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RESIDENTS' CRIME EXPERIENCE AND SAFETY PERCEPTIONS IN GATED AND NON-GATED LOW MIDDLE INCOME COMMUNITIES IN KUALA LUMPUR, MALAYSIA

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ABSTRACT

Property crimes in residential areas has become a concerning issue in Malaysia. Environmental design based crime prevention theories such as Defensible Space, Crime Prevention Through Environmental Design (CPTED) and 2nd generation CPTED recommend to construct gates and fences as target hardening measures in the residential areas to prevent crimes. However, these concepts have generated several issues, including the safe environment they offer. Thus, this paper aims at examining the safety perception of the residents in gated and guarded vis-â-vis non-gated and guarded communities. Two low middle income housing communities – a gated and guarded community (GC) and a non-gated and guarded community (NGC) were chosen for the study. Relationship between residents' crime experiences and perception of safety were studied in both communities and it was found that crime rates are higher in the GC than in the NGC and this indicates that GCs are not safer than NGCs. Based on the findings, the study comes up with several recommendations in order to enhance safety perceptions of low-middle income apartment communities in Kuala Lumpur.

Keywords: Low-Middle Income Housing, Safety Perception, Crime Experience, Gated and Guarded Community (GC), Non-Gated and Guarded Community (NGC)

INTRODUCTION

In recent years, crime rate in Malaysia has increased significantly. Murder, robbery, assault, rape, burglary and theft are common criminal offences in Malaysia (Habibullah and Law, 2008). Crimes in residential areas have become a concerning phenomena. Malaysia's crime index showed an increase of 13.4% in between the year 2006 and 2007 with an increase in the crime rate by 8.7% (CPPS, 2007; cited in Mohit and Hanan, 2010).

During the 1970s, Oscar Newman, a famous architect-planner, introduced the concept of Defensible Space into the field of community planning as a way of creating a safe living environment free from crime. Thus, following this concept, Gated and Guarded Community Schemes (GACOS) have become one of the famous trends in housing developments. In Malaysia, the GACOS has brought changes to the Strata Title Act of 1985 and the local authorities are preparing specific guidelines to regulate such schemes. However, this concept has generated several issues, including the safe environment they offer.

For most of the residents, the primary reason for choosing gated communities is security or safety. People prefer GCs due to the fear of crimes. According to Zagier (2008), "the perception that gates reduce crime is just a perception. Gates are not hard to get by. They are not going to stop professional criminals". In fact, some experts claim that sometimes crime rate in GCs are higher than in NGCs. It was reported in the *Star Online* (a daily in Malaysia), that there were 6 break-ins recorded within 3 weeks in a GC in Wangsa Baiduri, Subang Jaya (Ying, 2008). According to this news article the Subang Jaya assembly man, Hannah Yeoh said "Wangsa Baiduri is a classic example to show that it's not right to assume gated communities would not have crime". This incident supports the argument that gated communities offer a false sense of security. Some studies indicate that the safety in gated communities may be more of an illusion rather than a reality.

Since there is a contradiction between what people claim about gated communities being safe and what the crime statistics and previous researches show, the present paper intends to examine the safety perceptions of the people of GCs and reviews the various types of safety approaches available for the residents and identifies other potential measures to improve their safety levels.

LITERATURE REVIEW

This paper aims to evaluate the provision of a safe residential living environment by putting up gates and fences (gated communities), and hence, theoretical and empirical perspectives developed in designing out crime are essential in order to provide a context of the study.

Safe Living Environment

According to Maslow's Hierarchy of Needs, which consists of five main categories, safety is one of the fundamental needs which lie in the second level. His theory indicates that a person would always attend to the needs at the lower levels before focusing on the higher level needs. And since safety is the second in the hierarchy pyramid, when the physiological needs are met, which is the air, water, food and sleep, human beings become increasingly motivated by their safety needs. Thus, only when they feel satisfied with their safety and security, they would want to have other needs which are the belongingness, love, esteem, and need for self actualization (Burger, 2008). Therefore a safe living environment is something which is essential in order to have a better quality of life and this can be achieved by "designing out crime" from the neighbourhoods through environmental design.

Several crime prevention theories have been developed since 1970s in connection with the concept of safe living environment. Newman (1973) developed his famous theory of Defensible Space, whereby he defines defensible space as "a model for residential environments which inhibits crime by creating the physical expression of a social fabric that defends itself" (p.3). The theory is based on four main design elements – territoriality, surveillance, building image and juxtaposition of residential with other facilities/ environmental land uses, which contribute both individually and together in the concept of Defensible Space (Colquhoun, 2004). It proposes the idea of restricting the access points to an area so that people who are supposed to be there would be at the place, and no one else (Colquhoun, 2004). However, this theory has been criticized due to its lack of focus on social considerations and demographic features and new theories were developed revising his theory. Newman's work became the foundation for what later was known as "Crime Prevention through Environmental Design" (CPTED) (Jeffery, 1977), which is all about developing defensible space by changing the physical environment (Colquhoun, 2004). It is based on the idea that "the proper design and effective use of the built environment can lead to a reduction in the fear and incidence of crime and an improvement in the quality of life" (NCPI, quoted in Crowe, 2000, p.46). CPTED also adopts the same basic theory as Newman's defensible space theory, but here more emphasis was given in manipulating the built environment to deter crimes.

