

# The Role of Neighborhoods' Centers in the Development of Urban Sustainability (Case Study: Mahmudabad Neighborhoods, Mazandaran Iran)

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**ABSTRACT:** As it is commonly understood, Urban neighborhoods play a significant role in developing urban sustainability as the smallest unit of city so that the formation and promotion of neighborhood identity, and focusing on social relationships would be in harmony with urban sustainability. It is believed that a dramatic change in spatial structure of urban neighborhood include a decline in levels of political, social and economic role of neighborhoods as long as they have had some disadvantages such as environmental pollution, marginalization, poor housing, social-psychological and cultural damages, and particularly losing spiritual and material values as well in the recent decades. To limit these disadvantages associated with communities, neighborhood centers should be designed. The purpose of this study will analyze the concept of neighborhoods and neighborhoods' centers and their effects on urban sustainability by descriptive- analytical approach and by gathering information through libraries and reviewing documents. This paper engages in analyzing components, dimensions, factors of sustainability and neighborhoods centers that integrated in the final model which characterized by practical-economic, environmental, empirical- aesthetic components; and, the validity of the used questionnaires based on factors of this model with 387 subjects (the selected sample) and the reliability of the questionnaires by using Cronbach Alpha through Bartlett Test and KMO factor at high level of 0/85 was proved. The level of significance of each component was reexamined by concerning their effects on urban sustainability. By applying multiple- regression test, the statistical outcomes reveal that designing based on environmental components have the utmost impact on neighborhoods sustainability.

**Keywords:** *Neighborhood's Centers, Sustainability, Neighborhoods, Urban Design*

## INTRODUCTION

One of the essential constituents of cities is neighborhoods that their impact on developing city is not refused. From social, political, cultural, economic and physical points of views, neighborhoods were the most impressive part of cities in Old Iranian cities that have always been direct effect on cities. The most important part of neighborhoods was the neighborhood's centers where people were gathered there to make decisions about their neighborhoods and its problems. A place which not only provide an environment for gathering neighborhoods people but also provide micro-economic, administrative, instructive environment to remind residents their memorable memories. Whereas, nowadays, neighborhoods lost their social significance and converted to a physical concept that represented itself as blocking city causing instabilities in the neighborhoods. As a

result, it would create neighborhoods in which residents do not feel a sense of belonging to it. Consequently, social disorders, lacks of sense of belonging to neighborhoods environment and physical and environmental corrosion would emerge.

## MATERIALS AND METHODS

A set of approaches has been used in the process of this fundamental and practical research. The research approach in theoretical foundation is a descriptive-comparative-analytical approach which after studying libraries documents and books related to research topic and the conceptual expression such as urban neighborhoods, neighborhood centers, brief review on the background of neighborhoods in Iran and world and common design model involve in defining some concepts such as sustainable development, sustainable neighborhood, global experiences in drawing up sustainable neighborhoods.

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After presenting the conceptual model, an analytical-inferential approach has been applied in statistical sample analysis. Field work observations, questionnaire, and library data collection method has been used for gathering data and deducing results.

## RESULTS AND DISCUSSION

### Urban Neighborhoods

Neighborhood did not have a fixed and static concept in geographical science of city (Urbanization) and other sciences such as urban planning, social science, and political science in the last century. At the present time this concept has undergone fundamental changes so that its concept and its dimensions are subjects of controversy. In fact, the term neighborhood varies in each academic scopes based on their particular basis (Williams, 1985, 30). Neighborhood or neighborhoods can be counts as the oldest and best known part of urban division providing and forming semi-public life for citizens.

Urban neighborhood as a geographical complex entity is where you call it home or shelter providing some opportunities and potential for you. Due to the lack of a single and popular definition, each neighborhood benefits from its own unique features that inspire a particular emotion in people. The concept of neighborhood can be defined in many senses such as social, psychological, mental, cognitive, physical and political dimensions presenting their particular definition. On the other hand, these definitions can vary in different communities and in different historical periods (Barton, 2003, 16). Some of these dimensions and criteria are expressed as follows in Table1.

