, 2023).

According to Hassan (2023), the typical house price in Malaysia is around RM295,000, while the average annual household income is just RM62,508. To gauge housing affordability, analysts divide the median house price by the median annual household income, resulting in an affordability ratio of 4.72 years. It indicates that an average of 5 years of household income is needed for a family to own a house at median price where the statistic is considered as seriously unaffordable as per common standards where the ideal ratio should be around 3 times only. This phenomenon has clearly illustrated that the housing price in Malaysia is relatively high if compared with household income, and it has resulted many people will face challenges in owning their dream house due to financial constraint. Moreover, the financial burden becomes heavier when living cost has increased from year to year and it eats up a huge portion of an individual's monthly salary to cover up the daily expenses. Consequently, the amount available for saving or disposable income will become lesser and an even longer time is

required to own a house. This phenomenon is more obvious among teenagers or younger populations especially for those who do not have proper financial planning, spending habit, and financial management concept where they will feel even harder to make the saving to purchase their dream houses. Aside from that, there is the probability where their mindset is immature or incorrect where they think that the amount needed to be save is huge and it is hard to be achieved, hence they will just decide to give up and just live in the moment. Aside from that, most teenagers will make wrong decisions where they will decide to own a car first before a house during the time of limited fund on hand without aware that the car is as asset which will depreciate fast instead of house where the housing value will appreciate when time goes. Due to the high car instalment cost and the limited savings on hand, this will cause the teenagers to have lesser disposable income on hand to be used to own the house since their commitment has become higher.

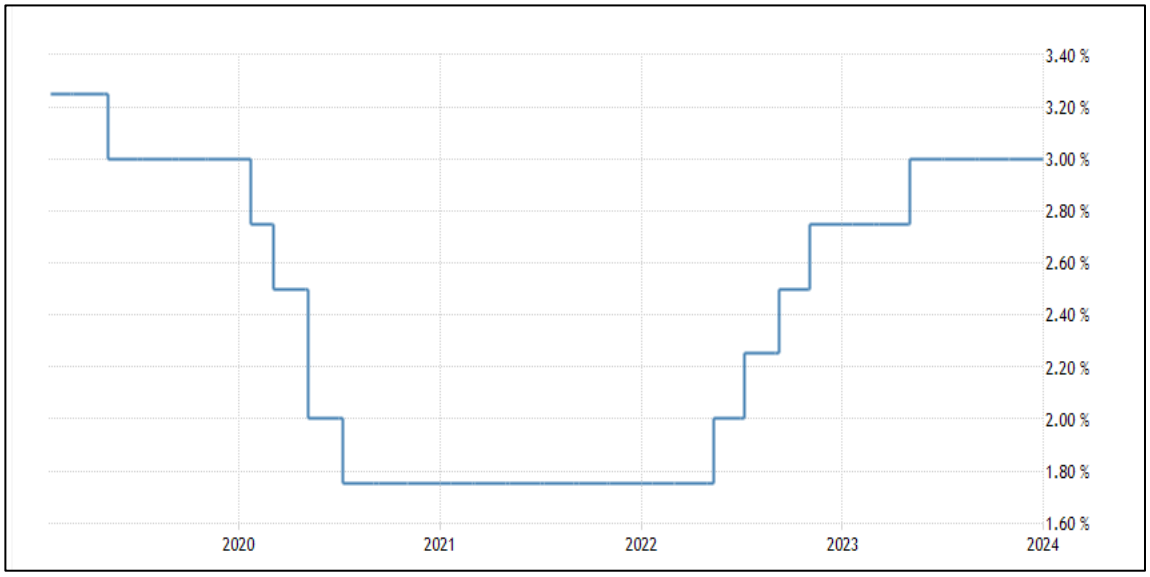
As at second quarter of 2023, the overhang residential properties are 26,286 units as per National Property Information Centre (NAPIC) (Kathy, 2023). In the meanwhile, statistic shows Malaysia's household debt level is in the relatively high which is approximately 76.6% of Malaysia's GDP (Trading Economics, 2023). Out of total GDP, 44.2% are used for the acquisition of residential properties and it proves houses are the biggest investment for Malaysian. In the long run, the demand of residential properties will show a growth due to continuous population increase in Malaysia. In this context, property loan is the most secured asset for banks since it is collateralised by property itself. For houseowners, the value of house will be appreciated in future and there is rarely the housing price will drop, expect during the moment of financial crisis or housing bubble. In Malaysia, commonly banks will grant 90% housing loan of total housing price for first 2 houses and 70% for the third house and above. A house is an essential need which provide peace and comfortable space for a family. It is also a basic need for human being in providing shelter and protection from outside world. As a place to live, it is vital for the houses can provide comfortability to residents. In the meanwhile, purchasing a house is not an easy process as it involves major financial and long-term commitment is required where it will affect an individual's cash flow. Hence, purchasing a house is a multidimensional process as it involves many considerations, such as location, structural, and reputation of property developer.

According to Mordor Intelligence (2023), Malaysia real estate market size is estimated to reach USD 36.76 billion in 2024 and USD 50.69 billion by 2029, which translates into cumulative

annual growth rate (CAGR) of 6.64% throughout the 5-years period. The outbreak of Covid-19 pandemic in 2020 has caused the housing price to slump. Under this scenario, it gives further pressure on housing prices due to cooling market demand. This can be seen where there is a sharp decline in annual price growth of 7.5% for the period from 2010 to 2019. After adjusting for inflation, it is noticed that the housing price has dropped by 1.3% in 1Q2023 if compared to previous year of the same period. In 2022, the property market is observed to rebound in 2022 but there is growing demand for affordable housing as the price level of affordable housing is more compatible to their current income level and it does not cause much burden for homebuyers in committing monthly loan instalment.

Aside from that, another factor which affect property market performance is interest rate. It should be noted that the housing loan rate is determined based on country Overnight Policy Rate (OPR) and it will adjust accordingly from time to time after the bi-monthly meeting among Monetary Policy Committee members. Below shows the changes in the OPR for the past 5 years:

Figure 1.1: Malaysia Interest Rate 2019 to 2023(Source: Trading Economics, 2024)



During the pandemic, Malaysian financial institutions have been offering home loans to property buyers at a constant interest rate ranging from 3% to 4% (Lee, 2020). This low-interest rate helps in reducing borrowing costs and encourages property investment. Eligibility for a mortgage loan is determined by the net income of individuals (Yeoh, 2017). However, with low incomes and increased household debt during the pandemic, individuals face challenges in obtaining bank loans due to low liquidity, leading to delays in mortgage loan financing (Tham,

2021). As a result, this dampens house purchasing due to insufficient funds. To boost the housing market, governments have provided subsidies and assistance. For instance, in Australia, financial subsidies have been implemented to support pandemic-affected nations (Tham, 2021). These measures aim to reduce overstressed pricing and help individuals manage economic risks without affecting their property and assets. Additionally, financial institutions could offer additional assistance during economic downturns to ease the financial burden and encourage house purchasing (Tham, 2021). In summary, the homebuyers may look for affordable price and lower interest while getting government assistance and bank financing.

In the context of Malaysia, the residential property has found to be the dominant property in real estate market where it constitutes 65.2% of overall real estate market. The top 3 states with the highest share of residential properties market are Johor, Pulau Pinang, and Kuala Lumpur with the percentage of 20.4%, 16.9%, and 8.3% respectively. As at 1H2023, 14,392 houses have been launched and 11,273 units are sold. Based on the statistics, the sales of new launched property stood at 37.6% if compared to previous year (Department of Statistics Malaysia, 2023).

Housing oversupply is the common problem which is faced by Malaysia since decades ago. According to Department of Statistics Malaysia, as at 2022, there are 27,746 unsold properties in Malaysia's major cities with approximately USD4.41 billion or RM18.48 billion. Majority of unsold houses are at the medium price range between RM500,000 to RM1 million. As per Local Government Development Minister, one of the factors contributing to this situation is the mismatch between supply and demand for housing, including disparities in housing prices, styles, limited access to public transportation, and geographical locations. (Free Malaysia Today, 2023).

The homebuyers' preference and satisfaction are strongly affected by some factors. Some housing designs offered by developers fail to meet buyers' needs and preferences and this is the reason why many housing units remain unsold. Another aspect is most residential property developers in Malaysia adopt sell-then-built concept where buyers can only make view and judgement based on layout on papers, 3D drawings, PowerPoint presentation, and verbal description of property and sometimes they hard to imagine how does the property looks. This is because there is possibility where variance might be existed between imagination and actual look of property. Besides, sometimes it is hard for people to think and imagine on minor aspect

of house’s interior design where it can only be seen clearly through physical showhouses view instead of virtual showhouses.

Besides, the buyers will look into house quality and they will expect for a premium product when making purchases. The buyers will tend to establish an expectation before they view the house and eventually comparison will be made on expectation and actual view of the house. From here, the buyers are said to be satisfied if their actual experience is better than expectation and vice versa. In the event of their expectation is not met, the buyers are said to be not satisfied and they will switch to purchase property from other developers. Furthermore, the continuous rise in housing prices has been recognized as another factor affecting housing demand, as it has led to a situation where the rate of increase in people's salaries is slower than the rate of increase in housing prices.In the meanwhile, Tsou & Sun (2021) had realised that location such as distance has become one of the important factors for home purchasers. However, the statement is opposed with research from Tan (2021) which showed that location such as distance does not really affect the purchase decision in housing market. Another important aspect is where the branding of developers will be taken into consideration by the home purchasers as well. Another catalyst which can stimulate the housing demand is the simplicity of purchasing procedures. Aside from that, other method which will also affect housing demand is the hiring of real estate agents, sales agents, mass media and social media subscription, reduction in housing price, and so forth.

From the perspective of property developers, the profitability of the business will be affected when the overhang houses or unsold houses are high. In the long run, the property developers have to cease their business operations as the revenue earned is unable to support the high operating costs when the condition of high number of unsold properties are persisted. Besides, the property developers should also consider, could it be that the increase in unsold properties is because homebuyers are becoming more selective and cautious in their purchasing decisions?

According to Nahmens & Ikuma (2009), The researcher has described housing as a combination of various features, encompassing internal aspects like room count to external factors such as property location and access to amenities. However, there's often a significant disparity between what consumers anticipate and how developers perceive it, leading to dissatisfaction among consumers. Throughout this research, the researcher hopes it can bridge

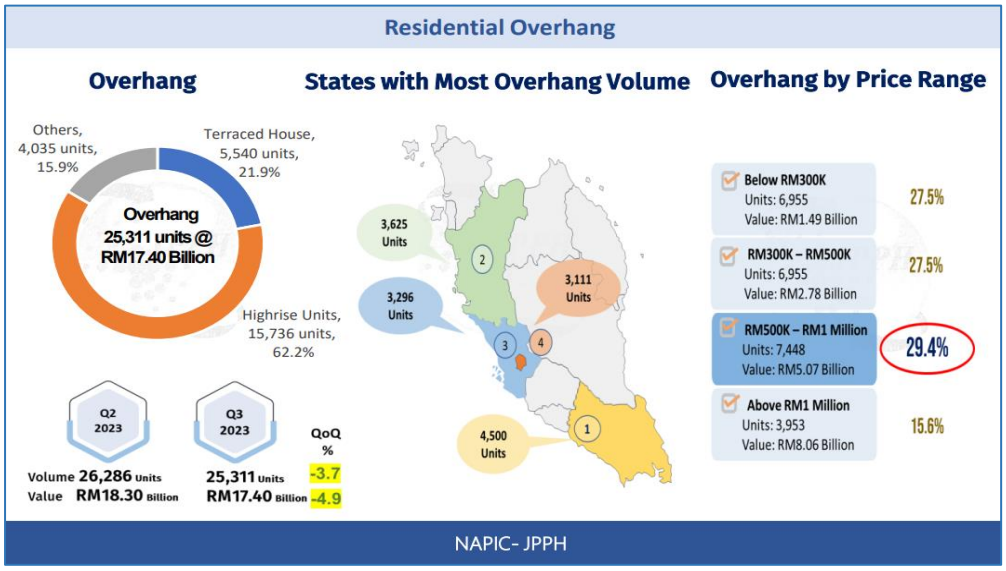
the mentioned gap so that a win-win situation between consumers and developers will be achieved. Moreover, this study can offer valuable insights to real estate developers, enabling them to incorporate customer needs and preferences into property design and development processes. This proactive approach can help prevent the occurrence of high levels of unsold properties in the market.

1.2 Problem Statement

There are lots factors needed to be considered by individual before making the property purchase decision since it involves huge amount of money and it relates with an individual's long-term commitment as they have to bear the 30-years or 35-years house instalment once the sales and purchase agreement is signed. The adjustment in overnight policy rate (OPR) by Central Bank of Malaysia (BNM) also plays significant role in affecting housing demand. This is because when OPR increases, it causes the cost of borrowing to become higher where higher interest expenses will be incurred on the amount borrowed from bank. This scenario has caused the loan borrowers have to face a higher monthly instalment where the scenario will cause the living expenses to be increased due to increasing monthly commitment.

In Malaysia's real estate sector, the issue of property overhang continues to pose challenges, influencing the delicate balance between market supply and demand. Latest data from the National Property Information Centre (NAPIC), as of 3rd Quarter (Q3) of 2023, Malaysia recorded a total of 25,311 unsold units, reflecting the lingering challenge of property overhang in the market. Despite efforts to address the surplus inventory, this figure underscores the persistence of the overhang issue and its impact on market stability. The overhang properties under affordable housing price range which is below RM 300,000 at 27.5% in Q3 2023. Other significant overhang residential property is between the price range of RM500,000 to RM 1 million (29.4%) and RM300,000 to RM500,000 (27.5%). Properties exceeding RM 1 million constitute 15.6% of the total overhang properties. In the first half of 2023, developers introduced a substantial number of new units into the market, with a total of 16,545 units launched. This influx of new supply significantly contributes to the overall housing stock, and potentially influencing market dynamics and worsen the existing overhang challenge.

Figure 1.2: Residential Overhang Q3 2023 (Source: NAPIC,2023)



Moreover, the competitive level in Malaysia property development market is high due to higher number of players such as Eco World, SP Setia, IJM, UEM Sunrise, Sime Darby Property, KSL, LBS Bina, and so forth. In this context, the developers will compete among each other in terms of selling price, housing design concept, housing type, location, amenities, design environment and the developers' name themselves. Hence, it is important for developers to always ensure higher sales on the projects launched. When there are more choices available in the market, the bargaining power of buyers is stronger where buyers will have a more advantageous position in decision making process. In the meanwhile, the property price does not show the sign of pricing drops as the housing value appreciates over the years especially those property with better locations. Hence, more developers will compete among themselves in building more residential properties and it led to the phenomenon of oversupply and overhang properties in Malaysia due to the prolonged mismatch between demand and supply. When competition intensity is high, it is good for buyers as they will have more power in making requests against the seller. However, from the developers' viewpoint, an increase in the number of sellers will impact sales, market shares, profits, and ultimately company's financial performance. This has ended up the developers have to come out with some marketing strategies such as advertisement and discounts to increase market awareness and attract potential buyers.

In Malaysia, there are a lot of property developers, the best developers have the superior competitive advantage over other developers due to their good reputation as well as longer

history of establishment. Besides, the portfolio of top developers commonly is huge. Hence, those top developers are said to have better understanding and knowledge regarding the development of property in Malaysia. Top developers commonly obtained numerous awards during past years where they manage to give a higher assurance and confidence level for purchasers when they purchase properties from reliable developer.

It is backed by research from Zrobek et al. (2015) where gaps existed between sellers' expectations and purchasers' ability in housing market where the attributes provided by developers unable to meet the homebuyers' expectations where it has caused most homebuyers are not happy with their house purchase. This will bring adverse impact to developers when they obtain lesser profits as they unable to sell the houses at the optimal prices due to mismatch between attributes of housing available. The researcher also noticed that most local housing developers in Malaysia do not make sufficient effort in studying the market needs by having a better understanding on consumer's real preferences and needs where it leads to huge gap existed between sellers and buyers. Yet, it has been found that it is considered as business practices where producer convenience is emphasized over consumer focus. Although several studies have tried to discover the needs and criteria of homebuyers, they often focus solely on economic factors such as speculation and pricing, leading to complication and complexity. In fact, customer's behaviour has been identified as a more significant factor in the context of home purchasing aside from economic theories.

1.3 Research Questions

In the current property market, the mismatch of market demand and supply, overlooked on homebuyers' preferences, as well as the factors and criteria that influencing the homebuyer decision making, in purchase of residential property. Therefore, the research question framed as follow:

1. What are the consideration criteria that will influence homebuyers' satisfaction level?
2. Which criteria appeared to be important in influencing homebuyers' satisfaction level?

1.4 Research Objectives

1. To identify criteria influencing homebuyers' satisfaction.
2. To examine the importance level of the identified criteria in influencing homebuyers' satisfaction level.

1.5 Significance of Study

The aim of this study is to identify the primary motive behind Malaysians' decisions to purchase and own landed residential properties and, in the meanwhile, it can raise the awareness among buyers before making any purchase decision. From descriptive analysis, it helps readers to have a better understanding on Malaysian's preference on properties especially from the perspective of preferred attribute features. Besides, the study will provide outlook on general behaviour of individual purchaser and can function as reference for homebuyers when purchasing the landed residential property in future.

Moreover, this research is beneficial for property developers as throughout this research, the property developers will gain a better understanding on requirements and current trend before launching any new projects. By doing so, the property developers will be able to capture and attract more potential buyers and it is good in boosting the sales revenue of the company. In the long run, the property developer will be able to secure a greater market share in Malaysia property development industry. By doing so, it helps developers to launch the property projects which can match with demand from markets and at the same time can prevent the problem of high overhang properties where it might bring direct impact on sales and financial performance of the property developers. Aside from that, this research enables the developers to have further understanding on the importance of reputation as it will create the positive words of mouth within the social circle of individual if the reputation of the property developer is good. It should be also noted that a good reputation will also give high confidence level and assurance level to the buyers for them to purchase the property from the property developers.

Furthermore, this research is also important for academicians who intend to have a further understanding on the main housing attributes that influencing their satisfaction and led to intention to purchase a property in Malaysia. Throughout this study, the readers will be able to gain more knowledge and comprehensive overview of Malaysia property market and the criterions which will be taken into consideration among purchasers in buying residential properties in Malaysia. This research is suitable for readers who are interested to have more information regarding property market as it can also function as reference for them in purchasing the property.

