URBAN FABRICS OF HOUSING FORMS AND ITS IMPACT ON HUMAN BEHAVIOR

MONICA H. FAHIM[1,2], AHMED M. SOLIMAN[1] & DINA SAADALLAH[1]
[1]Faculty of Engineering, Alexandria University, Egypt
[2]Faculty of Engineering, Pharos University, Egypt

ABSTRACT
An individual's psychological life and their incorporation with the built environment have a remarkable relationship with urban space syntax. The scarcity of positive communication between humans and place-making is considered the core problem. This phenomenon occurs when urban designers ignore the role of humanity during the design process without taking into consideration its influence on the development of urban spaces. An individual's well-being and their quality of life are affected by the degree of residential satisfaction. Factors contributing to residential satisfaction include: (1) physical factors that could be determined in the availability of parks and facilities in the community; (2) social factors that could be determined in the feeling of belonging to a community; and (3) personal factors that could be determined in people's duration of residence and homeownership. The paper aims to examine the relations between human behavior and urban housing form through investigating the human behavior associated with the physical environment and determine the factors affecting it. The paper's assumption is that improving the quality of the space syntax will increase the residents' belonging to their built environment, in addition to enhancing their residential satisfaction. Increasing levels of sense of community, sense of belonging, and sense of place could achieve residential satisfaction. To further explain the relation between human behavior and physical built environment regarding sense of community, sense of belonging, and sense of place, the study applies its findings to a selected study area in the city of Alexandria, Egypt. The results revealed strong correlation between physical built environment and human behavior.
Keywords: human behavior, built environment, residential satisfaction, sense of community, sense of belonging, sense of place.

1 INTRODUCTION

Many communities suffer from a lack of positive communication between individuals and the place they belong to, as well as a lack of happiness. This issue arises when urban designers disregard the role of humanity in the design process and its impact on the development of urban environments. The complexities of the place can be managed through urban design and a general framework for change can be created by designing a compatible and sustainable space for users based on the events and activities that occur in it. This shows political, social, and economic transformations that occur in communities and affect individual social-development. Despite the social differences among people of the same community, it was discovered that their behaviors toward some situations are similar, which expresses their culture [1]. The degree to which a community fits a person's needs and goals is referred to as residential satisfaction [2]. The extent to which these needs are met is determined by a person's assessment of the physical, social, and personal elements provided by their community. This includes high-quality physical-environment, community services, quality of housing, interactive networks, sense of ownership and acceptance, standards and value systems [3]. Residential satisfaction is essential as community unhappiness can affect a person's psychological well-being and quality of life [4], in addition to affecting their decision to abandon the place [5]. A variety of elements that contribute to residential satisfaction have been discovered in previous studies. The importance of the physical built environment such as parks, amenities, and housing has been highlighted in multiple


WIT Transactions on The Built Environment, Vol 210, © 2022 WIT Press
www.witpress.com, ISSN 1743-3509 (on-line)
doi:10.2495/ARC220071

researches [4]. Others have discovered social elements like belonging and social support [6] or personal considerations such as duration or residence and ownership of the home [7]. A comprehensive literature research discovered a wider range of elements that affect residential satisfaction, sense of community, sense of belonging and sense of place.

2 LITERATURE REVIEW

Literature aims at understanding relations between people and their surroundings [8]. Research shows a connection between sense of community, sense of belonging, and a sense of place through examining various ways of people's perspective towards the community, foster well-being, improve coping, form support networks, and encourage community growth [9]. The topic of residential satisfaction with its literary aspects is therefore examined and in particular the human behavior regarding sense of community, sense of belonging, and a sense of place.