### Neighborhoods' Centers

Neighborhoods' centers, as a core of community, have been

the site of services and commercial activities that are used by inhabitants daily or at least weekly. Neighborhood center, a geographically localized small and cohesive community within a town or larger city, increase considerable interactions among people and create a sense of belonging to urban or neighborhood and a center of the spatial units in which the elements of services occur as well (Lynch, 1997, 526).” The mentioned area characteristics are formed under the influence of many factors such as climatic and geographic features and economic potential of residents” (Soltanzadeh, 1993). In conclusion, a general definition of neighborhood center is a meeting place, neighborhood gathering, a place for spending spare time, for encouraging and firming up social bonds and initiating a sense of belonging and participating as well as providing the service needs of inhabitants daily and weekly which their main indicators are accommodating commercial cities, and sufficient space for mosque, schools, kindergarten, neighborhood parks, children play ground and sport field for teenagers that their location is determined in land use maps.

### Neighborhoods' Centers Background in Iran The Concept of Neighborhoods Centers in Iranian Historical Cities

As a community center existed in each large or average historical neighborhood, these centers can be classified physically in 2 ways. Firstly, a way that constitutes or serves as a pathway for economic and social purposes (spaces) that were wider than other paths. Secondly, small squares are often located at the crossroads or along the main road surrounding few shops for supply of essential commodities daily and weekly, as well as, mosque, baths, water storage and some other public locations

Table1: Defining criteria and dimensions of neighborhoods

The defined dimension of each neighborhood	criteria
Social dimension of neighborhood	- Social diversity (Lynch, 1997, 537); - High social interactions between residents (Lynch,1997, 321 & 526; Soltanzadeh, 1993); - Feeling a sense of belonging to environmental issue in various dimensions (Lynch, 1997 , 325) - Urban fabric with lots of social elements
Economic dimension and services of the neighborhood	- Having relative self-sufficiency (Pakzad, 1990; Lynch, 1997, 526; Soltanzadeh, 1993; Sarrafi, 1996)
Physical dimension of neighborhood	- Neighborhood components; - Neighborhood thinking and self-sufficiency of the elements resulted in the creation of economic infrastructure and services such as schools, daycare centers, food stores, pharmacies, dry cleaners, religious places like mosques and churches, post, cafe, an increase in density, number of households and availability to access these services (Ziari, 2005,50-51, 61); - Relatively homogeneous Shape and fabric (Lynch, 1997, 126,123,91; Tavasoli, 1993, 60) appearance (Lynch, 1997, 360)
Urban planning	- Relatively small region or an area or division (Lynch, 1997, 537,321; Cowan, 2005, 256)

Table 2: A brief review on the shape and system of neighborhood's center in Iranian city.

Intervals Time	Features	
Pre-Islamic times		
Early Islamic period until the end of the Qajar	From 1 to 4 century (A.H)	-Neighborhood centers as public location to meet the daily needs (Evani, 1999, 68)
	From 4 to 7 century (A.H)	.....
	From 7 to 11 century (A.H)	.....
	From 11 to 13 century (A.H)	- Squares were located at the center of neighborhood and as a core of community played a significant role in community and had influenced on the elements of locality which codifying rules and order and as a flat open place forming pathways. (Evani, 1999,83)
	From 12 to 13 century (A.H)	- At this period, old neighborhoods were remained their spatial organization that is center and communication network. Except those locate on invaded by streets around them so that different functions and neighborhood centers were designed in the side of streets. (Habiby, 1996.131)
The neighborhood system in the contemporary period	The first Pahlavi era (1304-1320S.H)	-With the construction of new streets in the city and a rupture between old cities and their social relationships, the neighborhood's streets replaced neighborhoods centers. The transformation of social activities into streets causing an increase these activities and services, and as a result included a decline in the concept of neighborhood than wider regions such as district.
	The second Pahlavi era (1320-1357S.H)	-By forming streets in modern methods in the contemporary period and by dividing old urban fabric and particularly neighborhoods led to a transition of social activities from neighborhood center to streets (Evani, 1999, 179). Consequently, the concept of community center and naturally its function lost its significance gradually; while the concept of region and district present.

where members of community tend to gather for group activities. A brief review on the shape and system of neighborhood's center in Iranian city are explained in Table 2.

### The Analysis of Contemporary Patterns in Designing Residential Neighborhoods

This section illustrates the general patterns of neighborhoods in the first half and second half of twentieth century briefly. Outcomes, the proposed solutions and the considered criteria and patterns are expressed in the Tables 3 and 4.

