

# Sense of Community and Built Environment: How Can Built Environment, Social Economic Conditions and History of Place Shape Our Sense of Community?

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**Abstract:** *Sense of community is a concept in community and social psychology and has been investigated in several researches. The sense of community level changes towards many independent variables and it is related to the quality of the built form. This research aims at investigating the relationship between the sense of community and some determinants such as; the physical environment, the historical background and the socio economic conditions in selected neighborhoods. Furthermore, this research examines the social interaction as it has an important role in measuring the sense of community. To achieve that, the authors propose a methodology composed mainly of two major tools; the first, a survey formed of sense of community indices, as well as other social and psychological factors according to Kim and Kaplan theory. The second tool is based on the observation of physical attributes of the neighborhood. The adopted methodology is applied on two neighborhoods in Alexandria city, Egypt. By analyzing the survey results and the researcher's observation of physical attributes in the selected neighborhood, it was found that there is a strong correlation between the sense of community and several independent variables such as the built environment, the socio economic conditions, some demographic factors like age, monthly income, length of residence and the importance of pedestrian factors on measuring sense of community.*

**Keywords:** *Sense of community, Built environment, Statistical analysis, Social Interaction, Alexandria neighborhoods.*

## I. INTRODUCTION

Sense of community is a concept in community psychology and social psychology, as well as in several other research disciplines, such as urban sociology, which focuses on the experience of community rather than its structure, formation, setting, or other features. The commonsense idea of sense of community is derived from images of the past that are projected as idealized forms of living (Grace Pretty, 2006). Many researchers determined and developed different definitions of sense of community and studied its relationship with many factors.

The most accepted model of sense of community comes from psychologists David McMillan and David Chavis, who used factor analysis to identify four main elements of sense of community: membership, influence, Integration and fulfillment of needs, and shared emotional connection. Based on these elements, they defined sense of community as “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (Chavis, D., J. Hogge, D. McMillan and A. Wandersman, 1986).

The majority of studies explore the relationship between sense of community and the physical form of the community. However, there is less research exploring whether social interaction within communities varies according to neighborhood design (Giles-Corti, 2010). These researchers critic the great attention of physical attributes of built environment and the neglecting of the importance of some other features correlated with sense of community like social interaction, history of the place, immigration, walkability and economic level (The Sense of Community Partners, 2004). “Community life is sustained when social networks are strong, when there are people with common interests and who feel a sense of common fate” (Berkowitz, L., 1956). Many researches have examined communities at the neighborhood level and agree that the sense of community is decreasing. This decrease is usually linked with the community quality or the physical attributes of the neighborhood (Schweitzer, J., 1996).

In Alexandria, many evidences on the decreasing quality of neighborhoods could be cited. For instance, many of the city residents are suffering from noise, air pollution and poor quality of the public transportation system. They also complain about low quality of water, due to the pollution resulting from over population and wastes of factories (Abdo, 2013; CAPMAS, 2013). UNDP (2010) states that Alexandria contains 29 informal areas which representing about 2.9% of the informal settlements of Egypt. About 1.4 million persons, representing about 35% of the residents of Alexandria, live in these informal areas. In addition, the number of informal buildings has been increasing in the city’s neighborhoods (Abdo, 2013; UNDP, GOPP, MHUUD & CIDA, 2010).

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This study aims at investigating the relationship between the sense of community level and some determinants of the physical environment, the historical background and the socio economic level in selected neighborhoods. Also, the analysis of the sense of community domains to illustrate their importance in measuring sense of community.

### II. METHODS AND TOOLS

The researchers propose a methodology for examining the relation between a dependent variable (sense of community) and some independent variables (built environment, history of neighborhood, socio economic level) in two selected

neighborhoods of Alexandria city. The two neighborhoods exhibit different socio-economic conditions, historical backgrounds and different quality of the built environment (physical attributes) (figure 1, table 1). On one hand, Smouha neighborhood is considered as one of the newest planned districts in Alexandria. It has a socio-economic level and hosts the headquarters of the Ministry of Interior, several administration buildings and services (figure 2). On the other hand, Bakos neighborhood is an old neighborhood with low socio-economic level (figure 3) (CAPMAS, 2013).

