A Study on Housing Satisfaction and Renovation Decision in Klang Valley

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Abstract:

The purpose of this paper is to provide a rare insight into the housing satisfaction behind the homeowners who lived in Klang Valley. The housing renovation trend has getting more and more popular in nowadays. Some of the homeowners have even renovated their house once they have received the house key. This research paper is based on the survey which is conducted around the area of Klang Valley with those respondents who own a house and currently stay in the house.

The data were analyzed by using linear regression to identify which parts of the house constitute the highest effect on the overall housing satisfaction. Other than that, renovation characteristics and behavior of homeowners have also discussed in this study. The finding of this paper shows that kitchen is the part of the house, which have the significant correlation between overall housing satisfactions. Moreover, this research have also found out that kitchen is the favourite spot of the house to be renovated by the homeowners in Klang Valley.

Keywords: Housing Satisfaction, Renovation, Liner Regression

1.0 INTRODUCTION

Maslow's hierarchy of needs says that shelter and security are the fundamental need which is the need of physiological and safety [1]. This statement has progressed into a different perception as today's homeowner will also consider on different types of needs like size of the house, housing design, comfortability of the house and etc. Therefore, if the existing house that are living by the homeowners fails to fulfill their needs, they are more likely to make some modification or renovation in order to achieve their desire needs [2].

The difference between a house and a home is that a house is a physical building where people dwell. Whereas, home is a mind and emotional concept, full with cultural, psychological and demographic meanings [3]. Kopec (2006) mentioned a home provides a sense of comfort and warmth, safety and security to occupant. The meaning of comfort can vary depending on the different perspectives of individuals. "Habitability pyramid" which was established by Vischer (2007), shows that the occupant satisfaction and wellbeing towards their habitat can be categorized into four levels ranging from discomfort to psychological comfort. Therefore, there is a tendency that homeowners will renovate their house in order to achieve their desired comfort level and ultimately it meant a home to them.

Renovation is basically a large home improvement projects which include major structural changes or extension to the home that are entirely or relatively contracted to building professionals [5]. According to Plaut and Plaut (2010), renovation is categorized into 3 different types of renovations which are the major structural renovation where it contributes new spaces to the built-up-area, internal restructuring of space in which did not increase any new space to the built-up-area and other renovations.

2.0 PROBLEM STATEMENT

Renovation has becoming a trend in Malaysia and even the Ministry of Housing and Local Government [7] had defined that renovation is already measured as part of Malaysian culture. The reason behind is mainly because the home buyers or homeowners do not have any involvement during the design stage. Consequently, the ministry has raised the issue on what are the solutions to consider the needs of home owner by developing adaptable house design. This is absolutely a right decision from the government because if the needs of the occupants have satisfied, they might not increase their expenditure on renovation.

From the statistics of renovation exhibition that held in Malaysia in the past few years like Homedec, Malaysia International Renovation Expo (REX), etc. has shown that there is a huge demand from the public. According to The Star Online, REX has an expectation of 100,000 visitors from visiting the event in year 2015. Other than that, EG Groups Holding Sdn Bhd [7] has claimed that there are 85% of respondents in their survey have planned home projects like decorating, renovating, new kitchen, relocating, landscaping, etc. for the next 12 months. Other than that, the number of Homedec exhibition holds in a year has increased shows that there is a demand from the public. In other words, the occupants are most probably feeling

dissatisfied with their housing design which lead to a higher demand.

Mass housing design is economic beneficial as it standardized the designs into one for all, but it could not provide a mutual design solution which can be accepted by the occupants due to everyone has their own necessity [8]. Therefore, if the present house fails to match with the occupants' needs, choice and aspiration may cause to adjustment of aspirations or alteration of the present houses through renovation or modification [9].

