

Exploring the Priorities in Housing Preferences Studies using Ranking Method and Analytical Hierarchy Process (AHP)

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To Link this Article: <http://dx.doi.org/10.6007/IJARBS/v14-i9/22798> DOI:10.6007/IJARBS/v14-i9/22798

Published Date: 20 September 2024

Abstract

This study utilizes lifestyle theories integrated into the design development of houses to enhance the quality of life for consumers. Consumers have several criteria and various lifestyles that differ from one another, and the research need to assess the important priorities considered in an individual's home purchase decision. The study is divided into two objectives: the first is to evaluate priorities based on the fundamentals of lifestyle theory. The second is to assess priorities in terms of house selection and the weights that are reliable and valid. Thus, the research conducted a survey with data collected from 105 respondents randomly through a developed literature study. This data was analyzed using the Henry Garrett Technique, and Analytical Hierarchy Process to achieve the study's objectives. The study found that each lifestyle has different priorities, and the most significant weight is given to the size and space of a house.

Keywords: Housing Preference, Housing Sociology, Analytical Hierarchy Process (AHP), Henry Garrett Technique, Decision Making

Introduction

In recent years, understanding housing preferences has become increasingly important for urban planners, real estate developers, and sociologists. Housing choices are not merely a matter of economic capability but are profoundly influenced by individuals' lifestyles, which encompass values, attitudes, interests, and behaviors (Fleischer, 2007). Different lifestyle has different housing features. The study of lifestyle theories provides a valuable framework for examining these choices, offering insights into the factors that shape individuals' preferences and decision-making processes (Lee, Carucci Goss & Beamish, 2007).

Housing preferences are determined by a complex interplay of factors, including financial considerations, location, design, and social environment (Jansen, Coolen & Goetgeluk, 2011). However, lifestyle preferences also play a crucial role in this decision-making process (ÆrØ, 2006). For example, individuals prioritizing convenience and modern amenities may prefer urban apartments, while those valuing tranquillity and space may opt for suburban or rural homes (ÆrØ, 2006). Understanding these preferences through the lens of lifestyle theories can reveal the underlying motivations and priorities that drive housing choices.

This study aims to explore the priorities in housing preferences based on several factors. By examining how consumers making a decision on housing preferences this research was conducted to understand the priorities made by this consumers based on several analysis. This knowledge can inform policy-making, urban planning, and the real estate market, ensuring that housing options align with the evolving needs of society.

Criteria Influencing Housing Preferences

Based on several criteria the research has investigate that there are several factors that have been identified; space and size, housing types, management services, facilities, safety, neighborhood integration, location. These are housing preferences commonly known and important in housing decision made by the consumers. The understanding these seven preferences is to differentiate what are the most important to the least important preferences. There are a lot of studies on housing preferences have been conducted by past researchers with a multiple variation. For example, Salama (2006), suggest that transdisciplinary option is the best option of housing preferences. This is supported by Anna Pagani and Claudia (2021), which has proposed a transdisciplinary inclusive concept on housing preferences which can benefit the different stakeholders and residential, holistic housing typologies, housing sustainability issues and opportunities and by adopting transdisciplinary housing concept, the design of the house could accommodate change in macro and micro level.

The urban life has transformed human's life and a lot of major cities in the world have infused with urbanization. According to Walker and Li (2006), there are three substantiate lifestyle which are sub-urban dwellers, urban dwellers and transit riders. Karsten (2010), mentioned that the daily activity pattern and time-geographical consideration are the determining factors of middle-class family to choose urban life.

More specific studies conducted by Opoku and Abdul Muhmin (2010), suggest that financial, living space and aesthetic dimension were the most important. In modern times, proximity to relatives is not important. According to Kwon et al (2016), the lifestyle of the boomers in US are economical, engaged, family centric and beautiful home. Their housing preferences of this study focus on location, housing types, tenure type and management services.

Study made by Afiqah et al (2020), suggest that affordable price, location and size are the major key preferences. Another interesting study made by Palicki (2020), suggest that the major key preferences for the human throughout their lifespan are technology, location and size. The study segregates the age to study the difference of housing preferences on different

age. The technology studied by Palicki is mentioned because in the geographical area of that studies requires technology to amplify the quality of life such with good heating system and air ventilation system.

