International Journal of Research in Humanities and Social Studies
Volume 2, Issue 7, July 2015, PP 42-54
ISSN 2394-6288 (Print) & ISSN 2394-6296 (Online)

Analysis of the Street Shaping up Trend and Its Architectural Change in Western Region of Iran (1921-1978)

Case of Study: Kermanshah, Hamedan and Sanandaj Cities

[1]Ali Alaei*, [2]Hossein Soltanzadeh, [3] Kaveh bazrafkan, [4] Shadi Azizi

[1]Ph.D. Student, Department of Architecture, Faculty of Art and Architecture, Central Tehran Branch, Islamic Azad university, Tehran, Iran.
[2]Associate Professor, Department of Architecture, Faculty of Art and Architecture , Central Tehran Branch, Islamic Azad University, Tehran, Iran.
[3]Assistant Professor, Department of Architecture, Faculty of Art and Architecture , Central Tehran Branch, Islamic Azad University, Tehran, Iran.
[4]Assistant Professor, Department of Architecture, Faculty of Art and Architecture , Central Tehran Branch, Islamic Azad University, Tehran, Iran.

ABSTRACT

The street is considered as one the main ingredients in forming cities which its shaping up trend is affected by different factors as: system of governance (political), cultural, social and economy ingredients, etc. This effect has been more evident during first and second Pahlavi Governments. In other words, Pahlavi architecture order during Reza Shah's two decades of monarchy (1925-1941), the Iran government had been the determinant of architecture order along with modernity login (with the purpose of modernism), most of the projects were built by western orders while by the policy of linear and cruciate organizing of streets created new context beside the old one. This situation caused disturbance of traditional context structure and connectivity network of some important ingredients such as market, main mosques and etc. This paper has been done by descriptive-analytical method for analyzing of the street shaping up trend and its architectural change in western region of Iran, emphasizing on Modarres street in Kermanshah, Ekbatan and Baba Taher streets in Hamedan and Enghelab and Ferdosi streets in Sanandaj city. For analyzing of shaping up trend and architectural change in selected streets we have used 13 indexes of street architecture as the amount of urban openness, circulation, mental- emotional dimension, quality and compatibility, aesthetic, functional and physical hierarchy and functional and physical localization, the amount of green spaces, common functional dimension, physical pure and impure density, skyline, transferring of semantics and aesthetic concepts and the level of social security. Street architectural indexes have been assessed in selected streets in three consecutive period of time as 1921-1941, 1941-1961, 1961-1978 for assessing of their architectural changing trend. This research analytical data have been gathered through field method and using questionnaire for assessing of street shaping up trend and architectural change in case of study. In this regard, we have used thirty people's views within study domain related experts. For analyzing of gathered data we have used the method of similarity to FUZZY Ideal Option (FTOPSIS). Findings show that changes and shaping up situation of street architectural indexes between 1941-1961 in selected streets have been appropriate according to expert views and by 0.553 similarity FUZZY index have the most analytical FUZZY weight; this is while, during 1961 and 1978 we can see the most changes in thirteen architectural indexes in selected streets according to expert views and considering similarity indexes of 0.521 for it.

Keywords: Street Architecture, West of Iran, Similarity to FUZZY Ideal Option, Kemanshah, Hamedan, Sanandaj

INTRODUCTION

Cities are like living organisms going through constant change and transformations (Erinsel Onder et al, 2009). The concept of the street as a physical and social part of the living environment, as a place simultaneously used for vehicular movement, social contacts and civic activities, has long been