2.1 Residential satisfaction

Residential satisfaction is a belief that the community satisfies personal goals and needs, and how connectivity of content and sense of community is dependent on the environment. It is a multi-dimensional system that focuses on social conditions such as membership, acceptability and the physical environment, for instance the availability of community services and the quality of housing [10]. Residents' views of the commercial, social and public services, the physical environment, the availability of opportunities and the responsibility, efficiency, and accessibility of local political decision-makers are therefore taken into account [11]. Satisfaction has been connected throughout literature with goodness and the quality of life [12]. An attempt to categorize content theories proposes two categories; content theories and process theories [12]. Content theories identified specific driving factors and needs which are favorable for satisfaction including: theory of accomplishment [13], hierarchy of necessities [14], internal–external control [15], the theory of cognitive evaluation [16], and theory of two factors [17]. On the other hand, process theories focus on dynamic thinking processes and the ways that specific behaviors and attitudes produce, including theory of drive [18]. Feelings of belongingness, community attachment, community participation, minimal fear of crime, community layout and design and housing density contribute to the experience of high levels of sense of community, sense of belonging and sense of place that lead to residential satisfaction as shown in Fig. 1.

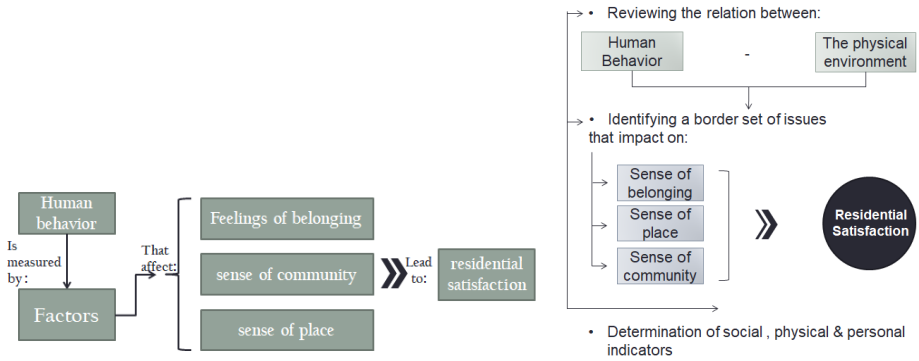

Figure 1: The relation between human behavior and residential satisfaction.

2.1.1 Sense of community

Persons with strong sense of the community believe that they can have some control over the community and be impacted by it, considering that their needs can be satisfied and met [13]. In the development of a community sense, physical, social and personal aspects have a mutual influence. Research has shown disagreement about the question of the sense of community is or has different aspects, a single, well defined concept. Because of the discussion about the basic aspects of the sense of community, a separate structure has been investigated as one of these aspects, the sense of belonging, in an attempt to understand its contribution to the sense of society. Multiple domains are mentioned in previous researches to measure the sense of community [19] presented in Table 1.

Table 1: Sense of community dimensions and it's domains [19].

Sense of community: Theoretical dimensions				
Domains of sense of community				
	Community attachment	**Community identity**	**Social interaction**	**Pedestrianism**
Primary action	Bonding with community	Identifying (with) community	Being involved in community	Knowing community
Subcomponents	Community satisfaction; Connectedness; Sense of ownership; Long-term local integration	Uniqueness; Continuity; Significance; Congruence; Cohesiveness	Neighboring; Casual social encounter; Community participation; Social support	Walkability; Pedestrian propinquity; Mass transit; Pedestrian scale/ street-level; Activities

2.1.2 Sense of belonging

People with a high feeling of membership have greater social and psychological performance, as membership offers them a sense of purpose, meaning and value [20]. The development of sense of belonging has been demonstrated by the social, physical and personal variables of participation in the community, in addition to crime fear, community layout, design, duration and marriage status [10]. When individuals feel that they belong to a community, they get more involved in it and create deep ties with others [10]. In such scenario, they feel less isolated, which leads to higher residential satisfaction as they feel that they are part of a group. There is a set of parameters in sense of belonging to place [21] as shown in Table 2.

