SUMMARY OF RESEARCH REPORT

ASSESSMENT OF RSEIDENTIAL SATISFACTION IN HIGH-RISE CONDOMINIUM AND TERRACE HOUSING: CASE STUDIES FROM KUALA LUMPUR

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(PART-1: CONDOMINIUM)

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ASSESSMENT OF RESIDENTIAL SATISFACTION IN HIGH-RISE CONDOMINIUM: CASE STUDIES FROM KUALA LUMPUR

Abstract

Kuala Lumpur, the capital city of Malaysia, has been experiencing a rapid rate of urbanization over the last four decades. This has created the need for housing which initially started in a low density fashion in the city, but it gradually turn into high density because of increasing land price and shortage of land in the core urban areas. The growth of condos in Kuala Lumpur City during last the two decades, as high density housing, is a response to the growing demand for housing in the city. So far housing research in Malaysia is focussed on public or private low-cost with little attention paid to the growing condo sector. Therefore, a research need arises due to limited studies on the subject and further that due to more than one reason, Malaysian middle class city dwellers currently prefer to live in condos than their preferred terrace housing. Against the above backdrop, this paper provides a comparative assessment of residents' satisfaction with condominiums of different ages – older (>10 years) and younger (<10 years) within Kuala Lumpur City. Three basic components of satisfaction – dwelling unit variables, dwelling unit support and neighbourhood facilities and management, have been studied. Two hundred respondents - 100 residing in older condos and another 100 living in younger condos participated in the survey. Findings from the study indicate that the residents of the older condos are not satisfied with the dwelling unit support services and management and over 40% of the residents are also planning to relocate due to current housing situation. On the contrary, the younger condo residents show a relatively high level of satisfaction with the dwelling unit support services and they are moderately satisfied with condo management. The older condos showed a more significant and positive relationship between the overall housing satisfaction and the tested variables as compared to the younger condos due to the age differences between the two types. Finally, the paper comes up with three basic issues where immediate attentions are required to improve condo management and enhance residents' satisfaction.

Key Words: *Older condos; Younger condos; Residential satisfaction; Condo management; Urbanization.*

Introduction and Background of the Study:

Kuala Lumpur, the capital city of Malaysia, is experiencing a rapid rate of urbanization over the last four decades. The population of the city grew from 0.32 million in 1957 to 1 million in 1980 and further to 1.6 million in 2005. This rapid urbanization has created the need for housing the growing populace which initially started in a low density fashion in the city, but it gradually turn into high density because of increasing land price and shortage of land in the core urban areas. The growth of condos in Kuala Lumpur during last the two decades, as high density housing, is a response to the growing demand for housing in the city. The rate of construction of condominiums in Malaysia keeps increasing since the last two decades while the number of dilapidated and abandoned condominiums is also increasing (Figure 1) and some are converted for other incompatible uses, which may

hinder the prospect of the city's socio-economic development. So far housing research in Malaysia is focussed on public or private low-cost with little attention paid to the growing condo sector. Therefore, a research need arises due to limited studies on the subject and further that due to more than one reason, Malaysian middle class city dwellers prefer to live in condos than their preferred terrace housing.

Figure 1: Condominium stands abandoned and dilapidated for more than 10 years in Sentul- East. (*Source: Field survey 2010).*

Condominium is a necessity in the city centre. Despite this, limited available space does not necessarily mean unfavourable housing condition for the dwellers if efficiently managed and properly evaluated. The theoretical framework of this research is basically to test the notion that age of building has direct influence on the level of satisfaction derived by the residents regardless of the structural design of the supposed apartment. Most condominium projects in Malaysia are being provided and managed by the private sectors. However, if the current demand requires increasing construction of condominiums, therefore it would be appropriate to evaluate the preference and the level of satisfaction derived by the residents. In essence, this study seeks to appraise the level of residents' satisfaction with condominium within Kuala Lumpur City.

Objectives of the Research:

Based on the issues highlighted above, the aim of the research is to assess the residents' satisfaction with condominiums in Kuala Lumpur. In order to achieve this aim the following objectives have been formulated:

- To investigate condo residents' satisfaction with dwelling unit features and the management;
- To assess the key determinants of condo residents' satisfaction within the metropolis;
- To relate the satisfaction with the age of the building and management; and
- To provide some recommendations that will enhance satisfaction with condo living.

Methodology:

The subject of this study is the residents of the condominium apartments which includes both owners and renters. The study employed a comparative assessment framework to determine the residents' satisfaction with condominiums with regard to their age differences. Three main components - dwelling unit features, neighbourhood facilities and the management of the condos were used for the assessment.

Eight (8) blocks of Condominium apartments were selected from both Sentul and Wangsa Maju zones, with four blocks from each zone, while the questionnaires were distributed across the selected blocks, respectively. The criteria considered for the selection include - location and distance to the city centre, building height, age of the building, and residential class (i.e. medium cost apartment) based on the dominant income group in accordance with the research objectives. Based on the stated attributes, Sentul – East and Setapak were chosen for the older condominium apartment with ages above 10 years while Wangsa Maju and Maluri were considered as the areas of the younger condos for data collection. The components (4) and variables (28) selected for measuring residential satisfaction is provided in Table 1.

Table 1: Components and variables selected for measuring residential satisfaction.

Component-1 (11 variables)	Component-2 (6 variables)	Component-3 (5 variables)	Component-4 (6 variables)
Dwelling unit features	*Neighbourhood Facilities*	*Management*	*Socio-economic profile*
Living, dining, bedroom, kitchen, bathroom, toilet, sockets and drying areas, including ventilation of the house.	Garbage collection, lifts, car parking, security, multi-purpose hall and OS/ play area.	Interviews with residents' association.	Gender, ethnicity, marital status, occupation, academic qualifications, length of residency.

Based on the scope of the research, a five – point likert scale were used as follows: '1' for Very Dissatisfied; '2' for Dissatisfied; '3' for Slightly Satisfied; '4' for Satisfied; and '5' for Very satisfied. For the purpose of comparative analysis, convenience sampling

method was used for selecting 200 households who participated in this study with 100 respondents from Setapak – Sentul East representing the older condo area and 100 respondents participated in the younger condo areas (Wangsa maju – Maluri), respectively. The study also used self administered questionnaire structured with 28 variables so as to achieve the stated objectives of the study. Other sources of data for this study included past relevant literature reviews, library search, relevant statutory plans and other secondary publications relevant to the focus of this study. This study is also complemented by some informal interview with the management and the residents' association.

Descriptive statistics have been used to describe the distribution and categories of respondents based on the socio-economic status, while 5 point Likert scale of measurement is used for the level of satisfaction based on the measured variables with relevant illustrations including tables, graphs, and charts. Spearman's rho (**ρ)** was used for the correlation analysis to compare the significance of dwelling unit features for the two condo types based on the overall satisfaction also, to show if the level of satisfaction has significant relationship with the age of the building based on the management of the condo so as to ascertain if the age of the condo also predicts the residents' satisfaction.

Findings:

The research was guided to achieve four main objectives, in line with the stated research questions. One of the problems in housing is management, therefore, it holds a significant position in ensuring residents' satisfaction especially with the middle income housing such as condominiums. Furthermore, satisfaction with residential management also determines the extent of satisfaction with other basic housing facilities like dwelling unit features and neighbourhood facilities, respectively. It was found that residents' satisfaction with the dwelling unit features for the two condominium types (younger and older) showed significant negative correlation with their ages, respectively. Satisfaction level with features such as bedroom; kitchen space; dinning space; dry area and the socket were found to decline with the increasing age of the building for the two condominiums. The older condominiums showed a more significant negative correlation meaning that the residents' satisfaction is decreasing with increasing age of the building, compared to the younger condos.