### Sustainability

#### The Definition of Sustainability

There are many definitions of sustainability, but the two following definitions specify the nature of this term:

A. To improve the quality of life with regard to capacity of the

environment

B. To fulfill the needs of the present without compromising the ability of future generation to meet their own needs (Sara & Navidpur, 2007)

Sustainability has wide range of dimension. Robert Cowan commentary on the concept of sustainability is related to the following topics:

To have positive impact on the environmental, social and economic conditions in subsequent years;

To become less dependent on non-renewable (energy) resources;

To reckon the capacity of supporting eco-system

To consider future generation needs;

To concentrate on the needs of people in other regions;

To improve the quality of life;

Diversity of social, cultural, biological life forms;

Table3: General patterns of neighborhoods in the first half of twentieth century (Source: Edalatibazaz, 2011)

Pattern Name	Criteria	Proposed solutions	Results
Utopian communities	<ul style="list-style-type: none"> <li>- Social Equality</li> <li>- Involvement of people</li> <li>- The spirit of cooperation</li> </ul>	<ul style="list-style-type: none"> <li>- New social order</li> <li>- Idealist form community</li> <li>- Education-training</li> <li>- Social housing</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of financial resources</li> <li>- The internal content</li> <li>- Excessive idealism</li> <li>- Failure</li> </ul>
Garden City	<ul style="list-style-type: none"> <li>- Social Equality</li> <li>- Social welfare</li> <li>- Health</li> <li>- Performance</li> <li>- The importance of family</li> <li>- The importance of living in the neighborhoods</li> <li>- Relationship with nature</li> <li>- Positive values of life.</li> </ul>	<ul style="list-style-type: none"> <li>- To develop the land around</li> <li>- Controlled growth</li> <li>- Density limitation</li> <li>- To consider natural patterns</li> <li>- Separation of functions</li> </ul>	<ul style="list-style-type: none"> <li>- The dominant ideas of the 20th century</li> <li>- The simplicity of the model over time leading to the construction of large land</li> <li>- Curved-like parks and streets</li> </ul>
Neighborhood unit	<ul style="list-style-type: none"> <li>- Social welfare</li> <li>-The importance of the family</li> <li>- Performance</li> <li>-The importance of living in the neighborhood</li> </ul>	<ul style="list-style-type: none"> <li>- Complete separation of sidewalks and streets</li> <li>- Separation of functions</li> <li>- An index of neighborhood and school center</li> </ul>	<ul style="list-style-type: none"> <li>- Similarity to the defined sub-division in Garden City patterns</li> <li>- The success of the used model and popularity in most modern cities in the world</li> </ul>
The modern city	<ul style="list-style-type: none"> <li>- Use of new technology</li> <li>- Social Equality</li> <li>- Performance</li> <li>- Urbanization</li> <li>- Functionalism</li> </ul>	<ul style="list-style-type: none"> <li>- High density</li> <li>- Tall buildings in a green environment</li> <li>- Separation of specialized functions</li> <li>- Hierarchy of access</li> </ul>	<ul style="list-style-type: none"> <li>-Use in urban centers</li> <li>- Public and collective housing</li> <li>-Very similar to the theory of Garden City</li> </ul>

Table4: the designed patterns in the second half of the twentieth century (Source: Edalatibazaz, 2011)