2.1.3 Sense of place

The place is significant when it promotes a sense of goodness that unites community members and enables them to return [22]. Sense of place is a multi-dimensional structure consisting of components that increase residential satisfaction from dependency, identity and connection to each other [9]. The evolvement of feeling of place is associated with social, physical and personal elements such as community involvement, community structure, design, low crime rates and the duration of residence. The sense of place has three main domains [23] as shown in Table 3.

Table 2: The parameters in sense of belonging [21].

The parameters in sense of belonging to place				
Factors of sense of belonging				
Cultural, social and individual factors	**Physical factors**	**Background factors**	**Factor of time**	**Activity and interactive factors**
The rate of employment for social networks and cultural interaction: people's participation.	Type of access to every unit of the complex	Location position in urban areas	The length of time people is familiar with a place	Activities and interactions between humans–places
How the person is present in the place along with others.	Satisfaction from the place	How to communicate with the periphery	The rate of its use and length of stay	Activities and interactions between humans–humans
Duration of stay	Type of organization			
Life style	Geometric composition			
How to select a place	Availability of facilities			
The type of person's relationship with the place.				
Demography (age, gender, literacy)				

Table 3: Sense of place domains [23].

Sense of place domains		
Place identity	**Place attachment**	**Place dependence**
Experiences related with physical environment; Memories; Ideas; Feelings; Attitudes; Values; Preferences; Meanings and concept of behavior	Refers to the bond between people and the environment; It contains the emotional context; It is described as the affective emotional structure.	The strength of association between a person and objects; The space's ability to fulfill the needs.

3 METHODOLOGY

The study adopts a framework that is divided into several parts that aim to studying the relation between residential satisfaction and sense of community, sense of belonging, and sense of place. Firstly, it reviews previous research and literature to define the appropriate selection factors for each dimension [19], [21]. Secondly, it adopts an international urban planning guidelines [24]. Lastly, a close-ended questionnaire is designed to examine the relation between dependent variables (sense of community, sense of belonging, and sense of place) and some independent variables (built environment) in a neighborhood in Alexandria City. The selected neighborhood was relocated from an unplanned residential area that called Ma'wa El Saidin to another planned residential area with different quality of the built environment (physical attributes).

3.1 Methods and tools

Data collection: The dimensions, criteria and factors for evaluating sense of community, sense of belonging, and sense of place are selected after a thorough study of existing literature research and relevant examples. Several previous researches and studies have been invested in measuring the three senses.

3.1.1 Measuring the dependent variables

- Sense of community: Kim and Kaplan studied the physical relationship between sense of community and urban form shown in a framework for the physical and social dimensions which defines four contributing domains: (1) community attachment; (2) social interaction; (3) community identity; and (4) pedestrianism [19].
- Sense of belonging: Maleki et al. defined five main factors affecting sense of belonging: (1) cultural; (2) social and individual factors; (3) physical factors; (4) background factors; and (5) factor of time and activity and interactive factors [21].
- Sense of place: Wahyudie et al. 2021 defined three domains of sense of place: (1) place attachment; (2) place dependence; and (3) place identity [23].

3.1.2 Measuring the independent variable

The built environment is measured through an observation table of the physical characteristics of the built environment that is composed of physical components proposed by Kim and Kaplan theory, as well as built environment variables (transport, safety and danger, privacy and crowding, participation and empowerment) [25].

3.2 Statistical analysis of data

The collected data are analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp.). Qualitative data were described using number and percent. The Kolmogorov–Smirnov test is used to verify the normality of distribution. Quantitative data is described using range mean, standard deviation. Significance of the obtained results is judged at the 5% level.

The implemented tests are:

1. Student t-test, for normally distributed quantitative variables, to compare between two studied groups.
2. Pearson coefficient, to correlate between two normally distributed quantitative variables.
3. Regression, to detect the most independent/ affecting factor for affecting human behavior.