3.0 HOUSING SATISFACTION AND RENOVATION

3.1 Renovation Trend

Homeowner will usually think to renovate their houses after staying in the house for quite some time. It may be due to the family has grown bigger or the family has become economically stable [10]. Homeowner could also renovate their house when the house is aging. However, in this era, the above practice is no longer a tradition. Homebuyer would renovate from tile to doors and even painting when they just bought a new house. Renovation has becoming a trend in Malaysia and even the Ministry of Housing and Local Government had defined that renovation is already measured as part of Malaysian culture [7]. The reason behind is mainly because the home buyers or homeowners do not have any involvement during the design stage. Consequently, the ministry has raised the issue on what are the solutions to consider the needs of home owner by developing adaptable house design. This is absolutely a right direction from the government because if the needs of the occupants have satisfied, they might not increase their expenditure on renovation.

Over the past fifty years, Malaysia houses are rapidly being built all over the country. The growth in housing development also boosts the renovation and decoration sectors in Malaysia. Home renovation and decoration fairs are increasing all around the nation dramatically. There are quite a number of broad-scale exhibition fairs such as Homedec Fairs, REX Home Renovation, Malaysia International Furniture Fair, Creative Home Renovation Expo and etc. are held in Malaysia recently.

The statistics of the number of renovation and decorations fairs that held in the past few years have shown a significant growth of demand in the housing market. Homedec exhibition is one of the famous exhibition fair in Malaysia where it held for the Malaysians who are looking to renovate, refurbish or redecorate their homes [11]. Homedec first launched its renovation fair by 2003 and it was held once a year. However, in 2015, Homedec are spread all over the nation such as Johor Bahru, Kota Kinabalu, Kuching, Penang and Kuala Lumpur. Furthermore, Kuala Lumpur even holds the Homedec exhibition fair twice a year. This shows that housing renovation has become very popular and demanding from the public.

EG Groups Holding Sdn Bhd has pointed out that their past REX home show in year 2013 has RM90 million transactions [12]. Whereas in year 2015, EG Groups Holding Sdn Bhd stated that their past REX home show has RM220 million transaction during the event [7].

3.2 Housing Dissatisfaction and Renovation

Housing satisfaction is known as a crucial component for the homeowners' general quality of life [13]. Among the empirical studies from literature, most of the researchers have recognized a few important determinants for housing satisfaction, the examples such as the housing characteristics, neighborhood characteristics and the socio-economic status of the households. The housing and neighborhood characteristics can be identified through objective and subjective attributes of housing [14]. Objective measure is about the assessment of the physical characteristics, environment, services and facilities. However, subjective measures discuss about emotions, perception, attitudes, and as well as intention towards the housing attributes [15]. Most of the housing satisfaction studies have included both objective and subjective attributes of housing for the evaluation of housing satisfaction.

Riffkin (2014) argued that the satisfaction of quality affordable housing is continuing to drop globally from 56% in 2008 to 51% in 2013. There will always be a reason behind of every consequence. According to Elsinga and Hoekstra (2005), they found out that housing quality is one of the vital factors of housing satisfaction and the results show that housing quality index and the subjective perception of the housing size have the greatest impact towards housing satisfaction. Salleh (2008) also stated that house unit factor like area of the living room, kitchen and dining are also one of the most curial element in housing satisfaction among the residents in private low cost housing in Malaysia. The degree of housing satisfaction will judge by the households according to the actual housing condition and housing norms. If the households' current housing condition meets with the norms, they tend to respond a high degree of satisfaction with their houses [19].

Mass housing design provides 'one design fits for all' concept, but this is hard to accommodate everyone's wants and needs [20]. Ozaki (2002) stated that when there is a difference between what homeowner expect and what they are offered it will produce a gap. Therefore, when the mass housing design does not meet the homeowner's expectation and requirement, it will produce a gap which lead to dissatisfaction. It may cause housing deficit when the current housing condition mismatch with the housing norms [22]. In order to resolve the incongruity, some form of housing alteration may be considered by the households, such as renovating their housing conditions, redrawing their housing objectives and needs or moving to another houses [23] [24] [25].