In Malaysia, it seemed that the Ministry of Housing has not yet taken any steps to enhance awareness among Malaysians regarding residential properties. Therefore, through this research, the relevant ministry can gain valuable insights and up-to-date information on the factors influencing Malaysians' decisions when purchasing residential properties. This is useful in drafting relevant policies as from this research, it has provided clearer overview on current demand of property type in Malaysia as well as the affordability index among Malaysians. Therefore, in drafting any rules and regulations, ministry should consider the impacts towards Malaysia property market and should also ensure that the policies will bring positive impact and stimulating effect towards Malaysia property market as it will bring the indirect influence towards country economic growth and GDP growth.

Moreover, the research will provide useful information to marketers on current customers' property purchase trend. Commonly, marketers face common problem where they have to allocate huge amount of money in market research before launching a new housing project. Hence, this research can increase marketers' awareness from the perspective of purchaser intention on underlying factors that will be considered when purchasing landed residential property from the aspects of housing design, public infrastructure, neighbourhood amenities. Environmental attributes, and utility services. With the persistent increase in property price and stiffer competition in property development market due to increasing number of players in property development market, it is significant for property developers to look into the matter seriously to ensure them always possess competitive advantage within Malaysia property development sector. By doing so, this can ensure the survivability and sustainability in the related industry.

1.6 Chapter Layout

This research consists of five chapters. Chapter 1 will provide an overview of the Malaysia property market to give a comprehensive understanding of the subject. Besides, this chapter can also function as the synopses for remaining chapters. It is started with research background, and follow by problem statement, research objectives, research questions, and significance of study.

Following chapter 2 will be literature review is made where all variables identified in the research are discussed in detailed where the discussion of point of views will be made by using

past literatures, statistics, data, journals, and any relevant academic literatures as the supporting documents. Meanwhile, developed a conceptual framework to demonstrate the relationship between the criteria.

In chapter 3, research methodology will be identified. Besides, the Analytic Hierarchy Process (AHP) will be discussed in detail. Furthermore, the data collection method, sampling method, target population will be discussed as well. Aside from that, data preparation, data analysis, and data analysis tool, will be discussed further.

The following chapter 4, the findings from data analysis will be made where it is expected it breaks down into descriptive analysis and analytical hierarchy process (AHP). Descriptive analysis is use to analyse demographic background of respondents. While for AHP analysis, it is used to exam how each relative housing attributes affecting homebuyer's satisfaction. The descriptive analysis will uncover respondent's characteristic, such as gender, age, income level, educational background, and other demographic factors. This information will help in understanding how the different demographic group perceive the housing attributes differently.

In chapter 5, the researcher will make discussions based on outcomes generated from chapter 4 to justify the validity of the research questions and research objectives. It is started with summary of statistical analysis. Then, the research implication will be elaborated. Next, the researcher will also list down all limitations identified throughout the completion of research as well as recommendations that can be taken to improve in future study.

1.7 Conclusion

Researcher gives an overview on the past performance of Malaysia property market. Researcher has also briefly discussed on the current trend of property offered by developer as well as the main criterions that will be considered by buyers before purchasing property. Besides, the researcher also brings up the issue of housing affordability in Malaysia where it is also one of the hurdles and challenges for Malaysians to own their dream houses. Next, the problems or any current challenges related with Malaysia's residential properties especially in landed properties will be discussed in problem statement. Also, in the discussion of problem statement, the researcher will also include the problem of housing attributes of landed properties and the gap existed between the customers' demand and developers' attributes.

Next, the researcher has moved on to research objectives. There are 5 research objectives established in this research. Same goes to research questions where 5 research questions are being established. Finally, the significances of research are discussed where researcher elaborated the parties who will be benefited from this research such as homebuyers, property developers, academicians, Ministry of Housing, and marketers.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter intends to thoroughly examine existing literature regarding how housing attributes impact the satisfaction of homebuyers, specifically in the context of landed residential properties. Through a review of past research studies, theoretical frameworks, and empirical evidence, this review seeks to unveil the pivotal factors influencing homebuyer satisfaction and their decision-making process in buying properties. By delving into various housing attributes such as housing design features, public infrastructures, neighbourhood amenities, and environmental attributes, this literature review aim to illuminate the criteria that influence homebuyers' perceptions, preferences, and overall satisfaction with their residential properties. Ultimately, this exploration aims to provide insights that can guide developers, and real estate professionals in creating appealing, sustainable, and fulfilling living environments for homeowners.

2.1 Homebuyer's Satisfaction

Before purchasing a house, commonly there are lots factors that should be taken into consideration by homebuyers aside from pricing factors only. This is because most of them have limited knowledge in the field of real estate and there is the possibility where they did not make the research prior the purchase decision. Hence, it ends up some homebuyers have to spend more money for future maintenance as they bought the lower quality house due to their ignorance. According to the statistics from National Consumer Complaints Centre (NCCC), there was a total of 1,704 complaints cases related with real estate and housing as at 2020. And it is followed by complaints related with defective properties. Therefore, homebuyers should put in more effort when purchasing the houses as it will bring the direct relationship with their satisfaction.

Customer satisfaction can be known as an approach which is related with serving the enlargement of customer-defined culture and management. In other word, it is the customer's satisfaction with the ending state of the quality of a particular product or services. It can be seen from the customers' method in evaluating and perceiving he consumption capability purpose. Housing is a fundamental human need, and satisfaction arises from fulfilling this need (Umeora, Olotuah, & Ezeji, 2019). Residents' satisfaction is measured by assessing the gap between their housing aspirations and the actual living conditions. When these two align, residents experience satisfaction (Salleh, 2008). Measuring satisfaction is crucial because it helps identify factors contributing to residents' satisfaction or dissatisfaction. In the context of home purchasing, homebuyers are the customers and their satisfaction from can be seen on the extent for the mentioned product or service can address the requirements and needs from customers. According to Tsou & Sun (2021), quality has been identified as the top factors which strongly affect homebuyers' satisfaction level. This is because when the buyers are satisfied with the houses, they will share the goodness of the houses with the surrounding people such as families, neighbours, and friends where the word-of-mouth marketing existed here. People are more tend to believe their family members or friends if compared to the offline advertisements.

In the meanwhile, intention can be known as an indicator of an individual's readiness to engage in a behaviour, acting as a direct precursor to that behaviour. According to Kim et al. (2005), people's intentions can change over time, with the connection between intention and action

weakening as time passes. Therefore, intention is considered a strong predictor of human behavior. On the other hand, Sidi & Sharipah (2011) describe purchase intention as a personal judgment made by customers after evaluating whether they need to buy a product or service. It encompasses their willingness to consider purchasing a specific item, their decision to make repeat purchases, and their intention to buy in the future. In essence, purchase intention is measured by how likely a customer is to buy a product or service. The more willingness of a customer in purchasing a product or services, the customer is said to have a higher purchase intention for it. The purchase intention will be made based on customers' preferences, past experiences, and external environment which will influence their information gathering and alternative evaluation before making any decision.

When it switches to residential property purchase intention, the purchase intention will bring the direct positive relationship to customer actual purchase behaviour (Zawawi et al., 2004). In the event of the customer willing to spend more money in purchasing the residential property, the individual will have higher intention to make the purchase. Hence, the customer will be more likely to have a higher purchase intention, the customer will transfer the initial intention into actual buying behaviours. Previous research has explored how buyers evaluate the perceived value of housing to enhance satisfaction related to construction quality. According to Siahaan et al. (2019), consumers' perception of value is influenced by both the economic value of the housing and its functional aspects, such as location. Meeting housing needs is essential for consumers, and factors like mobility and accessibility also play crucial roles. Research has also examined satisfaction with home builders. For instance, Nahmens & Ikuma (2009) noted that modern homebuyers consider service quality more broadly than home builders, who tend to focus on upgrades and mortgage options. Building upon past studies, which identified five dimensions of service quality - appearance, reliability, timeliness, knowledge, and empathy - homebuyer satisfaction with service quality is perceived based on whether their expectations are met or exceeded. Developers need to identify and understand home-buyer needs to improve service quality continually. The findings indicated that higher-income buyers with higher purchase prices and larger house sizes valued reliability the most.

In contrast, those on lower incomes with lower purchase prices and smaller house sizes valued dimensions such as empathy and property appearance. Hence, developers can react to improve their reputation and increase local referrals. Some customers deem the sales and purchases of

properties costly, complicated, and uncertain because people generally do not make frequent purchases of premises in their life. Hence, people do not possess the required skills and related property knowledge to conduct transactions. Besides several elements, such as the complexity of a property, the variability of the buyer's requirements, and the geographically dispersed nature of housing vacancies, the fluctuation of property prices is a barrier to the buyer 's decision-making process (Barlow and Ozaki, 2003). For instance, in Hong Kong, some real estate agencies have virtual reality viewing of properties to enhance customer satisfaction in their searches. The potential buyers can feel like they are touring the property before making a genuine visitor decision to purchase it. In Hong Kong, every property transaction is registered in the Lands Department, which also posts the details on its website. There are rules for Hong Kong property developers to follow in respect of their sales activities, such as the disclosure of the price list before the launch of property sales, and there are regulations on advertising and promotion.

Two enduring questions persist in the endeavour to improve the provision of housing systems. The first question is to determine whether the house buyers are really satisfied with the house the bought, and the second question is to determine whether the private developers attempt to satisfy the homebuyers during planning process in building the house. With an increasing number of companies recognizing the significance of customer satisfaction, the influence of customer satisfaction on a company's operations has garnered significant attention and is given top priority. However, newspapers often feature reports of abandoned housing projects, delayed deliveries, and subpar quality, raising concerns. This may be attributed to several reasons such as unskilled construction workers, inexperienced site supervisors, substandard materials, disorganized and labour-intensive construction works, rushed construction job and huge demand for the properties. There has been a notable rise in violations of acts and regulations, as well as delays in handing over possession. Furthermore, it has been reported that inadequate communication between buyers and developers hinders the exchange of essential information regarding services and products, resulting in customer dissatisfaction. In the market, many housing development not meeting house buyers' needs and expectation due to insufficient knowledge on the physical aspects of design criteria and housing quality.

According to Wu and Teng (2011), purchase intention refers to the customer's inclination towards acquiring a specific product or service in the future. Interestingly, although purchase intention and purchase decision are distinct stages in consumer behaviour theory, there exists

a noteworthy connection between the two, particularly concerning house purchases (Kunshan and Yiman, 2011). According to Ajzen (1991), intention is perceived to comprise motivational factors that lead to a particular behaviour which intention will simply how much a person has performed in order to perform the behaviour. Put simply, when someone has a strong intention to achieve something, they are more inclined to enhance their performance to attain their initial goal. As such, in this study, house purchase intention is delineated as the extent to which consumers are inclined to acquire a house in the near future, aligning with Ajzen's (1991) definition.

2.2 Criteria Influencing Homebuyers' Satisfaction Level

The satisfaction level of homebuyers is influenced by diverse factors, underscoring the importance for developers and real estate professionals to comprehend these elements. This section delves into a broad spectrum of criteria that impact homebuyers' satisfaction, including housing design, neighbourhoods' amenities, utilities services, environmental features, and more. Through a thorough examination of these aspects, our aim is to glean insights into the drivers of homeowners' overall satisfaction and provide strategies for enriching the residential experience.

2.2.1 Housing Design

Housing design can be known as a building's physical attributes. It is a dwelling feature which can refer to the building's characteristics itself which is capable in influencing the residential housing value. Many researchers have looked into how the features of a dwelling affect its value in the property market. Anthony (2012) and Usman (2016) have both identified specific attributes of dwellings that play a significant role in determining residential house prices. In their findings, they noticed that among the attributes are age of facilities, condition of facilities, layout, structure, estate design, fences and gates, adequacy of ventilation, rooms number, floors, quality of finishing, material type, construction quality, available land area. On the other hand, Lee (2010) conducted a study examining how leisure and sports facilities influence property values, considering various dwelling characteristics such as living area, number of rooms, building age, number of stories, number of floors, and house structure. Neighbourhood characteristics, represented by sport and leisure facilities, were also taken into account. According to Hofman et al. (2010), consumers prioritize the physical qualities of a housing product when making purchasing decisions, including elements like facade, infrastructure

condition, road width, roofing, product specifications, and building design. These factors collectively influence consumers' perceptions of the current housing price's suitability. In property price assessments, structural attributes like built-up area, size of living or dining areas, number of bedrooms or bathrooms, car porch, and internal or external structure are commonly considered. The tangible aspects of a structure, including its architectural features and structural elements, profoundly impact the value of residential properties and are pivotal in shaping consumers' perceptions and evaluations of property prices. The impact of building conditions on property prices is a well-explored area in the literature, with extensive studies conducted by Yiu & Wong (2005) and Yau (2009), focusing on the implicit prices of various building characteristics such as size, location, service provision and floor level. These inherent building attributes are relatively fixed and difficult to alter once construction is complete. However, certain quality aspects can change over time and significantly affect property prices, with property condition being identified as a key determinant.

Yau (2009) discovered that properties with superior building conditions commanded higher prices, whereas the presence of substandard structural elements negatively impacted property values. Moreover, property refurbishment was shown to positively influence property values by enhancing building conditions. Chau et al. (2003) demonstrated that renovating properties led to an approximately nine percent increase in property values within neighbouring housing estates, highlighting a significant positive relationship between building quality and property value. In essence, the condition of a building significantly influences property prices. Well-maintained properties typically fetch higher prices, while those with inferior structural elements tend to depreciate. Renovation and improvement of building conditions can result in higher property values, underscoring the importance of building quality in the real estate market.

In today's unregulated housing market, developers hold considerable sway over middle-income individuals with dreams of homeownership. Unfortunately, many sales agreements heavily favour developers, leaving homebuyers feeling misled by promises that often fall short in terms of quality and delivery. Confusing terms like "super built-up area" and "multi-use space" only add to the confusion, masking the true living space available. This lack of clarity extends to the overall design, where the needs and preferences of potential residents are often overlooked, resulting in inadequate amenities, cramped living spaces, poor lighting and ventilation, and the

use of substandard materials. These shortcomings can lead to dissatisfaction, stress, and even health issues among residents. Additionally, the absence of proper housing standards poses significant health risks. Therefore, establishing a clear and comprehensive housing norms is essential to ensure the well-being and satisfaction of homeowners.

According to Hofman et al. (2013), structural attributes encompass the physical appearance, condition, functionality, characteristics, and quality of a property. They also suggested that households tend to opt for newer residences as they imply less maintenance will be required, both presently and in the future. Furthermore, according to Hong (2012), a residential property aged fifty years or more may be regarded as a favourable attribute due to considerations related to cachet. The number of rooms or bathrooms in a residential property is considered a pivotal factor influencing decisions to purchase a home. Moreover, factors like the dimension of living areas and dining areas, the quantity of bedrooms and bathrooms, and the overall floor area are also significant factors in the decision-making process. According to Jayantha and Lau (2016), the availability of neighbourhood amenities, such as swimming pools, gardens, parks, gyms and clubhouses, also influences residential property purchasing decisions. Additionally, Jansen (2013) found that property buyers make distinctions between purchasing properties for personal use versus investment purposes. Sean and Hong (2014) observed that investors or buyers often find smaller properties like flats and apartments more attractive and desirable among potential tenants. High-rise residences typically offer smaller built-up areas compared to terrace houses, semi-detached house or detached houses. Furthermore, prevalent belief from homeowners that possessing a larger residential property signifies elevated status and prestige within society. The possession of a freehold title significantly influences buyers' preferences when making purchasing decisions. This is because the majority of buyers prefer owning a property indefinitely, without the obligation to surrender their properties to government.

Demographic variables such as age, marital status, employment status, gender, play a role in shaping the criteria buyers use to evaluate housing options (Majid et al., 2012). Haddad et al. (2011) explored the impact of geographic, aesthetic, economic, social, as well as marketing factors on purchasing behaviour, highlighting the influence of gender and age on buyers' decisions. Furthermore, homebuyers are ready to spend extra on residential properties situated in coveted of neighbourhood. (Tan, 2011)

Kueh and Chiew (2005) uncovered residential properties' homeowner, ranked the price as the most crucial factor. In addition to price, factors such as security, house amenities, location, developer's reputation, and community were also deemed crucial. The preference of housing units may differ between various demographic groups. The divorced or widowed individuals compared with married and single individuals. Additionally, the structural attributes such as dimension of dining rooms and living areas, total built up of the house and number of bathroom and bedroom, are critical criteria influencing home buyers' evaluations of the property (Wilhelmsson, 2000). The design, construction quality, as well as the exterior and interior aesthetics of residential properties significantly impact individuals' decisions when purchasing a home (Yasemin & Eda, 2010). Fortin, Hill, and Huang (2014) found that superstition also exerts influence over the decision-making process when it comes to purchasing residential properties.

Whang, Park, & Kwon (2023) had conducted research to study the homebuyers' satisfaction and post-occupation evaluation in 65 apartments in Seoul, where this city is predominated by middle-class apartments. The outcomes have shown residential satisfaction has the significant relationship with aesthetic design factors such as main complex entrance, landscape design, and exterior mass design where it constitutes of 17.16% of total satisfaction variance. And out of the independent variables, aesthetic design element plays an increasing important role in cities where it has prompted the property developers to incorporate the element of aesthetic design elements in future home design and at the same time it has enriched the judgement skills where they will incorporate the aesthetic design criteria in their decision-making process when viewing and selecting the residential properties.

2.2.2 Neighbourhood Amenities

Most investors or homebuyers are clearly aware on the importance of location before purchasing a house as good location can bring about a series of chain reaction. When the location is good, it can change the entire neighbourhood as it can create desirability, where desirability will lead to demand, and eventually the demand will push up the real estate price. There are some criterions that should be considered when purchasing a house such as neighbourhood, facilities, amenities, and transportation. For neighbourhood, it is important for homebuyers to consider the future of neighbourhood such as how does the area will be in coming 5 or 10 years instead of just investigate whether the place is safe to stay or not. In the

event of the location will become part of future local development plan or transformation, the homebuyers should purchase the house as there is most likely the property value will increase in future where it is good as a long-term investment for the investors. Amenities are also one of important aspects that should be considered before buy a house. In this context, it's important for the house to be near assess to the amenities such as schools, hospitals, groceries, shopping malls, or restaurants.