3.3 Study area

Alexandria is located in the north of Egypt and it extends from Abu-Quir Bay in the east to Borg-El-Arab in the west. It is a 90 km-long seaside city that overlooks the Mediterranean Sea. Alexandria City can be divided into the following sections: Alexandria, Borg El-Arab City, and Centre, and also New El-Arab. Alexandria is divided into six districts: Al Montaza, Sharq (east), Al-Gomrok, Al-Amreya, Agamy and Gharb (west). This study focuses on a resettlement neighborhood in the west district of Alexandria City (Fig. 2).

Figure 2: Study area geographic location, boundaries and accessibility.

These squatters formed as a result of the presence of navigators of King Mariout near them. In 1960, groups of fishermen settled in this area, built their houses there and they called it “Ma’awa El Saidin”. The government built houses for these groups, however each family made an extension to their houses which resulted in narrowing the streets. In 1964, some individuals started filling in the lake to build more houses which resulted in the diminution of the lake from 106,000 acres to 17,000 acres. Moreover, they got rid of the sewage and the industrial waste in the lake which consequently caused its pollution and the death of fish. As a result, fishermen switched to collecting rubbish and burning it which caused air pollution and the spread of lots of diseases. Nowadays, the government relocated them to another area called “Bashair El-Kher 3” with different built environment, facilities and services.

4 RESULTS AND DISCUSSION

In this section, a group of factors is selected from the main dimensions as mentioned in the literature review (Section 2.1) to measure the effect of built environment on human behavior. An online questionnaire is applied to compare the perspective of academic personnel and the residents of “Bashayer El-Khair 3” after their resettlement from “Ma’wa El Sayden” neighborhood. The following results illustrate the online questionnaire which is classified into four main parts. The respondents of the questionnaire include 54 academic personnel and 60 residents of the selected neighborhood. The demographic data of the respondents is described in details in Table 4.

Table 4: The percentage of the responses and their demographic data.

	Academic (n = 54)		Residents (n = 60)	
	No.	%	No.	%
Gender				
Male	17	31.5	36	60.0
Female	37	68.5	24	40.0
Age/Academic				
23–35 years old	29	53.7	–	–
35–45 years old	18	33.3	–	–
45–55 years old	2	3.7	–	–
55–65 years old	5	9.3	–	–
Age/Residences				
0–15 years old	4	6.7	–	–
15–30 years old	35	58.3	–	–
30–45 years old	15	25.0	–	–
45+ years old	6	10.0	–	–
Academic degree				
Demonstrator	21	38.9	–	–
Lecturer	16	29.6	–	–
Assistant Professor	13	24.1	–	–
Professor	4	7.4	–	–
Marital status				
Single never married	16	29.6	16	26.7
Married	38	70.4	33	55.0
Divorced or widow	0	0.0	11	18.3
Education/Residences				
Primary	–	–	19	31.7
Preparatory	–	–	10	16.7
Secondary	–	–	21	35.0
University	–	–	10	16.7
Income/Residences				
<500	–	–	12	20.0
500–1000 L.E	–	–	6	10.0
1000–2000 L.E	–	–	14	23.3
2000–3000 L.E	–	–	15	25.0
3000–4000 L.E	–	–	6	10.0
4000–5000 L.E	–	–	7	11.7

The following section illustrates the degree of impact of human behavior and physical environment on the selected dimensions with comparison to the respondent's answers as shown in Table 5. If $p \leq 0.05$, then there is a significant difference among the academic and residents' perspective. The statistical analysis shows a significant difference in the impact of human behavior regarding sense of community while the physical built environment doesn't show any significant difference. Following this, the physical built environment and human behavior towards sense of place shows a significant difference. Finally, the statistics clarify that the human behavior regarding the sense of belonging doesn't show any significant difference.

Table 5: Comparison between Academic and residents perspective.