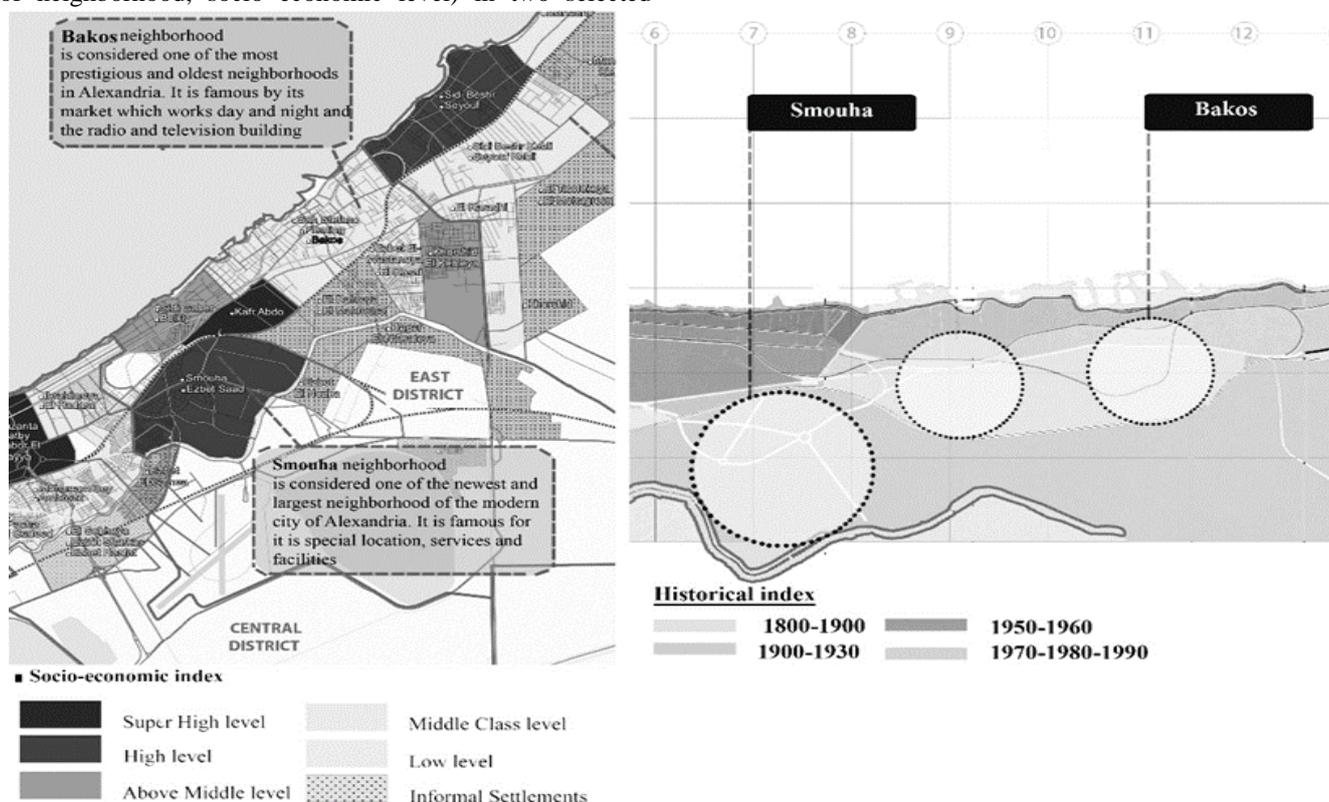


Figure 1 Map Defined The Administrative Districts and Boundries, Social Economic Conditions, Historical Background and the Location )f Case Studies (Alkalash, 2014; Hussein, 2014), (The Researchers).

Table 1 Comparaisn between Bakos and Smouha Statistical Measures (CAPMAS, 2013; The National Planning Institute- the United Nations Development Programme, 2011)

Smouha	Bakos
<p><b>Networks and infrastructure:</b> It has an infrastructure system in water, drainage and electricity; 99.99% of its residents have a good water system, 99.94% have good drainage system and 99.87% have good electricity. It is well connected with a street networks but it lacks of public transportation. The majority of streets are between 5 to 10 meters and there are streets more than 10 meters.</p>	<p><b>Networks and infrastructure:</b> It has an infrastructure system in water, drainage and electricity; 100% of its residents have good water system, 99.93% have drainage and 99.83% have electricity. The problem is the quality and maintenance of infrastructure special in drainage system. The majority of streets are between 5 to 10 meters. It must be mentioned that this data may be changed because of offending buildings, street vendors and cafes.</p>
<p><b>Residential, Planning and Architectural Identity:</b> It is currently considered one of the most attractive area of Alexandria to residents, although it is not overlooking the Mediterranean Sea, but it is due to the good organization of its streets, wide roads, modern residential buildings, extensive gardens between the apartment buildings, and services represented in the commercial centers and a lot of squares All these advantages made its inhabitants are unwilling to get out of it, where all their needs are available.</p>	<p><b>Residential, Planning and Architectural Identity:</b> It is one of the oldest neighborhoods of Alexandria but its architecture identity disappeared through time because of offending buildings, the ignorance of the government, the presence of garbage, the absence of maintenance and the change of its social structure.</p>

Demographic factors	Percentage or ratio
% of residents of high education	82.63%
% of literate and illiterate	93.14%, 6.56%
Unemployment rate	9.80%
Labor factor	42.94%
Ratio of deaths	3.90%
Ratio of births	19.10%
The dependency ratio	38.80%
The rate of growth between 2006 and 2011	0.7

**Demographic factors:** It had population of 72,000, population density 882 and total density 115, Tenure system is divided into ownership 95.3% and new rent 4.7% system.

Demographic factors	Percentage or ratio
% of residents of high education	48.77%
% of literate and illiterate	80.44%, 19.56%
Unemployment rate	10.30%
Labor factor	41.16%
Ratio of deaths	10.00%
Ratio of births	20.70%
The dependency ratio	20.50%
The rate of growth between 2006 and 2011	1

**Demographic factors:** It had a population of 35400, population density 351 and total density 120. Tenure system is divided into ownership 65.7%, old rent 33.8% and new rent 0.4% system.