For the neighbourhood facilities, only the garbage collection system in the older condo showed a significant negative correlation with the age of the building and the reason for this may likely be the larger percentage of residents between 7 -10 years of residency in the older condos. Conversely, there was no significant relationship between the residents'

satisfaction with the neighbourhood facilities and age which also implies the dominance of residency between 0 – 5 years. In addition, dissatisfaction with the housing condition may not necessarily call for relocation, however, management of the condo was found to be the major cause of the relocation decision especially in the older condominiums despite their longer length of residency which is presumed to have created a psychological sense of attachment to the environment but found otherwise.

It was also found that the significance of the relationship between the independent variables and the residents' decision to relocate thus indicating various components that determine the level of the residents' satisfaction and dissatisfaction with both old and young condominiums within Kuala Lumpur City. For the purpose of comparison, our analysis showed the differential perception of residents' satisfaction with the two condo types whereby the older condo residents were dissatisfied with housing condition, compared to the younger condo residents, with considerable level of satisfaction, respectively. In essence, poor management of most condominium apartments has led to the decreasing residents' satisfaction with their apartments which tend to increase with the increasing age of the building.

Sequel to the above addressed issues, an interview with some members of the residents' association made it clear that the above highlighted problems are caused by three (3) main problems which are:

1. Irregular payment of dues by the residents;
2. No strong legal back-up from the government regarding management measures , strategies and implementation; and
3. Statutory procedures

Although there are other issues, but these three (3) stands prominent for both immediate and future attention to managing condominium apartments and other private housing, respectively.

Conclusion:

Although, condominium is a necessity in a fast growing city like Kuala Lumpur, nonetheless, the emergence should be a contributing factor towards socio–economic development. This study has been able to justify the differential perspectives involved in assessing residents' satisfaction with condominium apartments in Kuala Lumpur, through comparative approach based on the ages of the condominium with regards to the residents' perception. It was found that the residents of the older condos were dissatisfied with the dwelling units. The level of the dissatisfaction also varies with the length of residency

meaning that the older residents are less satisfied compared to the younger ones. The dissatisfaction with the management also attests the previous assessment coupled with their intention to relocate with due considerations to the housing condition while the remaining occupants still prefer to stay based on their job and other economic factors. For the younger condos on the other hand, the residents were satisfied with the dwelling unit and moderately satisfied with the management.

To rescue the condominiums from current situation, the government's attention should be focussed on the following measures:

Immediate Measures

Based on the three above highlighted issues, the first two issues requires immediate attention, while the third issue is subject to the way the two previous issues are being looked into, thereby making it a long- approach solution. Regarding the payment of dues or other management fees Malaysian government can adopt an enforcement measure like that of Singapore whereby failure to pay service charge or dues after three (3) months shall lead to penalty and pending the time, whatever expenses that arises will be incurred personally within the specified time. Similarly, failure to pay association fee and other management dues in the United States will definitely lead to losing out the unit (Wagstaf, 2009).

Long-term Measures

Obviously, condo projects are highly expensive from liability perspective, therefore, the issue of 'strata title' which usually takes a longer time, may be up to 20 years or more before it is given. In reality as the condo becomes older automatically, some of the basic facilities will definitely pay the price. However, this also poses a threat on the management operation thus reducing the living quality. Preferably, if the procedures and requirements to be fulfilled could be adjusted, perhaps, the problems would be minimized and finally solved as time goes on. Finally, regarding physical planning, future condo developments should be well assessed before being approved based on the fulfilment of the basic facilities such as recreational area, surau for the Muslim residents and a pleasant social environment so as to enhance the living condition of the residents.

Finally, housing needs constant and efficient appraisal basically on the people and space so as to create a liveable and aesthetically pleasant environment which is perceived to be above a mere shelter.

Areas of Future Research:

Most of the previous studies on housing satisfaction have been on low income housing while limited or very few researches have been conducted on the medium income

housing particularly the condominium apartments. To an appreciable extent, this study has been able to set a basis for subsequent researchers to include other housing type in their residential assessment other than public low income alone. In a situation where people of different socio–cultural background are within a metropolis, assessing residents' satisfaction becomes a rigorous task. Therefore, subsequent studies should consider income levels and the extent of neighborhood interaction in their appraisal so as to ensure the applicability of a sustainable and balanced community.

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SUMMARY OF RESEARCH REPORT

ASSESSMENT OF RSEIDENTIAL SATISFACTION IN HIGH-RISE CONDOMINIUM AND TERRACE HOUSING: CASE STUDIES FROM KUALA LUMPUR

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(PART-2: TERRACE HOUSING)

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ASSESSMENT OF RSEIDENTIAL SATISFACTION WITH TERRACE HOUSING: CASE STUDIES FROM KUALA LUMPUR

Abstract

Since 1970s, Malaysia is experiencing rapid economic growth which led to rapid urbanization as well. This rapid urbanization is associated with growing urban population and increasing household income. Thus, Malaysian government has facilitated various types of housing in order to accommodate different income groups. Despite design limitations such as lack of ventilation and natural lighting, double-storey terrace housing is considered as popular housing type among the middle income people in urban areas. However, empirical studies identified increase in crime rate in landed housing such as double-storey terrace house. In addition, design of double-storey terrace house also impacted on residents' satisfaction. As a result, double-storey terrace house is found as the most modified houses in Malaysia. Thus, this research aims to appraise residential satisfaction in two double-storey terrace housing neighborhoods- Taman Sri Rampai (TSR) and Taman Keramat Permai (TKP) in Greater Kuala Lumpur. The research objectives and the questions were formulated based on a dynamic interaction approach which includes three main processes- cognitive, affective and behavioral. In order to examine and compare the residential satisfaction in two neighborhoods, five housing environment components of double-storey terrace housing such as physical features, housing support services, public facilities, social environment and neighborhood facilities were analyzed through residents' levels of satisfaction. The research explored and compared the residents' behaviors as a result of the residential satisfaction/ dissatisfaction. The main research data was obtained from a random sample of 220 survey questionnaires distributed equally among the residents of two neighborhoods. The data was analyzed by using SPSS. Reliability test was carried to examine the reliability of the questionnaire's items. Descriptive and inferential statistics were used to examine the levels of satisfaction and to explore residents' behaviors. The findings of the research indicate that the levels of residential satisfaction are generally low with physical features, housing support services, and social environment in two neighborhoods. On the other hand, residents' satisfaction level was high with public facilities. While the levels of satisfaction are high with neighborhood facilities in TKP, they are moderate in TSR. The findings also explore that the most modified spaces in double-storey terrace house are essential spaces followed by complemental spaces and special spaces. Finally, the findings show that two-thirds of the residents in TKP intend to stay in their current area while half of residents in TSR prefer to stay. Recommendations are directed to increase the low levels of satisfaction among residents in two neighborhoods. Future studies are suggested to extend the study on different locations of double-storey terrace housing, different demographic characteristics of residents, and different socio-economic characteristics of residents as well.