CPTED promotes two basic safety components – (a) the design of building should allow people to see and be seen continuously as this will reduce residents fear because they know that a potential offender can easily be observed, identified, and consequently, apprehended; (b) enhance the sense of security and give the residents the control of their neighbourhood and by doing so they will be willing to intervene or report crime when it occurs. When one feels safe, he/she would not be reluctant to share their experiences with the neighbours. This will help in building "community effect" within the neighbourhood. The four principles that CPTED covers are, 1) territoriality, 2) surveillance, 3) target hardening and 4) lighting. Territoriality and surveillance have been incorporated within defensible space theory, whereas natural access control and target hardening are other ways to help deter criminals from committing more crimes.

CPTED was originally developed to reduce crime in public housing projects, but its applications are unlimited (Gardener, 1995). Later, this concept was extended to a 2nd generation (also known as Situational Crime Prevention) to develop social and economic strategies with physical development to produce sustainable development. The second generation theorists argue that there are limitations of the theory because with each element there are factors which are not suggested by the design alone and have an influence on the crime potentials. Thus there is a need to elaborate the theory into a 2nd stage. In this new concept, the most important thing is creating a sense of community through a holistic approach. Saville and Cleveland (1995) explained the new ways of dealing with crimes by offering a greatly enhanced and more realistic, preventive strategies. They suggested that it is a new form of sustainable development. The 2nd generation is more concerned about creating small neighbourhoods which would help in increasing social interaction between the neighbours thus enhancing the sense of belonging. This theory also has certain principles which include: territoriality in terms of size of the district, density and differentiation of dwellings, human scale development, urban meeting places, youth club, residents' participation and residents' responsibility.

Thus a safety environment can be created by designing out crime by keeping in mind the concept of sustainable development. By improving the territoriality, enhancing the surveillance of the area so that residents can see what is going on in their neighbourhood where one can have a watch on another, strengthening the target hardening

features such as gates, locks, grills, bright lighting and by having mixed use developments which would keep the environment lively, are the ways in which this can be achieved (Newman, 1973; Newman, 1996; and Saville and Cleveland, 1995).

Crime Prevention Theories and Gated Communities (GCs)

According to Defensible Space theory, reducing the entry points to a place will help in reducing crimes. And putting up fences around the neighbourhood and controlling the entrance with a gate can be a way to reduce the entrance points. In 1991, with a drastic increase in the crime rate in *Five Oaks Community of Dayton, Ohio, USA,* Oscar Newman was asked to apply the defensible space concept. And one of the things he proposed was converting the community into 10 mini-neighbourhoods; cul-de-sac streets with gates in every neighbourhood. The gates were meant to control entrance of the un-wanted vehicles into neighbourhoods. This turned out to be a very successful project where within 2 years time overall crime rate fell by 25% (Newman, 1996). In GCs, not only the gate is the defining feature, but they provide proper lighting, CCTV cameras, guards, alarm systems and other attributes that would help in deterring crime

According to available literature, changing the built environment will help in manipulating the people's behaviour towards crimes. The ways to change the environment is highly related to the design of the built environment. Likewise, using techniques such as target hardening, territorial features and designing the neighbourhood with a good surveillance would help in reducing crime. This is where the gates and fences, or to be general, GCs come in to place. It is a way of applying the CPTED principles and defensible space theory; *the territoriality*, in the neighbourhoods to provide the residents with a safe living environment. But how effective these techniques are, is something which need a thorough study. It is clear from the studies that Newman's (1973) techniques has proven to be successful in reducing crime and this is one of the reasons why people opt for GCs. His ideas and his successful projects have motivated the developers, architects and planners to adopt the concept in the new developments. This new developments and his hierarchy of defensible space (Newman, 1973) incited the need for a fresh research on the effectiveness of these techniques in giving the residents a safe living environment. Newman's efforts in revitalizing

the neighbourhoods by applying the territoriality features have proved that gated and fenced neighbourhoods were effective in reducing crime rates and they have motivated the residents to have the feeling of ownership of their home and the neighbourhood. However, Newman's concept had some limitations. This is what led to the introduction of CPTED and later on the 2nd generation of CPTED. Also, he did his experiments mainly on public housing and economically depressed neighbourhoods and none of them were on housing communities that are privately owned or managed (Kim, 2006). Therefore, to examine the effectiveness of this concept in a different setting, like a privately owned or managed walk up flats, where not much research has been done is believed to be necessary.

Gated Communities (GCs) and Safety from Crimes

As mentioned in the defensible space theory, gated and fenced neighbourhoods help in reducing crime. There is no doubt that for most of the residents, the primary reason for choosing GCs is security or safety. People prefer GCs because of the difficulty of access to them than a standard community. It is believed that criminal activities are reduced in GCs. The security gates, guards and cameras dissuade thieves and other criminals from entering the community as well, reducing the risk of crime.

According to Atkinson and Blandy (2005), perceived safety and actual crime rates were found to be no different between GCs and similar, but non-gated, high-income American neighbourhoods. This supports the idea of Blakely and Snyder (1997) that "Gated communities heighten fear and paranoia rather than reduce it". They also suggested that crime in GCs mirrors the external communities outside its gates. Thus it can be said that crimes in the GCs are not any lower than in the NGCs.