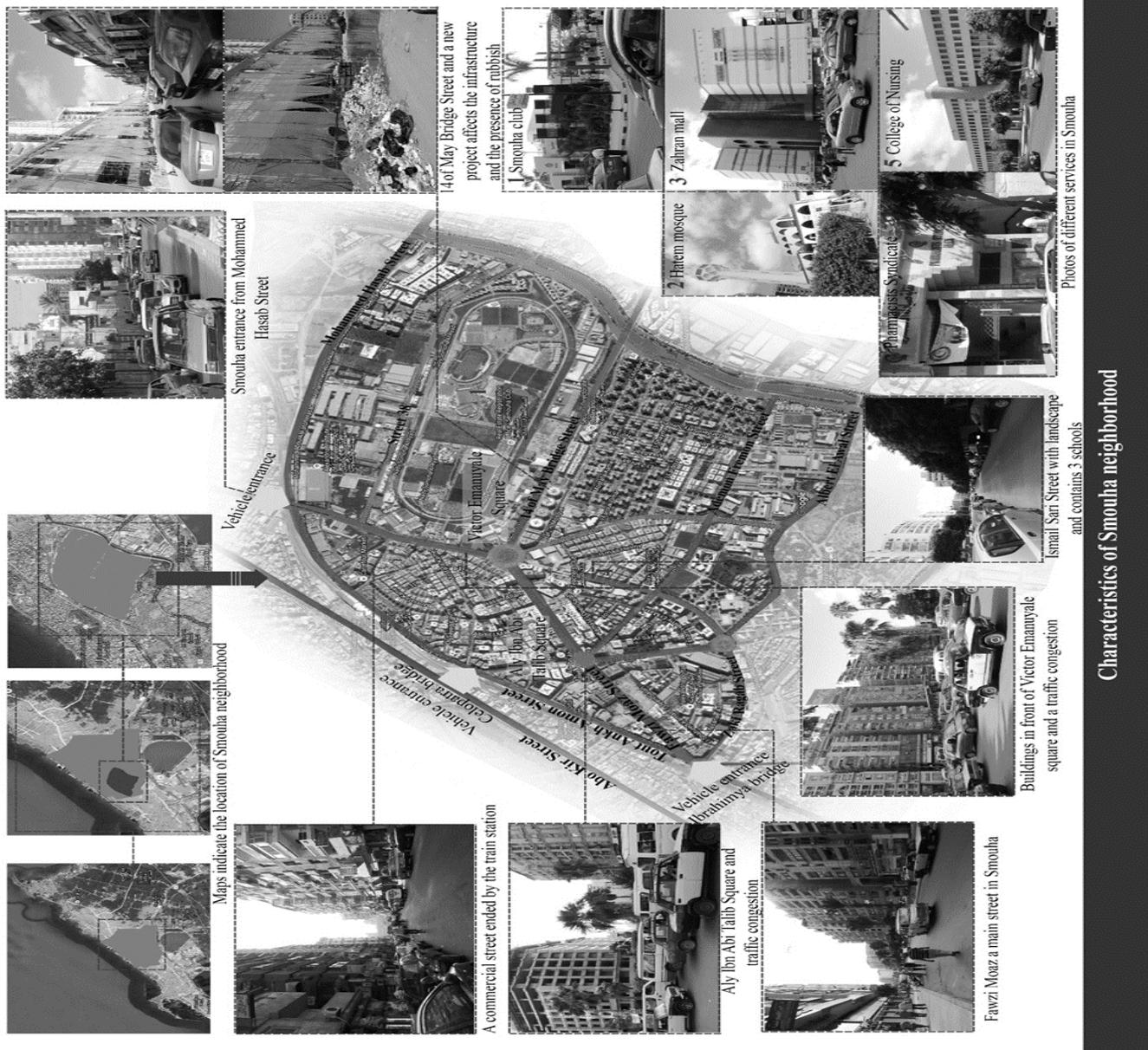


Figure 2 Annotated Map Identify the Characteristics of Smouha Neighborhood (By the Researcher)