Key Words: *Urbanization; Double-storey terrace; Residential satisfaction; Physical features; Public facilities.*

Introduction and Background of the Study

In Malaysia, the dynamic interaction between residents and their residential environment is through more than one indicator. Due to rapid industrialization and

urbanization associated with growing urban population and increasing household incomes, the need for proper housing in Malaysia has enhanced (Noriza et al., 2010). Thus, Malaysian government has facilitated the provision of different types of housing units such as Condominiums, Apartments, Detach and Terrace houses, instead of traditional Malay houses and Chinese shop-houses in order to fulfil the housing aspirations of Malaysians, particularly in urban areas such as Greater Kuala Lumpur area, which has a total population of six million in 2010 (Tan, 2011) and a housing stock of more than 45% of the total number of constructed houses in the country (MoF, 2009).

Double-storey terrace house, however, is considered as the most popular form of landed property in Malaysia. It is a type of mass housing initiative, developed either by the government or private developers in Malaysia (Erdayu et al., 2010). It was adopted from the British terraced house design (Hashim et al., 2006). Malaysian government provided double-storey terrace housing as adequate, affordable and quality housing for all Malaysians particularly the middle-income group.

Therefore, this study seeks to examine the level of satisfaction/dissatisfaction (a dynamic interaction) perceived by residents of double-storey terrace housing in Malaysia, particularly, in Greater Kuala Lumpur area. For better understanding, the researcher selected two study areas which are different in terms of location and age. These are- Taman Sri Rampai (TSR) which is considered as a mature neighbourhood with double-storey terrace housing of less than ten years and Taman Keramat Permai (TKP) which is considered as an old neighbourhood with double-storey terrace housing of more than ten years old.

Objectives of the Research

Literature on the dynamic interaction between residents and their residential environment reveals that residential satisfaction/dissatisfaction is a complex construct. This research intends to investigate the factors and examine their effects on the overall residential satisfaction, with the following objectives:

a) To study the factors influencing the overall residential satisfaction/dissatisfaction with double-storey terrace housing in two study areas (cognitive objective).

b) To examine and compare the levels of residential satisfaction/dissatisfaction perceived by the residents of double-storey terrace housing in two study areas (affective objective).

c) To explore and compare behavioural characteristics of the residents of double-storey terrace housing in two study areas (behavioural objective).

d) To provide recommendations that will help improve the level of residential satisfaction.

Study model of residential satisfaction

The conceptual model of this research is based on the idea of the dynamic interaction between the residents and their built environment. The dynamic interaction includes three processes respectively, cognitive, affective and behavioural which take place in this interaction. Every process involves certain attributes which are objective attributes of physical and social environment, subjective attributes of physical and social environment and behavioural intentions. Those attributes are influenced by residents' characteristics. The model is built on the notion that residential satisfaction is a composite construct of the indices of satisfaction which residents perceive with physical features of terrace house, terrace housing support services, public facilities, social environment and neighbourhood facilities (Mohit et al., 2010).
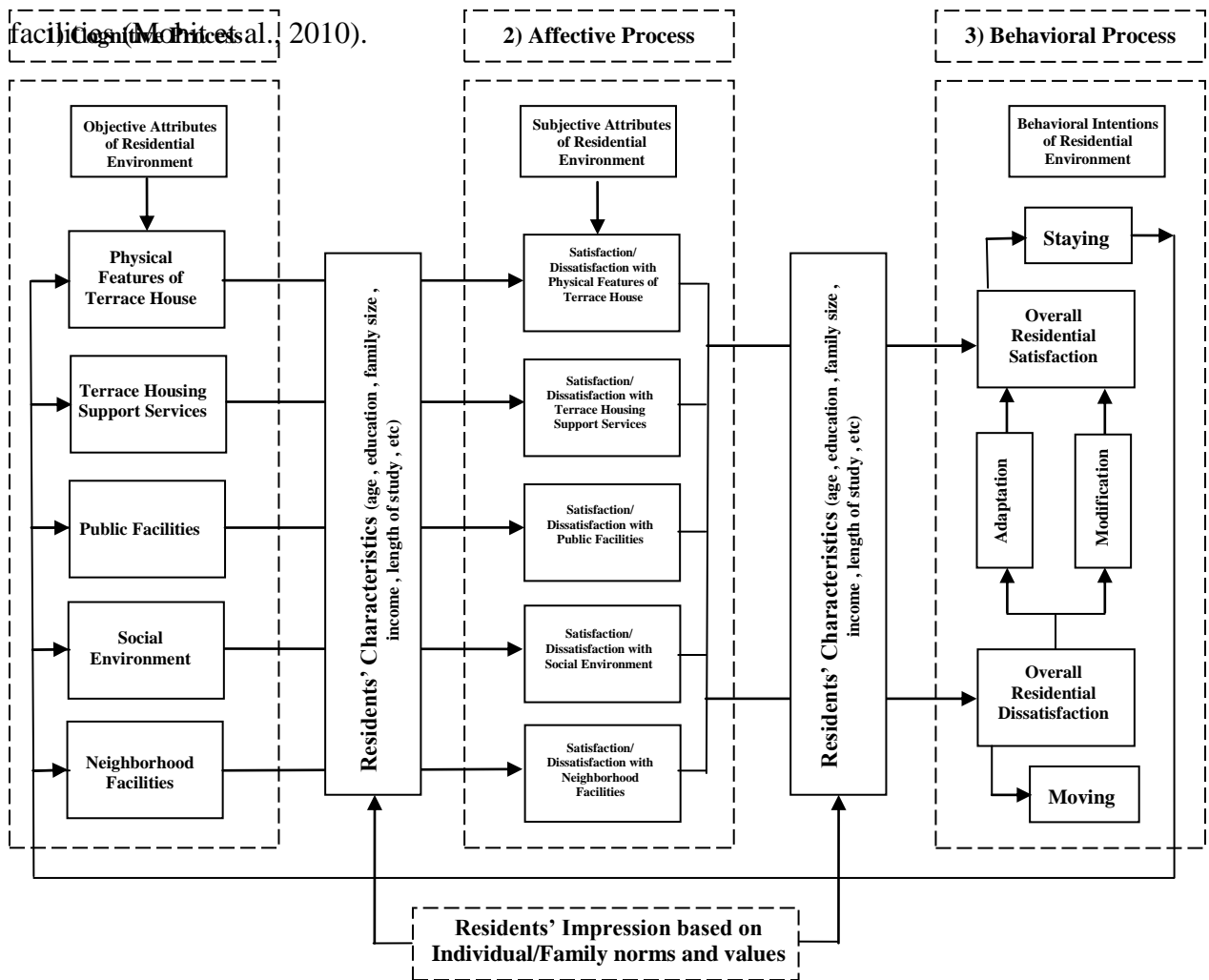

Figure 1: A model of residential satisfaction/dissatisfaction.
(Source: Adapted from Mohit et al., 2010)

In the model, the cognitive process refers to negative or positive perceptual attitudes and feelings occupants have while perceiving the "meaningfulness" or "meaninglessness" of their housing environment (Ajzen & Fishbein, 1981). The affective process refers to the positive or negative feeling that the occupants have for where they live. In other words, it is people's satisfied or dissatisfied attitudes towards their socio-physical housing environment (Ajzen & Fishbein, 1981). The behavioural process refers to all adaptive or non-adaptive behaviours that occupants exhibit in order to make the physical setting satisfactory to compensate a loss in needs or values (Ajzen & Fishbein, 1981).

