

A Measurement of Sense of Community

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Abstract

Sense of community (SOC) is one of the components or domains of community relationship in residential areas. The strength of community relationship believed to eliminate criminal activities at residential area. Hence, in the identification of SOC, it is crucial for the measurement dimension to ensure that the specified items are reliable to measure the dimension. The result shows all items of SOC achieved factor loadings of 0.62 to 0.94. The research discovered that the longer a respondent resides in a residential area, the higher the community ties they nurtured. However, this study found that age and gender do not influence community relationship.

Keywords: sense of community, community relationship, residential, community environment

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1.0 Introduction

The sense of community is often used as a tool to garner attention from various quarters. Politicians use 'community' to solicit votes. In construction and development sectors, professionals like architects, planners and those in historic preservation and crime prevention will promote a sense of community as a cure-all for many urban ailments (Nasar & Julian (1995). The strength of this community ties perceived to provide life satisfaction (Blanchard, 2008; Fried, 1984) and is a critical component in determining the quality of life for all social classes (O'Brien & Ayidiya, 1991). Most research on neighbourhoods indicated that community ties that lead to a strong sense of the community will have a significant impact on an exuding feeling of safety from crime to the residents (Clampet-Lundquist, 2010; McMillan & George, 1986; M. Sakip, S.R, 2012).

McMillan & George (1986) was built the sense of community construct model and defined it as a feeling of belonging to a specific group. This feeling makes the members of the group feel they belong together, sharing happiness and problems require mutual commitment (McMillan & George, 1986). The sense of community consists of four main dimensions: membership, influence, needs reinforcement and shared emotional connection, which often interact with one another (McMillan & George, 1986). This construct used by Perkins, Florin, Wandersman & Chavis (1990) who agreed that the construct can to identify the sense of community in neighbourhoods. According to McMillan & George's Dimensions Model, Membership—involves personal investment and the subsequent "right to belong," group acceptance, and willingness to sacrifice for the group; Influence—allows for individuality while maintaining group unity through conformity; also deals with members' ability to influence the group and vice versa; Needs reinforcement—fulfilment of needs, guided by the principle that the union of those with shared values smoothly facilitates reinforcement and need fulfilment, and; Shared emotional connection—based on shared history, shared experiences, and quantity and quality of social interaction.

The relationship between sense of community and demographic characteristics suggests that a homogeneous ethnic group displays a stronger sense of community (Austin, Furr & Spine, 2002; Rogers & Sukolratanamete, 2009). This finding is believed to be related to similar culture, customs and language thus facilitating communication among them. Therefore, this study sets out two main objectives. The first objective is to validate and investigate the construct of sense of community in the Malaysian context. Once this is established, the second aim will be to determine the characteristics of demography that influence the sense of community in residential areas.

2.0 Literature Review

In identifying community ties in residential areas, three indicators have been proposed by McMillan & George (1986) - the period resident in the area, local community satisfaction and the number of neighbours be able to remember the neighbours' first names. According to Mc Millan & George (1986), a resident needs to reside in his neighbourhood for at least one year to forge community ties. During this period, the resident is perceived to be able to initiate good community ties in society and to overcome problems in the neighbourhood such as

burglaries, robberies and thefts (Villarreal & Silva, 2006). These are the factors that create the sense of belonging in neighbourhoods. Various studies confirmed that the longer a person resides in a neighbourhood, the stronger sense of belonging nurtured (Onyx & Bullen, 2000; Skjaeveland, Garling & Maeland, 1996). Thus, Clampet_Lundquist (2010) suggest at least 5 years is needed to staying in the neighbourhood to built community stability.

Second indicator: Good involvement among the community creates communication and information sharing. A continuous community involvement will create trust which directly bears satisfaction of living in a neighbourhood (McMillan & George, 1986). Throughout the relationship process, members of the community will get to know their neighbours' names especially those living along the same street (McMillan & George, 1986). Besides that, other factors also influence community ties networking namely age, gender and ethnicity (Rogers & Sukolratanamete, 2009). Austin et. al (2002) show that multi-ethnicity in a neighbourhood leads to weak community ties. Residents are prone to harbour higher fear of crime. These findings are believed caused by weaknesses in communication, dissimilarities in languages and cultures thus bringing about uneasiness among the community.