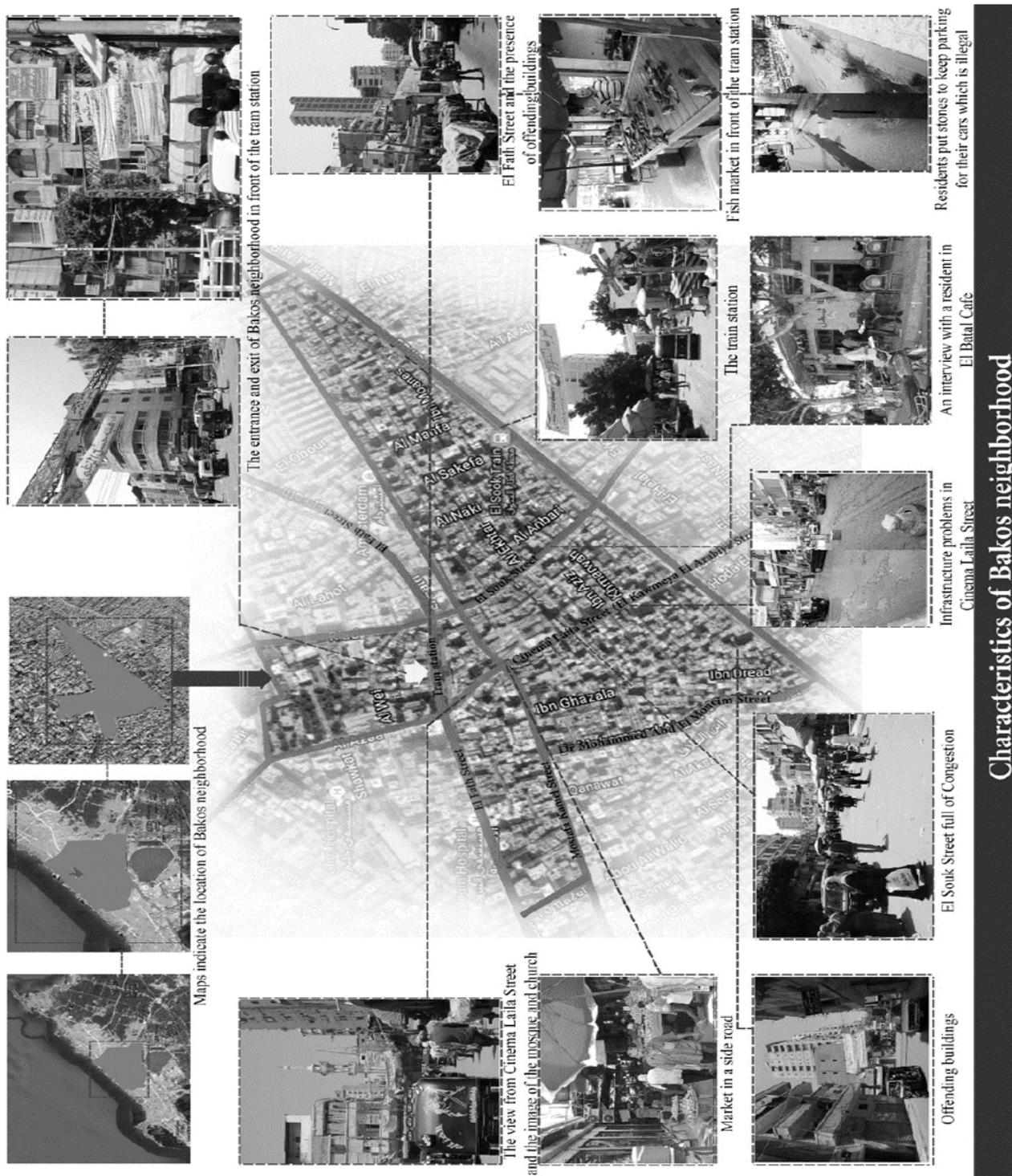


Figure 3 Annotated map Identify the Characteristics of Bakos Neighborhood (By the Researchers)

The steps and used tools in this study are presented as follows:

1. Measuring the dependent variable (sense of community):

Several previous researches and studies have been done to measure sense of community. They are presented and compared as shown in figure 4. Two measures; (David McMillan, David Chavis SCI (1986) and Kim and Kaplan (2004)) have been selected for this study because they give a full description of sense of community and resume the work of previous researchers. A combined measure has been proposed in form of a survey composed of sense of community index (SCI) and the social and psychological factors of

Kim and Kaplan theory. The survey is divided into three sections: Section 1 is a general personal information with the objective of understanding the influence of demographic factors on the respondent's sense of community. Section 2 includes an evaluation of sense of community including the people's opinion about their social interaction within the community, their community attachment and identity and the physical factors of their community (Pedestrian).

This section attempts to establish an understanding on the impact of cultural factors, social-spatial character, physical factors and their relationship with neighbors on sense of community. The last section includes general comments and thoughts of the survey's respondents regarding their recommendations and expectations.

2. Measuring the independent variables:
  - a. **The Built Environment** is measured through: an observation table of the physical attributes of the built environment. It consists of physical factors suggested by Kim and Kaplan theory, as well as built environment variables (transport, safety and danger, privacy and crowding, participation and empowerment).
  - b. **Social economic conditions** and (high economy or low economy) and **the history of the neighborhood** (new neighborhood or old neighborhood): These two variables have been identified using quantitative data and maps, and have been used in the selection of the case studies.
3. Sample and data collection:
 

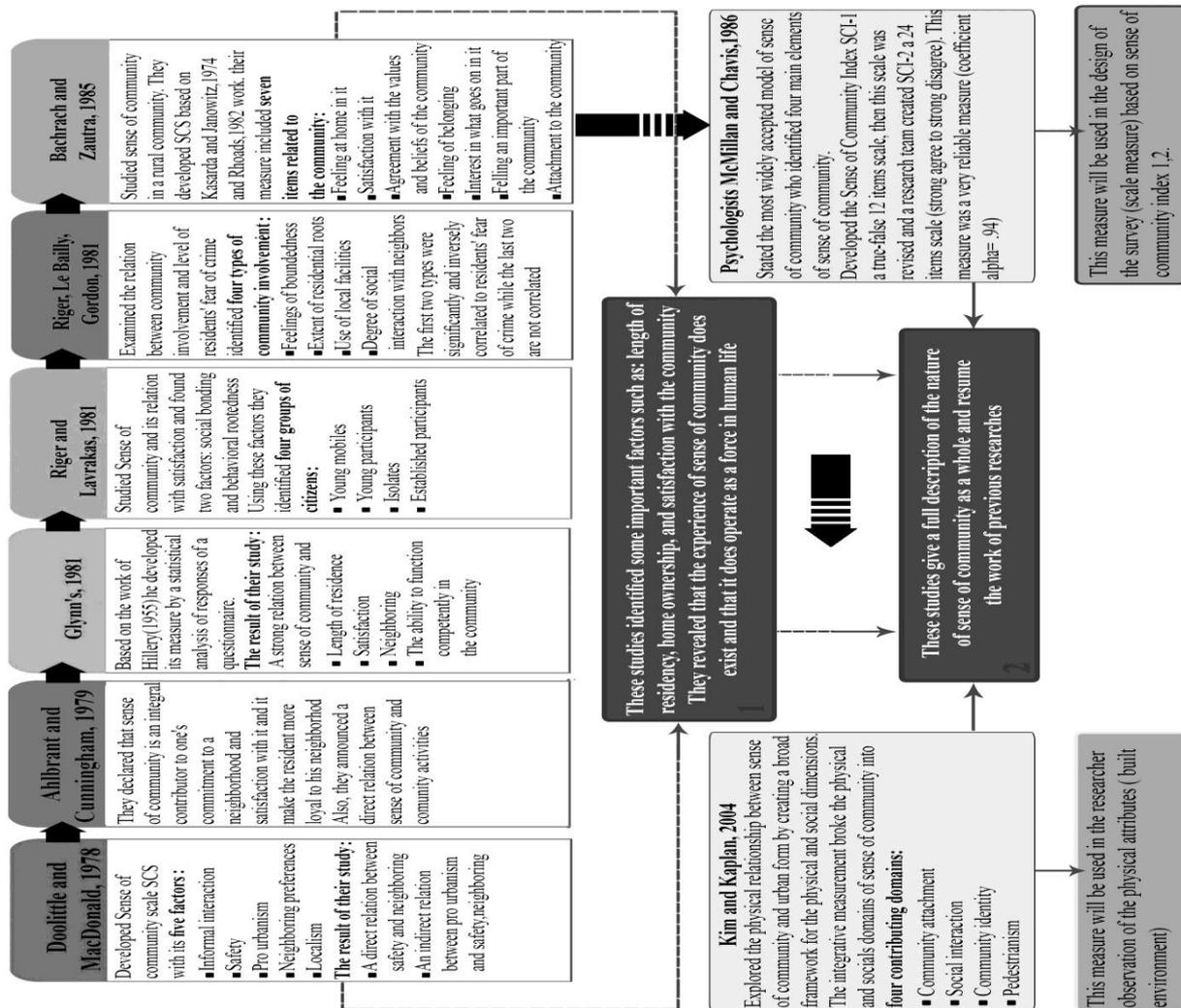
A random sample of 243 participants from the two neighborhoods were selected based on the