Methodology:

The research is formulated based on the idea of a dynamic interaction between the residents and their housing environment which includes three processes - cognitive, affective and behavioural. Those processes, however, begin with positive or negative perceptual attitudes and feelings (cognitive process) which residents have while perceiving the objective attributes of their housing environment. Once the residents have evaluated the objective attributes, they will move to affective process which is residents' satisfaction/ dissatisfaction attitudes towards their socio-physical housing environment (i.e. subjective attributes). After that, the process moves towards the last stage (behavioural process) which is adaptive or non-adaptive behaviours that residents show in order to make the physical setting satisfactory by either adaptive or modified housing environment or moving out .

The methodology of the study is developed to examine and compare the levels of residential satisfaction/dissatisfaction perceived by the residents of double-storey terrace housing in two urban neighbourhoods in Greater Kuala Lumpur, viz., Taman Sri Rampai (TSR) and Taman Keramat Permai (TKP) and to study also the modifications which had been made. Therefore, a comprehensive questionnaire was developed in order to capture residents' characteristics, housing environment characteristics and their result "the residents' behaviour", and this involved different types of the variables such as independent variables, dependent variables and control variables as following:

1) Residents' characteristics: these include three components such as demographic characteristics (e.g. gender, age, marital status, ethnicity, and household size) , socio-economic characteristics (e.g. monthly household income, level of education , sector of occupation , type of occupation and vehicle ownership) and double-storey terrace house background (e.g. duration of residence , tenure and monthly rent). Those variables,

however, are considered as control variables which effect on independent and dependent variables.

2) Housing environment characteristics: these include five components:

    i) Physical features of double-storey terrace house: These include three main spaces and four other physical features as following: Essential Spaces: such as *(master bedroom, bedrooms, bathrooms, dining area, kitchen, living area and car porch)*, Complemental Spaces *(such as terrace area, family hall, utility room, store room, front yard, and backyard)* and Special Spaces *(such as guest room, maid's room, and study room)*. In addition, the four physical features are façade of double-storey terrace house, electrical sockets, ventilation and natural lighting.

    ii) Double-storey terrace housing support services: These include two components such as: support services inside terrace house (e.g. plumbing repair services, electrical repair services, water supply and electrical supply), support services outside terrace house (e.g. condition of drains, street lighting and garbage collection).

    iii) Public facilities: These include, pedestrian walkways, local shops, places of worship, children play area, recreation area, kindergarten, food stalls, and clinics.

    iv) Social environment: This includes level of noise, security, crime, accidents, relationship with neighbours, and community cohesion.

    v) Neighbourhood facilities: These include, distances to town centre, schools, police station, fire station, hospital, shopping centres, place of worship, bus/taxi stop, train station, work place, and public library.

3) Residents' behaviour: This includes two components - modifications (e.g. addition, alteration, relocation, improvement and others) and mobility (e.g. intentions to move out or stay at the current residential area).

The above mentioned variables, however, are considered as dependent variables which are based on the independent variables such as overall satisfaction / dissatisfaction level. Finally, the general hypothesis tested in this study is based on the fact that overall residential satisfaction is directly related to physical features of double-storey terrace house, double-storey terrace housing support services, public facilities, social environment, and neighbourhood facilities.

The sampling frame used in this study was random method and a total of 220 respondents, with 110 from each neighbourhood, were selected for questionnaire survey which was administered in February-March of 2011. A five-point Likert scale ranging from '1' Very dissatisfied, '2' Dissatisfied, '3' Slightly satisfied, '4' Satisfied, '5' Very satisfied,

was used to measure residents' level of satisfaction/ dissatisfaction. Both descriptive and inferential statistics were used for data analysis..

Findings:

The findings of the study have been summarized in the following manner:

Residents' Demographic and Socio-Economic Characteristics

- (75.5%) of respondents were male, while 24.5% of them were female in TSR. On the other hand, (59.4%) of the respondents were male, while 39.6% of them were female in TKP.

- The highest frequent age category in TSR is (31-40) group, while the highest frequent age category in TKP is (41-50) group, both areas have the same mean of age of 38.45 years.

- 77.3% of respondents were married in TSR, while 74.5% of them were in TKP. Indeed, married status has the highest frequency in both areas.

- Malay is a majority (97.2%) in TKP; on the other hand, Chinese is a majority (73.6%) in TSR.

- (3-4) household members are the majority of household size in TSR, while, (5-6) household members are majority of household size in TKP.

- Double-storey terrace housing area is classified as middle-income housing, and the highest frequent monthly income in both areas ranges between RM 3001-RM 5000.

- The most frequent level of education in two areas was graduate level 45.5% in TSR and 44.3% in TKP.

- The highest frequent sector in two areas was private sector with 49.1% in both areas.

- The most frequent type of occupation in TSR was services and operational, while the most frequent type of occupation in TKP was management and professional.

- The most frequent type of vehicle ownership in both areas was two cars; 31.8% in TSR and 28.3% in TKP.

- The mean duration of residence was 4.96 years in TSR, while the mean duration of residence was 9.18 years in TKP. This means that TKP is older than TSR.

- 69.1% of respondents own their double-storey terrace house in TSR, while 77.4% of them own their double-storey terrace house in TKP. On the other hand, 30.9% of respondents rent their double-storey terrace house in TSR, while 20.8% of them rent their double-storey terrace house in TKP.

- The mean of monthly rent in TSR was RM 1101.2, while it was RM 1300.0 in TKP.

Residential Satisfaction with Housing Environment

        This study examined residential satisfaction with five components of double-storey terrace housing environment, viz., physical features, support services, public facilities, social environment, and neighborhood facilities. By taking into consideration a mean value of 3.5 which is a moderate level of residential satisfaction and more than 3.5 as a high level of residential satisfaction, while less than 3.5 as a low level of residential satisfaction (Mohit et al.,2011) , we can analyze this part as following:

Residential Satisfaction with Physical Features

- Residents expressed a high level of satisfaction (mean value=3.89) with Master Bedroom in TSR and (mean value=3.81) in TKP. In addition, residents also expressed a high level of satisfaction (mean value=3.71 with Bedroom 1 in TSR), while over slightly moderate level of satisfaction (mean value=3.54) in TKP.

- Residents expressed a high level of satisfaction (mean value=3.72) with Bedroom 2 in TSR, while residents in TKP expressed a low level of satisfaction (mean value=3.31) with the same.

- Residents of both areas expressed a low level of satisfaction with five essential components of double-storey terrace houses, viz., Numbers of Bathrooms (mean value=3.39 in TSR and mean value=3.28 in TKP), Size and Condition of Bathrooms (mean value=3.14 in TSR and mean value=3.04 in TKP), Dinning Area Size and Condition (mean value=3.22 for TSR and mean value=3.37 for TKP), Kitchen Size and Condition (mean value=2.95 for TSR and mean value=3.17 for TKP), and Car Porch Size and Condition (mean value=2.96 for TSR and mean value=3.31 for TKP).

- Residents in both areas expressed slightly high level of satisfaction with Living Area Size and Condition (mean value=3.60) in TSR and (mean value=3.64) in TKP.

- Residents expressed a moderate level of satisfaction with terrace area (mean value=3.53) in TSR, while they have expressed a low level of satisfaction (mean value=3.41) in TKP. On the other hand, in TSR, residents have expressed a low level of satisfaction (mean value=3.47) with family hall. In TKP, residents expressed a moderate level of satisfaction (mean value=3.51) with family hall.