Address for correspondence:
Alia_archi@yahoo.com

argued by many authors such as Kevin Lynch, Jane Jacobs and J.B. Jackson (Tolley, 1990). The street pattern also provides the matrix for the layout of urban basic services, mainly energy, water supply and sanitation, drainage, transportation, parking slots and other services. The affordability of these urban services is related also the quality of street patterns (Clos, 2013). During recent decades life styles and residential patterns and shaping up of public and private spaces in cities have been changed of social, cultural and even economy (Madanipoor, 2010). This is while, changes in creating spaces have not allowed for update using of original patterns in our country architecture and urbanism (Golestani et al, 2011). Within these spaces the street is the most famous one since, many activities related to city and citizens are done on it. The perceived quality of a street depends on both physical and operational attributes, some of which are incidental, while others are designed. Street life, visual complexity, social status and population density are incidental attributes dependent on culture and history. On the other hand, safety, security, comfort, and a sense of enclosure are functions of design. In addition, physical attributes, whether designed or incidental, may be reinforced—or undermined—by operational attributes such as the level of maintenance and cleanliness (Haggett and Chorley, 1969). Though street background in Iran is considered ninth century AD onward (Dabirsiaghi, 2000), historical evidences mention similar spaces in some cities such as Rey and Tabriz before ninth century which call similar names, for example Sharee or Gozar (Ale Hashemi, 2012).

Considering Gozar (path) concept in hierarchy of traditional urban functions emphasizes on the important role of today street idiom in physical localization and economy, cultural and social function of our cities (Shiee, 2009). This concept as well as key role of market in our cities have been determinant of city functions and also their physical image (Habibi, 2006). These spaces have been representative of Islamic identity and culture and many people customs in our cities. Compatibility of these spaces with the nature in form of Charbaghs and creating of today Garden Cities concepts[1] during last centuries, simultaneously with Safavi era also shows the superiority of street in urban spaces (ibid, 2006).

This sublime concept in physical surface of the city during early Pahlavi era and along with the entrance of modern urbanism and architecture concepts have had significant changes. These spaces turned to a sign for changing of traditional cities to modern ones while they by themselves were considered as physical hierarchy and functional regularity of both urbanism and architecture. They also caused to create series of disturbances on historical and traditional city surfaces (Kamrava, 2008). Approval of streets law in third decade of the last century, and the creation of squares and their connected streets in some urban contexts such as Hamedan in 1931 and Tehran in 1937, shows streets superiority in architecture and urbanism changes of the country cities within the last century. As in Pahlavi era, through some names such as Marizkhane (hospital), Lalehzar etc, each of them plays new role with new buildings (Habibi et al, 2008). This is while, previous streets showed resident's social identity and cultural characteristic even about their building type and design. Today, major challenges are engage cities in this regard and through these spaces (Izadi et al, 2012). Huge traffic congestions cut urban physics; also mixed nature of architecture and its structure is considered as an issue which turns cover and divisive spaces into today crowded and problematic centers such as markets from the houses to old city centers. It also decreases their role into only responding to vehicle needs (Pakzad, 2004). This problem has been our country cities modernity gift and has disturbed many potentials and cultural and social abilities and even our compatible with nature architecture and our around environment.

[1] In urbanism of late nineteen century and early twenty century, Garden Cities theory was published by Ebenezer Howard in compatibility with the nature and criticize of polluted urban situations.

RESEARCH AIM

The aim of this paper, is assessment of street shaping up trend and architectural change in west of Iran which has been done in some streets as Modarres in Kermanshah, Ekbatan and Babataher in Hamedan and Enghelab and Ferdosi in Sanandaj. In this regard, for reaching to this research aim we have used thirteen effective indexes for studying these streets architecture in three different periods of time as 1921-1941, 1941-1961 and 1961-1978.

RESEARCH THEORETICAL FRAMEWORK

The street is one the attractive issues for theorists in different domains. The streets network has been studied in several disciplines. Among others, transports modeling, space syntax, cartographic generalization and complex networks. The streets network can be studied differently according to the discipline and the context of the research. Here, the network is studied in the context of a current renewing of the urban morphology (Badariotti, 2007). So, the representation models and analysis methods may vary according to the context thematic (Marshall, 2005). Differences of views in this regard have caused to create different definitions and its consequent methods for intervene in street and the way of facing with its building. Physical view in the theories of some people such as Kevin Lynch, 1960, Kalen 1961 and Baken 1997; aesthetic view in the theories of some theorists such as Keblans, 1998; social view to street in theories of some people such as Jane Jacoobs, 1961; cultural view of some people such as Lemnurel, 1994; Marx political view, 1980 or historical view to street in theories of some people such as Nicolo, 1995 all considered street as an effective factor in spatial and physical urban configuration (Atashinbar et al, 2012). Considering some theories about the form and development of the city among western theorists like Surya Mata in Linear City theory or Kenzo Tange in City Form Structure and his plan for Japanese cities such as Tokyo all represent the importance of street in urbanism and architecture of these theories (Ostrovsky, 2008 and Pakzad, 2009).