©Launch Epi Info 7 (3) software (minimum required sample was 200 participants). The inputs of the software were:

- a. A cross sectional survey to estimate an average level of sense of community 50.7% dependent on a reference of a similar study (MARANS, 2009).
- b. A precision of 7%.
- c. Alpha error = 0.05 (confidence level = 95%)
- d. Design effect = 2

Data were collected from both on-site/on-line surveys and interviews, conducted from June 29th, 2016 till July 29th, 2016. The on-line survey used the KwikSurvey application (Kwiksurvey, 2016). It was shared through different websites such as: Facebook, Twitter and LinkedIn. It has been shared in two languages Arabic and English and it targeted different places and people in the selected neighborhoods. The sample included in the final analysis was total 243, Smouha 207 and Bakos 36.

©Launch Epi Info 7\*: It is a software developed by the United States of America Centers for Disease Control used to calculate the sample size.



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## 4. Data analysis methods (statistical analysis):

The data were analyzed using ©SPSS (4) version 18. First, a descriptive analysis of survey results has been done to identify percentage of sense of community in each neighborhood. Then, a General Linear Model (GLM) - multi-variate analysis (5) - has been used to examine the association between sense of community and social economic conditions, history of the neighborhood and the

built environment (physical attributes). This approach was adopted according to Giles-Corti (2010). Subsequently, the researchers identified the positive or negative relations between the physical observation and the result of survey. Finally, a descriptive analysis of significant variables - resulting from the multi-variate analysis - has been done to give more detailed results.

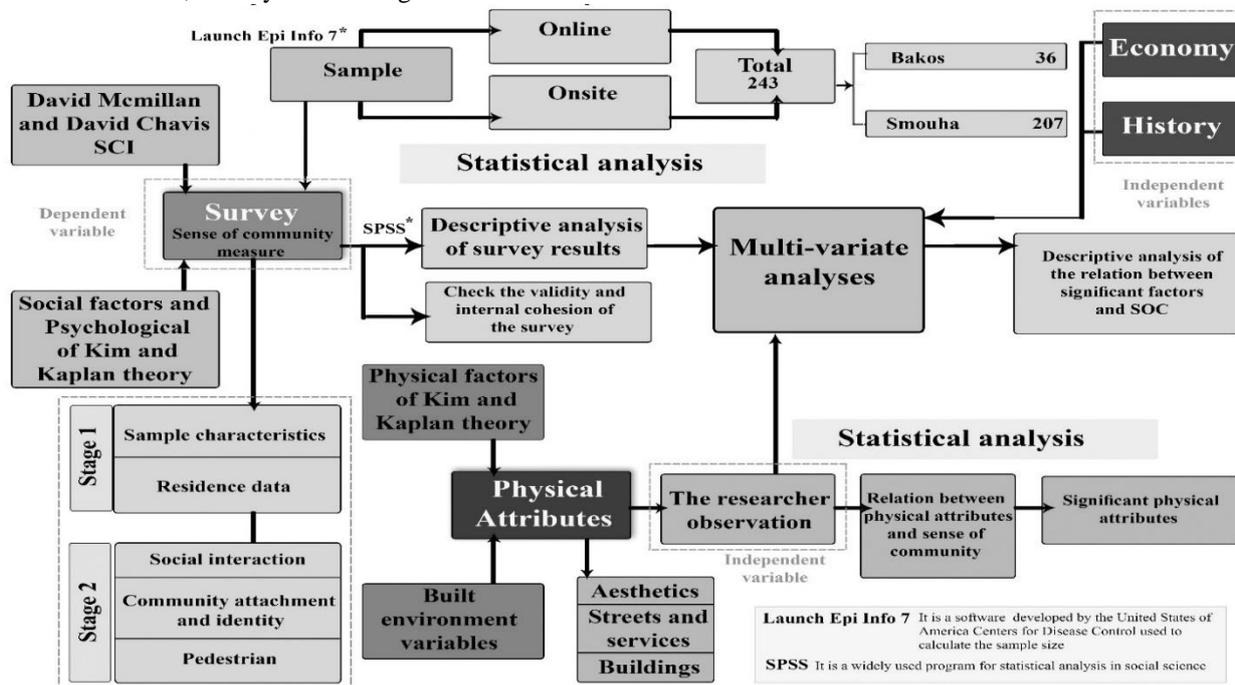


Figure 2. Flowchart Resumes the Methodology and the Framework Of The Analysis (By The Researchers)

(4) ©SPSS: “Statistical Package for the Social Sciences”, it is a widely used program for statistical analysis in social science.

(5) Multivariate analysis model: (MVA) this technique is used to perform trade studies across multiple dimensions while taking into account the effects of all variables on the responses of interest.

## III. RESULTS AND DISCUSSION

### A. Survey Results:

The validity and reliability (6) of the survey have been checked and the measure was found to have excellent internal consistency with a Cronbach’s alpha of 0.843. Then, the correlation and internal cohesion between items of the survey has been calculated for a sample of 40 (20% of all the sample). The researcher found two questions not significant, and therefore have been eliminated from the survey results. The results of survey sections are presented as follow:

1. This part (section 2 of the survey) of the analysis contained the results of sense of community and its domains in each neighborhood as shown in table 2.