Besides housing design, eventually comfort is also what most of the homeowners tend to look for in their houses. Based on the study by Vischer (2007), "Habitability pyramid" has been proposed to illustrate the idea of comfort in which it illustrates the relationship between various environmental comforts from discomfort to physical comfort to functional comfort

and lastly to psychological comfort. When a home does not meet the minimum requirement of comfort, it produces stress and dissatisfaction among the occupants subsequently. Hence, the home falls under the discomfort zone.

According to Vischer (2007), physical comfort is the basic necessity required for a home to be livable. This can be achieved through responsible design that meets the relevant guidelines and regulations set by the authority that ensures the safety and health of the occupants. In instance, the state for the occupant to live in, the functional comfort is the next level after physical comfort in Figure 1 "Habitability pyramid" which focuses on making an area performs adequately and to ensure the designated purpose and need are achieved. At the highest level of the pyramid is the psychological comfort in which the satisfaction of the occupant will be affected by several issues such as territorial, privacy, perception, social interaction, personal meaning and control of the occupants. Functional and psychological comfort can be achieved based on individual requirements. A wealthy occupant may have different comfort satisfaction as compared to the less wealthy occupant. This is greatly because of the lifestyle and the affordability of the individual occupant. In linear with "Habitability pyramid", homeowners can achieve basic physical comfort need from houses that are built by the developers. Then, modification or alteration can be done to develop the desired functional and psychological comfort. This is supported by a case study from Omar, Endut, and Saruwo (2010), there is a significant finding shows that houses went through spatial renovation to transform into a 'home'. As a result, there is a correlation between sense of comfort and the decision from renovate a house.

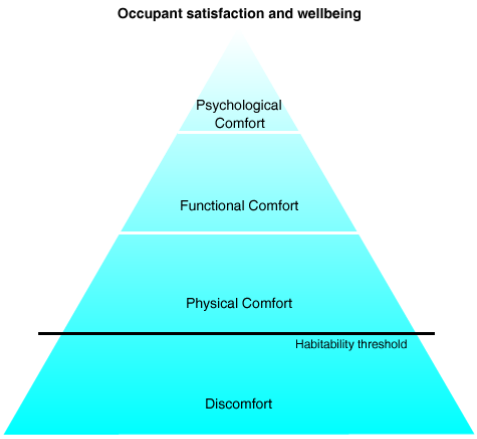

Figure 1 Habitability Pyramid [4]

Personalization can be described as a physical sign used to recognize personal identity and mark territories [27]. A lot of people have a tendency to create their own brand or mark their house distinctively compare with others [28]. As noted by Oulasvirta and Blom (2007), human activity like decorating, altering, renovating and adapting are the normal behavior from personalization. Ozaki, et al. (2002) has also claimed that personalization is a process which consists of planning, designing, construction and usage. This is a process where requires additional future expenditures [31]. Any alteration, addition or renovation done to the exterior part of the house by the homeowners is when the personalization happens. The alteration includes of the front or back yard of the house and the garage [28]. Exterior part of personalization is also known as public personalization where it arises between the houses and the boundary of the property [32]. Homeowners tend to personalize their houses in order to congruent their own personal aspirations and needs. Personalization is a crucial factor in forming a home [31].

3.3 The Gap on What People Wants but Do Not Have

Brown (2000) claimed that a judgement is always base on what one has relative to some standard or what one expected in return. As a result, the gap between what homeowners expect and what have been done by the developer can used to analyze as homeowners' housing satisfaction. Therefore, it is very crucial that developer need to understand the gap and work on what homeowners have always been expected. From evaluating the gap, it enables developer to construct the houses in linear with homeowners expectation and perform better which consequently it will improve their sales. Ozaki (2002) claimed that when a house design is not 'fit' to the homeowner's standards and lifestyle, it may cause dissatisfaction to the homeowner or the occupants. Therefore, this dissatisfaction is creating a gap to be further studied in. Parasuraman, Zeithaml, and Berry (1985) said that in the service industry, there were gaps between what a company director thought of their customers expected and what customers actually expected.