Besides demographic factors, the environmental design also significantly impacts community ties networking (Talen, 1999). Some studies revealed that a neighbourhood's physical environment influences good community ties. Residents in Guildford, Surrey, England use social spaces to enhance societal networking (Uzzell, Pol & Badenas, 2002). The relationship between open space and community ties is all about the provision of open space which is termed the 'heart' of social networking. Jacobs (1961) suggested a relationship between space design and community ties networking. Space design from the macro aspects such as mixed developments involving residential areas in proximity to work places, shops and commercial areas are believed to encourage social integration. The formation of these social relationships is related to street design. The pedestrian way that is user-friendly are believed to be able to forge community ties. Also, the walkways allow interaction and conversation among the community that encouraging social ties (Wood et al., 2010).

Good community ties in neighbourhoods are believed to deter potential criminals in deciding to commit acts of crime before actually committing them. Bernasco and Nieuwebeerta (2005) argue that criminals use the community ties factor in evaluating a neighbourhood before they select their crime targets. It is explained that criminals prefer to choose unstable community neighbourhoods. They perceived that this is one of the factors the community is failing to identify strangers in their areas. Thus, it is necessary to validate and investigate the construct of a sense of community (SOC). In the context of this study, the focus of study will tend towards homogeneous ethnic groups to investigate the different findings in the context of Malaysia.

3.0 Methodology

This study was done on Precint 9 in Putrajaya and Seksyen 4 Bandar Baru Bangi, Malaysia, which are predominantly occupied by medium income people. These study areas have similar characteristics regarding demography, which are ethnicity, marital status, race,

religious, social class and heads of households. However, they are different regarding residential area layout design. This variable is crucial to discern the differences in the sense of community between two residential areas with similarities in demography but differs regarding residential layout.

In selecting the study site, the selection of individual non-gated residences was done first followed by the selection of individually gated residences. This was because individual non-gated residences in Malaysia are very limited and Putrajaya has been chosen as the study area because it is the first residential area in Malaysia to practice the non-gated concept in residential areas (Roslan Talib, 2009). Besides that, individually non-gated residences were also selected earlier to suit similar selection criteria with individual gated residences. This selection was adapted from Wilson-Doenges's (2000) study that selected gated community residences first before selecting non-gated community residences. Regarding respondents, either the main breadwinner or the spouse was identified in each household. A pilot study was conducted to identify unoccupied residences such as neighbourhood watch beats, kindergartens, child care centres, storage buildings and vacant residences. Out of 476 residences, 19 have been eliminated from the respondent selection list as they have been identified as having a non residential use. On the whole, this population study involved a total of 457 residences and 171 participated as respondents.

3.1 Procedure

This study is quantitative in nature using a questionnaire. The survey involved asking residents to answer a questionnaire which was administered using face to face interviews. It contained two parts: Part 1- background information and Part 2- the construct of the sense of community. This is a population study which involved the whole population in 456 residences encompassing 264 residences in Seksyen 4, Jalan 4/7 Bandar Baru Bangi, and 192 residences in Precinct 9B, Putrajaya.

3.2 Variables and measure

This study employed four dimensions of sense of community: membership, influence, needs reinforcement and shared the emotional connection as proposed by McMillan & George (1986). The SOC dimensions were measured by three indicators using a questionnaire. The measurement of SOC was rated using a Likert scale ranging from 1 to 10 ranging from "Highly Disagree" to "Highly Agree". The high score will indicate that the community relationship in the neighbourhood is high and vice versa if the score obtained is low. The reason for using a ten-point Likert scale without a neutral answer was to induce the respondent to take a stance. Furthermore, the technique of providing the scales "Highly Disagree" to "Highly Agree" will give result intensity from respondents, thus impacting the distribution of the respondents' score.

4.0 Results and Discussion

The first objective of this paper was to conduct validation on the construct of the sense of community (SOC) which consisted of the three dimensions. Each dimension was comprised

of 3 items to measure the respective dimension. The validation of construct a sense of community (SOC) was done by conducting confirmatory factor analysis (CFA) using AMOS and SPSS software. CFA is a measurement model which is developed by the correlation between latent variables and several indicators (items) or known as variable and error manifests. The CFA method can ensure and validate the items used in measuring latent variables by taking into account the value of the variances as opposed to the factor analysis (FA) which only explores an item and suggests a factor for each of the items. According to Joreskog and Sorbom (1993), the evaluation of the measurement model is done by assessing the quality of the items for each construct individually (or known as the congeneric model) and followed by retesting the constructs simultaneously, which is known as confirmatory factor analysis (CFA). The measurement model for each construct of the SOC dimensions: membership, influence, needs reinforcement and shared the emotional connection, was developed as shown in Figure 1.