GCs utilise private security patrols and "these patrols do not have the power or training of municipal police departments," as noted by Ellin (1997, cited in Grant, 2003). Some studies report that safety in GCs may be more of an illusion rather than a reality, showing that GCs have no less crime than NGCs. Most studies conducted on issues related to gated communities are focussed on social issues and these include sense of community, exclusion, privatization and stability (Macionis and Parrillo, 2004, cited in Kim, 2006). Some studies indicate that providing gates and guards and restricting others from entering the areas actually build up a barrier in between the people,

and these barriers dissuade the people to interact even within the communities (Roitman, 2003). Sociologists claim that GCs divide the people into classes, where part of the society without the gates are considered inferior to those who are inside the gates (Aranda, 2006). A study in Southern California observed that the most significant externalities associated with GCs lie in the net increase of social segregation. When the socio-economic status and age of the people between the GCs and the standard NGCs were compared, a significant difference was noticed, for example, socio-economic separation level was 1.4 times the average level evaluated in Los Angeles Area as a whole and age-based segregation was 2.7 times higher than its average level in the area (Goix, 2003, p.18).

In a research about sense of community and fear of crime in intentional communities, Wilson-Doenges (2000) found that high-income GC residents have a significantly lower sense of community, significantly higher perceived personal safety and comparative community safety. The research also observed that there was no significant difference in actual crime rates between the high-income GC and NGC and also there was no significant difference in crime rates in low income communities. Fowler and Mangione (1986, cited in Wilson-Doenges, 2000), in their study of street barricades and design in Hartford, discovered that during the first year of instalment of gates, there was a reduction in the crime rate, however, it raised in the next two years. Similar conclusion was reached by Snyder and Blakely (1997), in their study where they found that GCs do make the crime rates drop at initial stage but these reductions are transient.

Contrary to the above findings, Atlas and LeBlanc (1994, cited in Wilson-Doenges, 2000), in a study of Miami Shores' street barricades found a significant reduction in burglaries, larcenies (stealing things), and auto thefts but no change in robberies and assaults and residents report feeling safer with these barricades. The interesting thing to note here is that although the actual crime rates were higher in GCs than NGCs in most of the cited studies, the GC residents reported to have an increased feeling of safety due to the barricades. In another study, Kim (2006) explored the relations between residents' perception of safety and their crime experience and the existence of gates and fences in multi-family housing communities in urban areas and found that residents felt safer in GCs than in NGCs. The perceived safety of GC respondents was higher than the NGC respondents. However, GC residents reported a higher crime rate than NGC residents.

Thus, the argument whether GCs reduce crime rates or not is still ongoing. More studies need to be conducted within different socio-economic and cultural settings to find out the correlations. Considering these facts and the several safety issues prevailing, this paper attempts to investigate this phenomenon in Malaysia, where not much research regarding this has been done.

RESEARCH OBJECTIVES, QUESTIONS AND HYPOTHESES

Research Objectives

This paper aims at examining how safe the people are in gated and guarded communities vis-à-vis the non-gated and guarded communities and it intends to achieve the following objectives:

a) To examine the level of crime and safety prevailing in GCs and NGCs;
b) To investigate the effectiveness of safety measures adopted in GCs and NGCs; and
c) To suggest ways to improve the safety of the living environment in the residential areas.

Research Questions

The main research questions posed for the study are as follows:

- What are the present safety measures adopted in the gated communities?
- Are these measures enough to create a safe environment for the residents?
- Do the people in GCs feel safer than people in NGCs?
- What are the major types of crimes experienced in GCs?
- What are the measures that can be adopted to improve safety level in such communities?

Research Hypothesis

To achieve the objectives of the study, crime rates of the gated and non-gated communities were compared. Statistical analyses were conducted to identify how safe such communities are and for this purpose a non-gated community was also studied as a control case. The research hypothesis formulated for the study includes the following:

The safety measures adopted in the GCs in the form of gates and guards provide better residents' perception of crime and safety than NGCs where similar crime prevention measures are absent.

CONCEPTUAL FRAMEWORK AND RESEARCH DESIGN

The study is designed by developing a conceptual framework or model (Figure 1) which shows the relationships between the dependent and independent variables through using the target and control cases. In order to implement the conceptual model, the research design incorporates both qualitative and quantitative information to examine the crime phenomena in GCs and NGCs. To enhance the qualitative information, a questionnaire survey of residents from a GC and an NGC were conducted. And based on site visits, observations and discussion with residents, the safety level of both GCs and NGCs was analysed and compared. The research design is based on two types of variables – independent and dependent, operationalised through target and control cases which are, viz., the GC and the NGC, in order to arrive at safety perception levels at GC and NGC.

The unit chosen for the study was the whole community, gated community and also non-gated community. However, to get this information, a questionnaire was designed for the head of households of the apartment units and 50 head of households from each community were interviewed.

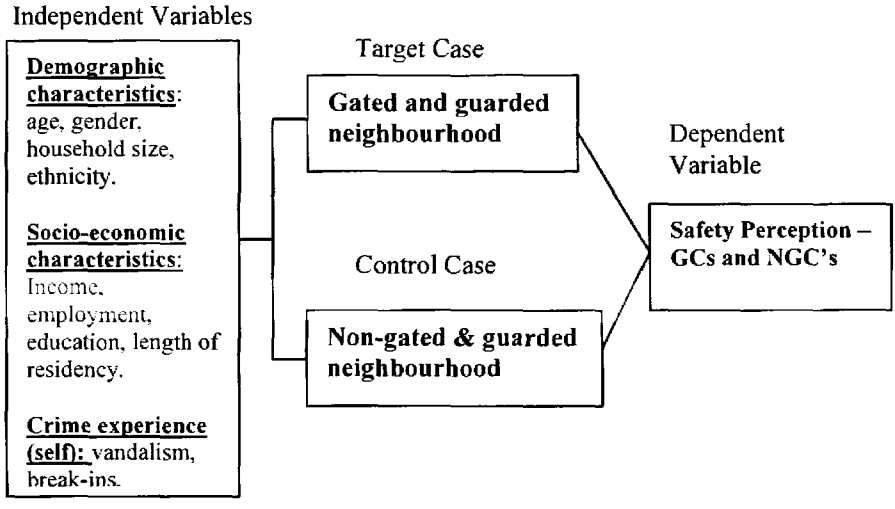

Figure 1. Conceptual framework showing relationships between dependent and independent variables.