Rameshkumar (2024), on the other hand had studied about 12 key preferences on the young adult on choosing their house inclusive of financial situation, location, lifestyle, technology, social relationships, accessibility, environmental sustainability, cultural factors, life stage and future plans, education and career opportunities, market condition and diversity factors. The young adults considered integration of technology and connectivity in their housing preferences.

The key housing preferences below are mentioned in Azizah et al (2024), and the details of importance of the key preferences for the urbanites. Based on the literature review there are a lot of studies producing the different outcome such as key housing preferences resulted from each study and their background of the studies identified certain issues like young adult preferences, boomers' preferences, and all stage of human lifecycle preferences. However, these preferences have been identified to be the key preferences in decision making process to buy a house.

Space and Size

Space and size are one of the benchmarks for the consumer in choosing their house. Space and size of the house also mark the comfortability. However, bigger size like mansion, bungalow also can mark luxury itself. The composition of size and space must be coordinate together with the living person in a dwelling. Small family can accommodate small house and vice versa. However, if a big family live in a small space would amplify the uneasiness and productivity in a daily life. The importance of space and size has been mentioned by Ishak et al (2018) where the evolution of space from time to time marked the vital parts of space and size for housing preferences.

Housing Types

Types of housing types can influence housing choices. Both landed and high-rise apartment have their own strength. High-rise apartment can be comprised of ultra luxury condominium and flat while landed can be from double-storey bungalow to single terrace house. Individuals that love urban life such as near facilities, near accessibility, surrounding by urban perks will usually choose high rise apartment in urban area. Those who want to be more relaxed and have more nature environment and land will choose sub-urban area and rural area. Tan (2009) already mentioned about the importance of house design can influence the factor of preferences. Poh and Yun (2018) mentioned that housing typologies does have different variations among the consumers.

Management Services

The experience of management services also important in housing preferences. Nowadays there are community that provides management services to supervise the well-being of the community through property management. The management services must make sure the highest quality of dedication in the common area of the community by attending the

landscape, guarded the community and provided the best facilities. The management services have been studied by Azizah et al. (2024) and Mo et al. (2023).

Facilities

Facilities are synonym with modern day to attract the consumer to buy the house. Most popular facilities are guarded area, amenities like gym, swimming pool, network facilities, surveillance camera, gated area. The importance of facilities giving sense of rewarding, comfort and calmness towards human that have been work hard to achieve a certain status. Ishak (2018) stated that facilities and services is so important to provide better quality of life.

Safety

Safety as one of the important features in housing whereas the increment of crime rate such as robbery and assault to the property made human choose a housing scheme that include the safeness of the individual. Safety like gated and guarded community can be a shield but not a guarantee of the crime within the community. At least with this feature, the individuals can feel safe from outside threat. Safety is one of the key preferences mentioned in (Azizah et al., 2024).

Neighborhood Integration

Muhammad Zamri et al (2021), has studied the importance of housing neighborhood in his study. Neighborhood integration is the amalgamation of the individual into the community. The strength of community could enhance the easiness of daily life and vanguard of the community from the outside threats. The neighborhood integration also could lead for a better quality of life.

Location

The geographical attributes that position in the map of the earth where stable terrain and suitable place of life. In modern day, location also being factor by the shorten distance to the city (which comprise officials' buildings, administration building and business center), school, religious place. Ismail et al (2021), has mentioned the importance of location of housing preferences especially among the youths. The other study focuses on urban in Kuala Lumpur suggest that location is the only factor that shows significant relationship with the housing purchase considerations (Thanaraju et al., 2019).

Research Methodologies

This study objective is to determine the weightage of housing preferences and exploring the priorities from consumers perspective. This study adopts quantitative technique by distributing questionnaire survey to 105 respondents. The sampling technique used is random stratified technique. The data collected has been screening and ready to be analyze. The analysis that needs to be adopt to achieve categorize in two phases; ranking the prioritization of the consumers on housing preference and investigate the weightage of the prioritization. For the first step; the Henry-Garett technique will be use and the step need to be follow as shown in Figure 1.