Pattern Name	Criteria	Proposed solutions	Results
The planned locations	<ul style="list-style-type: none"> <li>- Public green space</li> <li>- Public welfare</li> </ul>	<ul style="list-style-type: none"> <li>- To use planning controls</li> </ul>	<ul style="list-style-type: none"> <li>-To create closed communities and separation of social classes</li> </ul>
	<ul style="list-style-type: none"> <li>- The importance of living in the neighborhood</li> <li>- The importance of the quality of the physical environment</li> </ul>	<ul style="list-style-type: none"> <li>- Unique and harmonious designing</li> <li>- Possession</li> </ul>	<ul style="list-style-type: none"> <li>- Privatization of public aspects of indoor and isolated areas</li> </ul>
New traditional neighborhood	<ul style="list-style-type: none"> <li>- Social Equality</li> <li>- Public welfare</li> <li>- The importance of living in the neighborhoods</li> <li>- Sidewalks orientation</li> <li>- Emphasis on the traditions of the past</li> <li>- Emphasis on beauty</li> <li>- Drawing based on determined criteria</li> </ul>	<ul style="list-style-type: none"> <li>- Compound application</li> <li>- An increase in density</li> <li>- The patterns of compound housing</li> <li>- Applying standards of urban living</li> <li>- Develop design criteria</li> </ul>	<ul style="list-style-type: none"> <li>- The dominant ideas of the 20th century be in harmony with neighborhoods conditions</li> <li>- Being successful in Business Marketing of Housing</li> <li>- Excessive attention to the considered structural elements of affluent social classes</li> </ul>
Public transportation-oriented neighborhoods	<ul style="list-style-type: none"> <li>- Social Equality</li> <li>- Public welfare</li> <li>- The importance of living in the neighborhoods</li> <li>- Pedestrian zone by focusing on public transportation</li> <li>-Being in harmony with regional strategies</li> </ul>	<ul style="list-style-type: none"> <li>- Compound function</li> <li>- Relative increase in density</li> <li>- The compound patterns of housing</li> <li>- Compliance with regional ties</li> <li>- Hierarchy of access</li> <li>- Pedestrian- oriented design</li> </ul>	<ul style="list-style-type: none"> <li>- The adaptation of old ideas to present conditions</li> <li>- Success in the housing market</li> </ul>
Urban village or Pedestrian-oriented neighborhoods	<ul style="list-style-type: none"> <li>- Urbanism</li> <li>- Social Equality</li> <li>- Public welfare To consider neighborhoods</li> <li>- Pedestrian-oriented design</li> <li>- To involve in rural positive characteristics</li> <li>- To focus on tradition</li> </ul>	<ul style="list-style-type: none"> <li>-Local style</li> <li>- Compound functions</li> <li>-Relative increase in density</li> <li>-To apply compound pattern of housing</li> <li>- Rural features</li> </ul>	<ul style="list-style-type: none"> <li>-Acceptable housing condition</li> <li>-The risk of focusing on pattern as designing elements merely physically</li> </ul>
Targeted Growth	<ul style="list-style-type: none"> <li>- Social Equality Welfare</li> <li>-To consider neighborhoods</li> <li>- To focus on the current fabric</li> <li>- To preserve cultural-historical identity</li> </ul>	<ul style="list-style-type: none"> <li>- Compound application</li> <li>- Increase in density</li> <li>-To use existing buildings</li> <li>-To restore and renew the available buildings</li> </ul>	<ul style="list-style-type: none"> <li>-To preserve valuable buildings and fabrics</li> <li>-To renovate buildings based on the approved plan</li> </ul>

To corporate social responsibilities and rights of residents;  
To gain economic, social and cultural independence at neighborhoods and global levels;

To preserve the acceptable balance between influencing factors such as economic, social, and environmental factors.

Since the advent of sustainability science, the study of sustainable development increased.

However, the definition of sustainability is hotly contested and debated. In sum, the three pillars of sustainability or triple bottom line have remained.

Environment;

Economy; and

Society (Jafari & Ghorbani, 2013).

Environmental sustainability is defined as the quality of being in a place (neighborhood) where the physical arrangement/design and ecological attributes are capable of providing for and supporting the existence of a healthy environment for the society and surrounding habitat.

Economic sustainability is defined as the quality of being in a place (neighborhood) where resources are efficiently used, economic capital is provided and maintained, and human capital is utilized.

Social sustainability is defined as the quality of being in a place (neighborhood) that is capable of providing and maintaining, for social capital, quality of life (equity of access to key services), safety, cohesion and cultural integration, and participation of citizens. (Teriman et al, 2010).

### Sustainable Development

In 1960s, the physical (or natural) capital was deemed as the utmost important factor in the growth and development of the country. In 1970s, some countries for example Japan- with low physical capital- the natural capital were progressively converted to man-made capital as the engine of growth. For Robert Putnam, social capital is a set of concepts consisting trust, norms, communication networks between the members of the community. Social capital functions as a tool to achieve political and social developments in different political systems. Among the components of social capital, he continues to advocate a more push towards trust. Generally, social capital includes some elements such as trust, honesty, a spirit of cooperation, having tendency to participate in civic scopes, works ethics, discipline and striving (Dehghani, 2009). Indeed, sustainable development is a process including improve in the quality of economic, social and natural capital which direct people toward the path of productive and reconstructive life to fulfill the mission of sustainability. The sustainable developed cities according to environmental and native conditions of the region have their own special indicators and it can be said that special dimensions of every city have been studied in city development. However, sustainability has multidimensional concepts and a city is called sustainably developed that is developed sustainably from all its dimensions; but it is not so, and thus, special aspects of every city is sustainably developed

and its indicators have been introduced in that field ( Faramarzi Asli & Mofidi Shemirani, 2011).