Table 2 The Survey Results (By The Researchers)

Neighborhoods	Sense of community Domains									Sense of community total		
	Social interaction			Community attachment and identity			Pedestrian			high	moderate	low
	high	moderate	low	high	moderate	low	high	moderate	low			
<b>Bakos</b>	2 5.6%	11 30.6%	23 63.9%	2 5.6%	9 25%	25 69.4%	3 8.3%	8 22.2%	25 69.4%	1 8.3%	11 80.6%	24 11.1%
<b>Smouha</b>	5 2.4%	84 40.6%	118 57%	23 11.1%	112 54.1%	72 34.8%	20 9.7%	119 57.5%	68 32.9%	4 1.9%	121 58.5%	82 39.6%
<b>MCP (8)</b>	0.005**			0.001*			0.001*			0.005**		
<b>X<sup>2</sup> (9)</b>	10.088**			15.368*			18.085*			9.991*		

The survey results illustrated that the sense of community in both neighborhoods is moderate to low. Concerning sense of community domains, pedestrian is the most effective in measuring sense of community, then community attachment and identity and finally social interaction.

The pedestrian is moderate to low in Smouha and Bakos. The community attachment and identity is moderate to low in Smouha and low to moderate in Bakos. The social interaction is low to moderate in Smouha and Bakos.

The difference between the two neighborhoods was in the result of community attachment and identity. Based on Kim and Kaplan theory (2004), the community attachment and identity composed of several subcomponents such as uniqueness, connectedness, satisfaction, continuity, cohesiveness, ownership and local characteristics (Kim and Kaplan, 2004). A relationship between the residents' comments and the survey results has been illustrated as follow:

(6) The validity of the survey: it is the extent to which a concept, conclusion or measurement is well-founded and corresponds accurately to the real world.

(7) The reliability of the survey: in statistics and psychometrics, it is the overall consistency of a measure. A measure is said to have a high reliability if it produces similar results under consistent conditions.

(8) MCP: "Monte Carlo exact probability", it is a method used to compare competing statistics for small samples under realistic data conditions, in this study Monte Carlo for Chi square test for comparing between the two neighborhoods.

(9) X<sup>2</sup> for Chi square test for comparing between the two groups.

\*: statistically significant at p ≤ 0.001, \*\* statistically significant at p ≤ 0.05.

**Table 3 Comparison Between The Residents' Comments and The Survey Results (By Researchers)**

The residents' comments (without any modifications)	The relationship
<p><b>Smouha:</b></p> <ol style="list-style-type: none"> <li>1. People moved to Smouha searching new and bigger apartment.</li> <li>2. People suffered of noise and crowding, especially in peak times.</li> <li>3. The lack of public transportation such as tram.</li> <li>4. There is some positive aspects in this neighborhood:               <ol style="list-style-type: none"> <li>a. Very close to all public services.</li> <li>b. The neighborhood is in a central place.</li> <li>c. There is Smouha club and many services in the district.</li> </ol> </li> </ol>	<p><b>The community attachment and identity</b> in Smouha is moderate to low, it is better than Bakos because of some reasons such as:</p> <ol style="list-style-type: none"> <li>1. Economic satisfaction (high economic level in Smouha), aesthetics pleasantness (MARANS, 2009).</li> <li>2. Uniqueness (major attractions such as Smouha club) (The Strategic Leisure Group, 2010).</li> <li>3. Sense of ownership 97.1% (CAPMAS, 2006).</li> </ol> <p>However, Smouha hasn't a high percentage of community attachment because of:</p> <ol style="list-style-type: none"> <li>1. The lack of local character (The members of the City of Austin Design Commission, January, 2009)</li> <li>2. Connectedness, because of the lack of public transportation (The Strategic Leisure Group, 2010).</li> </ol>
<p><b>Bakos:</b></p> <ol style="list-style-type: none"> <li>1. Nowadays it suffers of its poor sanitation and low quality of services.</li> <li>2. There is no aesthetics, green areas.</li> <li>3. The presence of a lot of street vendors is a good service but it blocks the accessibility of the neighborhood.</li> <li>4. There is no police unit and safety.</li> <li>5. Some transportation facilities should be regulated such as Toktoks.</li> <li>6. They don't participate in the decision making.</li> </ol>	<p><b>The community attachment and identity</b> in Bakos is low to moderate, It is lower than Smouha because of some reasons such as:</p> <ol style="list-style-type: none"> <li>1. Cohesiveness, it is related to the perception of safety (Hartman, 2009), residents suffer of the low of safety.</li> <li>2. Economic satisfaction (low economic level in Smouha), the lack of aesthetics pleasantness (MARANS, 2009).</li> <li>3. Sense of ownership is lower than Smouha 65.7% (CAPMAS, 2006).</li> </ol>
<b>The pedestrian is moderate to low in Smouha and Bakos</b>	
<p>The subcomponents of pedestrian are walkability, propinquity, mass transit and activities (Kim and Kaplan, 2004). Each neighborhood has its advantages and disadvantages based on the residents' comments such as:</p>	
<p><b>Smouha:</b></p> <ol style="list-style-type: none"> <li>1. Walkability, the presence streetscape and side walk design and squares (The Strategic Leisure Group, 2010).</li> <li>2. Mass transit (The members of the City of Austin Design Commission, January, 2009), the lack of public transportation.</li> </ol>	
<p><b>Bakos:</b></p> <p>Based on Michael Quartuch (2012) theories the presence of street vendors is a good activity; Bakos neighborhood has a lot of street vendors which is a good service but it blocks the accessibility of the neighborhood.</p>	
<b>The social interaction is low to moderate in Smouha and Bakos</b>	
<p>This result illustrates a low percentage in social interaction in both neighborhoods. The subcomponents of social interaction are encounter, participation, neighboring and social support.</p> <p>The main problem in both of neighborhoods based on the residents' comments is the lack of <b>public participation</b> (Hiss, T, 1990). Bakos lacks of parks, green spaces and squares to encourage the encounter of residents; Smouha has squares and green areas but with a huge number of cars so the priority isn't for the human or the encounter of residents.</p>	

The neighborhood residents have a double role to increase and protect the level of sense of community in their place. The first role is related to their neighborhood as a place (physical attributes), the second one is related to the social interaction and relations between each other's. It can be concluded as follow:

a. Action should be taken from residents to protect their community and take decisions about their neighborhood.