Another important aspect to look is transportation where it is better if the house is near to the public transport as it saves more time for the individual to commute instead of driving. This scenario is totally contrast with the previous generation people where they did not concern much about the environmental amenities as they have limited choice due to their lower income level. With the gradual increase in income level among the new generation, they are willing to pay for extra with premium price for house is high as they anticipate for better public amenities. Also, there are some people attempt to look for the house that is different with the conventional structure design such as bedrooms, bathrooms, size, garage, swimming pool, and so forth. When it switches to overseas context, the residential properties which can give a larger urban green space will bring positive impacts to the housing price itself. It is backed by the research from Brander & Koetse (2022) in Netherlands, Mazzotta, Besedin, & Speers (2021) in United States and Belcher & Chisholm (2018) in Singapore. All researches give the similar outcomes where the amenities have become one of the important aspects to be considered by homebuyers especially for the urban populations.

Purchasing a home is a significant milestone, and comprehending the amenities it provides is essential. Amenities encompass the additional features that accompany a house, elevating it beyond mere walls and a roof. They serve as special attributes that enhance the comfort and enjoyment of a home. Whether you're a novice in the realm of home buying or have prior experience, understanding amenities is crucial in discovering a home that suits your requirements and brings you joy. Let's delve into the importance of these additional features as you embark on the thrilling journey of finding your new home. In real estate, amenities refer to supplementary features that surpass a property's fundamental structure, augmenting comfort, and convenience. These amenities may encompass modern appliances, outdoor areas, community facilities like gyms and playgrounds, and advantageous location aspects such as proximity to schools or public transportation. Amenities are pivotal in enhancing a property's allure, impacting its value and attractiveness to potential buyers or renters. Buyers frequently

evaluate amenities according to their lifestyle and preferences, making them a vital factor in the real estate decision-making process.

Amenities and open spaces are now widely recognized for their ability to reduce stress and improve overall living experiences. The increasingly demanding work-life schedules have fuelled a growing demand for amenities in residential properties, turning homes into personal retreats for relaxation and enjoyment. Incorporating green spaces into buildings and communities has been found to positively influence mental health, offering a refuge from the pressures of modern life. Projects with superior amenities attract a growing number of home buyers, emphasizing the significant of these features in the decision-making process, namely increased desirability, enhanced comfort, higher appraisal values, competitive advantage, long-term investment, community infrastructure, location influence, curb appeals, and adaptability to trend. In increased desirability, it attempts to make the property to become more attractive and thus to increase its market desirability. In enhanced comfort, it relates with the quality amenities which can contribute to a comfortable living experience and thus influencing the perceived value. For the higher appraisal value, the better the competitive edge of amenities or the amenities which are more sought-after, a higher price will be commanded. Besides, amenities which can contribute to the long-term value of a property is also a good choice for long-term investment. Aside from that, amenities within a community positively impact property values by creating an appealing living environment. The proximity to amenities such as shopping centers and public transportation has a considerable impact on property values. Exterior amenities enhance curb appeal, thereby positively influencing the perceived value of a property. Properties that align with prevailing lifestyle trends witness heightened demand and subsequently command higher values.

Li (2017) noted that while previous research extensively explores neighbourhood amenities and satisfaction, there is a lack of attention given to how they correlate with residents' nativity status. The variance in neighbourhood amenities between native-born and foreign-born residents indicates disparities in preferences, with native-born individuals prioritizing favourable amenities, while foreign-born residents prioritize convenience. Foreign-born individuals often opt for neighbourhoods that offer fewer desirable amenities compared to those favoured by native-born residents. However, despite this discrepancy, foreign-born residents typically express greater satisfaction with the overall liveability of their neighbourhoods. Nevertheless, after accounting for residential characteristics, the variation in

perceived neighbourhoods' liveability becomes negligible. This suggests that, in line with findings from prior research, socioeconomic factors rather than nativity status determine disparities in neighbourhoods' amenities, neighbourhoods' satisfaction, and perceived neighbourhoods' liveability among foreign-born and native-born residents.

In the process of selecting a location, decision-making factors encompass accessibility, environmental amenities, and available space (Hurtubia et al., 2010, citing Fujita, 1989). Accessibility influences the travel costs incurred by household members in various city locations. Environmental amenities encompass criteria such as the level economic activities, including education, services, and industries. Homebuyers in Autralia, Ireland and UK regarded location as highly significant criteria in buying a house. The nearer of a residential property to shops, schools, hospitals, workplaces, and the central business district is considered crucial in the decision-making process for purchasing a home. Karsten (2007) determined that for home buyers who prioritize minimizing travel time, distance from the workplace holds particular importance.

2.2.3 Utility Services

Accessing to essential utilities such as water supply, electricity, sewage systems, and high-speed internet is vital for individuals when making decisions about where to live. These services not only fulfil basic needs but also improved individuals' life's quality and convenience of residents. For example, reliable water and electricity supply ensure comfort and functionality within the home, while efficient sewage systems contribute to sanitation and hygiene. Additionally, access to high-speed internet has become increasingly important for work, education, communication, and entertainment purposes. Therefore, the availability and reliability of these utilities greatly an important attribute influencing people's preferences when selecting a place to live. According to Van den Berg et al. (2016), the growing importance of enhancing access to reliable water supply and sanitation services as a crucial objective in poverty alleviation efforts. Meanwhile, Philip and David (2020) evaluated the quality of household water services offered by a private water company in Ghana and found widespread customer dissatisfaction due to issues such as unreliable services, inadequate maintenance teams, and a lack of technological innovation. Furthermore, Caroline (2019) highlighted the challenges facing water supply and sanitation in Tanzania, including declining access to improved water sources in urban areas, inconsistent water supply, and generally low service

quality. Jayaramu (2014) investigated customer satisfaction in areas with intermittent and 24/7 water supply in Hubli city, revealing that customers in the 24/7 demo zone were notably satisfied with water quality, continuity, quantity, and pressure. Timilsena (2020) identified several factors influencing user satisfaction, such as the timing and duration of water supply, water volume, water pressure, response from management, prices, tariffs, and the resolution of customer complaint. The study found that overall user satisfaction levels were above neutral.

The functionality and reliability of utilities within residential buildings greatly influence residents' willingness to remain there, whereas inadequately maintained facilities can lead to discontent (Oladapo & Adebayo, 2014). Housing service facilities encompass all necessary amenities for effective functioning, with user feedback playing a pivotal role in evaluating housing developments and determining perceived value and satisfaction levels. Many urban residents express dissatisfaction with service providers due to reported issues such as low quality, irregular supply, low pressure, and even extended periods without water (Doria et al., 2009; Abubakar, 2016). The living conditions of individuals are closely tied to access to clean water, with customer satisfaction being a crucial aspect for sustainable organizations or businesses, necessitating strategic goal-setting (Reis & Peña, 2000). Furthermore, satisfaction with water service delivery reflects both the provider's treatment of customers and individuals' emotional responses to disparities between expectations and reality (Jorgensen et al., 2009; Pakurár et al., 2019).

Efficient sewage disposal systems contribute to the overall desirability of residential properties. Inadequate sewage infrastructure can lead to environmental and health concerns, negatively impacting housing preferences and property values. Sewage systems form an integral component of contemporary urban infrastructure alongside gas, electricity, and water supply (Ladan, 2014). Sewage disposal involves the transportation of wastewater from homes and businesses through large pipes known as sewers, typically in the form of liquid containing suspended solids, to ensure the environmentally safe disposal of waste. According to Boniface S. Okoye (2018), sufficient attention has not been given to sewage disposal especially it is affecting residents’ quality of life and impact to the environment.

The availability and reliability of electricity supply are the fundamental consideration for homeowners. Dusky (1991) observed that many companies in the utilities sector prioritize electricity provision over meeting customer expectations. Additionally, research by Pereira et

al. (2008) reported increasing instances of electricity distribution interruptions, subpar service quality, and delays in network maintenance in certain countries, leading to customer dissatisfaction, particularly among residential customers. In contemporary era today, internet access is a crucial utility service to homeowners. It has become an important element in modern living. Malaysia's statistic indicates that as of 2016, approximately 67% of the population had internet access in their households, with an average connection speed of 6.4Mbps (Property Guru, 2017). The properties with reliable internet connectivity are important especially for individuals who work remotely or rely on the internet for their daily activities. According to Shawn Ng (2019), it was found that homebuyers prioritize digital network coverage as one of the primary factors influencing their property purchases, ranking it higher than a developer's reputation, buyers are willing to purchase from any developer as long as the digital coverage is satisfactory.

Utilities services, including water supply, electricity supply, sewage supply, and high-speed internet, significantly influence individuals' housing preferences and decisions. Access to reliable and efficient utility infrastructure enhances the desirability and value of residential properties in the real estate market. In future, the researcher should continue explore the evolving role of utilities services in shaping housing preferences amidst changing technological and environmental landscapes.

2.2.4 Public Infrastructure

In other word, when a house is nearby or surrounded by public infrastructure, it can be said that the location of house is good. A common criterion that can be used to define a good location is if the residential area has a better access to amenities or facilities. In Malaysia, especially Kuala Lumpur, distance between house and workplace has become one of the major considerations when purchasing a house due to heavy traffic jam scenario in Kuala Lumpur nowadays. Hence, it propels the homebuyers to buy the house which is near to the amenities. This is the reason why residential property prices at suburban area are lower than residential property prices at urban areas due to convenience factor. It is backed by research from Singh & Singh (2022) which concluded that the influence of location in housing market is indeed significant and it has strong positive correlation with the homebuyers' residential property purchase decision. The house proximity to businesses, clinics, workplaces, colleges, and city has become more important where the property is said to have better location if the property is

nearer to the mentioned amenities. The better the property's location, the higher the homebuyers' desire level in purchasing the property.

Tutur & Azmy (2019) recommended that for those homebuyers who do not want to consume huge time on travelling, they can consider to buy the house which is nearer to their workplaces as it can help to cut down the unnecessary travelling expenses effectively. While according to Sholihuddin, Rivai, & Saragih (2020), for those homebuyers with children, they might prefer the location with greater natural surroundings so that this can give them a more relax and comfortable life. Same scenario when it switches to overseas such as Australia, Ireland, and United Kingdom where homebuyers intend to own the houses which are strategically placed and convenient. Nevertheless, there is researches which give the contradict outcome. For example, Mang et al. (2018) discovered that location does not really impact the buyer's decision to own a house. Individuals often search for homes in urban, rural, or suburban settings, each offering distinct population densities and amenities (Jansen, 2020). According to Nanda et al. (2021), residents prioritize housing locations that cater to their daily needs, functional requirements, and recreational preferences. A prime housing location offers convenient access to essential amenities, minimizing travel time and expenses for work, education, healthcare, groceries, recreation, public transport, and religious activities. This includes considerations such as community type, density, available services, and neighbourhood quality. With the COVID-19 pandemic emphasizing the risks associated with densely populated urban areas, community density has become a critical concern for residents.

The demand for office-based work and outdoor amenities has declined during pandemic, reducing the necessity for high-density urban living where workplaces and amenities are concentrated (Liu and Su, 2021). Cheung, Yiu, and Xiong (2021) note a preference for less densely populated rural areas as a strategy against infectious diseases. Additionally, Nanda et al. (2021) predicts a trend toward larger homes, potentially leading residents to relocate to suburban or rural areas. Similarly, Kaklauskas et al. (2021) found that homebuyers favour suburban neighbourhoods near cities for their proximity to urban centres, larger housing options, and lower prices. Furthermore, accessibility to essential amenities and services has become increasingly important due to travel restrictions during lockdowns. According to Kane, Riegg, and Staiger (2006), a neighbourhood with a reputable school is often perceived as high-quality, and the presence of an excellent school district can positively impact the surrounding

area. Homebuyers, especially those with children, prioritize access to quality schools when selecting a property.

A well-maintained neighbourhood offers a sense of security and tranquillity, along with opportunities for nature exploration. The rise in crime rates during the pandemic, stemming from mass unemployment, has heightened the desire for secure and guarded residential areas among residents. Additionally, neighbourhoods with appealing landscapes and peaceful environments are favoured by homebuyers, despite the higher cost compared to noisier areas (Tham, 2021). In essence, there are two distinct preferences when it comes to communities: urban preferences lean towards higher density, abundant amenities, and vibrant surroundings, while rural preferences prioritize spaciousness, fewer amenities, and greater tranquillity (Jansen, 2020). Ultimately, the choice of housing location involves weighing various factors, such as community density, housing prices, available space, nearby amenities, and recreational opportunities, all of which significantly influence the demand of housing.

According to Shakur, Mohamed, & Hadi (2020) which conduct on the scenario of public infrastructure in neighbourhood in Kajang, Malaysia, the outcome showed most problems encountered by respondents is accessibility problem. Besides, the respondents also pointed out that the bus facility surrounding their neighbourhood is poor as there is no bus route to park. The condition is even worst when the public telephone booth also does not work. The respondents recommend that it is good to have community hall so that it can strengthen the neighbourhood relations. In this context, connectivity is one of the basic principles of communities used in accessing housing and ownership for liveability city.

Public infrastructure encompasses a wide array of facilities, systems established and structures, owned, and managed by the government. These include but are not limited to public transportation networks, roadways, utility services, and various public facilities essential for societal functioning. The public infrastructure with the main objective to improve people's daily lives by providing essential services and amenities that contribute to people living quality. This includes all facilities and infrastructures which is accessible to the general public, spanning transportation, power and energy distribution, water supply, telecommunications, recreational amenities, educational institutions and healthcare facilities.

With the presence of public transportation is to ensure that all members within society will be able to travel with lesser reliance on walking or cycling. When there is complete public infrastructure, it enhances the connectivity from one place to another place. Creating connectivity to foster development involves ensuring public access to various facilities and amenities within their area. The components of this connectivity include locations that residents find desirable to reach, such as public transportation hubs, schools, recreational parks, and more. Accessibility aims to helps all residents can easily access the services necessary to accomplish tasks.

The role of infrastructure equipment is crucial in the creation of liveable cities and the efficient management of public service quality. Local governments and municipalities are key players in driving sustainability projects aimed at improving local services, infrastructure, and environmental conditions. With referring to economic theory, they must either secure additional funding or reduce the quality of services provided. The absence of adequate infrastructure access or subpar services provided can negatively impact homeownership, leading to decreased affordability and availability. Consistent access to infrastructure is essential for maintaining sustainable homeownership and bolstering the housing market, thereby promoting favourable affordability levels.

From other perspective, the completeness of infrastructure development, especially in transport will lead to major impact towards surrounding property price. This is because where there is public transportation, it links to improve accessibility, reduce travelling time, and indirectly will lead to the place to become more suitable for live and work. This attractiveness frequently leads to heightened demand for properties, which, coupled with typically restricted supply, leads to escalating property prices. Moreover, the improved of infrastructure can leading to job creation, attract businesses and further bolstering demand within the local property market.

Almatarneh (2013) highlighted the importance role of essential amenities and utilities in influencing property buyers' decisions regarding potential appreciations, such as transportations, educational facilities, water supply, electricity and so on. Public transportation is closely linked to economic development and facilitates the dissemination of information, including business opportunities, while also curbing urban sprawl and fostering desirable living environments. Almatarneh (2013) mentioned the residential compound with good facilities and amenities, will contribute to house owners feeling safer and more enjoys with their living.

Yakob et al. (2012) also confirms that a meticulously planned zoning for residential land use, coupled with the provision of ample open spaces, recreational areas, and community facilities, can significantly influence the quality of people's living environment.

2.2.5 Environmental Attributes

Before purchasing a house, individuals should take into account factors such as location (Miron, 2004). Moreover, Zhang and Lin (2011) conducted research showing that location greatly influences the sense of community, with residents in properties featuring elevators or situated within gated communities experiencing increased value and appreciation. Additionally, Jansen et al. (2011) found that different designs and locations of residences contribute to varying values in terms of social status, access to public goods, job opportunities, and personal amenities. Additionally, location emerges as the primary factor influencing the quality of housing and overall welfare of homes. Strategic location has become one of the main criteria by the investors before purchasing a house. This is because a good location will create desirability, where desirability will drive up demand and eventually the high demand level will push up the real estate price.

In addition, buyers should consider the property surrounding before making the decision where the surrounding is where the residents live in and arranged by beneficial and mutual. There are some types of surrounding which can be used by developers in attracting people to purchase their properties such as facilities. It has become one of main reasons why most property buyers intend to have their properties to be gated or fenced up as it can show the status and symbols for owning a property. Besides, living in a gated and guarded communities are fund to be safer as lesser criminal activities will be happened in the area where it will also impact the quality of life for residents. Commonly, those guarded houses are stayed by residents that earned a higher income as they have the higher requirement to feel safe.