In landscape architecture related issues, street and its role and the regularity which is used for its building and view are known as a system. The study of the streets' network reveals significant relationships between the network structural characteristics (geometrical and topological) and several functional or social urban aspects: population density (Tang, 2003). The structural analysis of the streets' network can be very useful for semantic enrichment of spatial network data. This is due to the emergence (appearance) of some physical structural properties when the architecture of the studied network becomes quite complex (Cardillo et al. 2006). Describing the importance of street within city comprehension and its urbanism and architectural function which means the location of landmarks, components and ingredients all help considerably, to introduce the shaping up mechanism of the streets and also the comprehension of the city for citizens. In this regard, Kevin Lynch agrees that, streets or the networks which create the orientation of movements in urban complexes, are most effective tools while by them we would be able to regulate the urban continuous complex. So it is evident that, street and its building type are very important for spatial perception and regularity to the city. From architectural and landscape architectural point of view, street has two main components. Surface which shows physical and objective components and the role which expresses historical-functional (subjective) component (Atashinbar et al, 2012). In this regard, the regularity of one the main street components is accounted for its architectural studies which is in two decisive and illative categories. Table 1 illustrates these categories.

Table1. *Characteristics of Two Main Street Regularity*

Dominant Theory	Logic	Power	Historical Period	Architecture	Street Regularity
Mass and Space	Fixes	Government	Classic, Renaissance and Modern	Rationalist	Decisive
Landscape	Fluid	Community	Tradition and Post Modern	Organic	Illative

Source: *Atashinbar et al, 2012*

Considering these characteristics about regularity on the streets, especially about architecture, logic and dominant theory, we can see that from Safavieh era onward streets had an organic and fluid position and transcendental landscape in our country old cities. Isfahan Charbagh, is one of these examples (Golestani et al, 2011), which had illative and compatible with nature regularity while was the production of maximum diversity of physical components with multi-dimension roles. This kind of regularity in our country urban streets especially from Safavieh era onward, had been spontaneous and its shaping up had been due to systematic ingredients while has obeyed different rules in reaction to environment situations. In fact, this regularity had been due to urban landscape diversity and has match with a natural pattern.

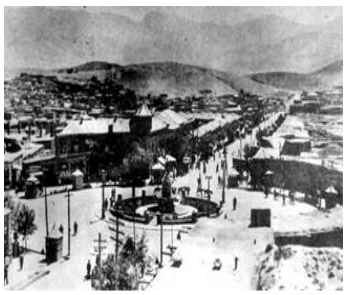

Fig1. *Enghelab Square in Sanandaj, in 1941*

Fig2. *Municipality Square in Kermanshah, in 1933*

Fig3. *Imam Square in Hamedan*

Source: *Cultural Heritage, Handicrafts and Tourism Organization*

In fact, such function both of objective and subjective, has introduced those days architecture and urbanism to the world as Isfahan school. A glory which was extended almost until the late of

Ghajarieh, and with start of Pahlavi era and its modernity trend introduced other types of building and change in urbanism and architecture which were related to mass and space. Changes which showed themselves through squares and connected streets by cutting Hamedan urban context in 1931 (See Figure, 3); they also are changed dramatically, from 1961 onward by introducing of master and detailed plans in country urbanism and architecture.