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- b. The establishment of civil associations to encourage the social interaction in the neighborhood.
- c. The mutual respect between the neighborhood residents in rights and duties.
- d. The public participation and taking responsibility towards their community.

### 3.2 The observation of physical attributes :

**Table 4 Presents The Observation Results (By The Researchers)**

Likert scale (10): Bad or not exist =1, fair=2, good=3

<b>The Built Environment Factors</b>	<b>Region</b>	
	Bakos	Smouha
<b>Aesthetics</b>	Score	Score
The presence of major attractions in the Community layout and design.	3	3
Aesthetic pleasantness.	1	3
Encourage the participation of artists in detailing of buildings.	1	3
Harmony	1	2
The architecture style is well connected with the past	2	2
the presence of local and unique characteristics	1	1
<b>Total 18</b>	<b>9</b>	<b>14</b>
<b>Percentage</b>	<b>50%</b>	<b>78%</b>
<b>Streets and services</b>		
Mixed use neighborhood.	3	3
Community services.	2	3
Accessibility	1	3
Local parking facilities, public transport.	3	1
Walkable streets with good sign system which encourage pedestrian activities such as street vendors	2	3
The presence of squares, parks, services, shops, recreation facilities and play areas in their right place.	1	3
<b>Total 18</b>	<b>13</b>	<b>16</b>
<b>Percentage</b>	<b>67%</b>	<b>89%</b>
<b>Buildings</b>		
Identifying population density.	2	2
Length of residence.	3	1
The presence of affordable housing.	2	3
The respect of building lines and existing window proportions and solid to void relationships.	1	3
Continuity of building frontage that provides encloses and definition to streets and spaces	1	3
Sense of human scale in high rise buildings.	1	1
The lower floor should be differentiated architecturally.	1	3
<b>Total 21</b>	<b>11</b>	<b>16</b>
<b>Percentage</b>	<b>52%</b>	<b>76%</b>
<b>TOTAL 57</b>	<b>33</b>	<b>46</b>
<b>Percentage</b>	<b>58%</b>	<b>80%</b>

Smouha neighborhood has 80% of quality of total built environment physical attributes. Based on the observation, the main problems or challenges in this neighborhood is the presence of cars congestion, huge buildings that do not respect human scale, length of residence and the neighborhood does not have a unique character. Bakos neighborhood has a percentage of 58%; it is a lower percentage than Smouha. The main problems of this neighborhood are the decrease of aesthetics pleasantness,

harmony, walkable streets, continuity in buildings and the maintenance of streets and services. The two neighborhoods have the problem of cars crowding and the huge number of informal buildings with no respect of human scale (table 3). A correlation has been done to examine the significance of physical attributes. The result was a significance of  $p \leq 0.05$  to the majority of the physical attributes (built environment) with sense of community (table 4).

**Table 5 Correlation Between Sense of Community And Physical Attributes (By Researchers)**

Physical attributes	Sense of community	
	R <sub>s</sub> (11)	p
The presence of major attractions in the neighborhood	.	.
Aesthetic pleasantness	0.175**	0.006
Encourage the participation of artists in detailing of buildings	-	-
Harmony	0.175**	0.006
The architecture style is well connected to the past	-	-
The presence of local and unique characteristics	-	-
Mixed use neighborhood	-	-
Community services	0.175**	0.006
Accessibility	0.175**	0.006
Local public parking and public transportation	0.175**	0.006
Walkable streets with good sign system which encourage pedestrian activities such as street vendors	0.175**	0.006
The presence of squares, parks, services, shops, recreation facilities and play areas in their right place	0.175**	0.006
Identifying population density	-	-
Length of residence	0.175**	0.006
The presence of affordable housing	0.175**	0.006
The respect of buildings line, existing windows proportions and solid to void relationships	0.175**	0.006
Continuity of buildings frontage that provide encloses and definition to streets space	0.175**	0.006
Sense of human scale in high rise buildings	-	-
The lower floor should be differentiated architecturally	0.175**	0.006

(11) R<sub>s</sub>: Person coefficient

### 3.3 Multi-variate analysis:

The relationship between sense of community (dependent variable) and the various independent variables was also analyzed using a series of four models, each model adjusting for additional variables and mutually adjusting for all other variables in the respective model. The importance of this model is to present the influence of the independent variables together.

**Model 1** (demographic factors) presents a significant for only the monthly income.

**Model 2** (demographic factors and economy) presents a significance (12) for the monthly income, length of residence and economy. The sign of  $\beta$  is positive for the economy, it means that the high level of economy is significant.

**Model 3** (demographic factors, economy, history of neighborhood) presents a significance in the monthly income, the length of residence, the economy and the history. The sign of  $\beta$  is positive for the economy, it means that the high level of economy is significant. In the case of

the history, the sign is negative; it means that the old neighborhood is significant.

**Model 4** (demographic factors, economy, history of neighborhood, built environment) presents a significance for the monthly income, length of residence and the built environment.

This result might be strange in model 4 because in the final model economy and the history of place were not significance, it did mean that there were not important for sense of community but each one could be important and efficacious individually but all this variables missed the influence of each of them and it is not clear in the case which one of them caused the high or low sense of community. To proof this result a linear regression model has been done for each of the three independent variables apart and they were significant (table 5). Finally, the weight of the independent variables dependent on the value of  $\beta$  can be ordered in descending order like that the built environment then the history of neighborhood after that the economic level of the neighborhood.