According to Ozaki (2002), evaluating the gap between customer aspirations and what has been done allows builders or developers to increase performance. The authors have also emphasized that the way customer-focused performance can increase business and the way Japanese house builders have conducted careful examination of customer desires to promote their business. In another word, evaluation of this gap can be used as a tool to measure the housing satisfaction from the home buyers. Thus, housing developers would gain necessary information from the evaluation of the performance of current and future housing development projects through housing satisfaction measurement in which also help the housing developer to understand and predict the overall satisfaction of their future housing development projects [35].

The quality of workmanship by the developers is an important satisfaction element which drives the new home buyers. Most of the time, developers are confident on their quality of housing. However, there are still quite a number of dissatisfaction from the homeowners as the houses have a lot obvious defects such as poor quality of paintwork, missing window locks, found rubbish in the sink, unfinished socket covers, etc.

This is clearly shows that the developers offer currently has a gap with what homeowners' expectation [21].

Hence, the paper aims to determine the housing design preferences of homeowners and also to identify the parts of the house where affecting the housing satisfaction of homeowners in Klang Valley.

4.0 METHODOLOGY

In order to investigate the housing design preferences and housing satisfaction primary data collection is used. The data is collected by distributing questionnaire through face to face approach at iProperty fair which held on 7th, 8th and 9th of August 2015 in Mid Valley Exhibition Hall. Other than that, the survey also spread to the homeowners who live in Klang Valley by spreading through friends and family members. Instructions have also given to the distributor in order to reduce the discard rate. The respondents of this study are the first-hand homebuyer who owns a house who are dwelling in Klang Valley. The final sample consisted of 633 respondents from all the collection methods. However, 154 of them were discarded due to non-landed property and some missing information in the survey forms.

4.1 Questionnaire Design

All the questions relating to the housing design preferences and housing satisfaction are structured by adapting idea from the previous studies with slight modifications. In this survey, factual questions and attitudinal questions are set. The responses for attitudinal questions are designed in a seven-point scale. The degree of housing design preferences may tend to vary by different design elements that preferred by homeowners. The satisfaction level for each part of the house is depending on the original state of the house when homebuyers received from the developers. There are an expected relationship between each parts of the house and the overall housing satisfaction. Hence, a ten-point scale is set for the overall satisfaction construct for further analysis in the analysis stage.

4.2 Analysis Methods

A series of analysis methods which are descriptive statistics, univariate analysis, relative importance analysis and regression analysis have been adopted to explore homeowners' housing design preferences and housing satisfaction.

Relative importance index (RII) is used in this research to identify which type of housing design will affect the preferences of the respondents. RII is calculated to rank among the eight (8) design elements from the highest RII to the lowest RII. Highest RII signify that the particular design element is most important to the homeowners. RII formula as follow:

$$\mathrm{RII} = \frac{\sum W}{\mathrm{A \times N}}$$

Where,

W = weightage of each variable

A = the highest weight

N = total number of respondents

Linear regression has been used to study and analysis on the satisfaction of the respondents towards their original housing attributes. Regression is used because regression modelling is an activity leads to a functional relationship between a response and a set of explanatory variables [36]. This aims to identify the parts of a house where affecting the housing satisfaction of homeowner in Klang Valley. The formula as follow:

$$y_i = \beta_0 + \beta_1 x_i + \epsilon_i \ , \quad i = 1,2,\ldots,n$$

Where,

y_i = Dependent Variable
β_0 = Population Y Intercept
β_1 = Population Slope Coefficient
x_i = Independent Variable
ϵ_i = Random Error Term

5.0 RESULT AND DISCUSSION

5.1 Relative Importance Index (RII)

RII is calculated in accordance with the scales which were chosen by the respondents. There are eight (8) design elements which are asked in scale: Element 1, size of the house, Element 2, interior aesthetic of the house, Element 3, exterior aesthetic of the house, Element 4, uniqueness of the house's exterior design or façade, Element 5, health and safety of occupant in the house, Element 6, Functionality of the space in the house, Element 7, privacy of occupant in the house, Element 8, house design in relating to religious or culture. The result of ranking is shown in Table 1.