Sampling

Due to time constraint and limited resources, only a sample of 50 respondents was chosen from each community – GC and NGC. Stratified sampling was used to select the types of communities which are gated and non-gated, while convenience sampling method was used for the administration of questionnaire surveys.

Data Collection

Data for the study were collected by applying several methods such as direct observation, discussion with residents and community leaders and above all, by applying a structured questionnaire. The questionnaire was divided into three main sections. The first section contained the general information of the household, and the socio-economic status of the residents. The second section is about the residential unit and the facilities provided for them. Third section is about the safety perception and residents' crime experiences. A 5-point scale: *(1= not at all safe, 2= unsafe, 3= neutral, 4= safe, and 5= very safe) and (1= strongly disagree, 2= disagree, 3= neutral, 4= agree, and 5= strongly agree)* was used to measure the safety perception of the residents.

STUDY AREA

The study area, Setiawangsa (Figure 2b, c), is a residential neighbourhood in Kuala Lumpur City which is the capital of Malaysia. The city has a population of 1.6 million (2005) and an area of 24,221.05 hectares with residential land use being the largest land use component (23%). The total housing units of the city in the year 2005 was 676,163, of which 28% is low cost housing, 23% is medium cost housing and 43% is high cost housing (KLSP 2020). The total Population of Taman Setiawangsa (North) was 2,296, housed in 534 units with a net density of 63 people per acre. The study required an area which consists of both GC and NGC with similar characteristics.

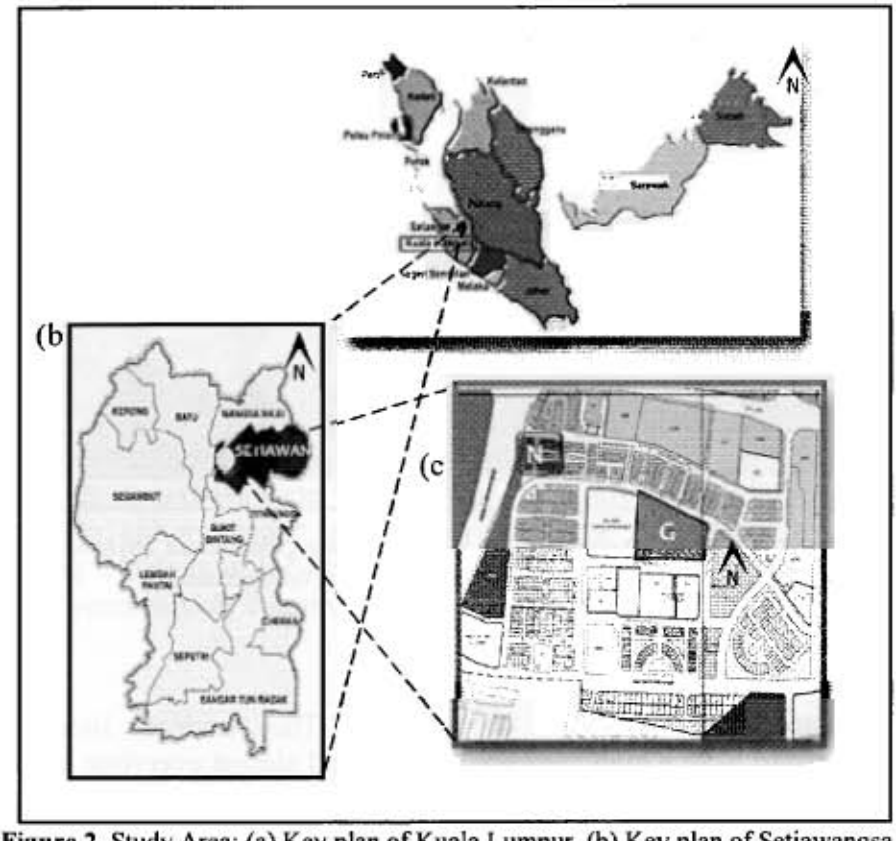

Figure 2. Study Area; (a) Key plan of Kuala Lumpur, (b) Key plan of Setiawangsa (c) Location plan of the apartment communities - GC & NGC.

According to Newman (1973, 1996), the 2-storey houses have a lower level of crime rate than 4 to 5 storey walk-up apartments. This led to the selection of two 4-storey walk-up low middle income apartments which were considered vulnerable economically and

socially (Shuid, 2003), located within the walking distance with similar design characteristics. The selected apartments are – Mahsuri (Figure 3a,b,c) which is a GC and Pangsapuri Andika (Figure 4a,b,c) which is an NGC

b) Mahsuri Apartment (GC)

Mahsuri apartments (lot no: 16791) are situated at the Persiaran Setiawangsa, within walking distance to the supermarket Giant and a primary school. It consists of 25 blocks with approximately 250 units. Entrance to the housing area is strictly restricted to residents. Guards and a gate control the entrance and the area is protected by fences. The area is easily connected to Jalan Setiawangsa through Jalan Jelatek and also Duke Highway. The surrounding area consists of a mixed land use which include commercial, educational and residential units.