### Sustainable Neighborhood

There are different approaches that tackle the application of sustainability to neighborhoods. Among these approaches, stands both social and ecological as two different but integrated perspectives. Regarding the social perspective, the overlapping area of both the terms ‘neighborhood’ and ‘community’ could be used to understand the definition that the Egan Review (2004) report ‘Skills for Sustainable Communities’, develops. It highlights sustainable communities as those which “meet the diverse needs of existing and future residents, their children and other users, contribute to a high quality of life and provide opportunity and choice. They achieve this in ways that make effective use of natural resources, enhance the environment, promote social cohesion and inclusion and strengthen economic prosperity”. It concludes that there are seven components of sustainable communities drawn from this definition; governance; transport and connectivity; services; environment; economy; housing and the built environment; sociology and culture. From another stand point, Hugh Barton (1996) gives a different approach based on the ‘Ecological Perspective’. He asserts that “One way of approaching the problem of sustainable design is to see each development as an organism or a mini ecosystem in its own right”(Barton et al., 1996). Regarding this point of view, a neighborhood is an ecosystem in the sense that it provides the essential local habitat for humans, creating its own microclimatic conditions, and should provide as far as possible for their comfort and sustenance. Neighborhood as an Eco-system is shown in Fig.1 that Barton expressed (Al-Hagla, 2008). Every human activity, such as building the environment, takes place in one or more ecosystems. Establishment and continual sustainability of complex environmental ecosystems requires coexistence and balanced relations of their elements with each other and also with larger environments (Barghjvelh & Sayad, 2011).



Fig. 1: Neighborhood as an Eco-system. (Source: Barton et al, 1996)

Table5: Global experiences in designing sustainable neighborhood

Year	location	Goal	Dimension	Proceedings	
1996	Village homes Davis	sustainability	Practical-economic	Structure	<ul style="list-style-type: none"> <li>- Most of buildings incorporate in a set of 8 apartments which this building cluster connected to public spaces</li> <li>- Surface water is collected and used for irrigation of green spaces</li> <li>- Access to roadway only through back of building</li> <li>- Bike path and pedestrian path way designed in a way to encourage walking</li> <li>- The district comprises 222 single family houses and 21 apartments</li> <li>- Common services such as public green space, public gardens, laundry and edible landscape</li> <li>- Neighborhood streets located in east-west and houses located in north-south sides</li> </ul>
				Activity	<ul style="list-style-type: none"> <li>- 4000 square feet dedicated to commercial space</li> <li>- Local commercial space portrayed mainly in the central of neighborhood</li> </ul>
				Environmental	<ul style="list-style-type: none"> <li>- The open space between houses and fruit trees are grown and used by residents</li> </ul>
				Empirical-aesthetics	<ul style="list-style-type: none"> <li>- Neighborhood center poses facilities and services such as recreational and cultural facilities, for example swimming pools and sports halls, community space for holding events, large playground, public services such as schools and health care and commercial space.</li> <li>- Public spaces and collective spaces are designed in different parts of the neighborhood</li> <li>- Public spaces for people to communicate with each other.</li> <li>- The different groups of people</li> <li>- Public participation and Europe Union constitution to provide capital and operational costs to activities</li> </ul>
2001	South East False Creek, Vancouver, Canada Area	sustainability	Empirical-Practical	structure	<ul style="list-style-type: none"> <li>- Sustainable construction</li> <li>- The use of water from the roof and rainwater for irrigation the neighborhood parks</li> <li>- High density residential diversity</li> <li>- To create a network of pedestrian and bike path to connect to daily shop centers</li> <li>- To emphasize on the hierarchy of streets</li> <li>- Relaxation in the management of neighborhoods narrow streets</li> <li>- The plan is provided for a population of 100000, about 6500 housing</li> <li>- A diverse range of housing including houses, villas, apartments and public housing</li> </ul>
				Activity	<ul style="list-style-type: none"> <li>- To remove in compatible application with the neighborhood(industrial)</li> <li>- A wide range of business and occupation in the neighborhood leading a variety of incomes and as a result a diverse range of housing in the neighborhood</li> </ul>
				Environmental	<ul style="list-style-type: none"> <li>- Drawing up neighborhoods parks and green areas on the margin of the streets and as garden in houses</li> <li>- Maintaining a visual and physical connection between the water pipes, green areas, and the height of buildings, etc.</li> </ul>