- 55.5% of residents in TSR and 5.7% of residents in TKP reported that, they do not have utility room in their houses. On the other hand, residents expressed a low level of satisfaction with utility room (mean value=3.00) in TSR and (mean value=3.31) in TKP.

- 25.5% of residents in TSR and 5.7% of residents in TKP reported that, they do not have store room in their terrace houses, While the rest of them in both areas expressed a low level of satisfaction with store room; (mean value=3.00) in TSR and (mean value= 3.20) in TKP.

- In addition, residents in both areas have expressed a low level of satisfaction with front yard with mean value=3.09 in TSR and mean value=3.14 in TKP.

- Residents expressed a low level of satisfaction (mean value=2.70) with backyard in TKP and in TSR the level of satisfaction with backyard (mean value=2.90).

- 83.6% of residents in TSR and 50.0% of residents in TKP reported to have no guest room in their houses, whereas the rest of them have expressed a low level of satisfaction with guest room; mean value of 2.72 in TSR and a mean value of satisfaction of 3.35 in TKP.

- 87.3% of residents in TSR, and 60.4% of residents in TKP reported to have no maid's room in their houses, whereas the rest of them have expressed a low level of satisfaction with maid's room; mean value=2.36 in TSR and mean value=3.23 in TKP.

- 84.5% of residents in TSR and 61.3% of residents in TKP reported to have no study room in their houses, while the rest of them have expressed dissatisfaction with study room; mean value of 2.71 in TSR and mean value of 3.44 in TKP.

- Residents of both study areas have expressed a low level of satisfaction with three features of their houses, viz., façade (mean value=3.43 in TSR and mean value=3.30 in TKP) ventilation within double-storey terrace house (mean value=3.23 in TSR and mean value=3.43 in TKP) and natural lighting (mean value=3.42 in TSR and mean value=3.23 in TKP).

- On the contrary, residents of TKP have expressed a high level of satisfaction with number of electrical sockets (mean value=3.71), and also residents of TSR have expressed a high level of satisfaction with number of electrical sockets (mean value=3.56).

- Residents of TSR have expressed a low level of satisfaction with overall physical features of double-storey terrace house (mean value=3.31). On the other hand, residents of TKP also expressed a low level of satisfaction with overall physical features of double-storey terrace house (mean value mean value=3.43), but it is slightly higher than TSR residents.

- There is a significant positive relationship between overall physical features of double-storey terrace house and master bedroom (in TKP only), bedroom 1 (in both areas), bedroom 2 (in both areas), number of bathrooms (in both areas), bathrooms' size (in TKP only), Dining area (in both area), kitchen (in both areas), living area (in both areas), and car porch (in both areas) as well.

- There is no significant differences in mean values of residential satisfaction, viz., master bedroom: $t(104)=0.740$ $(p=0.461)$, number of bathrooms: $t(104)=1.135$ $(p=0.259)$, size and condition of bathroom: $t(104)=1.064$ $(p=0.290)$, dining area: $t(104)=1.839$ $(p=0.069)$, living area: $t(104)=0.631$ $(p=0.530)$.

- There are four items reported as having significant differences in mean values of residential satisfaction, i.e., bedroom 1 $t(104)=2.094$ $(p=0.039)$, bedroom 2 $t(104)=4.330$ $(p=0.000)$, kitchen $t(104)=2.207$ $(p=0.029)$, and finally, car porch $t(104)=2.871$ $(p=0.005)$.

- There is only one item reported as having significantly differences in mean value of residential satisfaction namely, utility room: $t(43)=2.321$ $(p=0.025)$. On the other hand, there are five items reported as having no significant difference in mean values of residential satisfaction i.e., terrace area : $t(103)=1.269$ $(p=0.207)$, family hall : $t(103)=0.096$ $(p=0.924)$, store room : $t(72)=0.660$ $(p=0.511)$, front yard : $t(103)=0.252$ $(p=0.802)$, finally, backyard, $t(103)=1.643$ $(p=0.103)$.

- Three components of special spaces are reported as having no significant difference in mean values of residential satisfaction in two areas i.e., guest room : $t(8)=1.644$ $(p=0.139)$, maid's room : $t(3)=1.00$ $(p=0.391)$ and study room : $t(3)=0.522$ $(p=0.638)$.

- There is no significant difference in mean values of residential satisfaction reported in other features in tow areas.

- There is no significant difference in mean values of residential satisfaction with overall physical features of double-storey terrace house in two areas: $t (101) =1.325$ $(p=0.188)$.

Residential Satisfaction with Double-Storey Terrace Housing Support Services

- Residents expressed a high level of satisfaction with water supply (mean value=3.64) in TSR and (mean value=3.81) in TKP. In addition, they have also expressed a high level of satisfaction with electrical supply (mean value=3.67) in TSR and (mean value =3.86) in TKP.

- On the other hand, residents have expressed a low level of satisfaction with plumbing repair services (mean value=3.26) in TSR and (mean value =3.41) in TKP. They also

expressed a low level of satisfaction with electrical repair services (mean value =3.33) in TSR and (mean value =3.42 < 3.50) in TKP.

- Residents in TSR conveyed a high level of satisfaction (mean value =3.67) with garbage collection, while the residents of TKP expressed a low level of satisfaction (mean value =3.15) with that service. While residents in TSR expressed a low level of satisfaction (mean value =3.35) with conditions of drain, the mean value for that service for TKP was 2.99). Finally, residents have expressed a low level of satisfaction with street lighting (mean value =3.37) in TSR and (mean value =3.30) in TKP.

- The residents of TSR expressed slightly higher level of satisfaction (mean value=3.48) with overall house support services than the residents of TKP (mean value=3.29).

- There was a significant positive relationship between overall housing support services and plumbing repair services (in both areas), electrical repair services (in both areas), water supply (in both areas).

- There was a significant positive relationship between overall housing support services and condition of drains (in both areas), street lighting (in both areas), and garbage collection (in both areas) as well.

- There are two items reported as having significant differences in mean values of residential satisfaction, viz., water supply: $t(105) = 2.204$ ($p = 0.030$) and electrical supply: $t(104) = 2.301$ ($p = 0.023$).

- There were two items with no significant difference in mean values of residential satisfaction i.e., plumbing repair services: $t(105) = 1.272$ ($p = 0.206$) and electrical repair services: $t(105) = 0.732$ ($p= 0.466$).

- There was no significant difference in mean values of residential satisfaction, namely, street lighting : $t(105) = 0.799$ ($p = 0.426$). On the other hand, there are two items having significant differences in mean values of residential satisfaction, i.e., condition of drains: $t(105) = 3.757$ ($p = 0.000$), and garbage collection: $t(104) = 5.722$ ($p=0.000$).

- There was a significant difference in mean values of residential satisfaction of overall double-storey terrace housing support services: $t(103) = 2.120$ ($p=0.036$) between two housing areas.

Residential Satisfaction with Public Facilities

- The residents of TSR expressed a low level of satisfaction (mean value=3.37) with the place of worship, while the residents of TKP conveyed the highest level of satisfaction(mean value=4.08) with place of worship.

- The residents of TSR were a little more satisfied (mean value =3.88) with their local shops than the residents of TKP (mean value =3.50). With respect to pedestrian walkways, TSR residents were moderately satisfied than TKP residents (mean satisfaction value=3.06).

- For Children play area, TSR residents were more satisfied (mean value =3.92) than TKP residents (mean value =3.64). For Recreation Area, TSR residents have expressed higher level of satisfaction (mean value =3.91) than TKP residents (mean value =3.54).