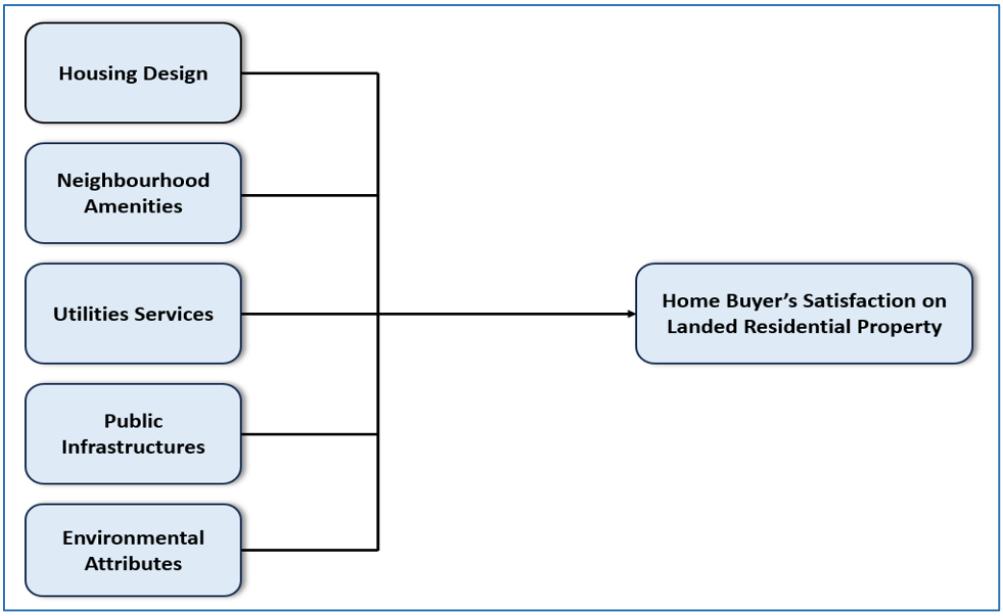
According to Choguill (2008), their study unveiled that residential properties in gated communities with landscaped compounds often command higher values. Home buyers assess the quality of a residential property by measuring the level of pollution, cleanliness, and safety, which they deem significant in their evaluation of residential property (Chapman & Lombard, 2006; Tan, 2011). Hunter (1985) and Lang and Le Furgy (2007) conducted research indicating that living in a gated and guarded residential area offers residents a sense of security and peace

of mind, for which they are willing to pay a premium. Tan (2011) suggested that wealthy homebuyers prioritize intangible advantages like infrastructure customized to their lifestyle, a sense of harmony with the environment, and feelings of security. Likewise, home buyers who view homes as investments also tend to prefer purchasing properties in gated and guarded housing estates. Tan (2010) found that owning a property within a gated and guarded community is perceived as a symbol of the owner's financial status and social standing. The aspiration for distinction and an upscale image drives homebuyers to prefer residences within such exclusive neighbourhoods. When evaluating alternatives, residential property buyers also take into account factors such as ecological friendliness and accessibility (Tan, 2012). Ricardo et al. (2010) highlighted that the significance of evaluation criteria varies across different life stages. For instance, a single working homebuyer may prioritize proximity to job opportunities, cultural amenities, and services, while buyers with young children might prioritize access to a better natural environment.

2.3 Proposed Research Framework

There are 5 main consideration criteria influencing homebuyers' satisfaction are being identified in this research, namely housing design, neighbourhood amenities, utility services, public infrastructure, and environmental attributes. And there is 1 dependent variable which is homebuyer's satisfaction for landed residential property. Below shows the research framework.

Figure 2.1: Research Framework



2.4 Conclusion

The literature review has provided valuable insights into the factors influencing homebuyers' satisfaction within the realm of residential properties. The review highlighted the significance of various criteria such as housing design, neighbourhoods' amenities, utilities services, and environmental attributes in shaping homebuyers' perceptions and preferences. While the existing literature offers valuable insights, it also reveals several gaps and limitations, including a lack of research on certain aspects of homebuyer satisfaction. Moving forward, there is a need for further research to address these gaps and limitations and advance our understanding of the topic. The research framework established in this study expands on the insight obtained from the literature review and it offers a structured comprehension of how the consideration criteria relate to homebuyer satisfaction.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

In this research, the researcher studies the relationships between housing design, neighbourhood amenities, utility services, public infrastructure, environmental attribute on homebuyer's satisfaction for landed residential property. Besides, the researcher will rank the independent variables based on their degree of influence or significance level towards dependent variable.

The methodologies utilized to scrutinize the data gathered from respondents through the distribution of survey questionnaires. The subsequent sections will provide a comprehensive exploration, covering key aspects such as research strategy, data collection, data processing and analysis, sampling method, research instrumentation, design of questionnaire, descriptive analysis and AHP analysis.

3.1 Research Philosophy

The research philosophy encompasses the assumptions or beliefs that directly influence the development of specific knowledge. This study adopts a positivist research philosophy, emphasizing the acquisition of factual knowledge through data collection and interpretation. The research is grounded in fundamental concepts and pertinent theories. Within positivism, discussions are based solely on empirical evidence, and the presentation of value-free reasoning is essential to avoid misinforming readers. Additionally, statements are supported by relevant literature from previous journals or articles, with statistics often used to enhance the credibility and persuasiveness of the findings.

3.2 Research Strategy

By given the utilization of quantitative data to address the research inquiries, a survey approach will be employed as the research strategy. Surveys typically align with the deductive approach and are widely favoured by researchers for efficiently collecting data from a diverse group of individuals. In this study, the survey method will be utilized to collect data from respondents, aiming to examine the impact of housing design, neighbourhood amenities, utility services, public infrastructure, and environmental attributes on homebuyer satisfaction for landed residential properties in the Klang Valley.

3.3 Time Horizon

The time horizon is a critical aspect to be considered in a research design, influencing the research planning, execution, and the interpretation of the study's finding. Regarding the time horizon, cross-sectional studies will be employed for this research, enabling the collection of data at a particular point in time or over a brief duration. The research design utilized in this study is cross-sectional, facilitating the gathering of data from respondents at a single point in time through questionnaires. This approach proves valuable for studying phenomena and relationships between variables. One of the advantages of adopting cross-sectional research design is it can shorten the time consumed by researcher in data collection process.

3.4 Data Collection

This research study utilized a combination of primary and secondary data sources to comprehensively explore the dynamics of residential property in the Klang Valley area. Primary data, considered the backbone of this investigation, encompasses raw data collected directly from respondents through various research methods. As elucidated by Tsou & Son (2021), primary data is inherently more accurate and relevant, as it is generated specifically to address the research issues. The primary data collection primarily relied on survey questionnaires, chosen for their ability to solicit detailed insights from individuals residing within the target area. The development of the survey questionnaire was informed by secondary data sourced from past relevant literature, ensuring that the questions were pertinent and reflective of the research objectives. This iterative process involved consulting scholarly articles, journals, and other academic resources available through online databases such as Google Scholar, UTAR Library, Science Dirrect and Jstor and so forth.

The distribution of the questionnaire involved face-to-face interactions with respondents, a method chosen for its effectiveness in engaging working individuals within the Klang Valley area. Approximately 50 sets of questionnaires were disseminated, allowing for a diverse sample size that captured a range of perspectives on residential property. Through this approach, researchers were able to gather firsthand data directly from individuals, ensuring authenticity and reliability in the findings. In contrast, the secondary data pertains to existing information that has been previously gathered and documented by other individuals or entities before the commencement of the current research project. While primary data collection focused on obtaining insights directly from respondents, secondary data served as a valuable resource for background information and context. This secondary data was instrumental in informing the development of the questionnaire, shaping the research approach, and providing a foundation for analysis.

In general, both data source integration in this study facilitated a comprehensive examination of residential property in the Klang Valley area. By leveraging the strengths of each data type, researchers were able to gain nuanced insights into the factors influencing residential property dynamics, contributing to a more holistic understanding of the subject matter. In this research, the questionnaire form distributed to 50 respondents face to face by hand who stay in Klang Valley. There were given one (1) week time to fill up the form and researcher will keep track the status

with the respondents periodically. Once a minimum of 30 sets of questionnaires were fully answer by the respondents within a week time, the data collection process will be concluded and data entry will be started.

3.4.1 Design of the Questionnaire

For this study, the questionnaire is crafted in English, the chosen for its suitability in communicating with all the respondents. Closed-ended questions are designed in the questionnaire to simplify response and facilitate timely completion (Zikmund et al., 2010). The questionnaire structure begins with a concise introduction and outlines the research objectives on the cover page. It comprises seven sections, labelled from Section A to Section G.

In section A, the questionnaire is on the data collection about the house purchase decision such as current house own status, monthly expenses on accommodation, the consideration to purchase a house and will them prefer to stay in landed property. In Section B to Section F, is more about the construct measurement of the studies where the dependent variables on housing attributes that is influencing the home buyer's satisfaction on the property, which consist of Housing Design, Neighbourhood amenities, Utilities Services, Public Infrastructure and Environmental Attribute.

In the last section G, the questionnaire includes sections dedicated to gathering demographic information, covering aspects such as age, gender, monthly gross income, and level of education. This segment serves to delineate the profile of the respondents. Additionally, to enhance the credibility and precision of the data collected, respondents are asked about their willingness to actively participate in the questionnaire.

3.4.2 Survey Procedure

The housing attributes that influencing the home buyer's satisfaction's assessment will be conducted through a survey. The assessment and study consist of five (5) main categories attributes, with these main attributes set up as four sub-themes.

Table 3.3: Housing Attributes Main and Sub Theme

Main Theme	Sub-themes
Housing Design	*Functional layout and space*
	Natural light & ventilation
	Unit Size
	Smart home technology integration
Neighbourhood Amenities	*Educational facilities*
	Healthcare & wellness centre
	Retail services
	Places of worship
Utility Services	*Water supply*
	Electricity supply
	Sewage system
	High-speed internet
Public Infrastructure	*Police stations & fire department*
	Public transportation
	Accessible via highways
	Community hall
Environmental Attribute	*Green space & landscaping*
	Green building certification
	Climate-resilient design
	Gated & guarded community

3.4.3 Sampling Method

The sample size refers to the total number of respondents or subjects intended for inclusion in the research study. In this investigation, we distributed 50 sets of questionnaires to individuals in both public and household settings across the Klang Valley. Additionally, prior to the formal survey, a pilot test was conducted using 5 questionnaire sets to gather feedback from respondents. This feedback was invaluable for refining the questionnaire's quality and rectifying any errors. A survey questionnaire, designed to be self-administered, was custom-made for this research, drawing on items from previous studies by various authors and adjusting them as needed to suit the local context. We utilized convenience sampling and snowball sampling methods, with convenience sampling enabling us to select samples based on ease and expediency, thus facilitating quick data collection from a wide range of participants.

3.4.4 Target Population

This is referring a group of people that the researcher would like to draw the conclusions. This encompasses the broader demographic or category under investigation, from which samples are drawn for the research study. This study will target potential homebuyers and current property owners residing in the Klang Valley area. The rationale for selecting individuals from

the public and households in the Klang Valley stems from their status as existing or prospective residents in this region. Their decisions regarding property purchases will shed light on the factors influencing residential property acquisition in the Klang Valley. For this study, a straightforward convenience sampling approach was employed due to its efficiency and simplicity in gathering data from respondents. Specifically, 50 residents from the Klang Valley area were chosen to complete the questionnaire. The questionnaires were personally distributed to the selected participants at the Eco Grandeur Sales Gallery and Office. Respondents were instructed to complete the questionnaire in full and return it within one week.

3.5 Research Instrumentation

In this study, the assessment on all the criteria will be using a questionnaire. It is importance that the questionnaire is carefully designed to ensure the reliability and validity of the information collected. The questionnaire is divided into 8 sections, covering demographic details in the first and last sections, and exploring both dependent and independent variables in the middle sections. While the remaining sections adopt Analytical Hierarchy Process (AHP) method, a method which is commonly used in organizing and analysing complex decisions. The Analytic Hierarchy Process (AHP) proves particularly valuable when addressing intricate problems with significant implications. A distinguishing feature of AHP compared to other decision-making methods is its capacity to quantify criteria and options that are typically difficult to articulate in precise numerical terms. Rather than prescribing a single "correct" decision, AHP aids decision-makers in pinpointing choices that most closely correspond with their values and their understanding of the issue. AHP stands out as a versatile multi-criteria decision-making tool, empowering individuals to systematically assess attributes and appraise presented alternatives. While AHP is commonly applied at the individual or small-scale level, its adoption is expanding into survey designs involving numerous decision-makers and a diverse range of responses. AHP proves to be an excellent choice for small-scale implementations, offering notable interactivity, user-friendliness, and facilitating effective comparisons among alternatives. The questionnaire used in this research draws inspiration from the work of San (2016) in the study titled "Attributes Influencing Home Buyers' Purchase Decision: A Study of Residential Property in Setia Alam."

3.6 Analytic Hierarchy Process (AHP)

Thomas L. Saaty introduced the Analytic Hierarchy Process (AHP) in 1977 as a mathematical tool for decision-making in management. This method is adept at handling numerous decision factors and offers a systematic approach to ranking various variables. It offers a structured approach to assess judgment consistency and establish priorities among various criteria and alternatives. Originally conceived as a method for complex decision analysis, AHP has evolved into a widely embraced tool across diverse fields, facilitating the navigation of multi-criteria decision-making scenarios with precision and clarity.

One notable aspect of AHP is its capacity to integrate diverse knowledge, expertise, individual perspectives, and forward-thinking in a systematic manner. Hence, it is essential to carefully select respondents possessing relevant expertise and familiarity with the subject area. According to studies by Lam and Zhao (1998) and Cheng and Li (2002), respondents should be chosen based on their capability to provide focused insights, rather than relying solely on sample size. Moreover, as highlighted by Vaidya and Kumar (2006), the selected respondents' knowledge, experience, background, and expertise play pivotal roles in enriching the research outcomes. Previous AHP surveys have demonstrated that a sample size of eight or nine respondents is acceptable and does not compromise the survey's results. Lam and Zhao (1998) included eight (8) participants, Cheng and Li (2002) enlisted nine (9) individuals to assess critical success factors, and Wong and Li (2007) initially recruited (16) respondents, ultimately incorporating feedback from just nine (9) of them.

Additionally, AHP is recognized for its approach of breaking down intricate decision-making challenges into smaller components, constructing a hierarchical structure that delineates relationships between different levels. The significance of each element is assessed through pairwise comparisons. Saaty's developed scale is employed in quantifying these pairwise comparisons, enabling decision-makers to assign discrete numbers that signify the importance of choices. The derived weightage is then determined based on the chosen discrete numbers, as outlined below table.

Table 3.1: Scale of 1 to 9 for pairwise comparisons (Source: Saaty 1977)

Intensity of relative importance	Definitions	Explanation
1	Equal importance.	Two activities contribute equally to the objectives.
3	Moderate importance of one over another.	Experience and judgment slightly favored one activity over another.
5	Essential or strong importance.	Experience and judgment strongly favored one activity over another.
7	Demonstrated importance.	An activity is strongly favored and its dominance is demonstrated in practice.
9	Extreme importance.	The evidence favoring one activity over another is of the highest possible order of affirmation.
2, 4, 6, 8	Intermediate values between the two adjacent judgments.	When compromise is needed.

The judgments are then recorded in a square matrix, where each element is systematically compared with every other element. This pairwise comparison matrix is sized n x n, with n representing the number of elements to be compared pairwise (Chakraborty et al., 2011). However, to construct a comprehensive matrix set, a total of n x (n - 1) / 2 comparisons are necessary, with n being the quantity of criteria under consideration. Subsequently, the weight assigned to each evaluation criterion based on the decision maker's pairwise comparisons will be computed. As Saaty (1980) articulates, the higher the weight of a particular criterion, the more significant it is deemed in the decision-making process.

Table 3.2: Example for a set of pairwise comparison matrix

	A	B	C	D	E
A	**1**				
B		**1**			
C			**1**		
D				**1**	
E					**1**

Although initially designed to address multi-criteria decision-making problems, the intuitive nature, and problem-solving capabilities of the Analytic Hierarchy Process (AHP) have led to its widespread application in various domains, including planning, project ranking, allocation of resources, and making decision. Its popularity as an effective multi-criteria decision-making approach has attracted significant interest from researchers. Additionally, AHP's popularity stems from its capability in calculating weightages in multi-criteria problems. Despite its widespread use, AHP has faced criticism from some researchers. Belton and Gear (1983) pointed out the potential for a rank reversal issue to arise when a closely similar option is introduced to the existing set of alternatives. Additionally, concerns have been raised about the potential lengthiness and complexity of the judgment task when there is many pairwise comparisons due to a high number of criteria (Macharis et al., 2004). However, in this research, the limitations mentioned do not pose significant challenges, as the criteria under consideration are manageable and do not impose an undue burden on the person making decision. In this study, AHP has been chosen as the multi-criteria decision-making technique to assess the weighting of different categories of housing attributes.. In this context, subjective opinions, such as satisfaction levels and preferences, gathered from respondents based on their experiences become crucial inputs for weightage calculations. While some critics argue that relying solely on respondent opinions may introduce inconsistency, Tomar and Borad (2012) assert that AHP accommodates some level of inconsistency in judgments due to the inherent variability in human perspectives.

The application of AHP involves several fundamental procedures. Zahedi (1986) outlines four basic steps: structuring the decision problem, making pairwise comparisons, obtaining the judgmental matrix, and computing local weights and consistency. In the next step, a series of pairwise comparison matrices is created. Each element is systematically compared with every other element using 1 to 9 scales. Reciprocal values are applied in each comparison, as determined by the respondents, resulting in a matrix containing values from 1/9 to 9. Respondents express their preferences through a pairwise questionnaire, comparing two cost categories at a time. The results are then converted into a judgmental matrix. The third step involves computing local weights and assessing the consistency of comparisons. The weightage for each criterion is derived using the eigenvector technique based on the judgmental matrix. At the same time, the reliability of the judgments is assessed using the eigenvalue, λ max. Subsequently, the consistency ratio is calculated to verify that the initial preference ratings

remain consistent. The consistency index (CI) is calculated to arrive at the consistency as below,

$$CI = \frac{\lambda \max - n}{n - 1}$$

The computed CI indicates the level of consistency in one's judgment. According to Saaty (1980), it is desirable for a decision maker to consistently achieve a CI of 0, although minor inconsistencies may be tolerable depending on the context. Following the calculation of CI, the consistency ratio (CR) is then determined.

$$CR = \frac{CI}{RI\ (random\ index)}$$

The Consistency Ratio (CR) acts as a measure to gauge and confirm the consistency in the pairwise comparisons conducted by respondents. When the calculated CR is 0.1 or lower (CR $\leq$ 0.1), the judgments are deemed consistent and valid. Conversely, if the CR exceeds 0.1 (CR $\geq$ 0.1), it indicates inconsistency in the judgments, requiring further review. (Tomar and Borad, 2012). It's important to highlight that Cheng and Li (2002) have raised concerns regarding the applicability of the 0.1 CR threshold, suggesting that it's suitable only for matrices larger than 4 x 4. They propose that for a 3 x 3 matrix, the acceptable CR value should be 0.05, and for a 4 x 4 matrix, it should be 0.08. Additionally, the Random Index (RI) serves as the Consistency Index (CI) of a randomly generated pairwise comparison matrix, with its values derived by Saaty based on the matrix order 'n'. However, according to Daniel Ho & Graeme Newell (2005), a Consistency Ratio (CR) of less than 0.2 is considered acceptable. All AHP analyses were conducted using the Expert Choice software, recognized as the top software package for decision-making support systems (Zapatero et al., 1997).