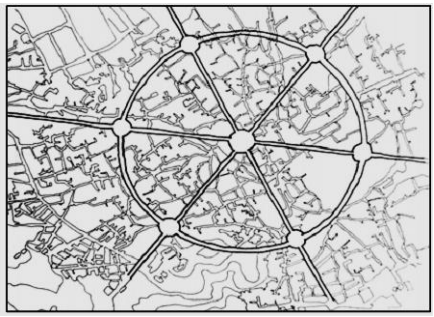

Fig4. *Hamedan Old Context in Combination with New Streets and Squares in 1931*

Source: *Habibi, 2006*

Old city context which had preserved its civil and organizational form until Pahlavi era, witnessed dramatic inward and outward changes upon starting new activities. What which threatened city was disturbance of old city context due to designing six streets with Imam square center. In the early twentieth century modern modes of travel were just making their debut – paved roads and railways totaled fewer than 340 kilometers. Karl Frisch's radial plan cut off old market in city center (Stallabrass, 2011). However, existence of these six streets and their centralized plan, played a role as urban catalyst in city around main components such as market, old context, main mosque and seminary school. Figure five shows Hamedan development through three below maps from 1921 to 1986.

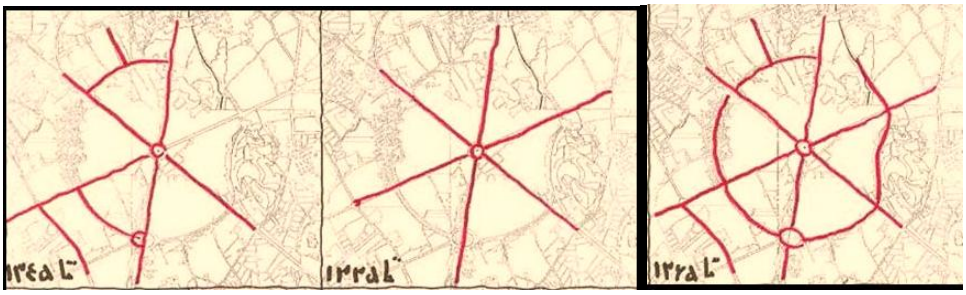

Fig5. *Hamedan Development from 1921 to 1986*

Source: *Zakerhaghighi et l, 2014*

Kermanshah Modarres street, is a plan which was drawn in 1933, by Rezahan's suggestion and on the basis of a plan called Jolokhan while connected north to the south. At the time of construction, it was an inside neighbor path called Jolokhan which under Pahlavi era changes was created and along with its view, urban eccentric views were created with eccentric decorations and designs. All of external shells had public, governmental and trade- service land uses and beside them there were one pedestrian and one vehicle axes separately. In those years, the aim of these projects was entering the vehicles into the cities and affecting on main mosque, schools and adjacent religious places and also creating linear path in city center for introducing a central dynamic street and new architecture style with different structure while extraversion was its most important feature (See Figure six).

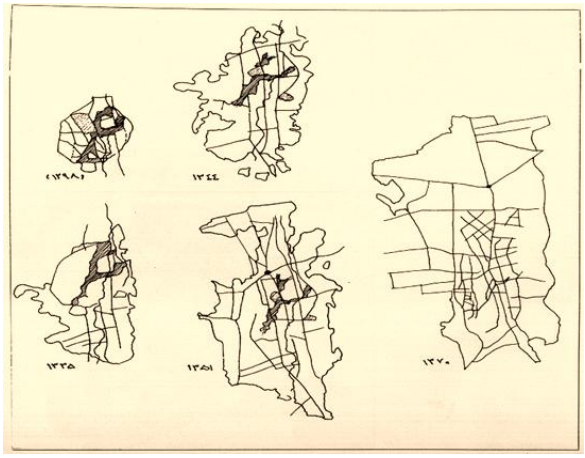

Fig6. *Shaping up of Kermanshah Context and the Way of Roadway Access through the City*