	Academic (n = 54)	Residents (n = 60)	T	P
Sense of community				
Physical environment				
Mean score	3.04±0.56	3.15±0.61	0.980	0.329
Percent score	60.86±11.17	62.98±12.11		
Human behavior				
Mean score	3.59±0.71	3.26±0.83	2.298*	0.023*
Percent score	71.85±14.28	65.14±16.62		
Sense of place				
Physical environment				
Mean score	3.07±0.91	3.47±0.96	2.230*	0.028*
Percent score	61.48±18.16	69.33±19.30		
Human behavior				
Mean score	2.81±0.64	3.23±0.82	3.032*	0.003*
Percent score	56.30±12.72	64.67±16.31		
Sense of belonging				
Human behavior				
Mean score	2.99±0.43	2.88±0.59	1.072	0.286
Percent score	59.75±8.58	57.70±11.74		

t: Student t-test; *: Statistically significant at $p \leq 0.05$

In Table 6, the statistical analysis illustrates the correlation between human behavior and the physical built environment. If the Pearson coefficient (r) is positive, then the relation between quantitative variables is direct. Therefore, the physical built environment and the human behavior show a positive significant correlation.

Table 6: Correlation between physical environment and human behavior.

	Human behavior			
	Academic (n = 54)		Residences (n = 60)	
	R	p	R	P
Physical environment/Sense of community	0.603*	<0.001*	0.517*	<0.001*
Physical environment/Sense of place	0.295*	0.030*	0.658*	<0.001*
Overall physical environment	0.439*	0.001*	0.678*	<0.001*

r: Pearson coefficient; *: Statistically significant at $p \leq 0.05$

Table 7 shows a multivariate analysis regression to clarify the most effective variable on the human behavior. From the academic perspective, the physical built environment of the sense of community has the most significant regression toward the human behavior. On the contrary, the residents' physical environment of sense of place is considered the most significant regression one. According to the results of R^2 coefficient, the previous analysis could be achieved by a prediction of (0.419) for the academic and (0.465) for the neighborhood residents'. Finally, the model is validated according to significance of f p values.

Table 7: Multivariate analysis linear regression for human behavior.

	Academic (n = 54)				Residents (n = 60)			
	B	**Beta**	**t**	**p**	**B**	**Beta**	**T**	**p**
Constant	31.424		5.912*	<0.001*	40.496		10.814*	<0.001*
Physical environment/ Sense of community	0.687	0.868	5.399*	<0.001*	0.128	0.215	1.839	
Physical environment/ Sense of place	–0.172	–0.354	2.200*	0.032*	0.201	0.537	4.589*	<0.001*
R^2	0.419				0.465			
F(p)	18.398* (<0.001*)				24.760* (<0.001*)			

F,p: f and p values for the model; R^2: Coefficient of determination; B: Unstandardized Coefficients; Beta: Standardized Coefficients; t: t-test of significance; *: Statistically significant at $p \leq 0.05$

Table 8 shows the overall physical built environment multivariate analysis regression to clarify that the P is a significant value in the academic survey and in the residents survey. Also, the results of R^2 coefficient are (0.193) for the academic and (0.460) for the residence, which mean that the model is valid.

Table 8: Multivariate linear regression for human behavior.

	Academic (n = 54)				Residents(n = 60)			
	B	**Beta**	**t**	**p**	**B**	**Beta**	**t**	**p**
Constant	45.377		9.053*	<0.001*	39.339		11.685*	<0.001*
Overall physical environment	0.282	0.439	3.527*	0.001*	0.350	0.678	7.030*	<0.001*
R^2	0.193				0.460			
F(p)	12.440* (<0.001*)				49.415* (<0.001*)			

F,p: f and p values for the model; R^2: Coefficient of determination; B: Unstandardized Coefficients; Beta: Standardized Coefficients; t: t-test of significance; *: Statistically significant at $p \leq 0.05$.

In Table 9 the observation shows that "Bashayer El-Khair" neighborhood has a total score 61% of quality of physical built environment attributes. The observation of the neighborhood revealed that its main problems are the absence of aesthetics pleasantness, artistic details and local and unique characteristics. Also, it has a bad relationship between the void and solid, high rise buildings do not respect the human scale.