Finally, the priorities assigned to each compared criterion are determined based on the derived weightages. In this research, the weightages calculated through AHP will be converted into percentages, offering insights into the proportional of each attribute. Consequently, the researcher can discern which attribute commands the highest factor. These weightages essentially indicate the priorities of housing attribute when practitioners allocate their proposal. Within the realm of AHP, two distinct methods are employed for calculating pairwise comparison matrices: the eigenvector method (EM) and the weighted geometric mean method

(WGMM). The EM method is used to calculate individual judgment matrices, and the WGMM method to compute group judgment matrices. The group judgment matrix is formed by averaging the ranked criteria for each housing attribute using the WGMM approach. In this study, we find it appropriate to construct a group judgment matrix using the WGMM technique. This choice is justified by the recognition that relying solely on individual judgments may not adequately explain the priorities and weightages assigned to the identified housing attributes.

To calculate the average weight assigned by the 31 respondents, we used the Weighted Geometric Mean Method (WGMM) to determine the values assigned to each housing attribute by each respondent. For example, when comparing house layout with unit size and maintenance costs, the ranked values assigned by each respondent (ranging from 1 to 10) were: respondent 1 = 5, respondent 2 = 6, respondent 3 = 5, respondent 4 = 6, respondent 6 = 4, respondent 8 = 5, respondent 9 = 6, and respondent 10 = 4. Then, we computed the geometric mean for the comparison between capital costs and operation and maintenance costs.

$$\sqrt[8]{5 \times 6 \times 5 \times 6 \times 4 \times 5 \times 6 \times 4} = 5.063$$

This process was replicated for all other comparisons to obtain the geometric mean values. The detailed calculations can be found in Appendix K. The results of each comparison were then compiled into a group judgment matrix, as illustrated in Table 4.8. Utilizing this pairwise comparison matrix, the priority vector (weightage), Consistency Index (CI), and Consistency Ratio (CR) for each category were subsequently calculated.

3.7 Data Analysis

Once all data has been collected, it will be compiled into Excel format for further processing. The raw data will then be transformed into numerical values and organized into a suitable format. AHP analysis for Sections A to G will be conducted using Microsoft Excel. This research employs descriptive analysis to examine demographic information using frequency analysis, providing insights into respondent characteristics. Additionally, AHP analysis will be utilized to determine the relative importance of various factors influencing homebuyers' decision-making processes. This method facilitates a systematic comparison of criteria such as housing design, neighborhood amenities, utility services, public infrastructure, and environmental attributes by assigning weights based on respondent preferences.

3.7.1 Descriptive Analysis

Descriptive analysis involves processing raw data provided by respondents to gain deeper insights and present findings in tabular form. It primarily focuses on analysing background information, particularly demographic details, to ensure accuracy and enhance understanding of the respondent profile. This research will utilize descriptive analysis to examine demographic factors to enabling a comprehensive understanding aligned with respondent demographics. Furthermore, the researcher collects additional data to understand the respondents' current accommodation status, monthly expenditure on accommodation, intention to purchase a house, and their preference for landed housing.

3.7.2 AHP Analysis

The Analytic Hierarchy Process (AHP) stands out as one of the most prevalent and extensively utilized multicriteria methodologies. This technique seamlessly combines the processes of evaluating alternatives and aggregating them to identify the most pertinent options. It is utilized for prioritizing a group of alternatives or for determining the optimal choice within a selection of alternatives. This prioritization or selection is performed in relation to an overarching objective, which is further broken down into a set of criteria. The execution of this methodology involves establishing the relative importance weights allocated to each criterion in shaping the overall objective. This is done by comparing the criteria pairwise. The first step in AHP analysis is to build the hierarchy by referring to the goal and objective. After that, the paired choices will be identified. Then, the researcher will identify the major factors that will be used in evaluating each option. Next, the criterion that are needed to be considered for each major factors will be linked with the major factors. The hierarchy of decision criteria will be further developed until all relevant factors have been identified and interconnected. In subsequent step, the priorities will be established where the criteria preference will be determined using the paired comparison and that preference will be rated from 1 to 9. Finally, the weighted criteria score will be calculated and all ranking data will be combined and the priority will be determined based on the final score for priority vector in each alternative.

3.8 Findings Presentation

The results of data analysis will be focusing on two main components, which is demographic-related data and the Analytic Hierarchy Process (AHP) analysis. The demographic-related data obtained from the survey respondents such as age, gender, income level, education level, and other relevant demographic characteristics. The data will be organized into clear and structured tables, allowing readers to easily grasp the composition of study sample. Descriptive statistics and summaries will accompany the tables to highlight key findings and trends observed in the demographic data. The results of the AHP analysis will be presented showcasing the priority vector values assigned to each attribute considered in the study, encompassed housing design, neighbourhoods' amenities, utility services, public infrastructure, and environmental attributes. Tables will display the priority vector values for each attribute, emphasizing their relative importance in influencing homebuyer satisfaction. Additionally, a radar chart will be created to visually represent the AHP results. Each axis of the chart will correspond to one attribute considered, with the length of each axis reflecting the priority vector value assigned to that attribute. The spider chart will showcase and highlight which attributes are most important to homebuyers based on the AHP analysis and the relative importance of different attributes in influencing homebuyer satisfaction.

3.9 Conclusion

The researcher outlined the methodology employed in our research study. Began by discussing the research philosophy, strategy, and time horizon, providing insights into the overarching framework guiding the investigation. The design of questionnaire and the survey procedure were detailed, along with the sampling method to ensure the representativeness of the sample. Further elaborated on the research instrumentation AHP are used to analyse the data and prioritize different housing attributes. Furthermore, the findings will be presented using both tabular representations of demographic data and spider charts illustrating the importance of various housing attributes according to the AHP analysis in the following chapter.

CHAPTER 4

DATA ANALYSIS

4.0 Introduction

The researcher will delve into the outcomes derived from the distribution of 31 survey questionnaires among the respondents. The analysis will encompass two main approaches: descriptive analysis, which provides a detailed overview of the gathered data, and AHP analysis, which evaluates the relative importance of different criteria influencing the decision-making process of the respondents.

4.1 Descriptive Analysis

To gain a better understanding of each respondent's demographic profile, the survey questionnaire for this research included a series of socio-demographic questions. These questions aimed to gather information regarding the respondents' gender, age, monthly income, and educational attainment. Additionally, inquiries about monthly accommodation expenses, intention to purchase a house, current living situation, and consideration to stay in a landed house were included to explain respondents' accommodation status and home purchasing decisions. The profiles obtained will be reported in subsequent part.

4.1.1 Current Accommodation Status

For the question of "Do you own the house that you are currently staying?" 12 respondents (38.7%) reply yes and they are the sole owner for the house that they bought. It is followed by 7 respondents (22.6%) saying that no and the house is owned by my family members such as spouse, parents, and brothers, 6 respondents (19.4%) reply that they are the co-owner for the house, and 3 respondents (9.7%) reply no on the respective statements that they rent the house and rent the room over there.

Among those who responded affirmatively, comprising 38.7% of respondents, a significant portion indicated sole ownership of their current residence. This suggests a substantial presence of homeowners within the surveyed population, reflecting a propensity towards property ownership and investment in real estate assets. The 22.6% of respondents who indicated that they do not own the house but reside in a property owned by family members, such as spouses, parents, or siblings, highlight the prevalence of familial housing arrangements and intergenerational support in the housing market. This underscores the importance of familial ties and collaborative living arrangements in meeting housing needs and ensuring housing security for individuals.

Additionally, the 19.4% of respondents who reported being co-owners of the house signify a trend towards joint property ownership or shared housing arrangements, which may involve partnerships with family members, spouses, or other cohabitants. Such arrangements can offer benefits such as shared financial responsibility, enhanced housing affordability, and strengthened social ties among co-owners.

Furthermore, the 9.7% of respondents who indicated that they rent the house or room they occupy highlight the prevalence of rental tenure arrangements within the housing market. Renting remains a viable housing option for individuals seeking flexibility, mobility, or affordability in their housing arrangements, catering to diverse lifestyle preferences and financial circumstances.

Overall, the varied distribution of responses reflects the multifaceted nature of housing tenure and ownership arrangements, underscoring the importance of understanding individual preferences, constraints, and circumstances in shaping housing decisions and tenure choices. This nuanced understanding is crucial for policymakers, developers, and housing providers in

designing housing solutions that meet the diverse needs of the population and promote inclusive and sustainable housing outcomes.

Table 4.1: Current Accommodation Status of Respondents

DO YOU OWN THE HOUSE THAT YOU CURRENTLY STAYING ?

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Yes. I am the sole owner for the house I am currently staying	12	38.7	38.7	38.7
Yes. I am co-owner for the house I am currently staying ?	6	19.4	19.4	58.1
No. Is owned by my family members (wife/husband, parents, brothers, etc)	7	22.6	22.6	80.6
No. I rent the house	3	9.7	9.7	90.3
No. I rent a room there	3	9.7	9.7	100.0
TOTAL	**31**	**100.0**	**100.0**	

4.1.2 Monthly Expenses on Accommodation

In terms of the monthly amount spent on accommodation, the highest number of respondents, which are 8 respondents (25.8%) spend more than RM3,000 on monthly accommodation while the lowest number of respondents which are 2 respondent (6.5%) spend between RM501 to RM1,000 on monthly accommodation. 3 respondents (9.7%) do not spend any cents on accommodation, probably they have done paying the house instalment. Besides, 4 respondents (12.9%) spend lesser than RM500 and between RM1,501 to RM2,000 respectively. Aside from that, 5 respondents (16.1%) spend between RM1,001 to RM1,500 and RM2,001 to RM2,500 monthly on their accommodation. In general, it can be noticed that the monthly accommodation has constituted a substantial portion of the monthly income.

The highest number of respondents allocating more than RM3,000 towards monthly accommodation expenses reflects the significant financial burden associated with securing suitable housing options, particularly in urban areas where rental and property prices tend to be higher. This suggests that a considerable portion of respondents' income is dedicated to

meeting their housing needs, underscoring the importance placed on comfortable and secure living arrangements.

Conversely, the presence of respondents who spend lesser amounts, such as between RM501 to RM1,000 or less than RM500, highlights the diverse range of accommodation options available to individuals with varying budgetary constraints. It may also indicate preferences for more affordable housing solutions or alternative living arrangements, such as shared accommodation or smaller living spaces.

Furthermore, the subset of respondents who do not incur any accommodation expenses likely represents homeowners who have already paid off their mortgage or individuals residing with family members or in company-provided accommodation. This underscores the importance of considering diverse housing situations and ownership statuses when analysing expenditure patterns and financial behaviours.

Overall, the distribution of respondents' monthly expenditure on accommodation underscores the complex interplay between housing affordability, income levels, and lifestyle preferences. It highlights the diverse range of housing options available to individuals and the significance of housing costs in shaping overall financial well-being and quality of life.

Table 4.2: Monthly Expenses on Accommodation of Respondents

HOW MUCH DO YOU SPEND MONTHLY ON ACCOMMODATION ?

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
No Cost	3	9.7	9.7	9.7
≤ RM 500	4	12.9	12.9	22.6
RM501 - RM1,000	2	6.5	6.5	29.1
RM1,001 - RM1,500	5	16.1	16.1	45.2
RM1,501 - RM2,000	4	12.9	12.9	58.1
RM2,001 - RM2,500	5	16.1	16.1	74.2
> RM3,000	8	25.8	25.8	**100.0**
TOTAL	**31**	**100.0**	**100.0**	

4.1.3 Intention to Own House

For the questions regarding the consideration to purchase a house, 13 respondents (41.9%) voice out that they do not have intention to purchase a house, 11 respondents (35.5%) say they have the plan to purchase a house within 3 to 5 years, and 7 respondents (22.6%) say that have the plan to purchase a house in nearer date which is within 1 to 2 years. Among those surveyed, a notable proportion, comprising 41.9% of respondents, indicated that they currently do not have any intention to purchase a house. This suggests a degree of hesitancy or lack of immediate interest in homeownership among this segment of the population. Possible reasons for this stance could include financial constraints, uncertainty about future plans, or preferences for alternative housing arrangements such as renting. Conversely, the 35.5% of respondents who expressed their intention to purchase a house within the next 3 to 5 years signify a medium-term housing outlook. This group may be in the process of financial planning or saving towards homeownership goals, with aspirations to enter the property market within a defined timeframe. Their readiness to commit to homeownership within this timeframe reflects a sense of stability or confidence in their future housing prospects. Additionally, the 22.6% of respondents who indicated their intention to purchase a house in the nearer term, within 1 to 2 years, highlight a more immediate housing timeline. This subgroup may consist of individuals or households who have already made significant progress towards their homeownership goals, such as accumulating savings, researching property options, or finalizing financial arrangements. Their proactive stance towards purchasing a house in the near future suggests a readiness to capitalize on current market conditions or housing opportunities.

Overall, the varied distribution of responses underscores the diverse housing timelines and aspirations among respondents, reflecting a spectrum of housing preferences, financial circumstances, and life stages.

Table 4.3: Intention to Own a House of Respondents

WILL YOU CONSIDER TO PURCHASE A HOUSE ?

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Yes. I plan to purchase a house within 1-2 years time.	7	22.6	22.6	22.6
Yes. I plan to purchase a house within 3-5 years time.	11	35.5	35.5	58.1
No. I don't have the intention to purchase	13	41.9	41.9	**100.0**
TOTAL	**31**	**100.0**	**100.0**	

4.1.4 Landed House Preference

Regarding the question of whether the respondents will consider to stay in landed housing, approximately all which are 30 respondents (96.8%) choose yes except 1 respondent (3.2%) select the choice no for this question.

The overwhelming majority of respondents expressing a preference for landed housing, with 96.8% indicating a willingness to consider this housing option, underscores the enduring appeal and desirability of such properties among potential homebuyers. This strong inclination towards landed housing may be attributed to various factors, including the perceived benefits of space, privacy, and autonomy associated with this type of accommodation.

The widespread preference for landed housing reflects a broader cultural and societal inclination towards homeownership and traditional dwelling arrangements, wherein individuals prioritize the ownership of standalone properties with their own land and outdoor space. Landed housing is often associated with notions of stability, security, and long-term investment, appealing to individuals seeking to establish roots and build assets over time. Furthermore, the preference for landed housing may also be influenced by lifestyle considerations, such as the desire for a larger living space, outdoor amenities like gardens or yards, and greater control over property customization and landscaping. Additionally, factors such as perceived prestige, status, and family-oriented living may contribute to the attractiveness of landed housing options among respondents. Conversely, the minority respondent who indicated a preference against staying in landed housing may have distinct lifestyle preferences, financial considerations, or practical constraints that inform their decision. It is essential to explore the underlying motivations and factors driving this response further to gain a comprehensive understanding of individual housing preferences and aspirations.

Overall, the overwhelming majority of respondents expressing a positive inclination towards landed housing underscores its enduring popularity and relevance in the residential property market, highlighting the importance of this housing option in meeting diverse consumer needs and preferences.

Table 4.4: Preference to Stay in Landed House of Respondents

WILL YOU CONSIDER TO STAY IN LANDED HOUSE ?

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
NO	1	3.2	3.2	3.2
YES	30	96.8	96.8	**100.0**
TOTAL	**31**	**100.0**	**100.0**	

4.1.5 Gender

Out of the total 31 respondents, there are 13 (41.9%) male respondents and 18 (58.1%) female respondents involved in this research. Further analysis of the respondent demographics reveals a relatively balanced gender distribution, with 13 male respondents comprising 41.9% of the total sample and 18 female respondents representing 58.1%. This gender distribution provides a diverse perspective on housing preferences and decision-making processes, allowing for a comprehensive understanding of the factors influencing accommodation choices.

Understanding the gender breakdown within the sample is essential for identifying potential variations in housing preferences, priorities, and needs based on gender differences. By examining the responses of male and female respondents separately, researchers can uncover nuanced insights into how gender influences housing preferences, lifestyle choices, and decision-making criteria.

Table 4.5: Gender of Respondents

GENDER

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
MALE	13	41.9	41.9	41.9
FEMALE	18	58.1	58.1	**100.0**
TOTAL	**31**	**100.0**	**100.0**	

4.1.5 Age

In terms of age, one-third of total respondents which are 10 respondents (32.3%) are aged between 26 to 30 years old, 8 respondents (25.8%) are aged between 31 years old to 35 years old, 7 respondents (22.6%) are aged between 36 years old to 40 years old, 5 respondents (16.1%) are aged 41 years old and above and the remaining 1 respondent (3.2%) is aged

between 21 years old to 25 years old. It is good to involve respondents from different age category so that a more diverse opinion can be gathered from different age category respondents as there is possibility where different age group might give different opinions as they reach different stage in life. It is beneficial to involve respondents from various age categories as it allows for a more comprehensive understanding of perspectives across different stages of life. Each age group may offer unique insights and experiences shaped by their life circumstances, responsibilities, and priorities. For example, younger respondents in their twenties may prioritize affordability, flexibility, and proximity to urban amenities, reflecting their early career stages and lifestyle preferences.

On the other hand, respondents in their thirties and forties may place greater emphasis on factors such as family-friendly features, long-term investment potential, and community amenities, as they navigate family and career responsibilities. By including respondents from diverse age groups, researchers can capture a broader range of perspectives and better address the varied needs and preferences within the target population. This approach enhances the richness and validity of the research findings, enabling more informed decision-making in the relevant context.

Table 4.6: Age of Respondents

AGE

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
21 - 25	1	3.2	3.2	3.2
26 - 30	10	32.3	32.3	35.5
31 - 35	8	25.8	25.8	61.3
36 - 40	7	22.6	22.6	83.9
41 and Above	5	16.1	16.1	**100.0**
TOTAL	**31**	**100.0**	**100.0**	

4.1.6 Highest Education Level

In terms of highest education level, majority respondents which are 22 respondents (71.0%) are currently degree holders, 4 respondents (12.9%) are diploma holder and master holder respectively, and there is only 1 respondent (3.2%) end their studies at high school level only. It clearly shows the gradual increasing of overall education level over the decades where most people nowadays are bachelor degree holders. The distribution of respondents across different education levels provides valuable insights into the educational landscape within the surveyed population. The predominance of degree holders among the respondents, comprising 71.0% of

the sample, underscores the increasing emphasis placed on higher education in contemporary society. This trend reflects broader societal shifts towards a knowledge-based economy, where advanced education is often seen as essential for career advancement, personal development, and economic prosperity. The significant representation of degree holders suggests a growing emphasis on specialized knowledge and skills acquisition, as individuals pursue higher education to enhance their professional qualifications and marketability in an increasingly competitive job market. Furthermore, the presence of respondents with diploma and master's qualifications highlights the diversity of educational pathways pursued by individuals, each offering unique opportunities for skill development and career advancement.

