



Assessing Residential Satisfaction by Level of Residence in Off-Campus Environment

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Abstract

This study aims to clarify the explanatory factors and the extent to which those factors help to predict the overall residential satisfaction among students living off-campus. This survey utilized a stratified sample of individuals with a questionnaire which was administered to 341 non-resident (NR) students, in seven groups of neighborhoods in the city of Shah Alam. In the analytic process, a Factor Analysis procedure is applied to reduce the data set and to uncover the relationships between various factors and dimensions of the students' residential satisfaction. Descriptive results show a degree of satisfaction with each level of the residential environment.

Keywords: Residential satisfaction; levels of environment; off-campus environment

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1.0 Introduction

The current trend of higher education institution development and rapid enrolment changes had a significant impact on urban areas specifically on residential environment. Urban areas with densely packed housing stock has transformed into sprawling off-campus residential areas for students. This process is supposed to have density pressures and can stimulate social isolation and the widening socio-spatial polarization of different social groups, indirectly would impact the students' quality of life.

In preventing the phenomenon getting worse, the university should control and monitor the quality of the residential environment with regard to off-campus student. Therefore, this study aims to determine the level of residential satisfaction among off-campus students in Shah Alam to explain the descriptive factors and the level to which individuals factors help to predict residential satisfaction as a major important element of this population group's quality of life.

2.0 Literature Review

The term 'residential satisfaction' used in studies of the house and their sphere of place, refers to individuals' appraisal of the conditions of their residential environment, in relation to their needs, expectations and achievements (Amérigo, 1990; Amérigo & Aragonés, 1997; Anderson & Weidemann, 1997; Weidemann & Anderson, 1985). Studies in residential satisfaction must include both space and residents as users of this space (Adriaanse, 2007; Berköz & Kellekci, 2007). The residential area is not limited to the house but also expand to the environment where it is situated and the residents who live there because the off-campus student's experience with their neighborhood and neighbors may be just as important as their house itself (Aiello, Ardone, & Scopelliti, 2010; Bonaiuto, Aiello, Perugini, Bonnes, & Ercolani, 1999; Bonaiuto, Fornara, & Bonnes, 2003; Dasimah et al., 2011; Fleury-Bahi, Félonneau, & Marchand, 2008; Fornara, Bonaiuto, & Bonnes, 2010; Mohit, Ibrahim, & Rashid, 2010; Oktay & Rustemli, 2011; Parkes, Kearns, & Atkinson, 2002).

The studies of residential satisfaction are usually measured by residences as the overall environment. Most researchers focus on how satisfied residents are with the assessment of their home environment in general (Ahmad Hariza, 2003; Aiello et al., 2010; Fleury-Bahi et al., 2008; Kahana, Lovegreen, Kahana, & Kahana, 2003; Kahrik, Leetmaa, & Tammaru, 2012; Mohit et al., 2010; Nurul 'Ulyani, Nor' Aini, & Nazirah, 2011). This indicates that they have assumed that housing satisfaction is the same across different spaces or different 'levels of environment'. However, Canter and Rees (1982) have argued that humans interact in the environment at different levels, from the bedroom to the neighborhood, hence throughout the city. In their model of housing satisfaction, Canter and Rees (1982) refers to the 'levels of the environment' as the interaction of the environment level and the environment is defined as the scale of a hierarchy order. They specified the different levels that a resident may experience satisfaction such as the house and neighborhood.

The relationship between satisfaction and levels of the environment is also yet to be extensively examined empirically in satisfaction studies. Specifically, two issues need to be examined critically in this regard. The first is whether satisfaction is distinctly and significantly

different at different levels of the environment and whether it has an order to it as suggested by Canter and Rees (1982) and Bonaiuto et al. (1999). The second is whether 'dimensions of satisfaction' are similar at the different levels of the environment. The term 'dimensions of satisfaction' refers to the aspects, characteristics, and features of the residential environment (such as social, spatial, contextual and functional) to which the users respond in relation to satisfaction (Fornara et al., 2010; Muslim, Karim, & Abdullah, 2012a, 2012b). This is essential because it would inform researchers about the important dimensions at different levels of the environment.