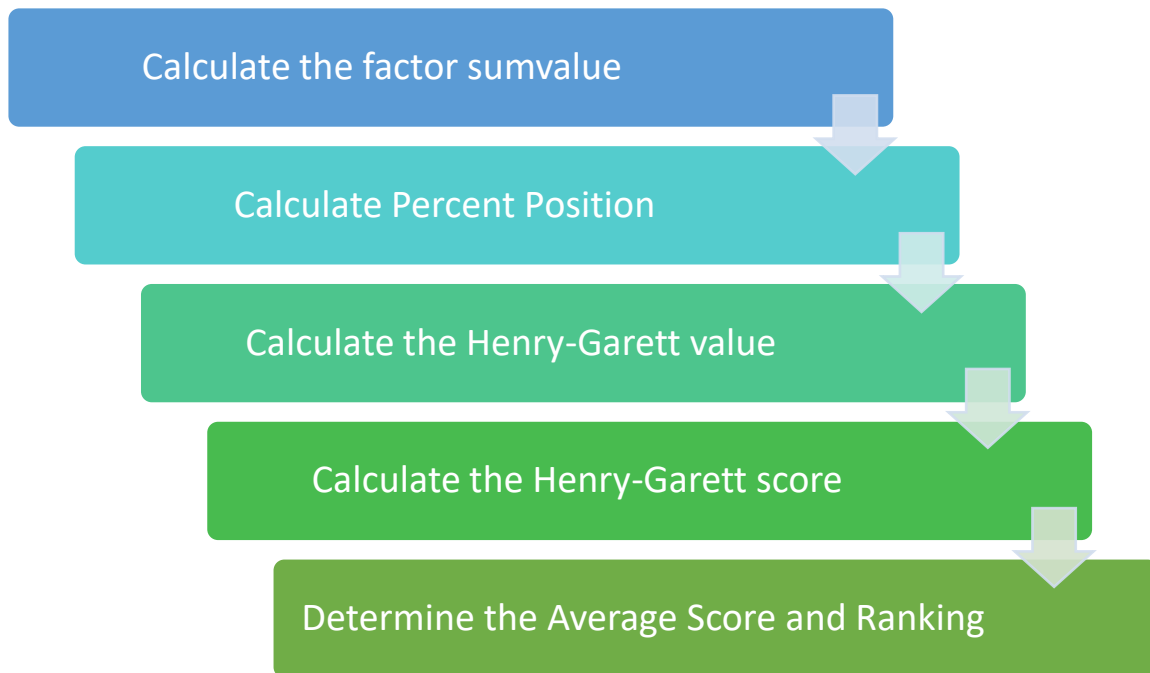


Figure 1. Process of assessing the Ranking using Henry-Garett technique

The motivation of using Henry Garrett Ranking Techniques follows the studies of Kalvakonalu et al (2019), and founded by Garrett (1926). After the done creating the result using the Henry-Garett technique, next step will used Analytical Hierarchy Process (AHP) developed by Thomas (2008), to determine the weightage of the prioritization of the consumers on housing preference. The step to produce a AHP is in Figure 2. The advantage of AHP is to ease the decision-making process of a complex process especially in buying a house. Both the results of Henry Garrett value and AHP will be compare and assess either their value consistent or not.

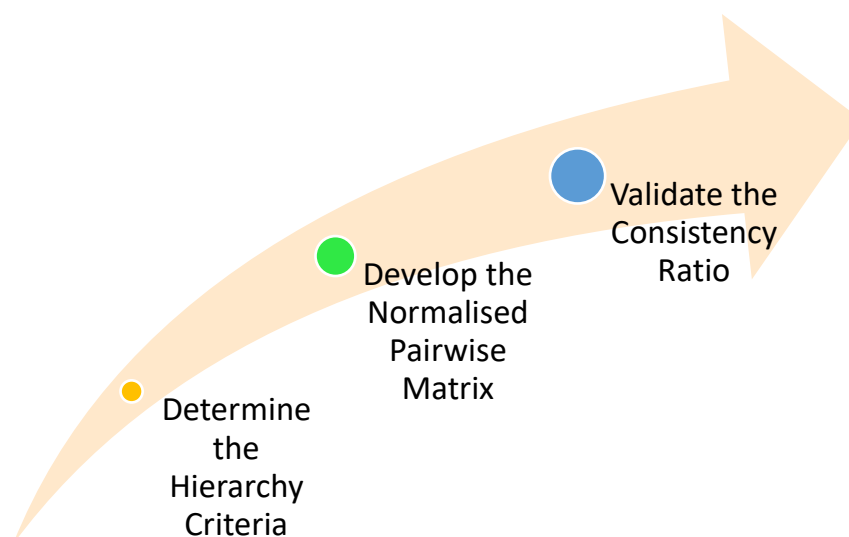


Figure 2. Analytical Hierarchy Process (AHP)

Discussion

The objective of this paper to find the weightage that are priorities by the consumer in the housing sector. In this paper, 105 respondents have been collected and the analysis divided into two phases. First, this paper employed Henry Garrett Technique with the purpose to overview ranking of the housing preferences. The Likert scale of the questionnaire was used as benchmark before this research gain the percent position and Henry Garrett Value as shown in Table 1.