Moreover, the limited number of respondents with high school-level education underscores the declining prevalence of individuals who conclude their formal education at this level. This trend aligns with global efforts to promote higher levels of educational attainment and improve access to tertiary education opportunities. Overall, the distribution of respondents across different education levels reflects the evolving educational landscape and underscores the importance of lifelong learning and continuous skill development in today's knowledge-driven society.

Table 4.7: Highest Level of Education of Respondents

HIGHEST LEVEL OF EDUCATION

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
High School	1	3.2	3.2	3.2
Diploma	4	12.9	12.9	16.1
Degree	22	71.0	71.0	87.1
Master	4	12.9	12.9	**100.0**
TOTAL	**31**	**100.0**	**100.0**	

4.1.7 Monthly Income

In terms of monthly income, the highest number of respondents which are 15 respondents (48.4%) out of 31 respondents earn a monthly income between RM5,001 to RM10,000 and the least number of respondents which is only 1 respondent (3.2%) earns the monthly income of less than RM2,000 and more than RM20,000 respectively. Besides, 9 respondents (29.0%) make the monthly income between RM2,001 to RM5,000 and the remaining 5 respondents (16.1%) earns the monthly income between RM10,001 to RM20,000. This phenomenon has clearly indicated the phenomenon of middle-income trap encountered by Malaysia as majority

people manage to earn the middle-income level only. The distribution of respondents' monthly income provides valuable insights into the economic landscape and income levels within the surveyed population. The predominance of respondents earning a monthly income between RM5,001 to RM10,000, comprising 48.4% of the sample, highlights the prevalence of individuals within the middle-income bracket. This phenomenon underscores the challenges associated with the middle-income trap, wherein a significant proportion of the population remains stuck in the middle-income range without substantial upward mobility. The concentration of respondents within the RM5,001 to RM10,000 income range reflects the broader economic realities and structural constraints faced by individuals in Malaysia. Despite efforts to achieve higher levels of economic development and income growth, many individuals continue to grapple with stagnant wages, limited job opportunities, and rising living costs, contributing to the persistence of the middle-income trap.

Furthermore, the presence of respondents earning monthly incomes below RM2,000 and above RM20,000 highlights the economic diversity within the surveyed population. While a small percentage of respondents fall below the lower income threshold, indicating financial vulnerability and economic challenges, the presence of individuals earning higher incomes signifies pockets of affluence and economic prosperity. Overall, the distribution of respondents across different income brackets underscores the multifaceted nature of Malaysia's economic landscape and the complex interplay of factors shaping income levels and economic opportunities. Addressing the middle-income trap requires comprehensive policy interventions aimed at fostering sustainable economic growth, enhancing productivity, promoting innovation, and ensuring equitable access to economic opportunities for all segments of society.

Table 4.8: Monthly Income of Respondents

MONTHLY INCOME

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Less than RM2,000	1	3.2	3.2	3.2
RM2,001 - RM5,000	9	29.0	29.0	32.3
Rm5,001 - RM10,000	15	48.4	48.4	80.6
RM10,001 - RM20,000	5	16.1	16.1	96.8
More than RM20,000	1	3.2	3.2	**100.0**
TOTAL	**31**	**100.0**	**100.0**	

4.2 Analytic Hierarchy Process (AHP) Analysis

4.2.1 Accommodation Criteria

In this section, 5 criterions have been identified, namely housing design, neighbourhood amenities, utility services, public infrastructure, and environmental attributes.

Table 4.9: Result Computed for Each Housing Attributes

HOUSING ATTRIBUTES	Housing Design	Neighbourhood Amenities	Utility Services	Public Infrastructures	Environmental Attributes	Priority Vector	Weighted Sum Matrix	Consistency Measure
Housing Design	1	1.7463	0.9527	1.4225	2.0225	0.2654	1.3302	5.0115
Neighbourhood Amenities	0.5727	1	0.8199	0.9565	1.6917	0.1836	0.9183	5.0018
Utility Services	1.0497	1.2197	1	1.1929	1.8121	0.2375	1.1883	5.0037
Public Infrastructures	0.6602	1.0455	0.8383	1	1.7367	0.1935	0.9681	5.0024
Environmental Attributes	0.4944	0.5781	0.5519	0.5758	1	0.1200	0.5998	5.0003
							λ max	5.0039
							Consistency Index (CI)	0.0010
							Consistency Ratio (CR)	0.0009

Based on the computation, the rank of variable under accommodation criteria is housing design, utilities services, public infrastructure, neighbourhood amenities, and environmental attributes. From the result shown in Table 4.10, the housing design attribute is the most important elements that has the highest priority vector value of 0.2654 which is represent the weightage of 26.54% of decisions. Following by the utility services with priority vector value of 0.2375 which represent weightage 23.75%, public infrastructure represents 0.1935 (19.35%) of final decisions, neighbourhood amenities represent 0.1836 (18.36%) of final decisions, and environmental attributes represent 0.1200 (12.00%) of final decisions.

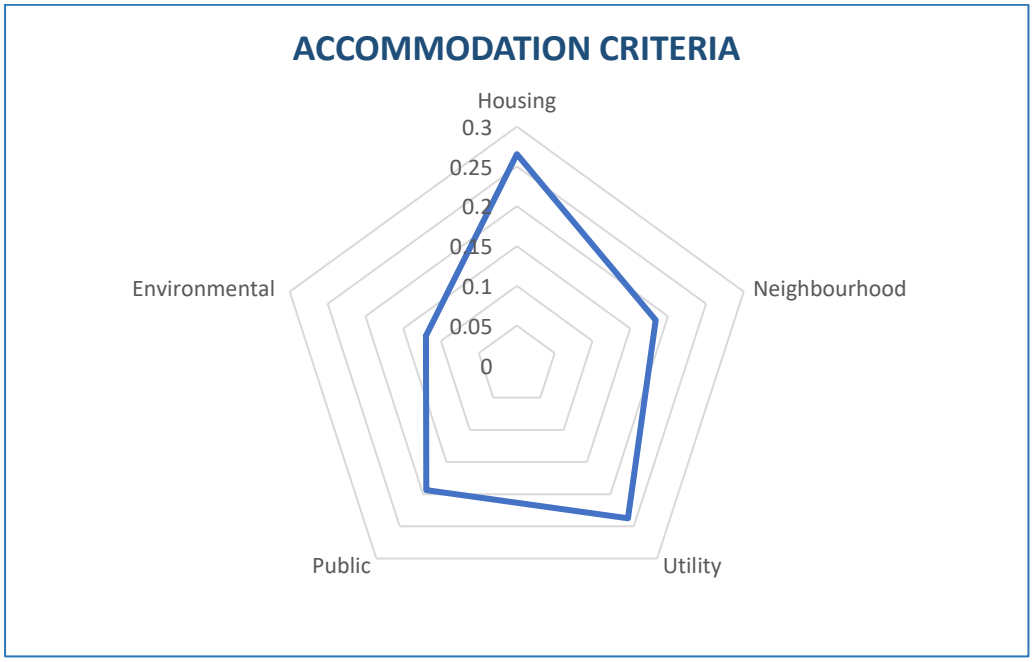
This ranking indicates that among the accommodation criteria, housing design holds the highest importance in the decision-making process for homebuyers, accounting for 26.54% of their considerations. Following closely behind is the utility services aspect, which contributes significantly at 23.75%. Public infrastructure holds the third position with a weightage of 19.35%, highlighting its importance in influencing homebuyers' decisions.

Furthermore, neighbourhood amenities and environmental attributes also play significant roles, representing 18.36% and 12.00% of the final decisions, respectively. This suggests that homebuyers value not only the physical aspects of the property itself but also the surrounding amenities and environmental factors when making their purchasing decisions. The weightage

calculated from this research also reflects the importance of each attribute in the perception of the respondents. As the value of CI calculated is 0.0010 which is near to 0 values, thus it is said to be tolerable and the CR value obtained is 0.0009 which said to be acceptable as the value calculated is less than 0.05.

This analysis underscores the multifaceted nature of homebuyers' preferences and the importance of considering various factors beyond just the property's physical attributes. It provides valuable insights for developers and real estate professionals in prioritizing their investments and meeting the evolving needs and satisfaction of homebuyers.

Figure 4.1: Comparison Weightage of Accommodation Criteria for Housing Attributes



The graph 4.1 visually represents the relative importance of different accommodation criteria in the preference and satisfaction for homebuyers. Each axis on the graph corresponds to a specific criterion, including housing design, utility services, public infrastructure, neighbourhood amenities, and environmental attributes.

4.2.2 Housing Design

In this section, 4 criterions have been identified, namely functional layout, natural light and ventilation, smart home technology, and unit size.

Table 4.10: Result Computed for Housing Design Elements

HOUSING DESIGN	Functional Layout	Natural Light & Ventilation	Unit Size	Smart Home Technology	Priority Vector	Weighted Sum Matrix	Consistency Measure
Functional Layout	1	1.8701	1.4094	5.1348	0.4043	1.6219	4.0118
Natural Light & Ventilation	0.5347	1	0.5472	2.7703	0.2006	0.8034	4.0058
Unit Size	0.7095	1.8276	1	4.0010	0.3185	1.2786	4.0142
Smart Home Technology	0.1948	0.3610	0.2499	1	0.0767	0.3074	4.0099
						λ max	4.0104
						Consistency Index (CI)	0.0035
						Consistency Ratio (CR)	0.0039

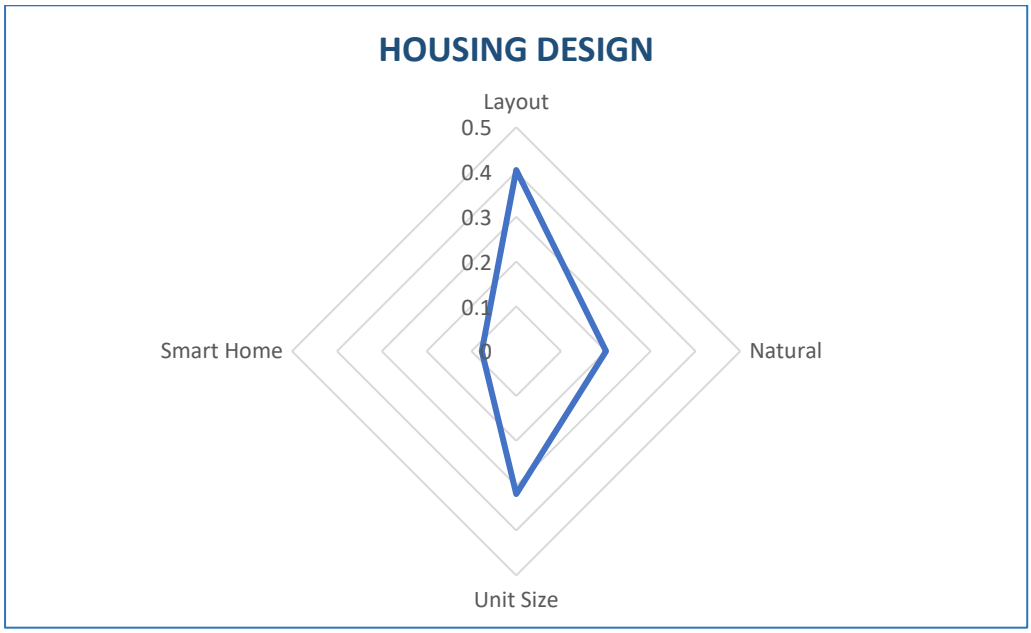
According to the findings above, the priority of influence on housing design is delineated by several key factors. Foremost among these is the functional layout, which commands the highest weightage at 40.43% of total decisions.

Following behind is the unit size, with 31.85% of decisions, indicating its significant impact on housing design preferences. Additionally, natural light and ventilation emerge as pivotal considerations, representing 20.06%. This underscores the importance of access to natural elements in shaping the desirability of residential spaces.

Lastly, while smart home technology holds a relatively lower weightage at 7.67%, its presence still contributes to the overall decision-making process, albeit to a lesser extent. These insights gleaned from the AHP analysis provide valuable guidance for understanding the nuanced priorities and preferences of individuals when it comes to housing.

The weightage derived from this research mirrors the significance of each attribute as perceived by the respondents. With a computed CI value of 0.0035, nearing zero, it is considered tolerable. Furthermore, the CR value obtained, measuring 0.0039, is deemed acceptable as it falls below the threshold of 0.05.

Figure 4.2: Comparison Weightage of Housing Design for Housing Attributes



The graph 4.2 visually represents the relative importance of different Housing Design in the preference and satisfaction for homebuyers. Each axis on the graph corresponds to a specific criterion, including functional layout, unit size, natural lighting and ventilation, and smart home technology.

4.2.3 Neighbourhood Amenities

In this section, 4 criterions have been identified, namely educational facilities, healthcare and wellness centre, retail services, and place of worship.

Table 4.11: Result Computed for Neighbourhood Amenities

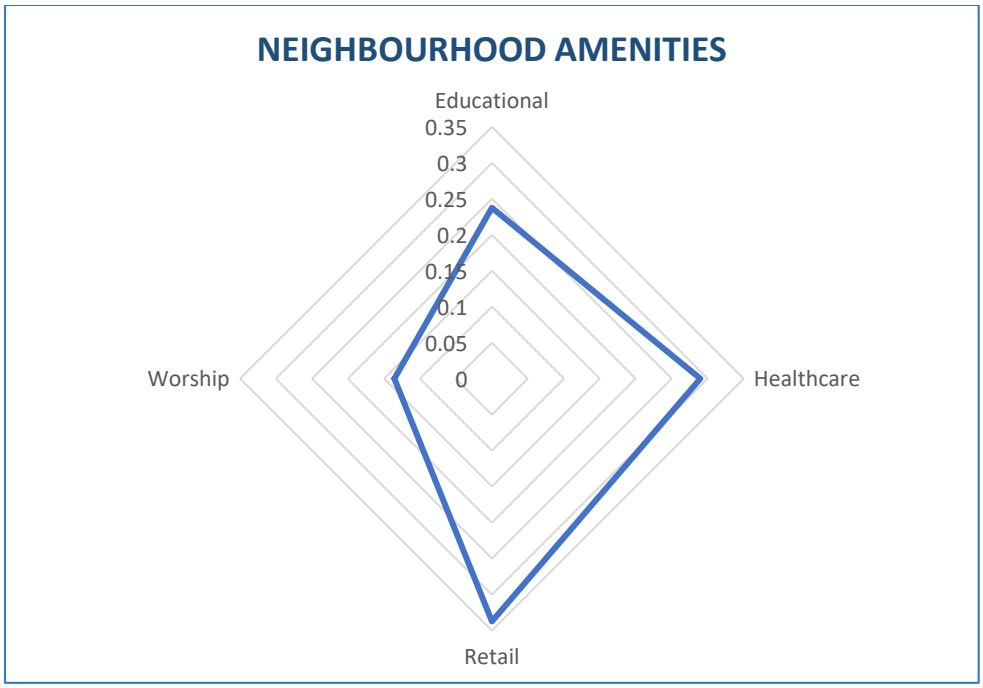
NEIGHBOURHOOD AMENITIES	Educational Facilities	Healthcare & Wellness Centre	Retail Services	Place of Worship	Priority Vector	Weighted Sum Matrix	Consistency Measure
Educational Facilities	1	0.7820	0.6792	1.9910	0.2376	0.9630	4.0533
Healthcare & Wellness Centre	1.2787	1	0.6697	2.6395	0.2897	1.1770	4.0628
Retail Services	1.4723	1.4933	1	1.8550	0.3372	1.3710	4.0655
Place of Worship	0.5023	0.3789	0.5391	1	0.1355	0.5464	4.0321
						λ max	4.0534
						Consistency Index (CI)	0.0178
						Consistency Ratio (CR)	0.0198

The findings indicate that among the neighbourhood amenities, retail services are the highest priority, with a priority vector value of 0.3372, representing 33.72% of total decisions. This

underscores the importance of convenient access to retail establishments in shaping homebuyers' preferences. Following by healthcare and wellness centres, with a priority vector value of 0.2897 or around 28.97% of total decisions. This suggests that access to healthcare facilities and wellness services significantly influences homebuyers' decisions. Educational facilities rank third (3) in priority, with a priority vector value of 0.2376 or 23.76% of total decisions. This highlights the importance of proximity to educational institutions in attracting potential homebuyers, especially those with families or individuals prioritizing education. Lastly, place of worship holds a lesser priority compared to the other amenities, with a priority vector value of 0.1355, contributing to around 13.55% of total decisions. This indicates that proximity to places of worship may be less influential compared to other amenities in the neighbourhood.

In General, these findings emphasize the diverse factors that influence homebuyers' decisions regarding neighbourhood amenities, ranging from retail services to healthcare, education, and places of worship. Developers and real estate professionals can use this information for their reference for the potential homebuyers.

Figure 4.3: Comparison Weightage of Neighbourhood Amenities for Housing Attributes



The graph 4.3 visually represents the relative importance of different Neighbourhood Amenities in the preference and satisfaction for homebuyers. Each axis on the graph corresponds to a specific criterion, including retail services, healthcare and wellness centre, educational facilities, and place of worship.