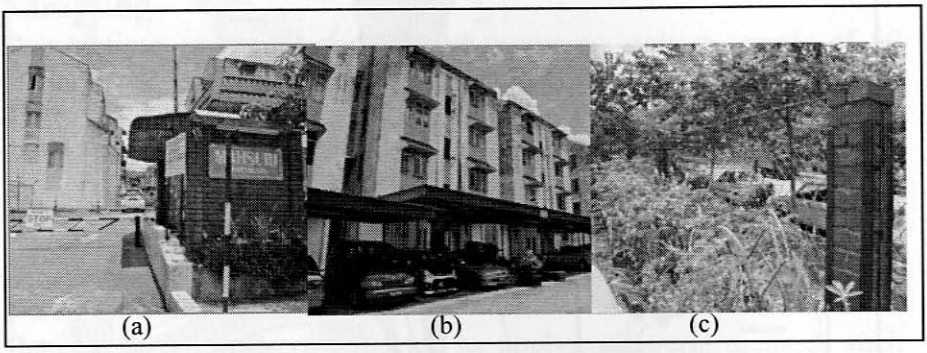

Figure 3. Mahsuri Apartment; (a) the gate and the guard house, (b) blocks of the apartment, (c) fences protecting the apartment

c) Pangsapuri Andika (NGC)

This apartment is chosen as an NGC. The residents living in Pangsapuri have a high community spirit and almost everyone knows each other. It is neither gated nor guarded. The blocks consist of 4 storey walk up flats. Like Mahsuri apartment, this place can also be accessed easily. The layout of the apartment (Figure 4) consists of a small courtyard at the centre. All the units are facing the courtyard.

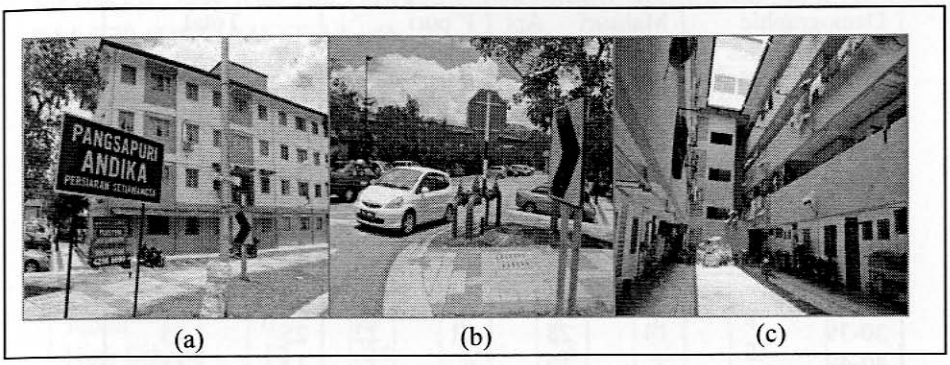

Figure 4. Pangsapuri Andika Apartment; (a) Apartment Blocks, (b) No gates at the entrance, (c) Small courtyard between the blocks

RESULTS AND DISCUSSION

Respondents' Demographic and Socio-Economic Characteristics

Among the total of 100 respondents (both GC and NGC), 45% were males, while 55% were females with a mean age of 38.2 years in GC and 37.7 years in NGC (Table 1), respectively. The respondents belong to four ethnic groups; 68% were Malays, with 19% Chinese, 9% Indians and 4% were 'others'. Not much difference was observed between either gender or ethnicity and type of community they belong. Majority of the respondents belong to middle age between 30 to 49 years in both communities.

Table 1 Demographic Characteristics of GC and NGC Respondents.

Demographic Characteristics	Mahsuri Apt (GC)		P'puri Andika Apt (NGC)		Total	
	f	%	*f*	%	*f*	%
Gender:						
Male	23	46	22	44	45	45
Female	27	54	28	56	55	55
Age						
Distribution:	11	22	16	32	27	27
20-29	16	32	14	28	30	30
30-39	14	28	11	22	25	25
40-49	5	10	6	12	11	11
50-59	4	8	3	6	7	7
60+						
Mean Age	*38.2*		*37.7*		*37.9*	
Ethnicity:						
Malays	35	70	33	66	68	68
Chinese	9	18	10	20	19	19
Indian	3	6	6	12	9	9
Others	3	6	1	2	4	4

*(**Source**: Field Survey, 2010)*

Table 5 shows that all the respondents are educated enough, with approximately 96% of them having at least high school level of education. And more than 60% have college level of education or bachelor degree. While a majority of the GC respondents (40%) work in the Government, a majority of NGC respondents work in the private sector. Monthly family income was classified into 5 groups, of which the lowest is earning less than RM1000 (US$323) and the highest is earning more than RM4000 (US$1292). The mean income for both communities lies in the range of RM3001-RM 4000. From this finding it can be deduced that the people living in these two communities belong to the low middle income group (Table 3). The high standard deviation explains how widely spread the income is in both communities. However, no significant differences were identified between the socio-economic level of GC and NGC residents.

Another important factor which can also contribute to the analysis of socio-economic status was the rent of the apartment units. In the gated community, 41(82%) of the respondents were tenants while 9 (18%) respondents owned the apartment unit. In the non-gated community, 28 (56%) respondents were tenants, while 22 (44%) of them owned the apartment unit. Thus, among 100

respondents, 69 were tenants and 31 were owners. The average rent for the GC was RM 744 (US$240) per month, and for the NGC it was RM 570 (US$184) (Table 4).