- For Kindergarten, residents of both TSR and TKP conveyed more or less similar levels of more than moderate levels of satisfactions with mean values of 3.80 and 3.83, respectively. For Food Stalls, residents have expressed higher satisfaction (mean value =3.91) in TSR than the residents of TKP (mean value =3.79).

- For Clinics, residents satisfied in two study areas more or less similar i.e., mean values are 3.59 and 3.60, respectively.

- TSR residents expressed a high level of satisfaction (mean value =3.73) with overall public facilities than the residents of TKP (mean value= 3.64).

- Satisfaction of overall public facilities is positively correlated to all components of public facilities except Pedestrian Walkways in TSR.

- There are five items which have significantly different mean values of residential satisfaction, namely, Pedestrian Walkways : $t(104) = 4.777$ ($p = 0.000$), Local Shops : $t(103) = 3.969$ ($p = 0.000$), Places of Worship : $t(105) = 7.185$ ($p = 0.000$), Children Play Area : $t(105) = 2.778$ ($p = 0.006$), Recreation Area : $t(105) = 3.935$ ($p = 0.000$).

- On the other hand, there are three items reported as having not significantly different mean values of residential satisfaction, viz., Kindergarten : $t(104) = 0.568$ ($p = 0.571$), Food Stalls : $t(103) = 1.330$ ($p = 0.186$), and Clinics : $t(103) = 0.365$ ($p = 0.716$). Finally, there is no significant different in mean values of residential satisfaction with overall public facilities: $t (105) = 1.119$ ($p = 0.266$).

Residential Satisfaction with Social Environment

- For level of noise, TSR residents conveyed equally lower satisfaction level (mean value= 3.13) like their counterpart TKP residents (mean value= 3.20). For level of security, TSR residents registered satisfaction level (mean value =2.96) was little higher than TKP residents (mean value =2.60). For crime, TSR residents registered higher satisfaction level (mean value =2.93) than TKP residents (mean value =2.39). For accidents, TSR residents registered satisfaction level (mean value =3.20) than TKP residents (mean value =2.94).

- For neighbouhood relationship TKP residents' satisfaction level (mean value =3.26) was a little higher than TSR residents (mean value =3.22). For relationship with community, residents registered satisfaction levels of (mean value =3.22) and (mean value =3.27), respectively for TSR and TKP.

- TSR residents expressed a low level of satisfaction with overall social environment (mean value =3.16) than TKP residents (mean value =3.06).

- Satisfaction of overall social environment is positively correlated to all components of social environment except level of noise in TKP.

- Three items were reported as having significantly different mean values of residential satisfactions. These were, viz., level of security: $t(105) = 4.838$ (p=0.000), crime: $t(105) = 6.514$ (p=0.000), accidents: $t(105) = 3.156$ (p=0.002).

- On the contrary, three items were reported as not having significantly different mean values of residential satisfaction. These are - level of noise: $t(104)=0.678$ (p=0.500), relationship with neighbours: $t(105)=0.297$ (p=0.767), relationship with community: $t(105) = 0.400$ (p=0.690).

- Finally, there is no significant difference in mean values of residential satisfaction with overall social environment: $t (105) = 1.203$ (p=0.232).

Residential Satisfaction with Neighborhood Facilities

- Both TSR and TKP residents expressed a high level of satisfaction with distance to town centre; mean values are 4.05 and 4.13, respectively. A high level of satisfaction was conveyed by both group of residents to distance to schools; (mean value =4.05) for TSR and (mean value =4.08) for TKP.

- TSR residents expressed a low level of satisfaction with distance to police station (mean value =3.45) than TKP residents (mean value =3.58).

- TKP residents expressed moderate level of satisfaction (mean value =3.53) with distance to fire station than TSR residents (mean value =3.32). Similarly, TKP residents

- expressed moderate level of satisfaction (mean value =3.59) with distance to hospital than TSR residents (mean value =3.19).

- Both TSR and TKP residents expressed a high level of satisfaction with distance to shopping centres; mean values are 4.25 and 4.08, respectively.

- While TKP residents expressed a high level of satisfaction (mean value =4.17) with distance to Masjed/place of worship, TSR residents expressed a moderate level of satisfaction (mean value =3.50) with that variable.

- TSR residents expressed a high level of satisfaction (mean value =4.02) with distance to bus / taxi stop TKP residents (mean value =3.92).

- While TSR residents expressed a low level of satisfaction (mean value =3.04) with distance to train station, TKP residents expressed a high level of satisfaction (mean value 4.28).

- In addition, residents, in both areas, have expressed a high level of satisfaction with distance to work place (mean value =3.89) in TSR and (mean value =3.74) in TKP.

- On the other hand, residents in both areas, have expressed a low level of satisfaction with distance to public library; mean value =3.09 in TSR and mean value =3.46 in TKP.

- While TSR residents expressed a little over moderate level of satisfaction (mean value= 3.55) with overall neighborhood facilities, TKP residents of TKP expressed a high level of satisfaction (mean value= 3.88) with overall neighborhood facilities.

- Satisfaction of overall neighborhood facilities is positively correlated to all components of neighborhood facilities except distance to fire station in case of TKP.

- Five items were reported to have significantly different mean values of residential satisfaction. These are, viz., distance to fire station: $t(105) = 2.041$ (p=0.044), distance to hospital ; $t(105) = 3.675$ (p=0.000), distance to Masjed/place of worship : $t(105) = 8.111$ (p=0.000), distance to train station: $t(105) = 10.026$ (p = 0.000) and distance to public library: $t(105) = 3.354$ (p=0.01).

- On the other hand, six items were reported as not significantly different in their mean values of residential satisfaction. These were, viz., distance to town center: $t(105) = 0.767$ (p = 0.445), distance to schools : $t(105) = 0.306$ (p = 0.760), distance to police station : $t(105) = 1.421$ (p=0.158), distance to shopping centers: $t(105) = 1.900$ (p= 0.060), distance to bus/ taxi stop : $t(105) = 1.074$ (p = 0.285), distance to work place : $t(105) = 1.640$ (p = 0.104) > 0.05.

- Finally, there were significant differences in mean values of residential satisfaction with overall neighborhood facilities: t (99) = 4.585 (p = 0.000).

Modifications of Double-Storey Terrace House

- In TSR, 14.5% of residents (16 cases) adapted to their bedrooms without any modifications. On the other hand, 88.4% of them (94 cases) modified their bedrooms. Conversely, in TKP, 5.7% of residents (6 cases) adapted to their bedrooms without any modifications. On the other hand, 93.3% of them (99 cases) modified their bedrooms. The most common modification approach was improvement in two areas.

- In TSR, 13.6% of residents (15 cases) adapted to their bathrooms without any modifications. On the other hand, 86.4% of them (95 cases) modified their bathrooms. Conversely, in TKP, 5.7% of residents (6 cases) adapted to their bathrooms without any modifications. On the other hand, 93.3% of them (99 cases) modified their bathrooms. The most common modification approach was improvement in two areas.

- In TSR, 13.6% of residents (15 cases) adapted to their kitchen without any modifications. On the other hand, 86.4% of them (95 cases) modified their kitchen. Conversely, in TKP, 4.7% of residents (5 cases) adapted to their kitchen without any modifications. On the other hand, 94.4% of them (100 cases) modified their Kitchen. The most common modification approach was improvement in two areas.