4.2.4 Utility Services

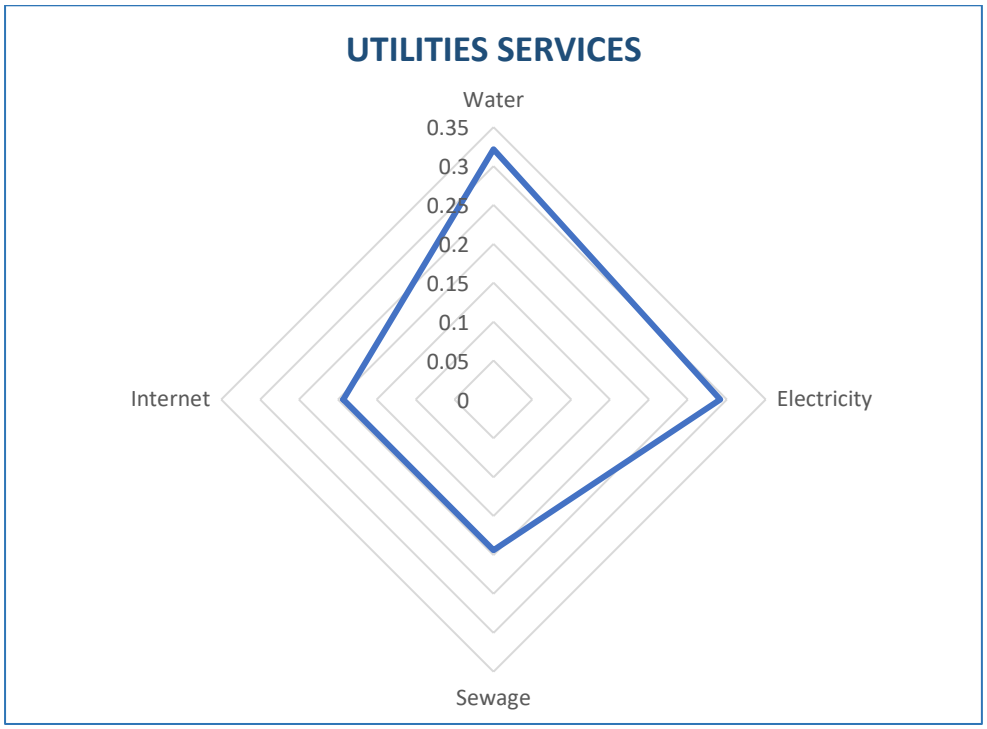
In this section, 4 criterions have been identified, namely water supply, sewage system, electricity supply, and high-speed internet

Table 4.12: Result Computed for Utilities Services

UTILITIES SERVICES	Water Supply	Electricity Supply	Sewage System	High-Speed Internet	Priority Vector	Weighted Sum Matrix	Consistency Measure
Water Supply	1	1.1015	1.7478	1.5875	0.3215	1.2880	4.0056
Electricity Supply	0.9079	1	1.5746	1.4454	0.2915	1.1678	4.0054
Sewage System	0.5721	0.6351	1	1.1032	0.1938	0.7760	4.0037
High-Speed Internet	0.6299	0.6918	0.9065	1	0.1931	0.7730	4.0033
						λ max	4.0045
						Consistency Index (CI)	0.0015
						Consistency Ratio (CR)	0.0017

The analysis findings above reveal that among the utility services, water supply is highest priority with the priority vector value 0.3215 which is around 32.15% of total decisions related to utility services. This shows the fundamental importance of reliable of having clean water, which is indispensable for daily living activities and household functioning. Electrical supply rank second in priority, representing 29.15% or priority vector value of 0.2915. This indicates the critical role of uninterrupted power supply in shaping homebuyers' preferences, particularly in areas prone to electrical outages or fluctuations. The sewage system also holds substantial importance, slightly lower compared to water and electrical supply, with a weightage of 19.38%. Lastly, high-speed internet, while still significant, represents a slightly lower priority in homebuyers' decision-making processes, constituting 19.31% of total decisions related to utility services. However, the connectivity to high-speed internet access is increasingly valued to homebuyers for various purposes, including remote work, online communication, entertainment, and education.

Figure 4.4: Comparison Weightage of Utilities Services for Housing Attributes



The graph 4.4 visually represents the relative importance of different Utilities Services in the preference and satisfaction for homebuyers. Each axis on the graph corresponds to a specific criterion, including water supply, electrical supply, sewage system and high-speed internet.

4.2.5 Public Infrastructure

In this section, 4 criterions have been identified, namely police station and fire department, accessible via highways, public transportation, and community hall.

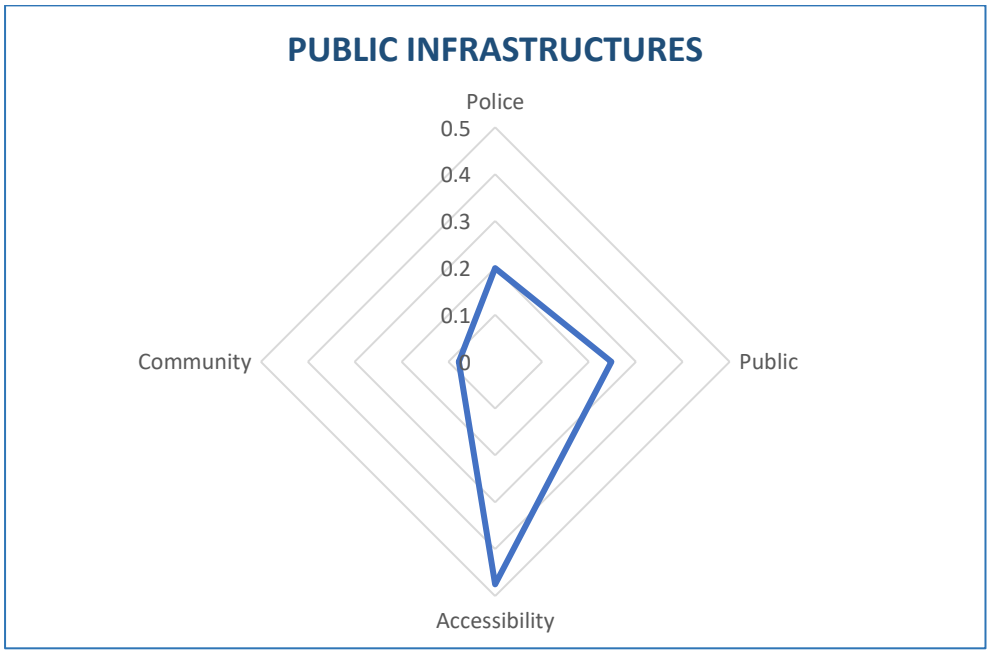
Table 4.13: Result Computed for Public Infrastructures

PUBLIC INFRASTRUCTURES	Police Stattion & Fire Department	Public Transportation	Accessibility via Highway	Community Hall	Priority Vector	Weighted Sum Matrix	Consistency Measure
Police Stattion & Fire Department	1.0000	0.6590	0.4246	3.0847	0.1996	0.8041	4.0292
Public Transportation	1.5174	1.0000	0.3906	3.5060	0.2477	1.0085	4.0707
Accessibility via Highway	2.3553	2.5603	1.0000	4.7480	0.4750	1.9482	4.1013
Community Hall	0.3242	0.2852	0.2106	1.0000	0.0777	0.3131	4.0305
						λ max	4.0579
						Consistency Index (CI)	0.0193
						Consistency Ratio (CR)	0.0214

From the above findings, accessible via highways emerges as the most significant factor, with a weightage of 47.50% (0.4750) in total decisions related to public infrastructure. The importance of convenient access to major road networks, which not only enhances mobility but also facilitates connectivity to other areas and amenities. Subsequently is the availability of public transportation, which accounts for 24.77% (0.2477) of total decisions. Access to reliable and efficient public transport services is crucial for residents, providing them with alternative commuting options and facilitating mobility within and beyond the local area.

The essential emergency services of police stations and fire departments, also holds substantial importance, constituting 19.96% (0.1996) of total decisions related to public infrastructure. Lastly, community facilities such as community halls, although slightly less prioritized compared to other factors, still contribute 7.77% of total decisions. These spaces serve as venues for social gatherings, events, and community activities, fostering a sense of belonging and social cohesion among residents. In summary, the findings underscore the multifaceted nature of public infrastructure considerations in the housing market. This information can guide developers and urban planners in prioritizing investments for infrastructure development, ensuring that residential areas are equipped with essential amenities and services to meet the diverse needs of homeowners and enhance overall quality of life.

Figure 4.5: Comparison Weightage of Public Infrastructures for Housing Attributes



The graph 4.5 visually represents the relative importance of different Public Infrastructures in the preference and satisfaction for homebuyers. Each axis on the graph corresponds to a specific criterion, including accessibility via highway, public transportation, police station and fire department, and community hall.

4.2.6 Environmental Attributes

In this section, 4 criterions have been identified, namely green space and landscaping, climate-resilient design, green building certification, and gated and guarded community.

Table 4.14: Result Computed for Environmental Attributes

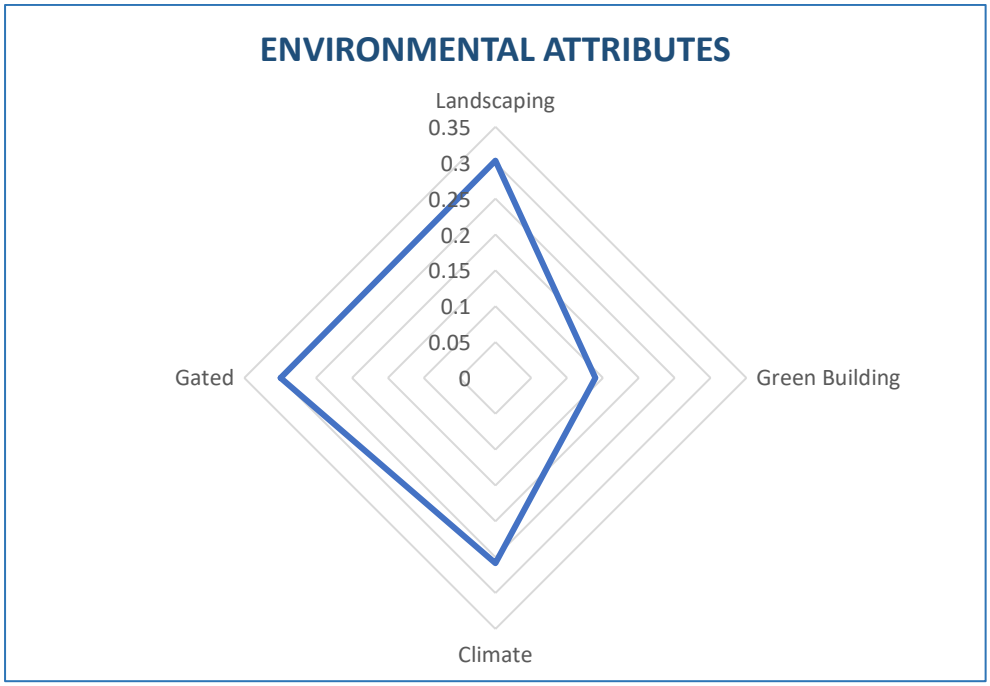
ENVIRONMENTAL ATTRIBUTES	Green Space & Landscaping	Green Building Certification	Climate-Resilient Design	Gated & Guarded Community	Priority Vector	Weighted Sum Matrix	Consistency Measure
Green Space & Landscaping	1	2.1161	1.3126	0.9279	0.3028	1.2149	4.0119
Green Building Certification	0.4726	1	0.4910	0.4993	0.1395	0.5589	4.0062
Climate-Resilient Design	0.7618	2.0368	1	0.8760	0.2583	1.0354	4.0080
Gated & Guarded Community	1.0777	2.0027	1.1415	1	0.2993	1.2000	4.0088
						λ max	4.0087
						Consistency Index (CI)	0.0029
						Consistency Ratio (CR)	0.0032

From the analysis above, green space and landscaping emerge as the most influential factor, representing 30.28% of total decisions related to environmental attributes. This underscores the importance of natural environments and greenery in residential areas, which contribute to enhanced aesthetics, recreational opportunities, and overall well-being for residents. Following is the preference for gated and guarded communities, which with priority vector value of 0.2993 which accounts for 29.93% of total decisions, with gated communities offering a sense of security and exclusivity that appeals to many prospective homeowners.

Climate-resilient design feature rank third in priority, representing 25.83% of total decisions. With the increasing prevalence of extreme weather events and climate change impacts, homebuyers prioritize properties that are designed to withstand environmental challenges and ensure occupant safety and comfort. Lastly is the green building certification, although slightly less prioritized but still contributes significantly to homebuyers, which representing 13.95% of total decisions. Certification schemes like Green Mark indicate that a property meets specific

environmental performance standards, appealing to environmentally-conscious buyers and signalling a commitment to sustainability.

Figure 4.6: Comparison Weightage of Environmental Attributes for Housing Attributes



The graph 4.6 visually represents the relative importance of different environmental attributes in the preference and satisfaction for homebuyers. Each axis on the graph corresponds to a specific criterion, including green space and landscaping, gated and guarded community, climate resilient design, and green building certificates.

4.3 Conclusion

The findings in this chapter were generated from the feedback of 31 respondents, the social-demographic background of the participants was thoroughly analysed in relation to various housing attributes. This analysis provided valuable insights into how different demographic factors influence preferences for housing design, neighbourhoods' amenities, utilities services, public infrastructures, and environmental attributes.

The housing preference attributes identified will be sorted and discussed in a ranking order, starting from the most preferred to the least preferred level. This approach will allow for a comprehensive understanding of the criteria that are most important to homebuyers when considering residential properties. Descriptive statistics were adopted to analyse and identify different social-demographic characteristics among the respondents. This statistical analysis

helped in discovering patterns and trends within the data, enabling a deeper exploration of the relationship between demographics and housing preferences. Furthermore, the Analytic Hierarchy Process (AHP) was utilized to identify the pairwise groupings of significant attributes. By using AHP, we were able to systematically evaluate the relative importance of each housing attribute and its impact on overall homebuyer satisfaction.

As a result of this chapter, the analysis highlights the significance of housing design as the foremost criteria influencing homebuyers' satisfactions and preferences, followed by utility services, public infrastructure, neighbourhoods' amenities, and environmental attributes. These findings underscore the importance of prioritizing well-designed residential properties and ensuring access to essential utilities and amenities to meet homebuyers' needs and preferences effectively.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.0 Introduction

The discussions will be made based on the results from previous chapter. This will cover various topics, including a summary of statistical analyses such as descriptive analysis and AHP analysis. This will be followed by a discussion of the major findings and their implications. Towards the end of the chapter, limitations of the research will be addressed, along with recommendations for future studies.

5.1 Summary of Statistical Analysis

When statistical data from pairwise comparisons of five (5) primary criteria are examined, it is clear that some factors are more significant in determining homebuyer satisfaction in the Klang Valley than others. These factors are housing design, neighbourhood amenities, utility services, public infrastructure, and environmental attributes. As we move on to neighbourhood amenities, we find that retails services stand out as the most important characteristics, follow by healthcare facilities. This suggests that access to retails facilities such and healthcare and wellness centre are crucial when making residential decisions. Following closely after are educational facilities and place of worship, highlighting the significance of a variety of amenities in developing lively and pleasant neighbourhoods.

Respondents rank water supply and electricity supply as the most important utility services, highlighting the critical roles that dependable water access and power supply are essential in enhancing home necessity. Additionally, the provision of sewage system is regarded as essential, but high-speed internet access is regarded as somewhat less significant, suggesting possible differences in respondents' preferences for different infrastructure components. In terms of public infrastructure, the most important criteria are found to be accessibility through highway and public transit, demonstrating the importance of effective transportation networks in terms of residential site choices. Because residential neighbourhoods require safety and security, emergency services offered by police and fire agencies are also quite important.

The desire for green spaces and landscaping, as well as gated and guarded communities, is shown by environmental features, which highlights the significance of security and access to natural surroundings in residential decision-making. Although highly valued, climate-resilient design and green building certification are regarded as somewhat less important, suggesting possible gaps in respondents' objectives for sustainable development. The statistical research emphasises how homebuyer satisfaction is multifaceted and impacted by a variety of factors, including public infrastructure, neighbourhood amenities, dwelling design, utility services, and environmental factors. Although some elements like water supply, educational facilities, transit accessibility, and security are always given priority when it comes to criteria, other characteristics within each category are given varying degrees of weight. In order to improve overall residential happiness in the dynamic environment of the Klang Valley, our findings highlight the necessity of comprehensive urban planning and development policies that prioritise critical facilities and services and accommodate the different preferences of residents.

5.2 Discussion

The computation results highlighting that among the accommodation criteria, housing design as the most critical factor, with a priority value of 0.2654, indicating its significant influence on homebuyers' preferences and satisfaction. Housing design encompasses architectural style, layout, functionality, and aesthetics, shaping residents' comfort and satisfaction. While utility services, public infrastructure, neighbourhood amenities, and environmental attributes also matter, they have comparatively lower priority levels. Developers should prioritize investing in well-designed housing solutions to meet homebuyers' evolving needs.

5.2.1 Housing Design

The finding that the functional layout holds the highest weightage in influencing housing design preferences is particularly significant. The functional layout refers to the arrangement and organization of rooms and spaces within a residential property to optimize usability and efficiency. This result underscores the importance that individuals place on the practical aspects of their living environment. A functional layout is essential for ensuring that the space within a home is utilized effectively to meet the needs and preferences of its occupants. For example, a well-designed layout can facilitate smooth movement between rooms, provide adequate space for various activities such as cooking, dining, and relaxation, and offer sufficient storage solutions to minimize clutter. The high weightage assigned to the functional layout suggests that individuals prioritize practical considerations when evaluating housing options. This may covered the size and the number of bedrooms, configuration of living areas, the placement of bathrooms and kitchen facilities, and the overall flow of the space. A functional layout not only enhances the usability of a home but also contributes to the overall comfort and satisfaction of its occupants.

Moghimi and Jusan (2015) conducted a study to examine the significance consumers attribute to various residential attributes during the process of selecting a house. Their research findings highlighted that the most critical residential attributes shaping decision-making were "space organization," "adequacy of natural ventilation," and "characteristics of space." According to Ghomeshi and Jusan (2012), the aesthetic aspects of residential constructions can be seen in various architectural designs and features. These include factors like the building's layout, materials used, housing design, spatial arrangement and more. When these elements are combined harmoniously with practical functions, they can significantly influence residents' overall satisfaction with the aesthetics of their living space. Furthermore, a study by Ibem et al. (2013) found that satisfaction levels were generally higher with factors related to privacy and the sizes of living and sleeping areas, compared to electricity and water availability in the building. Furthermore, emphasising on the functional layout highlights the importance of adaptability and flexibility in housing design. As individuals' needs and preferences evolve over time, a well-designed layout should be able to accommodate changes and modifications to ensure continued usability and satisfaction. Overall, the finding regarding the significance of the functional layout in housing design preferences underscores the importance of practicality and usability in shaping individuals' decisions when selecting a place to live. This

insight can inform architects, developers, and policymakers in designing and planning residential properties that better meet the needs and expectations of the population.