Table 2. Socio-Economic Characteristics of GC and NGC Respondents

Socio-Economic Characteristics	Mahsuri Apt (GC)		P'puri Andika Apt (NGC)		Total	
	f	%	*f*	%	*f*	%
Education:						
Junior	0	0	4	8	4	4
High School	12	24	13	26	25	25
College	21	42	19	38	40	40
Ist Degree	15	30	9	18	24	24
P.Graduate degree	2	4	5	10	7	7
Employment:						
Government	20	40	8	16	27	27
Private	17	34	25	50	30	30
Student	7	14	5	10	25	25
Retired	5	10	5	10	11	11
Others	1	2	7	14	7	7
Income:						
<RM1000	2	4	2	4	4	4
RM1001-RM2000	2	4	7	14	9	9
RM2001-RM3000	12	24	14	28	26	26
RM3001-RM4000	17	34	18	36	35	35
>RM4000	15	30	9	18	24	24
Missing	2	4	0	0	2	2
Mean Income (RM)	**3354.5**		**3000.4**		**3177.5**	

(**Source**: *Field Survey, 2010)*

Table 3. Mean and Standard Deviation of the Income of GC and NGC residents.

Income	**Type of community**	
	GC	NGC
Mean (RM)	3,354.5	3000.4
Standard Deviation (RM)	1,051.52	1073.72

(**Source**: *Field Survey, 2010)*

Table 4 Rentals of GC and NGC apartment units.

Type of community	Minimum	Maximum	Mean	SD
GC	RM500	RM900	RM744	106.181
NGC	RM250	RM800	RM570	162.102

(**Source**: *Field Survey, 2010)*

The high standard deviations of rentals explain how widely spread the mean rentals are in both apartments. While in NGC, the SD value is greater than GC, therefore to find out whether the two variables have a significant difference, an independent-samples *t*-test was conducted and the result shows a significant difference in the scores for GC (M=744, SD=106.18) and NGC (M=570, SD=162.102); t (66) =5.353, p=0.001. This means that there is a significant difference between the mean rent of GC and NGC and further, that rents in GCs are higher than NGCs. This supports the opinion of the residents that property value has increased by putting gates and fences (Figure 5). Among the 50 respondents, 54% agreed that there is an increase in the property value when gated and fences are provided, at the same time 42% were neutral about it. Tan (2011) in his study found that property prices in gated-guarded neighbourhood could be as high as 18.1% over non-gated neighbourhoods in the Klang Valley region.

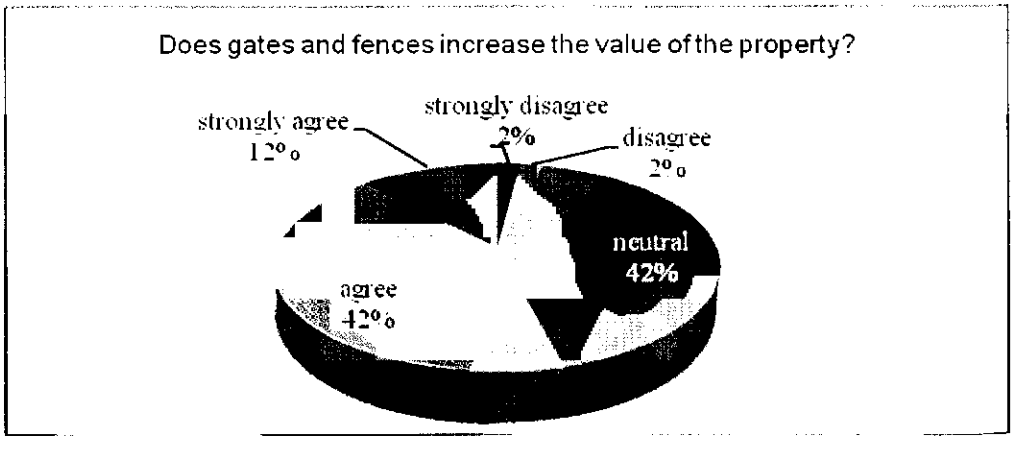

Figure 5 Percentage of respondents according to the level of agreement.
(**Source**: *Field Survey, 2010)*

Crime Experience by the Residents

Residents' crime experience was identified to test the hypothesis whether there is a significant difference in the crime experience between GC and NGC residents. The property crimes and vandalism acts they experienced within the community was verified. Based on the information provided, the crime experience was computed (Table 8). A total of 52 crime activities were recorded. Among this 52 crime activities, GC respondents experienced 35 (67%) while NGC respondents recorded 17 (33%) crime activities.

Table 4. Percentages Distribution of GC and NGC Respondents by their Crime Experiences.

Types of crimes	Mahsuri Apt (GC)	P'puri Andika Apt (NGC)	Total
	%	%	%
Property crimes	25	6	31
Vandalism	42	27	69
Total	67	33	100

(**Source**: *Field Survey, 2010)*

While 69% of crime activities were recorded as vandalism which includes snatch theft, graffiti, damage to automobiles, and violating apartment properties like the lights, 31% of crime activities were property crimes that include burglary, thefts, car thefts, motor cycle thefts, van, lorry and heavy machinery thefts. It appears (Table 5) that GC residents experienced larger percentage of both types of crimes than their counterpart NGC residents. An independent-sample *t*-test was conducted to compare the crime experience in GC and NGC. There was a significant difference in the scores for GC and NGC; t (98) =2.268, p=0.026 (Table 6). The result suggests that type of community does have a significant effect on the rate of crime. And it can be deduced that GCs attract more crimes than NGCs. Although the studies done by Wilson-Doenges (2000) and Kim (2006) did not show a significant difference, they also discovered a higher crime rate in GCs than in NGCs.