This paper examines these issues in the context of off-campus students' residences in Shah Alam, Malaysia. Specifically, the aim of the study is first to empirically identify the levels of environment along which students respond to their residences and compare them with those naturally implied in the environmental behavior of the residences. Second, it examines whether there is significant differences and hierarchy in satisfaction at the different levels of environment identified. Finally, it examines how similar or different dimensions of satisfaction are at the different levels of environment.

3.0 Methodology

The questionnaire survey method was adopted. The respondents were selected from seven groups of neighborhood among off-campus residence using a stratified sampling procedure. The stratified sampling method ensured that category of off-campus students (by type of house) were selected. Based on the total number of NR students in Management Unit of NR (MUNR) database, there were 11,677 students who live off-campus, but after selected the certain criteria of students who were lived around the campus, only 2,993 from population are valid for the study. However, the actual survey will only use a total of 341 respondents, calculated with 95 percent confidence level and 5 percent sampling error.

Three types of data analysis were performed. First, the 69 items on satisfaction were reduced to smaller factors using factor analysis. The aim was to find whether the factors that emerge would reflect distinct levels of environment and at which levels of environment would be reflected. Second, a relative satisfaction index was computed for each of the levels of the environment identified from the previous analysis. These were computed as the mean scores of the responses to the questions on satisfaction at each level. The intention was to examine whether there would be a hierarchical order to satisfaction and whether there would be any significant difference between the levels of satisfaction at these three levels of the residence. Finally, factor analyses were performed for each of the sets of satisfaction questions comprising each level to examine whether the emerging new factors were similar or different across the levels.

4.0 Results and Discussions

The results of the factor analysis of the 69 items on satisfaction with residence (**Error! Reference source not found.**) produced thirteen factors and explained 74.623 percent of the variance.

Table 1. Factor Analysis of Satisfaction Variables

Factor and Variance (%)	Factor Loading
Factor 1 (Neighborhood environment) **	(13.723 %)
No vandalism activities	.787
Difficult to find bad people/ criminals	.780
Well-maintained road signage	.773
Residence concerned about their neighborhoods' environment	.758
Unpolluted neighborhood	.742
Road usually cleansed in this neighborhood	.742
No risk of danger at night	.735
The neighborhood is not noisy	.720
Clean neighborhood environment	.684
Tranquil atmosphere of neighborhood	.629
Very happy live in current neighborhood	.503
Factor 2 (House environment) *	(9.768 %)
Comfortable dwelling space for relaxing	.783
Large dwelling space to put things	.755
Comfortable dwelling space for studying	.743
Having privacy between housemates	.718
Comfortable studying with friends in home	.689
Comfortable with shared bedroom	.682
Dwelling environment can be adapted to personal lifestyle	.667
No sleep conflict between housemates	.623
Interior physical condition of the house is beautiful or newly renovated	.619
Good safety of dwelling condition	.541
Welcome the guests / friend comes into dwelling	.528
Factor 3 (Neighbor sociability) **	(8.573 %)
Involved with the neighborhood activities	.832
Participate activities organized by neighborhood society	.798
Recognize the next door neighbor	.761
Easy to know in common residents	.722
Establishing good relations between neighbors	.716
Neighborhood residents tend to stand united	.685
Easy to find new friends in neighborhood	.616
Do sports and recreational activities	.570
Do worship and religious activities	.530
Factor 4 (Green areas) ***	(6.737 %)
Easily to get to the open space / green	.798
Open/ green space in good condition	.785
Enough open/ green space	.784
Equipped with sports courts	.672
Ability to do a variety of sports and recreational activities	.669
There are special areas for outdoor sport	.614
Factor 5 (Public transportation) ***	(6.034 %)
Sufficient frequency of public transport for residents demand	.889
Comfortable bus services	.858
Good connectivity to other areas by public transportation	.851
Good placement of bus stops	.839
Factor 6 (Neighborhood attachment) **	(5.826 %)
There is no other area can be compared with this neighborhood	.705
This neighborhood is the most ideal for me	.700
Strong sense of belonging in this neighborhood	.691
Will be difficult for me to leave this neighborhood	.676
I do not want to live in other neighborhood	.656
The neighborhood is important matter in my life	.588