Table5: Global experiences in designing sustainable neighborhood

Year	location	Goal	Dimension	Proceedings
			Empirical-aesthetics	<ul style="list-style-type: none"> <li>- Participation of all walks of life</li> <li>- Planning for providing all facilities in the neighborhood Center</li> <li>- Considering the heritages of neighborhood and serve as public buildings</li> <li>- An increase in social interactions through social facilities, neighborhoods exhibitions, art galleries, performing a variety of programs for different age groups, different ceremonies</li> </ul>
(2010-2014) 2009	Exit planning process, Perth, Australia	sustainability	Economic-Functional	<ul style="list-style-type: none"> <li>- Developing the inner parts of city</li> <li>- Entailing a wide range of housing types such as green areas or revived communities</li> <li>- Sustainable transportation such as sidewalks, public transportation systems, the use of shared cars</li> <li>- Electric vehicles</li> </ul>
			Activity	<ul style="list-style-type: none"> <li>- Providing facilities and neighborhoods services such as schools, recreation centers, social, business and services in the neighborhood which be available for all citizens</li> </ul>
			Environmental	<ul style="list-style-type: none"> <li>- Designing efficient building to produce the required energy and sustainable materials</li> <li>- To save cold and warm atmosphere in the building</li> <li>- Proper use of water resources and sustainable sources of energy</li> <li>- Local green space through the construction of neighborhood park</li> <li>- Local recycling</li> <li>- The use of technology in the construction buildings and neighborhood such as storing wind energy</li> <li>- Solar energy in buildings</li> </ul>
			Empirical-aesthetics	<ul style="list-style-type: none"> <li>- The different groups of people</li> <li>- Planning for providing all facilities in the neighborhood Center neighborhood,</li> <li>- Given the legacy of the neighborhood and used for public buildings</li> <li>- Increased social interaction through social facilities) local exhibitions, art galleries, performing a variety of programs for different age groups, different ceremonies</li> </ul>
(2006-2009) 2006	Planning for improving quality, Glasgow, Scotland	Enhancing sustainable neighborhoods	Economic-Functional	<ul style="list-style-type: none"> <li>- The program was conducted in four districts</li> <li>- Improve the quality and appearance of the facade of abandoned buildings or other unplanned building and landscape surrounding them</li> <li>- Availability of open space for all residents</li> <li>- Expanding pedestrian and bike paths</li> <li>- Creating or improving access routes to the open spaces of residential areas</li> <li>- Portraying particular routes for the physically disabled in the neighborhood</li> <li>- Developing attractive and safe relationship between bicycle and pedestrian areas and public areas e.g. Regional shopping centers, schools and neighborhoods facilities</li> </ul>
			activity	<ul style="list-style-type: none"> <li>Development of facilities and services for neighborhoods residents</li> </ul>

Table5: Global experiences in designing sustainable neighborhood

Year	location	Goal	Dimension	Proceedings
(2006-2009) 2006	Planning for improving quality, Glasgow, Scotland	Enhancing sustainable neighborhoods	Environmental	<ul style="list-style-type: none"> <li>- Development of green space throughout the neighborhood</li> <li>- Creating safe and clean open spaces that are visually appealing</li> <li>- Using sustainable materials in the building</li> </ul>
			Empirical-aesthetics	<ul style="list-style-type: none"> <li>- Improving the quality of neighborhoods street lighting, redesigning marginal landscapes, applying patterns for many urban neighborhoods furniture</li> <li>- Improving compatibility of public areas such as parks or public buildings with culture and identity of neighborhood</li> <li>- Variety of programs and activities for youth in the community to recognize their talents and capabilities</li> <li>- Making opportunity to increase the use of open spaces for social and recreational activities for residents to reduce social abnormalities and green open spaces (such as crime) with appropriate design</li> </ul>

For Robert Cowan, sustainable neighborhood is characterized by a place having a human-scale buildings and spaces, a set of neighborhoods streets and squares, a combination of neighboring mixed use (application) for increasing the vitality of streets and landscapes, or a place providing facilities and daily services, having less negative effect on eco-system, creating a sense of belonging to neighborhood, encouraging people to social responsibility toward their neighborhood (Cowan, 2005, 387). It should be noted that there is no ultimate definition for sustainable neighborhood. In other words, the concept of sustainable development at its neighborhoods scale is still not defined explicitly and its dimension do not have analyzed and studied seriously (Azizi, 2006).

An important consideration is that lacks of clear definitions may stem largely from spatial, cultural, social, economic diversity in each nation. More narrowly, as each location have its particular features and unique structures and unique individual opportunities, a certain definition of neighborhood sustainability is not offered. What is more, the term sustainable neighborhood is credited to those locations in which people live in the present and future time and engage in improving their life quality through cooperation. To put it simply, the quintessential features of sustainable neighborhood are its security, well-designed planning, equal opportunities and appropriate services for all walks of life. Many principles and standards have been designed and analyzed in the sustainable neighborhood issue such as identity, vitality, dynamism, adaptation, diversity and capacity of neighborhood (Azizi, 2006). In the next section, the standards of sustainable neighborhood will illustrate. Global experiences in designing sustainable neighborhood are expressed in Table 5 and shown the goal and dimensions of them.