Figure 1 demonstrates the measurement model which is comprised of one latent variable (membership) which is measured by three items (Item 1 to Item 3) and each item has its measurement error. The quality of each item that develops this construct is determined by the factor loading as symbolised by λ (factor loading). Factor loading imparts information about the total number of variances contributed by each item towards the measured construct and the factor loading value of 0.30 (Sellin & Keeves, 1997) is used as a cut-off value to determine the suitability of the item in measuring the latent variable. Several indices were employed to judge whether the model tested fits to the data, such as Chi-square, Chi-square/degree of freedom ratio, and goodness of fit indices. The goodness of fit indices as suggested by Hair, Black, Babin and Anderson (2006) such as Root Mean Square of Approximation (RMSEA), Goodness of Fit Index (GFI), Normed Fit Index (NFI), Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI). According to Hair et al. (2006), the value of GFI, NFI, CFI and TLI of 0.9 and above show a well-fitted model. As for RMSEA, a value of between 0.03 and 0.08 is considered to be good. Every SOC dimension goes through the first order measurement model process for validation.

The results of the confirmatory factor analysis (CFA) in the first-order found that all SOC dimensions had just-identified or saturated model ($X^2(0)=0.000$, $p<0.05$) which means that the degree of freedom is equal to zero due to the same number of data as the number of parameters assumed in this model. Hence, this model has presumed the best and most suitable one against the proposed model (Joreskog and Sorbom, 1993).

The Cronbach's Alpha value was used to determine the level of reliability through the internal consistency for each factor, as shown in Table 1. The result shows that all sense of community dimensions achieved Alpha value level exceeding 0.60 (Alpha: 0.64 to 0.90) indicating that all dimensions have a good reliability value (Nunnally & Bernstein, 1994). Factor loading (λ) for all items also exceeded 0.3 ($\lambda = 0.62$ to 0.94), which means that those items are suitable for measuring every SOC dimension (Sellin & Keeves, 1997). However, item 2 of integration and fulfilment of need dimension had to be aborted as it achieved a factor loading value of less than 0.3.

The second objective of this paper is to identify the relationship between the respondents' demography and sense of community. Results of t-test analysis on demography with a sense

of community (SOC) found that gender ($t(169)=-0.32$; $p=0.74$), marital status ($t(14.22)=-0.74$; $p=0.47$), education level ($t(169)=-0.08$; $p=0.93$), residence ownership status ($t(169)=0.68$; $p=0.49$) are insignificant. Meanwhile the results of one-way ANOVA analysis found that there were no significant differences in age levels ($F(4,166)= 1.88$, $p>0.05$), income rates ($F(4,166)= 0.97$, $p>0.05$) and fields of employment ($F(3,167)= 10.45$, $p>0.05$). The study only found a significant difference between the period of residing in the residential area and sense of community ($F(4,166)= 5.88$, $p<0.05$). The significant relationship between the period of residing in the residential area and SOC shows that the longer a resident stays in the residential area, the higher sense of community. This finding is based on a SOC mean score with a period of residence less than a year ($M=5.24$), 1 to 2 years ($M=6.35$), 3 to 4 years ($M=6.57$), 5 to 6 years ($M=6.34$) and 7 years above ($M=6.75$).

To identify whether there is a significant difference in the the sense of community and the study locations (Putrajaya and Bangi), a t-test analysis was done. Results found no significant difference between community ties and location or residential area layout ($t(169)=0.49$; $p=0.62$). Additionally, this study investigated demography with sense of community. Findings show that gender, income rates, education levels, fields of employment and ownership status for both residential areas do not indicate any significant difference. However, it was found that the period of residence in a residential area is significant in both areas (Putrajaya: ($F(4,76)= 5.83$, $p<0.05$, Bandar Baru Bangi: ($F(4,85)= 2.56$, $p<0.05$).

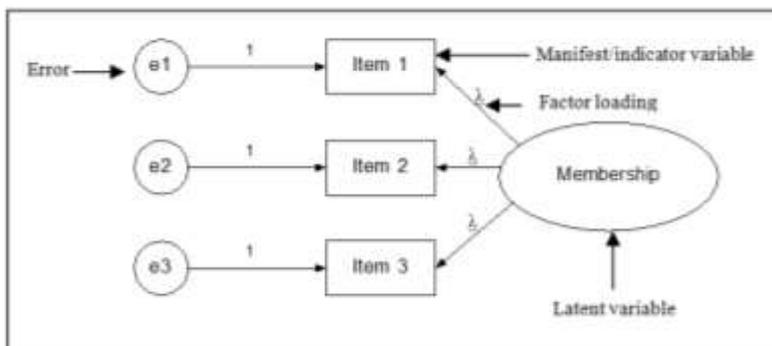


Figure 1: A First-order CFA model for sense of community dimension construct

Table 1: Results of the reliability of sense of community dimensions

Sense of Community dimension	Items	Description of Items	Factor Loading	Reliability
Membership	Item 1	I can identify most of the residents here	0.83	0.90
	Item 2	Most of the community knows me	0.94	
	Item 3	I always participate in community activities organised by the community association	0.77	