Table 1 Ranking on housing design preferences

Elements	RII	RANK
Health and Safety of occupant in the house	0.8396	1
Functionality of the spaces in the house	0.8292	2
Aesthetic of the house (interior)	0.7749	3
Size of the house	0.7614	4
Privacy of occupant in the house	0.7318	5
Aesthetic of the house (exterior)	0.6856	6
House design in relating to religious/culture	0.6584	7
Uniqueness of the house's exterior design/facade	0.5962	8

From the results, it shown that the homeowners are very concerned on the health and safety of their family members in the house. As mentioned in the previous chapter, Maslow (1943) has argued that shelter and security is the fundamental need in Maslow's hierarchy of needs. Other than that, Vischer (2007) has also stressed that the safety and health of the occupants are the basic necessity which is at the lowest part of "Habitability pyramid", physical comfort. Therefore, the result of this finding has proven that health and safety of a house is the most important element in homeowners' point of view and it is in linear with the previous statement.

Additionally, the other significant finding which has shown from this section is the homeowners are apprehensive on the functionality of the spaces in the house. Although this element is ranked as number 2 but it has only a slightly different of RII 0.0104 compare to number 1. Hence, this element can also be considered as very important to homeowners when come to housing design. This result is also contributing to the previous study which carried by Vischer (2007) who has pointed out that functional comfort is the level after physical comfort. Furthermore, from the rankings, privacy of occupant in the house, house design in relating to religious or culture and the uniqueness of the house's exterior design have relatively low RII. This has upheld that the psychological comfort which is on top of "Habitability pyramid" is subjective in according to individual requirement and perception. Thus, the result for this section has shown a great affiliation to the past researches.

5.2 Linear Regression

Table 2 shows the coefficient for the parts of the house in affecting to the overall housing satisfaction.

Table 2 B value and significance value

Parts of House	B	Sig.
Car Porch	-0.005	0.956
Back Yard	0.019	0.767
Living Area	0.072	0.498
Dining Area	0.122	0.216
Front Yard	0.121	0.207
Bathrooms	0.125	0.204
Bedrooms	0.225	0.023
Store Room	0.195	0.011
Kitchen	0.281	*0.003

*Significant value < 0.01

The significance value is considered significant only when it is lower than 0.01 [37]. Among all the parts of the house, kitchen is the only part of the house has a significant value lower than 0.01 which is 0.003. It has a highest B value of 0.281. This shows that the satisfaction of kitchen increase by one gap will affect the overall housing satisfaction by 0.281 times.

A further analysis on correlation has been carried out on kitchen and overall housing satisfaction. In the Figure 2, a scatter plot graph illustrates the relationship between the satisfaction level of kitchen and the overall housing satisfaction.

Figure 2 Correlation graph

From the graph in Figure 2, it portraits a positive correlation between the satisfaction level of kitchen and the overall housing satisfaction. It shows a R^2 of 0.3068 and it means that for every single unit increase of satisfaction level in kitchen, the overall housing satisfaction will increase by 30.68%. In other words, kitchen is the part of the house where it contributes a

major impact towards the respondents' overall housing satisfaction.

Hence, from these two analyses, they show a significant finding that kitchen is the part of the house where respondents dissatisfied the most and this is also the part where it has the most influencing power and strongest relationship upon the overall housing satisfaction. This finding is also shows a considerable interconnection with the past researchers Salleh (2008), who mentioned that kitchen in Malaysia is one of the most important element in housing satisfaction. Tan (2012) has also pointed out that occupants tend to respond satisfied when their housing condition meets with the norms. If the condition mismatch, renovation may be reflected by homeowners to solve the gap.

6.0 CONCLUSION

From the finding, it shows that health and safety of occupant in the house is most important housing design element for the respondents. After health and safety, functionality of the spaces in the house is another element which is also important for the respondents. In contrast, the least important element is the uniqueness of the house facade design.