### Presenting the Conceptual Model

Koorosh Golkar suggests “the model of sustainable location” based on Counter model that have been applied in the above research for studying this considered model. According to the posed model “the sustainable location” of Golkar, the quality of urban design can be considered as a result of three forces (components) consisting the quality of performance, the quality of empirical-aesthetic, the quality of environmental of cities (Golkar, 2000). The table 6 expresses the conceptual model compounding two concepts: sustainability and neighborhoods’ center as follows in Table 6.

### Understanding the Studied Region

Mahmudabad city, one of the coastal cities of Mazandaran province, attracts many tourists because of the adjacency to the coastal and forest border in the immediate vicinity of the city every year. This mentioned area is the centered part of forming city which having active multiple functions such as mosque, shrine, markets, many governmental offices, schools and retails stores. The strong religious, historical, economic background leading citizens to spend their spare times well.

The outcomes of such analysis reveal that it is still one of the main social interaction center (part) of the city retrospectively; however, it is observed that some problems such as physical corrosion of urban texture, difficulties in controlling urban transportation including a decline in the levels of neighborhood centers significance, and; consequently, reducing social capital. Hence, to achieve more efficiency in improving the quality of public environments and as a result improving the life quality and its influence on the development of the city for providing sustainability development of the considered city in order to examine the accuracy and effectiveness, each of determined components have been selected as a case study in the conceptual model by authors.



Table 6: the conceptual model compounding two concepts: sustainability and neighborhoods' center

Component	Dimension	Factors	The evaluation method
	structure	<p>Visual and physical permeability;            Balance ratio of mass and space (aggregation applications);            A variety of structures (the structure of historical and modern and mix of housing types e.g. villas, apartments and social housing);            Upgrade the perspective and landscape of city (visual proportions: the sky, visual weight, visual and spatial continuity and coherence, visual appropriate details: openings, floor fitting, street corners, Closed fit);            The proportion of semiotic elements;            The emphasis on quality in performing / local material products / Maintenance;            Being in accordance with local models.</p>	Questionnaire
	Activity	<p>Application</p> <p>Diversity in application in terms of practical types and scale;            Diversity in scheduling activities and 24 hours applications;            The possibility of non-continuous activity;            The creation of public spaces and public life (providing places to sit/wait/see, be seen;            Carrying out festivals, cultural gatherings, activities;            Arts and popular activities (street heather);            Compatible land uses.</p>	Questionnaire
		<p>Accessibility</p> <p>The prominent of pedestrians to vehicles            The appropriate accessibility of activities (public transportation, bicycle route)            Observethe hierarchy of streets</p>	Questionnaire
Environmental	Structure (environmental comfort)	<p>Climatecomfortin designing (physical safety: shading and creating a microclimate)            PublicWelfareequipment (Urban furniture, mug)</p>	Questionnaire
	Eco-system	<p>A compatible design with nature (use of appropriate green landscape);            Cleaningtheurban environment (reducing acoustic and visual pollution);            The use of local materials.</p>	Questionnaire
	Activity (objective perception)	<p>A sense of safety (suitable lighting at night);            Sensory richness;            Identity;            Vitality;            The physical perception;            Sense of belonging to place.</p>	Questionnaire
	Significance (subjective perception, imagination)	<p>Memorabilia;            The intimate relationship between natives and tourists.</p>	Questionnaire

## CONCLUSION

Evaluating the Effectiveness of the Components of the Conceptual Model for Designing Neighborhood's Centers on Neighborhoods Sustainability

As noted, three components including practical-economic, empirical-aesthetic, environmental components are considered as influential factors in the remarkable function of neighborhood's centers in order to provide neighborhoods sustainability which has been elaborated in the theoretical framework of the research.

In line with this analysis, a questionnaire is compiled based on the conceptual model-for evaluating each dimension, criteria of each component- in which asked inhabitants to answer the posed questions. In fact, researchers can take advantages of citizen's opinions (social capital) in designing the considered area to examine the sustainability of neighborhood center and its function in community by applying the questionnaires. Thus, at first the validity and reliability of the questionnaire was evaluated so that in analyzing its validity the conceptual validity approach is used. To accomplish this, the questionnaire is studied and investigated by some experts and scholars and its validity is confirmed.