Factor 7 (Religious facilities) ***	(4.381 %)
Mosque easy to reach by walking	.806
This neighborhood has a good religious facilities	.797
Mosque actively conducting religious activities	.754
Factor 8 (Commercial services) ***	(4.049 %)
Good commercial services	.851
Variety goods are available in shops	.833
Good placement of shops	.658
Factor 9 (City connection) ***	(4.010 %)
This neighborhood is well connected to the city centre	.578
Easily to commuting into the university	.568
Easily reach to city centre from dwelling	.566
Factor 10 (Accessibility) ***	(3.945 %)
Good provision of parking space	.767
Traffic circulations are very smooth	.654
Easily to move around the city	.572
Factor 11 (Housing facilities) *	(2.890 %)
Equipped furniture	.713
Good provision of kitchen equipment	.649
Smooth internet access at dwelling	.540
Factor 12 (Stimulating) **	(2.533 %)
This neighborhood is full of beneficial activities	.706
Every day, this neighborhood has something interesting	.585
Factor 13 (Discretion) **	(2.154 %)
Residents in this neighborhood do not interfere with each other	.578
Total variance explained = 74.623%	
*Factors related to the house level	
**Factors related to the neighborhood level	
***Factors related to the city level	

(Source: Muslim, Karim, Abdullah, and Ahmad (2013))

All 13 factors had eigenvalues of 1.00 or more and only the variables with factor loading of more than 0.500 were selected. The results showed that variables that comprised each factor were highly related, and it was not difficult to describe which level of environment each factor represented.

This was because the factors were either describing specific attributes at a particular level of the environment or they were describing a level of the environment itself. Three levels of environment could be clearly identified from these factors: the house, the neighborhood, and the city. Factors 2 and 11 were related to the house while factors 1, 3, 6, 12 and 13 were related to the neighborhood. The other factor, namely: factor 4, 5, 7, 8, 9 and 10 referred to the level of the city. These results are quite instructive because they suggest that although location and levels of the environment are intricately bound with individual's evaluation of residential environments, they are still exclusive, and they would emerge in user responses. Satisfaction studies therefore need to account for levels of environment and, in contexts similar to that of this study, the three levels identified above need to be considered.

The level of the neighborhood appeared to be the most important level of environment because the largest variance (13.723%) was accounted for by the factor that defined this level. This proportion is more than one-sixth of the total variance of all the 13 factors (74.623%). The finding is consistent with previous studies that classified the neighborhood

as a most important area and also noted that this area is usually psychologically very important to the resident (Werner & Altman, 1985).

The ease with which levels of the environment could be identified from the factors was an indication of the distinct nature of these levels. Nevertheless, whether the levels were significantly different was also tested statistically. First, satisfaction at the three levels of environment identified was examined by computing satisfaction indices for all the respondents at each of these levels. Three satisfaction indices, RSh, RSn, and RSc were computed for each respondent at the level of the house, the neighbor, and the city, respectively. The satisfaction indices were computed as the mean score of each respondent's responses to 14 of house attributes, 32 of neighborhood attributes, and 23 of city attributes.

The results (Table 2) showed that the proportion of individuals who were dissatisfied was highest at the neighborhood.