Table 5. Results of the T- Test Between Crime Experience and Type of Community

	Levene's Test for Equality of Variances		t-test for Equality of Means			
Crime experience	F	Sig.	T	df	Sig. (2-tailed)	Std. Error Difference
	15.188	0.000	2.268	98	0.026	0.15872

Furthermore, a Spearman rank correlation coefficient *(ρ)* was calculated to identify whether there is any relationship between the crime experience and safety perception of the residents. The results showed that there was a negative correlation between the two variables, ρ= -0.419, n=100, p=0.0001. Studies showed that with the change in the number of crime incidents, people's fear of crime level varies (Vanderveen, 2006). From this assessment, it can be explained that safety perception of the residents who have experienced crime are lower than those who have not come across any. Residents who have not experienced any crime incident feel safer.

Neighbours' Crime Experience

In order to have a better picture of their crime experiences, the respondents' were asked about their neighbours' crime experiences. From the 100 respondents, 50 were aware about crime incidents of their neighbours. Among these 50 respondents who knew about their neighbour's crime experiences, 70% were from the GC (Table 7). Therefore, a chi- square test was conducted to see whether this difference is significant. The result shows that there is a significant difference between the neighbours' crime experience and the type of communities, X^2 (1, N=100) =16, p<0.01. This further explains that the crime rate in gated communities is higher than the non-gated communities.

Table 6. Neighbours' Crime Experience as Reported by the GC and NGC Respondents

Neighbour's crime experience	Type of Community		Total
	GC	NGC	
Never	15	35	50
1 time	19	13	32
2 times	9	0	9
3 times	3	1	4
4 times	2	1	3
>5 times	2	0	2
Total	50	50	100

(**Source**: *Field Survey, 2010)*

Safety Perception of the Residents

Earlier studies including Newman (1973) showed that people feel much safer in GCs than in NGCs. Thus to test this hypothesis an independent sample-*t*-test was conducted to see whether there is any difference between the safety perceptions of the residents in the two communities. But the result (Table 8) shows that there was no significant difference in the scores for gated and non-gated communities. Several reasons account for these results which are discussed in this paper.

Table 7. Results of the *T*-Test between Safety Perception and Type of Community

	Levene's Test for Equality of Variances		t-test for Equality of Means			
Safety Perception	F	Sig.	t	df	Sig. (2-tailed)	Std. Error Difference
	12.439	0.001	0.313	98	0.755	0.11031

Although this study is about finding the effectiveness of GCs in providing a safe living environment, it is also important to have an idea of how some of the demographic features contribute to the safety perception of the residents. Therefore, to find out whether there is any association between the safety perception and the different independent variables, Spearman rank correlation coefficients *(ρ)* between the variables were calculated. However, no significant relationship was found, except that there was a weak positive correlation between the gender of GC respondents and how safe they are in their apartments. Other socio-economic attributes such as

income and educational background were not correlated with the safety perception, neither in the GC nor in the NGC.

Apart from investigating the residents' perceptions of the features, a separate question was asked to the residents of the gated communities about whether they agree that gate control system at the entrance of their apartment has improved the safety of the neighbourhood (Figure 6).

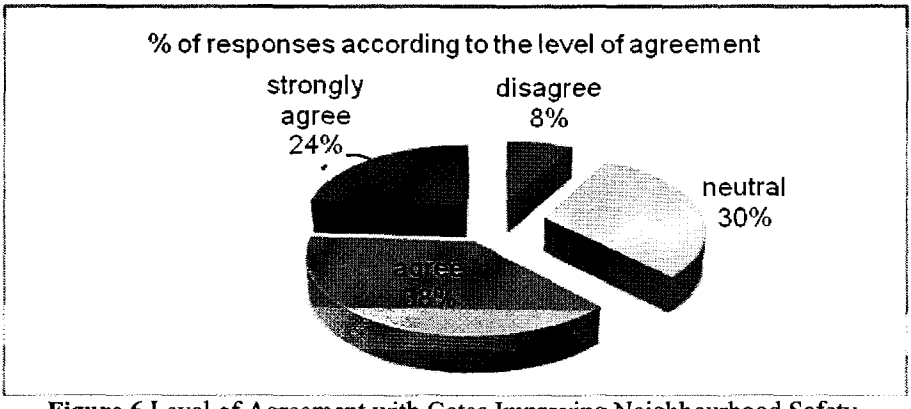

Figure 6 Level of Agreement with Gates Improving Neighbourhood Safety

Among the respondents, 62% (19 respondents) agreed that gates help in improving safety, while 4 respondents (8%), disagreed to it. This shows that, although there is no significant difference between how much safe the residents feel in GC and NCG, people living in GCs believe that they are safe because of the gates.

HYPOTHESIS TESTING AND DISCUSSIONS

The research hypothesis mentioned earlier was tested in the following manner:

(a). Residents crime experiences differ with the type of community

H_o: There is no significant difference between the residents' crime experience in GC and NGC.

H_1: There is a significant difference between the resident' crime experience in GC and NGC.

An independent-sample *t*-test was conducted to test this hypothesis (Table 6). The result showed that there was a significant

difference. Type of community has an effect on the crime rates, and in this case, GC has more crimes than NGC. This finding supports the previous researches as well. Furthermore, the neighbours' crime experience also differed according to the type of communities. Thus the null hypothesis was rejected and it is deduced that putting up gates and fences does not free the apartments from crime. This is mainly because potential criminals would get attracted to the restricted neighbourhoods to get the things which are 'protected' from others.