Hence, it has expressively supports the theories of Maslow's hierarchy of needs by Maslow (1943) and Habitability Pyramid by Vischer (2007). Maslow's hierarchy of needs stressed that safety and security is the fundamental need of human. Furthermore, in Habitability Pyramid, it stated that health and safety is the basic need for a habitat which known as physical comfort. Moving on to next level in Habitability Pyramid, functional comfort is achieved when the area of the house has performed its designated purposes. Lastly, it is more towards self-esteem and personalization of occupants.

This study also found out that kitchen is the part of the house which has the lowest satisfaction level based on the original state of the house. The second most dissatisfied part of the house is back yard.

Regression analysis was used to confirm the above relationship and it proves that kitchen is the only part of the house which has a significant value towards the overall housing satisfaction. Moreover, a positive correlation between kitchen and overall housing satisfaction has shown in the analysis. Hence, this result whereby answer the objective and it also supports the statement which formed by Salleh (2008), which pointed out that kitchen in Malaysia is one of the most important element in housing satisfaction.

As the current trend in Malaysia, renovation of houses has increased over the years, thus increasing the renovation costs for homeowners. This has even highlighted by the ministry. This means that homebuyers are unsatisfied by the original state of the houses they purchase.

This research finding shows that the kitchen is the part of the house which homebuyers renovate the most. Thereby, indicating that it is the part of the house by which they are least satisfied with. Therefore, developers should take this information into account and pay attention to designing and constructing better quality kitchens in order to increase the value of the house, improve their sales and also reduce overall expenses for homebuyers which seem to include high renovation costs.

References

[1] Maslow, A. H. 1943. A Theory of Human Motivation. *Psychological Review*, 50(4), 370-96.

[2] Altas, N. E., and Ozsoy, A. 1998. Spatial adaptability and flexibility as parameters of user satisfaction for quality housing. *Building and Environment*, 33(5), 315-323.

[3] Gifford, R. 1997. *Environmental Psychology: Principles and Practice*. MA: Allyn & Bacon.

[4] Vischer, J. C. 2007. The concept of environment comfort in workplace performance. *Ambiente Construido, Porto Alegre*, 7(1), 21-34.

[5] Wilson, C., Chryssochoidis, G., and Pettifor, H. 2013. Understanding Homeowners' Renovation Decisions: Findings of the VERD Project. United Kingdom: UKERC.

[6] Plaut, P. O., and Plaut, S. E. 2010. Decision to Renovate or Move. *Journal of Real Estate Research*, 32(4), 465-481.

[7] EG Groups Holding Sdn Bhd. 2015. Malaysia Home Renovation. Kuala Lumpur: EG Groups Holding Sdn Bhd.

[8] Cooper, C. C. 1975. *Easter Hill Village: Some Social Implications of Design*. New York: Free Press.

[9] Baum, S., and Hassan, R. 1999. Home owners, home renovation and residential mobility. *Journal of Sociology*, 35(1), 23-41.

[10] Saleh, R. M., Tawil, N. M., Cheani, A. I., Basri, H., and Kosman, K. A. 2014. An Overview of House Renovation Trend in Malaysia. *International Business Management*, 8(1), 36-38.

[11] Homedec. 2015. *HOMEDEC - About*. Retrieved 15 June, 2015, from http://homedec.com.my/visitor/index.php?option=com_content&view=article&id=52&Itemid=233

[12] EG Groups Holding Sdn Bhd. 2014. Malaysia Internation Renovation . Kuala Lumpur: EG Groups Holding Sdn Bhd.

[13] Adam, J. S. 1984. The meaning of housing in America. *Annals of the Association of American Geographers*, 74(4), 515-526.

[14] Francescato, G., Weidemann, S., and Anderson, J. R. 1989. Evaluating the built environment from the user point of view: an attitudinal model of residential satisfaction. W. F. E. Preiser (Ed). In *Building evaluation*. New York: Plenum Press.