5 CONCLUSION

Through the investigation of literature and relevant cases, the research focused on adopting a framework to highlight the main domains and factors of the dependent variables (sense of community, sense of belonging and sense of place) as a means to measure the human behavior and the independent variable (the physical built environment). In addition to, clarifying the relation between these variables and the residential satisfaction.

A comparative analysis survey was applied among the academic and the residents' perspective. The variables were addressed by a series of questions to measure the relation

Table 9: Observation results. *(Source: Researcher adopted from Ashraf et al. [25].)*

The built environment factors		Score
Aesthetics	The presence of major attractions in the community layout and design	2
	Aesthetics pleasantness	1
	Encourage the participation of artist in detailing of buildings	1
	Harmony	2
	The architectural style is well connected with the past	1
	The presence of local and unique characteristics	1
Total 18		8
Percentage		44%
Street and services	Mixed use neighborhood	3
	Community services	3
	Accessibility	3
	Local parking facilities	2
	Public transportation	2
	Walkable streets with good sign system which encourage pedestrian activities	2
	The presence of squares, parks, services, shops, recreation, facilities and play areas in their right place	2
Total 21		17
Percentage		80%
Buildings	Identifying population density	3
	Length of residence	2
	Building lines respecting, window proportions and solid to void relationships	1
	The presence of affordable housing	2
	The respect of building frontage that provides encloses and definition to streets and spaces	2
	Sense of human scale in high rise buildings	1
	The lower floor should be differentiated architecturally	1
Total 21		12
Percentage		57%
Total 60		37
Percentage		61%

Likert scale (10): Bad or not exist = 1, Fair = 2, Good = 3.

between the human behavior and the physical built environment regarding sense of community, sense of belonging and sense of place in a selected neighborhood in Alexandria City.

The future research should aim to investigate the concluded variables within different neighborhoods in Alexandria City to compare the responses towards the same variables, which could indicate the degree of impact of different urban patterns on the human behavior.

REFERENCES

[1] Moussa, R.A., The impact of societal transformations on the urban spaces during the local festivals. *Acad. Res. Community Publ*., **2**, p. 183, 2018. DOI: 10.21625/archive.v2i3.358.

[2] Max, L., Determinants of residential satisfaction: Ordered logit vs. regression models. *Growth Change*, **30**, pp. 264–287, 1999. DOI: 10.1111/0017-4815.00113.

[3] Smith, K.M., *Edith Cowan University: Grants Register 2022*, pp. 376–377, 2021. DOI: 10.1057/978-1-349-96042-2_425.

[4] Braubach, M., Residential conditions and their impact on residential environment satisfaction and health: Results of the WHO large analysis and review of European housing and health status (LARES) study. *Int. J. Environ. Pollut*., **30**, pp. 384–403, 2007. DOI: 10.1504/IJEP.2007.014817.

[5] James, R.N., Sweaney, A.T. & Sweaney, A.L., Sources of discontent: Residential satisfaction of tenants from an internet ratings site. *Environ. Behav*., **41**, pp. 43–59, 2009. DOI: 10.1177/0013916507310031.

[6] Adriaanse, C.C.M., Measuring residential satisfaction: A residential environmental satisfaction scale (RESS). *J. Hous. Built Environ*., **22**, pp. 287–304, 2007. DOI: 10.1007/s10901-007-9082-9.

[7] Campbell, C., Foucault, psychology and the analytics of power by Hook, Derek. Basingstoke: Palgrave MacMillan, 2007 (book review). *Journal of Community and Applied Social Psychology*, **18**(6), pp. 645–646, 2008. DOI: 10.1002/casp.994.

[8] Bonaiuto, M., Aiello, A., Perugini, M., Bonnes, M. & Ercolani, A.P., Multidimensional perception of residential environment quality and neighborhood attachment in the urban environment. *J. Environ. Psychol*., **19**, pp. 331–352, 1999. DOI: 10.1006/jevp.1999.0138.