Influence	Item 1	I look after my neighbours' children/plants/pets when they go on vacations I value my neighbour's/community's views or comments	0.66	
	Item 2	Whenever there are problems in this residential area, they are solved by the community	0.92	0.80
	Item 3		0.68	
Integration and fulfilment of needs	Item 1	I feel that I am one of the community members in this residential area I can trust the community here	0.62	
	Item 2	I feel this residential area is good to live in	-	0.64
	Item 3		0.79	
Shared emotional connection	Item 1	I am happy living among the community in this residential area	0.70	
	Item 2			
	Item 3	The community here always share important events such as birthday parties, weddings, festivals (Deepavali, Hari Raya and so on) The community here care about each other	0.93 0.68	0.85

5.0 Conclusion

The study aims to validate the sense of community constructs in a neighbourhood or residential areas. As explained earlier, the formation of the constructs is based on the Mc Millan & George (1986) model which was also used in Perkins, et al.'s (1990) study. However, in the Malaysian context, items used are adapted to fulfil language requirements and suitability to ensure they elicit the correct response from respondents. Study findings show that constructs as well as items used are valid and possess high-reliability levels. These findings confirm that these constructs can be adapted to measure sense of community in neighbourhood areas in Malaysia. However, results of confirmatory factor analysis (CFA) in the first-order indicated that all four SOC dimensions demonstrated just-identified or saturated model (Joreskog and Sorbom, 1993). This finding was because only three items were used to measure SOC dimensions To achieve Goodness-of-fit indices, at least five items must be used to measure one dimension. In fact, the use of more items in measuring one dimension will increase the reliability level (Hair et al., 2006).

Another finding in this study is the characteristics of demography towards a sense of community in residential areas. Previous researchers (Rogers & Sukolratanametee, 2009) found that age and gender factors influence community ties network but their findings contrast findings of previous research. This research found that age and gender are not significant to community ties network. These findings are believed to relate to different age levels influencing lifestyles because homogeneous age levels are perceived to influence sense of community (Uzzel, 2002; Mc Millan & George, 1986). Similarly, homogeneous ethnicity can increase the sense of community levels (Austin et. al, 2002). However, this study involving 96 percent Malay ethnics found that results of one-way ANOVA analysis

have no significant difference with a sense of community ($F(2,168)=.585$). The findings perceived that residents' lifestyle and employment impact community ties network. This is related to the residents' free time that enables them to indulge in social activities.

Nevertheless, this study found that the longer a respondent resides in a residential area, the higher the community ties they nurtured. This finding proved McMillan and George's (1986) statement that the period of residing in a residential area is one of the community ties indicators. In fact, McCulloch (2003), Onyx and Bullen (2000), as well as Clampet-Lundquist (2010) also concurred that the period of residence in a residential area can enhance community ties and form the sense of belonging in neighbourhood areas (Rogers & Sukolratanamete, 2009).

Several important conclusions that can be drawn from this study are connected with the demographic characteristics towards the sense of community in neighbourhoods. The result reported in this article provides that, lifestyle is believed to encourage community networking as opposed to demographic factors such as age and gender. Lifestyle relates to factors such as time, hobbies and neighbourhoods' environmental designs. Moreover, it can be pointed out that gated elements are some of the factors that negate community networking. Physical elements like fencing are perceived to provide psychological barriers that prevent or reduce communication in a community. This implies that residential urban planning needs to focus on the residents' current needs and requirements especially regarding environmental landscape designs and residential area designs that are more 'relationship-friendly' (non-gated). The present study has several limitations that are related to both the number of indicators used for underlying variables as well as the sample size and ethnicity. To study the effectiveness of demography on the sense of community, a comparison between demographic pluralities is necessary to achieve a more generalised result. Similarities and differences in the residential area layout designs must also be taken into consideration in future research to investigate community networking in neighbourhood areas.

Further research should be carried out in different types of housing such as terraced, semi-detached and apartments to clarify the sense of community and their relationships with demographic and environmental neighbourhood factors. Additionally, future research should explore the relationship among residents in different geographical locations; and racially homogeneous and heterogeneous samples with burglaries in residential areas.

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