5.2.2 Neighbourhood Retailing

The analysis highlights the importance of retail services as a key determinant in homebuyers' decisions, representing the highest priority among neighbourhood amenities. With a weightage of 33.72% of total decisions, retail services emerge as the most influential factor shaping homebuyers' preferences. Retail services encompass a broad spectrum of establishments, including grocery stores, supermarkets, shopping malls, convenience stores, boutiques, and specialty shops. These establishments cater to diverse consumer needs, ranging from daily essentials to luxury goods and recreational activities. The convenience and accessibility of retail services are importance which enhancing the living's quality for residents within a neighbourhood.

Homebuyers prioritize proximity to retail establishments for several reasons. Firstly, convenient access to shopping facilities saves time and effort in fulfilling daily needs, such as purchasing groceries, household items, and personal essentials. The availability of diverse retail options allows residents to choose from a wide range of products and services, catering to various preferences and lifestyles. Moreover, retail services contribute to the vibrancy and liveliness of a neighbourhood, fostering a sense of community and social interaction. Shopping centres and commercial areas serve as hubs for socializing, dining, and entertainment, creating opportunities for residents to connect with neighbours and participate in community events. From a practical standpoint, the presence of retail services within close proximity enhances the overall attractiveness and market value of residential properties. Homebuyers perceive neighbourhoods with well-developed retail infrastructure as desirable places to live, as they offer convenience, amenities, and a high quality of life.

Developers and real estate professionals recognize the significance of retail services in shaping homebuyers' preferences and decision-making processes. By strategically incorporating retail components into residential developments, such as mixed-use complexes or integrated townships, they can create holistic and self-sustaining communities that meet the diverse needs of residents. In conclusion, retail services play a pivotal role in influencing homebuyers' decisions regarding neighbourhood amenities. The accessibility and variety of retail

establishments contribute to the desirability, liveability, and marketability of residential properties, highlighting the importance of retail infrastructure in urban planning and development.

5.2.3 Utility Services

The analysis underscores the critical importance of water supply as the highest priority among utility services, with a weightage of 32.15% of total decisions. This finding highlights the fundamental role of reliable access to clean water in shaping homebuyers' preferences and decision-making processes. Water supply is indispensable for various daily activities and household functions, including drinking, cooking, cleaning, sanitation, and hygiene. It is a basic necessity for maintaining health, well-being, and quality of life. Homebuyers prioritize locations with dependable water infrastructure to ensure continuous access to safe and potable water for themselves and their families.

In contrast, while electrical supply ranks second in priority, representing 29.15% of total decisions, it plays a critical role in shaping homebuyers' preferences. Uninterrupted power supply is essential for powering household appliances, lighting, heating, cooling, and electronic devices. Homebuyers value reliable electricity infrastructure to ensure comfort, convenience, and safety within their homes. Similarly, the sewage system holds substantial importance, slightly lower compared to water and electrical supply, with a weightage of 19.38%. A well-functioning sewage system is essential for the proper disposal and treatment of wastewater, preventing environmental contamination and public health risks. Homebuyers prioritize locations with efficient sewage infrastructure to maintain sanitation and hygiene standards.
Lastly, while high-speed internet represents a slightly lower priority in homebuyers' decision-making processes, constituting 19.31% of total decisions related to utility services, its significance should not be overlooked. Homebuyers seek locations with robust internet infrastructure to meet their connectivity needs and enhance their overall quality of life.

In summary, while water supply emerges as the most critical factor among utility services, power supply, sewage system, and internet connectivity also play significant roles in shaping homebuyers' preferences and influencing their decisions regarding residential properties. Developers and real estate professionals should prioritize investments in robust utility infrastructure to meet the evolving needs and expectations of homebuyers.

5.2.4 Public Infrastructure

The impact of location on purchase decisions suggests that a favourable housing location can enhance the likelihood of a purchase. For instance, a location with minimal traffic congestion, easy access to roads, and nearby public facilities tends to positively influence buying decisions. .The analysis highlights that accessibility via highways emerges as the most critical factor among public infrastructure considerations, commanding a substantial weightage of 47.50% in total decisions. This indicates the importance of convenient access to major road networks, which serves as the backbone of transportation infrastructure in urban and suburban areas. Accessible highways play a pivotal role in shaping residents' preferences and influencing their decisions regarding housing and neighbourhood selection. They serve as primary routes for commuting, facilitating seamless connectivity to employment centres, educational institutions, healthcare facilities, and recreational amenities. Residents value easy access to highways as it reduces travel times, enhances mobility, and provides greater flexibility in transportation options. Moreover, proximity to well-connected highways can increase property values, stimulate investment, and create employment opportunities, thereby contributing to the overall prosperity and vibrancy of the locality.

In addition, accessible highways contribute to environmental sustainability by reducing traffic congestion, vehicle emissions, and carbon footprint. Efficient transportation systems encourage the use of public transit, carpooling, and alternative modes of transportation, promoting eco-friendly practices and mitigating environmental impacts. Residents appreciate well-planned highway networks for their positive effects on air quality, noise pollution, and overall environmental health. Overall, the prioritization of accessibility via highways underscores its multifaceted significance in shaping residential preferences, driving economic development, ensuring public safety, and promoting environmental sustainability.

5.2.5 Environmental Attributes

The statistical analysis shows the substantial influence of green space and landscaping, as well as gated and guarded communities, on homebuyers' decisions and preferences. Green space and landscaping emerge as the most influential factor among environmental attributes, representing 30.28% of total decisions. This highlights the significance of natural environments and greenery in residential areas, which contribute to enhanced aesthetics, recreational opportunities, and overall well-being for residents. Green spaces such as parks, gardens, and

tree-lined streets not only enhance the visual appeal of neighbourhoods but also provide opportunities for leisure activities, relaxation, and social interaction. Residents value access to green spaces for their ability to promote physical and mental health, reduce stress, and create a sense of tranquillity and connection with nature. Additionally, well-maintained landscaping adds to the curb appeal of properties, increasing their perceived value and attractiveness to potential buyers

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Gated and guarded communities rank second in priority, accounting for 29.93% of total decisions. These residential developments offer a sense of security and exclusivity that appeals to many prospective homeowners. Gated communities typically feature controlled access points, perimeter fencing, and security personnel, providing residents with a heightened sense of safety and privacy. Additionally, amenities such as surveillance systems, patrols, and community regulations contribute to a secure living environment, reassuring residents and encouraging the feeling of unity within the community. Gated and guarded communities lie in their ability to offer peace of mind and a desirable lifestyle, characterized by amenities, tranquillity, and a sense of belonging.

In summary, green space and landscaping, along with gated and guarded communities, play integral roles in shaping homebuyers' preferences and decisions. Developers and urban planners should prioritize investments in green infrastructure and security features to meet the evolving needs and expectations of discerning homebuyers, creating vibrant, sustainable, and desirable.

5.3 Limitations of Study

The study encountered several limitations. One such limitation is its exclusive focus on the Klang Valley region, which could potentially restrict the finding to be applied to other geographic areas. To enhance the generalizability of future studies, researchers may consider expanding the scope to encompass a broader range of locations, thereby ensuring more comprehensive representation across various regions. Additionally, while this study identified the importance levels of various factors, it did not establish causal relationships between these factors and homebuyer satisfaction. Future studies could delve deeper into investigating causal effects to provide a more comprehensive understanding of how different factors impact homebuyer satisfaction over time.

Even though the criteria identified represent 72.5% of variance in homebuyers' satisfaction for landed residential property, but it is good if other variables can be included so that this can give both researchers and readers a more comprehensive view on the factors which affecting homebuyers' satisfaction for landed residential property. For homebuyers, by listing more variables, this will enable them to include more requirements when making better home purchase decision since the house is considered as an individual's long-term obligation once the house is selected and most people probably have the sufficient fund to own a house only and they cannot afford to make the mistake.

Additionally, the study faced a limitation regarding sample size. With only 31 respondents from the Klang Valley participating in the questionnaire, the sample size was deemed small and inadequate for fully capturing the perspectives of the population in this area. A smaller sample size increases the margin of error, consequently impacting the precision of the findings. However, for an AHP survey, 31 respondents are deemed sufficient for all has achieved the threshold of consistency ratio of 0.20.

5.4 Recommendations for Future Research

Moreover, various other criteria contribute to homebuyers' satisfaction for landed residential properties, including property price levels, the reputation of property developers, cultural factors, and so forth. By expanding the sample size could enhance the representativeness of the data collection and better reflect the population of the Klang Valley.

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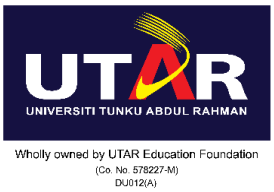
APPENDICES

Appendix 1

Questionnaire



Universiti Tunku Abdul Rahman

Introduction

This survey is aimed to investigate accommodation selection criteria. To help us to have a better understanding about your view and opinion in relation to criteria considered by you when selecting an accommodation, please take few minutes (10-15 minutes) to complete and return this questionnaire. For any suggestion and inquires for this survey, please contact Liow Chee Haw at cheehaw.liow@ecoworld.my.

Thank you for your time and your input in this research

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

- ☐ Yes - proceed to the questionnaire.
- ☐ No - thank you for your time.

Section A: Please tell us about your home purchase decision by answering the following questions

1. Do you own the house that you are currently staying?
   - ☐ Yes. I am the sole owner for the house I am currently staying
   - ☐ Yes. I am co-owner for the house I am currently staying
   - ☐ No. Is owned by my family members (wife/husband, parents, brothers, etc)
   - ☐ No. I rent the house
   - ☐ No. I rent a room there

2. How much do you spend monthly on accommodation?
   - ☐ No Cost
   - ☐ ≤ RM500
   - ☐ RM501 – RM1,000
   - ☐ RM1,001 – RM1,500
   - ☐ RM1,501 – RM2,000
   - ☐ RM2,001 – RM2,500
   - ☐ RM2,501 – RM3,000
   - ☐ > RM3,000

3. Will you consider to purchase a house?
   - ☐ Yes, I plan to purchase a house within 1-2 years time.
   - ☐ Yes, I plan to purchase a house within 3-5 years time.
   - ☐ No, I don't have the intention to purchase.

4. Will you consider to stay in landed housing?
   - ☐ No
   - ☐ Yes

Section B: This section is aimed to gauge your opinion as to which Accommodation Criteria is important to be considered by you. There are five criteria to be considered in general.

- You are required to compare the Criteria I and Criteria II for each row.
- Circle one of the numbers per row below using the scale:

Extremely Important	9
Very Strongly Important	7
Strongly Important	5
Moderately Important	3
Equally Important	1

*2, 4, 6, 8 – Intermediate values between two adjacent judgments.

- For instance, if you think CRITERIA I is extremely important compared to CRITERIA II, you may need to circle the number "9" that is closed to the CRITERIA I. In addition, if you think CRITERIA I is very less important than CRITERIA II, you may need to circle the number "7" that is closed to CRITERIA II.

CRITERIA I	**More important than**									**Less important than**								**CRITERIA II**
	Extremely		Very Strong		Strongly		Moderate		Equal Important	Moderate		Strongly		Very Strong		Extremely		
1. Housing design	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	**Public infrastructure**
2. Neighbourhood amenities	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	**Environmental attributes**
3. Utility services	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	**Housing design**
4. Public infrastructure	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	**Neighbourhood amenities**
5. Environmental attributes	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	**Utility services**
6. Housing design	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	**Neighbourhood amenities**

CRITERIA I		More important than								Equal Important	Less important than								CRITERIA II
		Extremely		Very Strong		Strongly		Moderate			Moderate		Strongly		Very Strong		Extremely		
7.	**Public infrastructure**	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	**Environmental attributes**
8.	**Neighbourhood amenities**	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	**Utility services**
9.	**Environmental attributes**	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	**Housing design**
10.	**Utility services**	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	**Public infrastructure**

Section C: This section is aimed to gauge your opinion as to which aspect of the Housing Design elements is important to be considered by investors in industrial site selection. There are four aspects related to the Housing Design elements.

- You are required to compare the Criteria I and Criteria II for each row.
- Circle one of the numbers per row below using the scale:

Extremely Important	9
Very Strongly Important	7
Strongly Important	5
Moderately Important	3
Equally Important	1

*2, 4, 6, 8 – Intermediate values between two adjacent judgments.

- For instance, if you think CRITERIA I is extremely important compared to CRITERIA II, you may need to circle the number "9" that is closed to the CRITERIA I. In addition, if you think CRITERIA I is very less important than CRITERIA II, you may need to circle the number "7" that is closed to CRITERIA II.

	CRITERIA I	**More important than**									**Less important than**								**CRITERIA II**
		Extremely		Very Strong		Strongly		Moderate		Equal Important	Moderate		Strongly		Very Strong		Extremely		
1.	Functional layout	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Natural light & ventilation
2.	Smart home technology	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Unit Size
3.	Functional layout	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Smart home technology
4.	Natural light & ventilation	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Unit Size
5.	Functional layout	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Unit Size
6.	Natural light & ventilation	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Smart home technology

Section D: This section is aimed to gauge your opinion as to which aspect of the Neighbourhood Amenities is important to be considered by investors in industrial site selection. There are four aspects related to the Neighbourhood Amenities.

- You are required to compare the Criteria I and Criteria II for each row.
- Circle one of the numbers per row below using the scale:

Extremely Important	9
Very Strongly Important	7
Strongly Important	5
Moderately Important	3
Equally Important	1

*2, 4, 6, 8 – Intermediate values between two adjacent judgments.

- For instance, if you think CRITERIA I is extremely important compared to CRITERIA II, you may need to circle the number "9" that is closed to the CRITERIA I. In addition, if you think CRITERIA I is very less important than CRITERIA II, you may need to circle the number "7" that is closed to CRITERIA II.

	CRITERIA I	**More important than**									**Less important than**								**CRITERIA II**
		Extremely		Very Strong		Strongly		Moderate		Equal Important	Moderate		Strongly		Very Strong		Extremely		
1.	Educational facilities	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Retail services
2.	Healthcare & wellness centre	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Place of worship
3.	Educational facilities	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Healthcare & wellness centre
4.	Retail services	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Place of worship
5.	Educational facilities	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Place of worship
6.	Retail services	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Healthcare & wellness centre

Section E: This section is aimed to gauge your opinion as to which aspect of the Utility Services is important to be considered by investors in industrial site selection. There are four aspects related to the Utility Services.

- You are required to compare the Criteria I and Criteria II for each row.
- Circle one of the numbers per row below using the scale:

Extremely Important	9
Very Strongly Important	7
Strongly Important	5
Moderately Important	3
Equally Important	1

*2, 4, 6, 8 – Intermediate values between two adjacent judgments.

- For instance, if you think CRITERIA I is extremely important compared to CRITERIA II, you may need to circle the number "9" that is closed to the CRITERIA I. In addition, if you think CRITERIA I is very less important than CRITERIA II, you may need to circle the number "7" that is closed to CRITERIA II.

	CRITERIA I	**More important than**									**Less important than**								**CRITERIA II**
		Extremely		Very Strong		Strongly		Moderate		Equal Important	Moderate		Strongly		Very Strong		Extremely		
1.	Water supply	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Sewage system
2.	Electricity supply	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	High-speed internet
3.	Water supply	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Electricity supply
4.	Sewage system	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	High-speed internet
5.	Water supply	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	High-speed internet
6.	Sewage system	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Electricity supply

Section F: This section is aimed to gauge your opinion as to which aspect of the Public Infrastructure elements is important to be considered by investors in industrial site selection. There are four aspects related to the Public Infrastructure elements.

- You are required to compare the Criteria I and Criteria II for each row.
- Circle one of the numbers per row below using the scale:

Extremely Important	9
Very Strongly Important	7
Strongly Important	5
Moderately Important	3
Equally Important	1

*2, 4, 6, 8 – Intermediate values between two adjacent judgments.

- For instance, if you think CRITERIA I is extremely important compared to CRITERIA II, you may need to circle the number "9" that is closed to the CRITERIA I. In addition, if you think CRITERIA I is very less important than CRITERIA II, you may need to circle the number "7" that is closed to CRITERIA II.

	CRITERIA I	**More important than**									**Less important than**								**CRITERIA II**
		Extremely		Very Strong		Strongly		Moderate		Equal Important	Moderate		Strongly		Very Strong		Extremely		
1.	Police station & fire department	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Accessible via highways
2.	Public transportation	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Community hall
3.	Police station & fire department	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Public transportation
4.	Accessible via highways	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Community hall
5.	Police station & fire department	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Community hall
6.	Accessible via highways	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Public transportation

Section G: This section is aimed to gauge your opinion as to which aspect of the Environmental Attributes is important to be considered by investors in industrial site selection. There are four aspects related to the Environmental Attributes.

- You are required to compare the Criteria I and Criteria II for each row.
- Circle one of the numbers per row below using the scale:

Extremely Important	9
Very Strongly Important	7
Strongly Important	5
Moderately Important	3
Equally Important	1

*2, 4, 6, 8 – Intermediate values between two adjacent judgments.

- For instance, if you think CRITERIA I is extremely important compared to CRITERIA II, you may need to circle the number "9" that is closed to the CRITERIA I. In addition, if you think CRITERIA I is very less important than CRITERIA II, you may need to circle the number "7" that is closed to CRITERIA II.

	CRITERIA I	**More important than**									**Less important than**								**CRITERIA II**
		Extremely		Very Strong		Strongly		Moderate		Equal Important	Moderate		Strongly		Very Strong		Extremely		
1.	Green space & landscaping	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Climate-resilient design
2.	Green building certification	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Gated & guarded community
3.	Green space & landscaping	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Green building certification
4.	Climate-resilient design	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Gated & guarded community
5.	Green space & landscaping	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Gated & guarded community
6.	Climate-resilient design	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Green building certification

Section G: Kindly tell us about your background. Your information will be kept confidential and no details will be linked to you.

1. Gender : Male / Female
2. Age : _____
3. Highest Level of Education: _____
4. Monthly Income:

☐	Less than RM2,000
☐	RM2,001-RM5,000
☐	RM5,001-RM10,000
☐	RM10,001 – RM20,000
☐	More than RM20,000

Thank you for sharing your viewpoints and perceptions.