Table 2. Residential satisfaction at three levels of residence

Level of residence	Strongly dissatisfied (%)	Dissatisfied (%)	Slightly dissatisfied (%)	Neutral (%)	Slightly satisfied (%)	Satisfied (%)	Strongly satisfied (%)
Satisfaction with house (RSh)	8.7	9.0	12.9	24.0	17.2	19.0	9.2
Satisfaction with neighbourhood (RSn)	13.5	12.3	17.0	28.2	13.0	11.0	5.0
Satisfaction with city (RSc)	9.1	9.9	15.5	24.0	17.6	14.6	9.3

(Source: Muslim et al. (2013))

The proportions of those who were strongly dissatisfied, dissatisfied and slightly dissatisfied with the attributes of the house, the attributes of the neighborhood, and the attributes of the city were 30.6 percent, 42.8 percent, and 35.3 percent respectively. These results suggested that there was not a hierarchical order to these levels. The order of satisfaction decreased from the neighborhood to the house and then to the city, and dissatisfaction increased in the same manner. This shows that, residential satisfaction for students' with regard to the off-campus environment not significantly influenced at the city level of environment. It appeared that the residents responded to similar dimensions of the environment at each level.

The results of the dimensions of satisfaction are presented in Tables 3, 4, and 5. These tables present the dimensions in relation to the satisfaction that emerged from the factor analyses at each level of the environment. First of all, it appeared that the emerging factors from the analysis explained the data fairly well because the variance explained was about 70 percent on the average. Hence the results are quite useful. To define the dimension of each factors, the components of the factors were examined whether related to spatial, social, functional, contextual or other dimensions.

In general, it appeared that the dimensions of satisfaction were quite dissimilar across the three levels. The dimensions of social were common to all levels. Hence, it may be

concluded that the residents responded on the contrary at each of the levels of the environment. However, a specific difference was found across the levels of environment in this analysis. It was found that the first factor that is house environment, the most important dimension that accounted for the highest variance, was relatively different across the different levels.

Table 3. Dimension of satisfaction at house level

Factor	Factor Loading	Dimension	Explained Variance (%)
Factor 1 (house environment)		Social/ Spatial	51.086 %
Having privacy between housemates	.774		
There is no sleep conflict between housemates	.758		
Comfortable dwelling space for relaxing	.739		
Large dwelling space to put things	.729		
Comfortable studying with friends in home	.667		
Dwelling environment can be adapted to personal lifestyle	.658		
Welcome the guests / friend comes into dwelling	.627		
Comfortable dwelling space for studying	.624		
Still feel comfortable even sharing a bedroom	.618		
Interior physical condition of the house is beautiful or newly renovated	.567		
Factor 2 (housing facilities)		Spatial	9.288 %
Equipped furniture	.810		
Good provision of kitchen equipment	.781		
Smooth internet access at dwelling	.696		
Good safety of dwelling condition	.518		
Total explained variance = 60.374 %			

(Source: Muslim et al. (2013))

Spatial issues were the most important dimension at the level of the house, whereas social were the most important dimension at the level of the neighborhood, and functional is important dimensions at the level of the city (refer to Table 3, Table 4 and Table 5 respectively). These shown that certain factors are more important than others in determining satisfaction between the housing unit and the neighborhood. This finding is also another indication of the difference in satisfaction across the levels. It thus appears that the dimensions to which off-campus students responded in relation to satisfaction were dissimilar at all levels of the environment and also dissimilar in relative importance.

5.0 Conclusion

This study examines satisfaction at different levels of environment in the context of off-campus students' residences. Indeed, residents' satisfaction with these off-campus housing environment in relation to levels of environment was not quite the same as what was implied by the residence sociability.