- In TSR, 16.4% of residents (18 cases) adapted to their living area without any modifications. On the other hand, 83.7% of them (92 cases) modified their living area. Conversely, TKP, 4.7% of residents (5 cases) adapted to their living area without any modifications. On the other hand, 94.4% of them (100 cases) modified their living area. The most common modification approach was improvement in two areas.

- In TSR, 14.5% of residents (16 cases) adapted to their dining area without any modifications. On the other hand, 85.5% of them (94 cases) modified their dining area. Conversely, in TKP, 4.7% of residents (5 cases) adapted to their dining area without any modifications. On the other hand, 99.0% of them (100 cases) modified their dining area. The most common modification approach was improvement in two areas.

- In TSR, 13.6% of residents (15 cases) adapted to their car porch without any modifications. On the other hand, 86.4% of them (95 cases) modified their car porch. Conversely, in TKP, 5.7% of residents (6 cases) adapted to their car porch without any modifications. On the other hand, 93.3% of them (99 cases) modified their car porch. The most common modification approach was improvement in two areas.

- The main reasons for the modifications in essential spaces are either psychological reason such as convenience or physical reason such as not enough space. In TSR, 44.5% of residents expressed the convenience, 17.3% of them expressed not enough space and 38.2% of them had no comment. On the other hand, In TKP, 35.8% of residents expressed the convenience, 24.5% of them expressed not enough space and 38.7% of them had no comment.

Modifications in the Complemental Spaces

- In TSR, 14.5% of residents (16 cases) adapted to their terrace area without any modifications. On the other hand, 88.4% of them (94 cases) modified their terrace area. Conversely, in TKP, 5.7% of residents (6 cases) adapted to their terrace area without any modifications. On the other hand, 93.3% of them (99 cases) modified their terrace area. The most common modification approach was improvement in two areas.

- In TSR, 11.8% of residents (13 cases) have adapted to their family hall without any modifications. On the other hand, 86.4% of them (95 cases) have modified their terrace area. 1.8% of residents (2 cases) have expressed that no family hall available in their terrace houses. Conversely, in TKP, 5.7% of residents (6 cases) have adapted to their family hall without any modifications. On the other hand, 93.3% of them (99 cases) have modified their family hall. The most common modification approach was improvement in two areas.

- In TSR, 3.6% of residents (4 cases) have adapted to their utility room without any modifications. On the contrary, 40.9% of them (45 cases) have modified their utility room. 55.5% of residents (61 cases) have expressed that no utility room available in their terrace houses. Conversely, in TKP, 5.7% of residents (6 cases) have adapted to their utility room without any modifications. On the other hand, 87.4% of them (93 cases) modified their utility room. 5.7% of residents (6 cases) have expressed that no utility room available in their terrace houses. The most common modification approach was improvement in two areas.

- In TSR, 7.3% of residents (8 cases) have adapted to their store room without any modifications. On the other hand, 67.2% of them (74 cases) have modified their store room. 25.5% of residents (28 cases) have expressed that no store room available in their terrace houses. Conversely, in TKP, 4.7% of residents (5 cases) have adapted to their store room without any modifications. On the other hand, 88.7% of them (94 cases) have modified their store room. 5.7% of residents (6 cases) have expressed that no store

room available in their terrace houses. The most common modification approach was improvement in two areas.

- In TSR, 12.7% of residents (14 cases) have adapted to their front yard without any modifications. On the other hand, 87.3% of them (96 cases) have modified their front yard. Conversely, in TKP, 5.7% of residents (6 cases) have adapted to their front yard without any modifications. On the other hand, 92.3% of them (99 cases) have modified their front yard. The most common modification approach was improvement in two areas.

- In TSR, 13.6% of residents (15 cases) have adapted to their backyard without any modifications. On the other hand, 86.3% of them (95 cases) have modified their backyard. Conversely, in TKP, 8.5% of residents (9 cases) have adapted to their backyard without any modifications. On the other hand, 89.6% of them (95 cases) have modified their backyard. 0.9% of residents (one case) have expressed that no backyard available in their terrace houses. The most common modification approach was improvement in two areas.

Main reasons for the modifications in the Complemental Spaces

- The main reasons for the modifications in complemental spaces are either psychological reasons (such as convenience, and safety) or physical reasons (such as not enough space, beauty, parking space, and not enough lighting and ventilation). In TSR, 28.2% of residents have expressed the convenience, 17.3% of them have expressed not enough space, 0.9% of them have expressed the safety, 4.5% of them have expressed the beauty, 7.3% of them have expressed parking space, 41.8% did not comment .On the other hand, in TKP, 24.5% of residents have expressed the convenience, 14.2% of them have expressed not enough space, 3.8% of them have expressed the beauty, 0.9% of them have expressed not enough lighting and ventilation, 55.7% did not comment.

Modifications in the Special Spaces

- In TSR, 1.8% of residents (2 cases) have adapted to their guest room without any modifications. On the other hand, 14.6% of them (16 cases) have modified their guest room. In addition, the most frequent modification approach was others 6.4% (7 cases). Finally, 83.6% of residents (92 cases) have expressed that no guest room was available in their terrace houses. Conversely, in TKP, 7.5% of residents (8 cases) have adapted to their guest room without any modifications. On the other hand, 41.4% of them (44 cases) have modified their guest room. Besides that, the most common modification approach

was improvement 24.5% (26 cases). Finally, 50.0% of residents (53 cases) have expressed that no guest room was available in their terrace houses.

- In TSR, 0.9% of residents (one case) have adapted to their maid's room without any modifications. On the other hand, 11.8% of them (13 cases) have modified their maid's room. In addition, the most frequent modification approach was improvement 5.5% (6 cases). Finally, 87.3% of residents (96 cases) have expressed that no maid's room was available in their terrace houses. Conversely, in TKP, 5.7% of residents (6 cases) have adapted to their maid's room without any modifications. On the other hand, 33.1% of them (35 cases) have modified their maid's room. Besides that, the most common modification approach was improvement 17.0% (18 cases). Finally, 60.4% of residents (64 cases) have expressed that no maid's room was available in their terrace houses.

- In TSR, 0.9% of residents (one case) have adapted to their study room without any modifications. On the other hand, 14.6% of them (16 cases) have modified their study room. In addition, the most frequent modification approach was others 7.3% (8 cases). Finally, 84.6% of residents (93 cases) have expressed that no study room available in their terrace houses. Conversely, in TKP, 5.7% of residents (6 cases) have adapted to their maid's room without any modifications. On the other hand, 32.1% of them (34 cases) have modified their study room. Besides that, the most common modification approach was improvement 17.9% (19 cases). Finally, 61.3% of residents (65 cases) have expressed that no study room was available in their terrace houses.

Main reasons for the modifications in Special Spaces

- The main reasons for the modifications in special spaces are either psychological reasons such as convenience or physical reasons (such as not enough space, and beauty). In TSR, 7.3% of residents have expressed the convenience, 3.6% of them have expressed not enough space, 1.8% of them have expressed the beauty, 87.3% did not have comment .On the other hand, in TKP, 17.0% of residents have expressed the convenience, 6.6% of them have expressed not enough space, 0.9% of them have expressed the beauty, 74.6% did not have any comment.

Decision to Move Out or Stay in Double-Storey Terrace Housing Area

- Residents were asked if they want to move out from their double-storey terrace housing areas or not, and the results show that, 46.4% of them said "Yes" and 49.1% of them said "No" in TSR. Conversely, in TKP, 23.6% of residents said "Yes" and 74.5% of them said "No".