Table 1

The accumulative numbers of points collected from Likert scale.

Housing Preferences	1st	2nd	3rd	4th	5th	6th	7th
Size and Space	24	37	13	10	6	13	4
Housing Types	29	16	14	10	10	11	13
Management Services	1	1	4	7	20	21	43
Facilities	6	14	18	26	20	13	13
Safety	7	10	13	22	25	27	9
Neighbourhood Integration	10	9	12	19	16	15	19
Location	28	18	31	11	8	5	4

The value above showing the number of respondents choose the ranking from 1st to seventh respectively. Then, from the rank this paper investigates the percent position using the below formula:

$$\text{Percent Position} = 105(R_{ij} - 0.5)/N_j$$

$$R_{ij} = 1^{\text{st}}, 2^{\text{nd}}, \dots, 7^{\text{th}}$$

$$N_j = \text{Total rank given by 105 respondents, 7}$$

Then, the identification of the Garrett Value determines using Garrett ranking conversion table. The Table 2 shows the percent position and the Henry Garrett Value for respective value. To use the Garrett ranking conversion table, the percent position needs to identified the nearest value to Henry Garrett Value.

Table 2

Percent position and Henry-Garrett Value

	Percent Position	Henry-Garrett Value
Size and Space	7.5	79
Housing types	22.5	65
Management Services	37.5	57
Facilities	52.5	49
Safety	67.5	41
Neighbourhood Integration	82.5	32
Location	97.5	13

Next, the Henry Garrett value will be multiplied with the numbers of respondent's choice for the particular housing preferences and accumulate to value shown in the table 3.3. This value indicates to identify the position of each preference. The highest value in 1st choice is 2291

for housing types. However, the calculation of the sum value does care about all the value till the seventh choices. Although the Size and Space for the first choice (1896) is below than the Housing types but the consideration of the second till the seventh choice make significant differences for the sum value. The highest sum value in the Table 3 is Size and Space (6246) and the lowest is Management Services (2766). Sum of the value then used and divided with the total respondents. From table 3.4, the average score then is the final value used to rank the position of the housing preferences.

Table 3

Sum value

Housing Preferences	1st	2nd	3rd	4th	5th	6th	7th	SUM
Size and Space	1896	2405	741	490	246	416	52	6246
Housing types	2291	1040	798	490	410	352	169	5550
Management Services	79	65	228	343	820	672	559	2766
Facilities	474	910	1026	1274	820	416	169	5089
Safety	553	650	741	1078	1025	864	117	5028
Neighbourhood Integration	790	585	684	931	656	480	247	4373
Location	2212	1170	1767	539	328	160	52	6228

The highest average score in Table 4 is 59.49 (Size and Space) and the lowest average score is 26.34 (Management Services). The score number for Ranking 1 and Ranking 2 only have low differences around 0.18. The significance of size and space with location have been considered around the same value or size and space with a little dominance over location. The gap shown a huge gap between Ranking 6 and Ranking 7 with score differences of 15.34.

Table 4

Average score and Ranking

Housing Preferences	Average Score	Ranking
Size and Space	59.49	1
Location	59.31	2
Housing types	52.86	3
Facilities	48.47	4
Safety	47.89	5
Neighbourhood Integration	41.65	6
Management Services	26.34	7

Then, the analysis continues with Analytical Hierarchy Process (AHP) to determine the weightage of the prioritization of the consumer on housing preferences. AHP have been created by Thomas L. Saaty to analyse complex decision making and creating decision-making framework.

The first step of the AHP is to determine hierarchy criteria. The hierarchy criteria in this study have utilize the Henry-Garett technique. However, the pairwise comparison matrix need to be developed by scaling the relative importance from value 1 as equal importance and 9 and extreme importance. After creating pairwise comparison matrix, the calculation needs to developed a normalized pairwise matrix to determine the criteria weights for each housing

preferences as shown in Table 5. Next, the criteria weights need to be validate using consistency ratio where the value must below 0.10 to be regarded as accepted.