Table 4. Dimension at neighborhood level

Factor	Factor Loading	Dimension	Explained Variance (%)
Factor 1 (neighborhood environment)		Contextual/ Social	43.426 %
The neighborhood is generally not polluted	.815		
Clean environment in this neighborhood	.810		
This neighborhood is not noisy	.800		
There is no vandalism activities in this neighborhood	.770		
This neighborhood have a tranquil atmosphere	.764		
Difficult to find bad people / criminals in this neighborhood	.749		
Road signage well maintained in this neighborhood	.748		
After dark, there is no risk of danger ahead in this neighborhood	.731		
Residents are concerned about their neighborhoods' environment	.726		
Roads usually cleansed in this neighborhood	.695		
Happy living in this neighborhood	.547		
Factor 2 (neighbors' interaction)		Social/ Contextual	10.775 %
Involved with the neighborhood activities	.885		
Attend meetings of activities organized by neighborhood society	.851		
Recognize the next door neighbor	.802		
Establishing good relations between neighbors	.714		
In this neighborhood, residents tend to stand united	.698		
In this neighborhood, it's easy to know in common the residents	.677		
In this neighborhood, it's easy to find new friends	.545		
Factor 3 (neighborhood attachment)		Contextual	5.871 %
This is the ideal neighborhood to live in	.753		
It would be very hard for me to leave this neighborhood	.752		
I would not willingly leave this neighborhood for another	.727		
There is no other neighborhood can be compared with this neighborhood	.727		
Strong sense of belonging in this neighborhood	.723		
Now this neighborhood is part of my life	.641		
Factor 4 (discretion)		Social	4.337 %
In this neighborhood, always feel observed	.760		
Residents in this neighborhood do not interfere with each other	.693		
Residents too take cognizance of each other	.552		
Factor 5 (stimulating)		Social	3.763 %
This neighborhood is full of beneficial activities	.809		
Every day, this neighborhood has something interesting	.657		
Factor 6 (general students' activities)		Social	3.368 %
Hanging out with friends in cafes' and restaurants	.812		
Do sports and recreational activities	.557		
Do worship and religious activities	.518		
Total explained variance = 71.54 %			

(Source: Muslim et al. (2013))

Table 5. Dimension of satisfaction at city level

Factor	Factor Loading	Dimension	Explained Variance (%)
Factor 1 (community facilities)		Functional/ Spatial	38.328 %
Open/ green space in good condition	.878		
Easily to get to the open space / green	.877		
There is enough open/ green space	.868		
Ability to do a variety of sports and recreational activities	.814		
Equipped with sports courts	.798		
Special areas for outdoor sport	.793		
Mosque actively conducting religious activities	.537		
Good religious facilities	.520		
Factor 2 (transportation services)		Functional	17.996 %
Sufficient public transport frequency	.898		
Comfortable bus services	.873		
Good placement of bus stops	.860		
Good connectivity to other areas by public transportation	.859		
Factor 3 (city connection)		Spatial	8.365 %
Easily reach to city centre from dwelling	.837		
Easily to commuting into the university	.815		
The neighborhood is well connected to the city centre	.766		
Easily to move within the city	.631		
Mosque easy to reach by walking	.536		
Factor 4 (commercial services)		Functional	7.492 %
Good commercial service	.878		
The availability of the variety of goods	.868		
Good location for the placement of shops	.742		
Factor 5 (accessibility)		Contextual	4.943 %
Good provision of parking space	.687		
Smooth traffic circulations	.636		
Adequate street lighting	.617		
<i>Total explained variance = 77.125 %</i>			

(Source: Muslim et al. (2013))

This implies that studies should not assume the levels of the environment to which residents may respond either from the configuration of the spatial environment or otherwise, but rather should identify levels through the residents' responses, especially in housing environments such as this. In addition, it suggests that studies in similar contexts as this should take account of the two levels of the environment (house and neighborhood) identified in this study

as important levels along which students relate to their environment. It is however important to note that levels of the environment are very context specific and more or fewer levels may be present in other students' residences in other contexts.

Finally, the study reveals that residents respond to dissimilar dimensions of satisfaction across the levels of the environment but that the dimension that is most important differs at each level. Hence, studies that evaluate satisfaction or other responses to this off-campus environment may safely investigate the same dimensions across different levels. In addition, these results imply that the sociability of students' housing should account for the two levels identified in this study (house and neighborhood) as well as the different dimensions that are important at each level of the environment. In summation, the study shows that residents respond to two levels of environment. The experience of satisfaction at these levels of the environment is significantly different and not necessarily hierarchal. However, the dimensions to which residents respond with respect to satisfaction are the same.

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