- The main reasons for those who said "Yes" to move out from TSR are: 16.4%, because they are looking for better life, 11.8% because of moving to their own houses, 4.5% because of transfer to new work place, 5.5% because of following their future spouses, 1.8% because of level of safety and 6.4% had no comment.

- On the other hand, the main reasons for those who said "Yes" to move out from TKP are: 11.3% because they are looking for better life, 1.9% because of expensive rent, 2.8% because of moving to their own houses, 0.9% because of moving to their villages, 1.9% because of following their future spouses, and 4.7% because of level of safety. In general, the most common reason in both areas was "looking for better life".

- The main reasons for those who said" No" to move out from TSR are: 10.9% because of good place to stay, 10.9% because of strategic location, 4.5% because of good facilities, 2.7% because of hard to find a house, 1.8% because of their own houses, 0.9% because of long time in this area, 1.8% because of no future plan and 15.5% had no comment.

- On the other hand, the main reasons for those who said "No" to move out from TKP are: 17.9% due to good place to stay, 15.1% due to strategic location, 0.9% due to retirement ,6.6% due to good facilities, 1.9% due to hard to find a house, 4.7% due to good environment, 2.8% due to their own houses, 0.9% due to long time in this area, 5.7% due to strong community and 19.8% had comment. In general, the most common reasons in TSR were "good place to stay" and "strategic location" and conversely, "good place to stay" in TKP.

Correlation Matrix Analysis

- The general hypothesis of this research is that there are significant relationships between residential satisfactions components of housing environment and residents' characteristics such as demographic characteristics (e.g. age, ethnicity and household size), socio-economic characteristics (e.g. monthly income of household, level of education, and type of occupation) and double-storey terrace house background (e.g. duration of residence, tenure, and monthly rent). Thus, the correlation matrix analysis is used to investigate the type and the range of these relationships.

- There is a significantly negative relationship between age and physical features of double-storey terrace house satisfaction in TSR ($r = -0.262**$). On the other hand, there is no relationship between age and other components in the two areas. In addition, there is no relationship between ethnicity and residential satisfaction components in two areas.

- Finally, there is a significantly negative relationship between household size and physical features of double-storey terrace house satisfaction in TSR (r = -0.253**). On the other hand, there is no relationship found between household size and other residential satisfaction components in the two housing areas.

- There is a significantly negative relationship between income of household and double-storey terrace housing support services satisfaction (r=-0.223*), public facilities satisfaction (r=-0.192*), and social environment satisfaction (r=-0.352**) in TSR.

- In addition, there is a significantly negative relationship between income of household and social environment satisfaction (r=-0.207*), and a significantly positive relationship between income of household and neighborhood facilities satisfaction (r=0.327**) in TKP.

- There is only a significantly positive relationship between level of education and physical features of double-storey terrace house satisfaction in TKP (r = 0.214*).

- Finally, there is only a significantly negative relationship between type of occupation and neighborhood facilities satisfaction in TSR (r=-209*).

- There is only a significantly negative relationship between duration of residence and physical features of double-storey terrace house satisfaction (r=-421**) in TSR. In addition, there is a significantly positive relationship between Tenure and physical features of double-storey terrace house satisfaction (r= 0.207*), and double-storey terrace housing support services satisfaction (r=0.195*) in TSR. In addition, there is a significantly positive relationship between monthly rent and neighborhood facilities satisfaction (r=0.502*) in TSR. Finally, there is no any relationship found between overall satisfaction components and double-storey terrace house background in TKP.

Conclusion:
- Variables such as Bedroom 1, Family Hall, Local Shops, Recreation Area, Distance to fire station in TKP, and Terrace Area, and Places of Worship in TSR do not influence positively or negatively the residential satisfaction level. Factor such as overall neighborhood facilities in TSR does not influence positively or negatively residential satisfaction as well. Indeed, the whole factors and variables in this study influence positively and negatively residential satisfaction levels.

- The overall findings of the research study showed that two study areas have low level of residential satisfaction with overall physical features of double-storey terrace house, overall double-storey terrace housing support services, and overall social environment.

- On the other hand, the two study areas have high level of residential satisfaction with overall public facilities. In TSR, residents expressed a moderate level of satisfaction with neighborhood facilities but the residents in TKP expressed a high level of satisfaction with neighborhood facilities.

- The most modified spaces in double-storey terrace house were essential spaces followed by complemental space and special spaces in two study areas. In addition, the most modification approach was improvement in two study areas as well.

- The main reasons for the modifications generally were physical reasons such as, not enough spaces, beauty, parking space, not enough lighting and ventilation, and psychological reasons such as convenience, and safety.

- 46.4% of residents in TSR have intention to move out from their current area but 49.1% of them do not. On the other hand, 23.6% of residents in TKP have intention to move out from their current area but 75.5% of them do not. The main reason for those who decided to move was "looking for better life" in two study areas. In addition, the main reason for those who decided to stay was "good place to stay" in TKP and "good place to stay and strategic location" in TSR.

Recommendations:

- Based on modifications of double-storey terrace houses in two study areas, the survey revealed that the main reasons were - not enough space, lack of ventilation and natural lighting, not enough space for car park, and beauty which led to residential dissatisfaction. Thus, to increase the satisfaction level, the researcher recommends that:

- Adding one more storey to become two and a half storey or three-storey terrace house to increase the internal spaces for the rooms and external space for the car park.

- Redesigning the front and rare elevations to increase the natural lighting, ventilation within terrace house area and having an attractive façade.

- It was found that absence of plumbing and electrical services, insufficient street lighting, and bad condition of drains in two study areas led to residential dissatisfaction. Thus to increase the satisfaction level, the researcher recommends that:

- Providing plumbing and electrical services within the scope of the neighborhoods in order to facilitate the services among the residents of two study areas.

- Increasing the numbers of lamp-posts in the local roads in two study areas in order to protect the residents from the crime.

- Enhancing the condition of drains in two study areas in order to provide sustainable environment.

- It was revealed that lack of places of worship in TSR and inefficient pedestrian walkways in TKP led to residential dissatisfaction. Thus, it is recommended:

- Increasing the numbers of places of worship particularly in TSR such as temples for Chinese because they are the majority.

- Developing and enhancing the pedestrian walkways in two study areas particularly in TKP.

- Based on the findings that the residents of both TSR and TKP are dissatisfied with overall social environment components, it is recommended that:

- Implementing crime awareness programmes and "Safe City Concept" in two neighborhoods.

- Providing community activity centres in order to increase the social relationships among the neighbours.

- It was found that the long distances to police station, fire station, hospital, train station, public library in TSR and long distance only to public library in TKP led to residential dissatisfaction among residents. Thus to increase the satisfaction level, it recommended that:

- Providing police station in two study areas particularly in TSR in order to increase the security level. Providing fire station particularly in TSR.

- Providing public transportation services such as buses to facilities the inner movement from the Sri Rampai LRT station to the centre of TSR (Wisma Rampai), and outer movement from TSR to city center in order to connect the neighborhood with other facilities such as hospital.

- Providing mini public library in order to attain the aspiration of residents in two areas.

- This study has discussed the residential satisfaction perceived by residents of double-storey terrace housing in two neighborhoods, viz., TSR and TKP in Greater Kuala Lumpur. It is hoped that future research would be added to the available literature.

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