[9] Altman, I. & Low, S.M., Place Attachment, vol. 148, 1992.

[10] Grillo, M.C., Teixeira, M.A. & Wilson, D.C., Residential satisfaction and civic engagement: Understanding the causes of community participation. *Soc. Indic. Res*., **97**, pp. 451–466, 2010. DOI: 10.1007/s11205-009-9511-0.

[11] Puddifoot, J.E., Community identity and sense of belonging in a northeastern English town. *J. Soc. Psychol*., **134**, pp. 601–608, 1994. DOI: 10.1080/00224545.1994.9922990.

[12] Allen, L.R., Long, P.T. & Perdue, R.R., Relational patterns between community dimensions and global measures of community satisfaction. *J. Rural Stud*., **7**, pp. 331–338, 1991. DOI: 10.1016/0743-0167(91)90095-A.

[13] McMillan, D.W. & Chavis, D.M., Sense of community: A definition and theory. *J. Community Psychol*., **14**, pp. 6–23, 1986. DOI: 10.1002/1520-6629(198601)14:1<6::AID-JCOP2290140103>3.0.CO;2-I.

[14] Thorpe, L.P. & Schmuller, A.M., Motivation and personality. *Personal An Interdiscip Approach*, pp. 41–65, 2010. DOI: 10.1037/12225-003.

[15] Rotter, J.B., Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, **80**(1), pp. 1–28, 1966.

[16] Deci, E.L., Nezlek, J. & Sheinman, L., Characteristics of the rewarder and intrinsic motivation of the rewardee. *J. Pers. Soc. Psychol*., **40**, pp. 1–10, 1981. DOI: 10.1037/0022-3514.40.1.1.

[17] Steers, R.M. & Mowday, R.T., Introductin to special topic forum: The future of work motivation theory. *The Academy of Management Review*, **29**(3), pp. 379–387, 2004.

[18] Ryan, R.M. & Deci, E.L., Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, **25**(1), pp. 54–67, 2000. DOI: 10.1006/ceps.1999.1020.
[19] Kim, J. & Kaplan, R., Physical and psychological factors in sense of community: New urbanist Kentlands and nearby orchard village. *Environ. Behav*., **36**, pp. 313–340, 2004. DOI: 10.1177/0013916503260236.
[20] Newman, B.M., Lohman, B.J. & Newman, P.R., Peer group membership and a sense of belonging: Their relationship to adolescent behavior problems. *Adolescence*, **42**(166), 241–263, 2007.
[21] Maleki, B., Casanovas Rubio, M.D.M., Hosseini, S.M.A., De La Fuente Antequera, A., Multi-criteria decision making in the social sustainability assessment of high-rise residential buildings. *IOP Conf. Ser. Earth Environ. Sci*., **290**, 2019. DOI: 10.1088/1755-1315/290/1/012054.
[22] Tonts, M. & Atherley, K., Competitive sport and the construction of place identity in rural Australia. *Sport Soc*., **13**, pp. 381–398, 2010. DOI: 10.1080/17430431003587947.
[23] Wahyudie, P., Antariksa, A., Wulandari, L.D. & Santosa, H., Place attachment in supporting the preservation of religious historical built environment. *IOP Conf. Ser. Earth Environ. Sci*., **737**, 2021. DOI: 10.1088/1755-1315/737/1/012035.
[24] Toggia, P., International guidelines on victimization. *Encycl. Criminol. Crim. Justice*, pp. 1–7, 2013. DOI: 10.1002/9781118517383.wbeccj098.
[25] Ashraf, P., Ayad, H. & Saadallah, D., Sense of community and built environment: How can built environment, social economic conditions and history of place shape our sense of community? *Int. J. Eng. Adv. Technol*., pp. 2249–8958, 2017.