What is more, to estimate the reliability of the questionnaire the Cronbach alpha is applied in which the outcomes of such analysis reveal that the reliability factor is equivalent to 0.85 that is acceptable. The Cronbach formula with the reliability factor of 85% is used to estimate the sample size, and 387 subjects are selected randomly. In inductive sense, to analyze the effectiveness of each components the significance and generalization each of them is examined by applying T-test that in which all variables can be generalized to the statistical population at a high level and a multiple regression was used as well. The regression analysis makes it possible to predict changes in dependent variables through independent variables and to determine the proportion of each independent variable in specifying dependent variables. Therefore, to apply statistical method for analyzing the effectiveness of components, the correlation coefficient of each variable is satisfied by using Pearson's coefficient of correlation. The result of this statistical approach and the related test illustrates in Table 7.

The above table shows that each of the variable having high level of significance with neighborhood sustainability

by emphasizing on neighborhoods centers. Thus, it can be concluded that there is a direct relationship between designing neighborhood centers in creating sustainability of neighborhoods and each of variable. To narrow down the statement, the neighborhoods' sustainability would improve by increasing the quality of each variable. For redesigning neighborhoods centers, it can be benefitted from economic benefits.

To investigate the synchronous impact of the three components for designing communities' centers in the process of creating sustainability, the multiple-regression test is used. The obtained results of multivariate regression analysis and its related variance test are illustrated in Table 8. It may be important to confirm that the results of variance analysis suggest the statistical significance of Considering the outcomes of regression analysis, the effect of the functional-economic, empirical-aesthetic, environmental components on designing neighborhoods centers is significant for neighborhoods sustainability ( $\text{sig} < 0.05$ ). Moreover, the environmental variable have the most effect on sustainability based on the standardized regression coefficient values ( $\text{Beta} = 0.38$ ). The empirical-aesthetic component is the second considered variable based on Beta weights, as long as, it's Beta or the standardized coefficient is equal to 0.37 which means an increase in neighborhood sustainability by improving the empirical-aesthetic quality. The third studied variable is functional (practical)-economic component depending Beta weight, its Beta is 0.16 means increasing the improvement of the practical component quality would ascend neighborhoods sustainability which can be profited from economic, social, cultural benefits in order to draw up the neighborhood centers.

According to the obtained results of tests conducted by the authors in Table 8 and confirming the accuracy of the compiled conceptual model to distinguish the impact of drawing up neighborhood centers on increasing neighborhood sustainability, it seems that the environmental component remains the most prominent topic than empirical-aesthetic and practical components respectively. By enhancing these components, the level of sustainability of neighborhood would improve remarkably; therefore, to brought down a more sustainable neighborhood and as a result civic sustainability,

Table7: coefficient of correlation and its analysis to examine the relationship between variables

The considered relationship	Functional-economic component and neighborhood sustainability	Empirical-aesthetic component and neighborhood sustainability	The environmental component and neighborhood sustainability
Pearson	0.62	0.71	0.61
Significance level(Sig)	0.00	0.00	0.00

Regression ( $f = 339.049$ ,  $\text{sig} < 0.05$ ).

Table 8: applying multivariate-regression test to estimate the synchronous impact of independent variables (practical, empirical-aesthetic, environmental) on dependent variable of sustainability

variable	B	SE(B)	Beta	T	Sig
Functional–economic component	0.432	0.036	0.362	11.868	0.00
Environmental component	0.308	0.024	0.384	13.063	0.00
Empirical- aesthetic component	0.320	0.028	0.376	11.472	0.00
A fixed number(constant)	0.056	0.119		0.471	0.63

F= 339.049 sig=00.0

various factors (or indicators) of environmental, empirical-aesthetic and practical dimension should be applied. To construct such buildings as being compatible with nature, to use local material, to draw up designs based on public culture and beliefs, to provide clean and natural spaces, to create a microclimate and public locations for gathering people in neighborhood centers can get a sustainable eco-system to achieve high and sustainable rates of social, economic, physical (structural), environmental growth.

In overall, these factors may reinforce the sense of belonging, collective memories, identity, and neighborhoods' centers become accentuate leading people to feel sense of identity. These factors also lead to the creation of beautiful landscape since reinforce a sense of participation among citizens to encourage them to preserve and to take care of neighborhoods perspectives. As Man makes the city, its structure has some impact on human being life causing the development of urban spaces which consequently hinge upon cities and neighborhood sustainability

## ENDNOTES

1. Kaiser-Meyer-Olkin

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