Table 5
The weightage of Housing Preferences using AHP

	Size and Space	Housing types	Management Services	Facilities	Safety	Neighbourhood Integration	Location	Weightage	Score
				0.24	0.2		0.25		7.3
Size and Space	0.2603	0.3051	0.3029	79	764	0.2681	35	26%	538
				0.12	0.1		0.25		7.4
Housing Types	0.1302	0.1525	0.1515	39	843	0.1341	35	15%	078
Management Services	0.0651	0.0381	0.0505	13	461	0.0670	34	5%	579
				0.12	0.0		0.12		7.3
Facilities	0.1302	0.1525	0.1515	39	921	0.1341	68	12%	506
				0.12	0.0		0.08		7.3
Safety	0.1302	0.0763	0.1010	39	921	0.0670	45	9%	258
Neighbourhood Integration	0.0868	0.0508	0.0505	20	921	0.0670	45	7%	660
				0.24	0.2		0.25		7.3
Location	0.2603	0.3051	0.2525	79	764	0.2681	35	25%	520

Consistency ratio has been used to determine the validity of the weightage calculate by normalized pairwise comparison matrix. The calculation of consistency Index needs to follow the formula below;

$$\text{Consistency Index} = \frac{\lambda_{max} - n}{n - 1}$$

The consistency index gain from this calculation is 0.059 and then need to be divided by Random Index. Random index is index that have been calculated with the following value, N (1) = 0.00, N (2) = 0.00, N (3) = 0.58, N (4) = 0.90, N (5) = 1.12, N (6) = 1.24, N (7) = 1.32, N (8) = 1.41, N (9) = 1.45, N (10) = 1.49. From the study, the random index is N (7) because this study has 7 ranking and has a value of 1.32. The consistency index will be divided with random index to gain consistency ratio.

$$\text{Consistency Ratio} = \frac{\text{Consistency Index}}{\text{Random Index}}$$

The consistency ratio is to determine either the weightage is acceptable or not and act as the validity process. The result shown a consistency between Henry Garrett Value and AHP weightage criteria. Table 6 shown a comparison between Henry Garrett Value and AHP results. The highest weightage criteria are Size and Space (26%) and the lowest are Management Services (5%). The consistency ratio calculated was 0.05 which is below 0.10 indicates this weightage score in Table 3.9 is valid and acceptable.

Table 6

Comparison between Henry-Garett Value and AHP

Housing Preferences	Average Score	Weightage Score	Ranking
Size and Space	59.49	26%	1
Location	59.31	25%	2
Housing types	52.86	15%	3
Facilities	48.47	12%	4
Safety	47.89	9%	5
Neighbourhood Integration	41.65	7%	6
Management Services	26.34	5%	7

Conclusion

The application of findings in this study would be useful to housing studies, urban planning studies, real estate agencies, real estate investors and real estate development incorporating their strategy on the marketing, sales, policy formation. The objective of this research has been achieved by understanding the priorities that are important to the consumers. By assessing the weightage, the decision-making process of choosing a house can be shorten in time and accurate. The decision-making process of purchasing a house not just based on the subjective perspective rather using empirical perspective produced by this study. For policy makers it is suggested that the developers built an appropriate size of house and space. Nowadays, there are a lot of developers that are trying to reduce the size of the house at the same time proposed to sale at high value. Average size of family is a must consideration in building a house and not limited to average but the large family and income factors also need to be taken into consideration. The preferences in these studies also not to mentioned that those low-ranking housing preference were not important rather they are just least preferred but still important and need to be consider seriously because the least priority housing preferences based on the customer services. In this housing preferences the physical aspects of the housing such as size and space, location and housing types are more “important” rather than the “subjective” aspects of the housing. The future research that can be conduct can be in various way especially in regards of first-time house buyer preferences, boomer’s preferences, sub-urban home buyer preferences. The research novelty on theoretical contribution on the housing preferences by using empirical research to measure the weight of decision-making process to select a house for a buyer by comparing of analytical hierarchy process and Henry-Garett ranking method to confirm the empirical results of both techniques. The consistency of both empirical results substantiates the decision-making process of a housing buyer preferences.

Acknowledgement

This work was supported / funded by the Ministry of Higher Education under Fundamental Research Grants Scheme (FRGS/1/2022/SS04/UTM/02/7 (5F550)).

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