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**Table 6 Linear Regression Model To Illustrate The Significance Of The Independent Variables (By The Researchers)**

Independent variables	$\beta$	t	p	R <sup>2</sup>	F	p
<b>Economy</b>	0.314	5.131*	<0.001*	0.098	26.326*	<0.001*
<b>History of Neighborhood</b>	-0.314	5.131*	<0.001*	0.098	26.326*	<0.001*
<b>Built environment observation</b>	0.314	5.131*	<0.001*	0.098	26.326*	<0.001*

**Table 7 Multivariate Analysis Linear Regression Models (By The Researchers)**

	Model 1		Model 2		Model 3		Model 4	
	$\beta$	p Value	$\beta$ (16)	p Value	$\beta$	p Value	$\beta$	p Value
<b>Age</b>	0.062	0.413	0.018	0.807	0.018	0.807	0.018	0.807
<b>Have children</b>	-0.038	0.626	-0.053	0.479	-0.053	0.479	-0.053	0.479
<b>Your current residence</b>	-0.078	0.238	0.021	0.760	0.021	0.760	0.021	0.760
<b>Level of education</b>	-0.068	0.390	-0.102	0.178	-0.102	0.178	-0.102	0.178
<b>Current employment status</b>	0.004	0.965	0.043	0.586	0.043	0.586	0.043	0.586
<b>Monthly income</b>	0.162	0.006*	0.208	0.007*	0.208	0.007*	0.208	0.007*
<b>How long have you lived in your current residence</b>	-0.183	0.015	-0.207	0.004*	-0.207	0.004*	-0.207	0.004*
<b>Previously moved from another neighborhood</b>	-0.113	0.119	-0.103	0.137	-0.103	0.137	-0.103	0.137
<b>Economy</b>	-	-	0.311	<0.001*	0.301	<0.001*	0.142	0.085
<b>History of Neighborhood</b>	-	-	-	-	-0.412	<0.001*	-0.158	0.128
<b>Built environment observation</b>	-	-	-	-	-	-	0.327	<0.001*
<b>R<sup>2</sup> (13)</b>	0.070		0.149		0.149		0.149	
<b>F (14)</b>	2.027*		4.193*		4.193*		4.193*	
<b>P (15)</b>	0.044*		<0.001*		<0.001*		<0.001*	

Based on the survey result, the residents' comments, the researchers observation and the statistical analysis; a comparison between the two neighborhoods has been done to identify their problems (the current situation) and present some recommendations about the significant physical attributes in order to increase the sense of community in each neighborhood.

(12) Sig.: "Significance", statistical significance is attained whenever the observed p-value of a test statistic is less than the significance level defined for the study.

(13) R<sup>2</sup>: in statistical analysis, it is the percentage of the results predictions.

(14) F: if it is significant it is mean that this model is acceptable mathematically and we can count on it.

(15) P-Value: Most authors refer to statistically significant as P < 0.05 and statistically highly significant as P < 0.001 (less than one in a thousand chance of being wrong).

(16)  $\beta$ : the regression beta coefficients, can be negative or positive, as the slope of a line, if the beta coefficient is sufficient, examine the sign of the beta.

Neighborhoods	Characteristics (the current situation)	Recommendations for planners and decision makers
<b>Smouha</b>	This neighborhood has some advantages: 1. The presence of affordable housing. 2. The respect of buildings line, existing windows proportions and solid to void relationships. 3. Continuity of buildings frontage that provide encloses and definition to streets space 4. The lower floor should be differentiated architecturally. 5. Community services.	Smouha has a sufficient number of affordable and new buildings which respect the aesthetics proportions. However, it is worth mentioned that the neighborhood should has a special character or identity.
	Smouha has several entrances (figure 2) and it is accessible but it lacks of local public parking and public transportation. Also, the presence of cars crow ding; squares and green areas aren't for the social interaction of residents.	Settings, places and elements need to be made easily accessible and the presence of good network of public transportation, so as to reinforce their common significance and foster shared sense of place.
<b>Bakos</b>	The lack of harmony in buildings and aesthetics pleasantness (figure 3), the presence of informal high rise buildings.	Buildings in the same place should respect the concept of harmony and human scale.
	Length of residence, it is an old neighborhood. The old history of place is a significant variable which is increase the sense of community. However, Bakos didn't protect its local characteristics with the huge number of informal high rise buildings.	The special character of places needs to be emphasized, in order to foster place attachment. This approach might also increase the variety of locale-specific experiences in a city, and serve to limit the uniform blandness of built forms that would otherwise decrease their ease of recognition or interpretation.
	The lacks of squares, parks, recreation facilities and play areas in their right place.	Settings should be designed to enable and facilitate the activities that people plan to execute within them. This highlights the need for participative planning, in order to identify potential users' needs, preferences, and intentions.
	The presence of community services.	The maintenance of community services to be effective and useable for the neighborhood residents.

#### IV. CONCLUSION

At the end of the research, sense of community is an idea or approach related to several variables. In this study, it was influenced with length of residence, monthly income, physical attributes of the built environment, socio economic conditions (high level) and the history of place (old neighborhood). The age, number of children, employment status and level of education were not significance. The significance of sense of community domains in the survey result, in descending order, are pedestrian, community attachment and identity and social interaction. Furthermore, the built environment and social interaction influenced each other's; the built form or the community disadvantages did not encourage the resident's social interaction. Worth mentioning that this result can differentiate from a community to another because a considerable part of it is related to people psychological, memories and social interaction. The future researches should consider alternative ways of increasing the level of sense of

community by the involvement of residents in their community, encourage them and how the government can benefit of their abilities to ameliorate their community.

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