[15] Mohit, M. A., Ibrahim, M., and Rashid, Y. R. 2010. Assessment of residential satisfaction in newly designed public low-cost housing in Kuala Lumpur, Malaysia. *Habitat International*, 34(1), 18-27.

[16] Riffkin , R. 2014. *Worldwide, Satisfaction With Affordable Housing Slumps*. Retrieved from Gallup: http://www.gallup.com/poll/179765/worldwide-satisfaction-affordable-housing-slumps.aspx

[17] Elsinga, M., and Hoekstra, J. 2005. Homeownership and housing satisfaction. *Journal of Housing and the Built Environment*, 20, 401-424.

[18] Salleh, A. G. 2008. Neighborhood factors in private low-cost housing in Malaysia. *Habitat International*, 32, 485-493.

[19] Tan, T. H. 2012. Housing satisfaction in medium- and high-cost housing: The case of Greater Kuala Lumpur, Malaysia. *Habitat International,* 36, 108-116.

[20] Omar, E. O., Endut, E., and Saruwono, M. 2012. Not Your Perfect Home? How Malaysian Homeowners. *Procedia - Social and Behavioral Sciences*, 42, 350 – 361.

[21] Ozaki, R. 2002. *Consumer choice in housing*. York: Joseph Rowntree Foundation.

[22] Morris, E. W., and Winter, M. 1975. A theory of family housing adjustment. *Journal of Marriage of the Family*, 37, 79-88.

[23] Gibson, K. J. 2007. The relocation of Columbia Villa community: views from residents. *Journal of Planning Education and Research*, 27, 5-19.

[24] Lu, M. 1998. Analyzing migration decision making: relationship between residential satisfaction, mobility intentions, and moving behaviorr. *Environment and Planning A*, 30, 1473-1495.

[25] Rossi, P. H. 1955. *Why family move*. Glenco, IL: The Free Press.

[26] Omar, E. O., Endut, E., and Saruwo, M. 2010. Adapting by altering: Spatial Modifications of Terraced Houses in The Klang Valley Area. *Asian Journal of Environment-Behaviour Studies*, 1(3).

[27] Kopec, D. 2006. *Environmental psychology for design*. New York: Fairchild Publications Inc.

[28] Marcus, C. C., and Sarkissian, W. 1986. *Housing as if people mattered : Site design guidelines for medium-density family housing*. Berkeley and Los Angeles, California: University of California Press.

[29] Oulasvirta, A., and Blom, J. 2007. Motivations in personalisation behaviour. *Interacting with Computers*, 20, 1-16.

[30] Ozaki, R., Bartlett, K., Potter, M., Meikle, J., Duffy, F., Hakes, J. and Hooper, A. 2002. 'Mind The Gap': Customers' Perceptions and the Gaps Between What People Expect and What They are Offered. In R. Ozaki (Ed.), *Consumer choice in housing* (pp. 45-67). York: Joseph Rowntree Foundation.

[31] Fernandez, K. 2007. *Personalising the Home*. Retrieved 17 June, 2015, from http://www.anzmac.org/conference_archive/2007/papers/K%20Fernandez_1a.pdf

[32] Bentley, I., Alcock, A., Murrain, P., Mcglynn, S., and Smith, G. 1985. *Responsive Environment: A Manual for Designers*. London: The Architectural Press Ltd.

[33] Brown, R. 2000. Group Processes (2nd ed.). Oxford: Blackwell.

[34] Parasuraman, A., Zeithaml, V. A., and Berry , L. L. 1985. A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49, 41-50

[35] Natham, V. 1995. Resident's satisfaction with the sites and services approach in affordable housing. *Housing and Society*, 22(3), 53-78.

[36] Abraham, B., and Ledolter, J. 2006. *Introduction to Regression Modeling*. Belmont: Thomson Higher Education.

[37] Pallant, J. 2005. *SPSS Survival Manual.* Sydney: Allen & Unwin.

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