(b). Residents feel safer in gated communities than in non-gated communities.

H_o: There is no significant difference between the safety perception of residents in GC and NGC.

H_1: There is significant difference between the safety perception of residents in GC and NGC.

No significant difference was identified between the two variables, based on the independent-samples *t*-test (Table 8). A Spearman rank correlation also supported the acceptance of the null hypothesis; which implies that there is no significant difference between the safety perception of residents in gated and non-gated communities. Although the gated community has restricted intruders or non-residents and also guarded 24-hours by security guards the residents do not feel safer than the residents in the NGC.

Residents' Preferences for Target Hardening Safety Features

All the respondents were asked about target hardening features which they believe would help in providing a safer living environment for the residents. Both GC and NGC residents prefer gate at the entrance followed by locks at doors and windows (Figure 7). While a significant percentage of NGC residents consider bright lights and fences around their housing to improve safety, a significant percentage of NGC residents prefer to have grills at doors and windows and fences and security alarms for enhancing residential their safety (Figure 7).

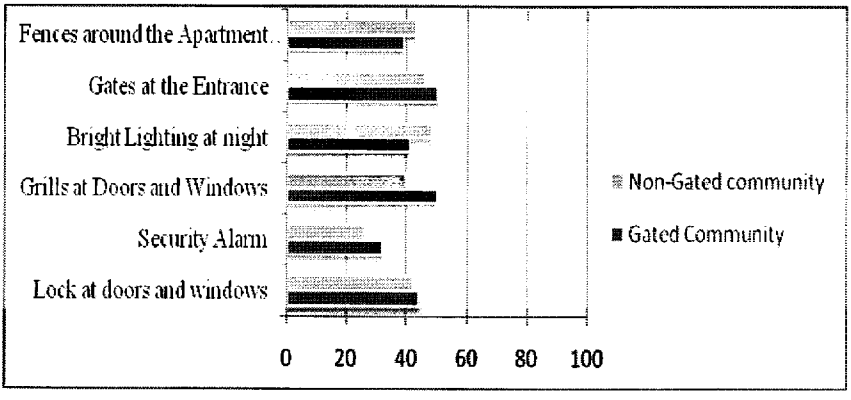

Figure 7. Percentage of respondents preferring the target hardening features in their apartments.

Resident s' views on improving surveillance within the apartment buildings

Patrol service around the buildings and CCTV cameras that cover the whole neighbourhood are features which the residents of both GC and NGC perceive will help improve the surveillance of the areas. According to CPTED principles, surveillance is one of the ways to prevent crime (Newman, 1996). Except a few respondents, majority supported the idea of having security guards or police patrolling around the area at a certain period of time, especially at night. The response for having surveillance cameras was also good with 75%. In overall, there is not much difference between GC and NGC on their perception towards these safety features which will enhance crime safety in their communities.

CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

The paper has examined the level of safety in GC and NGC from the perspective of residents' crime experience and perception. Both statistical data analysis and tests show that residents' safety perception is influenced by the crime experiences of the self and neighbours. There was no significant difference between the perception of safety by the residents of GC and NGC. This finding

totally counters with Newman (1973) and Kim (2006), where they concluded that residents felt safer in gated communities than in non-gated communities. All the findings of this study point into one direction - as far as safety in these communities is concerned, the GC does not appear to be safer than NGC. Therefore putting up gates is not effective in providing a safe living environment.

Recommendations

Based on the findings of the study, the following recommendations are pertinent to enhance the safety of both the neighbourhoods:

a) Strengthen the concept of gated community with added target hardening features such as CCTV cameras which will enhance residents' safety. Therefore 'gated community concept' should come in a package such that, when people are willing to stay in a safer place, they will have to pay for it.

b) Allow maximum surveillance through environmental design. Building design should maximize visibility around the frontage of the apartment units. Face the building units towards the streets to improve surveillance.

c) Improve neighbourliness among the residents. According to Newman (1973) and Blakely and Snyder (1999), residents' participation plays an important role in preventing crime activities which ultimately improves the perceived safety. Neighbourhood watch programs which have proved to be a successful approach for reducing crime can be introduced.

d) Provide incentives to private firms, developers and designers to promote crime prevention. Government can provide incentives for the developers who make effort to design the development that would help in preventing crimes.

e) Train up professionals such as planners, architects, engineers, to design and implement CPTED, so that future housing estate should incorporate the crime prevention design in it. Policies regarding the quality of life in residential areas should be reviewed and more importance should be given to the safety issues.

Future studies

Since gated community concept is becoming more popular, more research should be conducted in a wider perspective about the safety issues and how gated communities help improve them. The residential settings in developing countries are different from the developed countries, therefore there is a need to study how housing design embedded with cultural values can work effectively in improving the safety and also the quality of life of the people. Future studies should be focussed on high cost apartments or condominiums and terrace housing to examine the crime and safety situations of high-income gated and non-gated communities.

CONCLUSION

This paper has analysed the level of safety in the GC and NGC concluding that the GC is not safer than NGC. The effectiveness of GC was evaluated by comparing the safety perception of the residents and their crime experiences. From this particular research, it can be deduced that gated communities are not effective in providing a safer environment, but this cannot be generalized for all gated communities as the scope here is limited to low middle income communities and further studies are required. It is important to note here that, this research is only confined to low-medium cost apartments, and the results could be different for medium or high cost apartments, condominium and other residential units. Based on the theories of Newman and CPTED principles ways to improve the safety was recommended and by doing so not only GCs but also NGCs can be made a safer place to live.

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