North to south streets called Enghelab and east to west, street called Ferdosi in Sanandaj, which disturbed neighbors traditional regularities also were constructed cruciate just as Kermanshah urban streets. On the place of Sanandaj intersections, Enghelab square was created. In 1935, by Rezakhan's suggestion and on the basis of a former plan old city context and traditional form and inter- neighbor connections were changed. All of external shells had public, governmental and trade- service land uses and beside them there were one pedestrian and one vehicle axes separately. In those years, the aim of these projects was entering the vehicles into the cities and affecting on main mosque, schools and adjacent religious places and also creating linear path in city center for introducing a central dynamic street and new architecture style with different structure while extraversion was its most important feature. Between 1921 and 1941, Sanandaj loses its popularity as predominantly ruling city. At this time, Sanandaj is known as the Kordestan province political and administrative center and the biggest city of this province. It can be said that, Sanandaj city has been located in a spatial roof naturally, instead of being behind fences while has been surrounded by tall mountains. By drawing cruciate streets in city and introducing new urban ingredients such as garrison, factory, hospital and offices etc. During this period of time, some changes occurred in city physical structure. By introducing mentioned streets, we can see that context main functions are eccentric in neighbor centers, market and main city squares; as Enghelab street cut linear axe of Allafkhan square (Sanandaj main market), and divided it into two sections. This also caused to create some disproportionate functions with the market physic in vacant spaces are in two sides of the street. It also damaged substantially the functional and physical values of the market (Asadzadeh, Sanandaj old market organizing master plan). Between 1941 and 196, which was the time of economy stagnation with the start of modernization, Sanandaj guidance plan was prepared by American consulting engineers called Alton with completely western and foreign view with region social, cultural, economy and climate features. City old physical structure was molested by mentioned plan for the second time. This plan suggested intersecting streets which operated the patient physic of city and caused dispersion of urban land- uses and rupture of main city structure; new context was shaped up beside old context gradually. Between 1961 and 1978, economy and political changes lead to social changes and city faced with rapid urbanization rather than static urbanization status. During this 17 years, Sanandaj development and growth has been equivalent to the 350 years of city history growth. On the basis of this master plan which was prepared by Marjan consulting engineer in 1975, the city development was done by mentioned plan regulations. By constructing rather wide streets in checkered form and providing appropriate bed for movement of vehicles, separation was done regularly which its spatial aspect is obvious in Hasan Abad, Khosro Abad and Sharif Abad neighbors as well metal and concrete

buildings in old context. City structure at this time involved previously thought plan and some rural emigrations results. The city is yet based on its one center pattern in the area of Enghelab square (Figure 7). The market as the economy, social and cultural spine transferred many of its economy activities to its next and gradually lost its physical development. Incompatible functions shaped up around market, and its activities were weakened (Eghbali, 2010).

Fig7. *Sanandaj, Historical Trend between 1921 and 1991*

Source: *Naghshe Piravash Consulting Engineers, 2010*

Fig8. *Sanandaj Aerial photo in 1956*

Source: *Kordestan Province Cultural Heritage, Handicrafts and Tourism Organization*

RESEARCH METHODOLOGY

Present study has been done by analytical- descriptive method for analyzing of street shaping up trend and architectural change in west of Iran emphasizing on some streets as Modarres in Kermanshah, Ekbatan and Babataher in Hamedan and Enghelab and Ferdosi in Sanandaj. For analyzing of shaping up trend and architectural change in selected streets we have used 13 indexes of street architecture as the amount of urban openness, circulation, mental- emotional dimension, quality and compatibility, aesthetic, functional and physical hierarchy and functional and physical localization, the amount of green spaces, common functional dimension, physical pure and impure density, skyline, transferring of semantics and aesthetic concepts and the level of social security. Street architectural indexes have been assessed in selected streets in three consecutive period of time as 1921-1941, 1941-1961, 1961-1978 for assessing of their architectural changing trend. This research analytical data have been

gathered through field method and using questionnaire for assessing of street shaping up trend and architectural change in case of study. In this regard, we have used thirty people's views within study domain related experts. For analyzing of gathered data we have used the method of similarity to FUZZY Ideal Option (FTOPSIS).

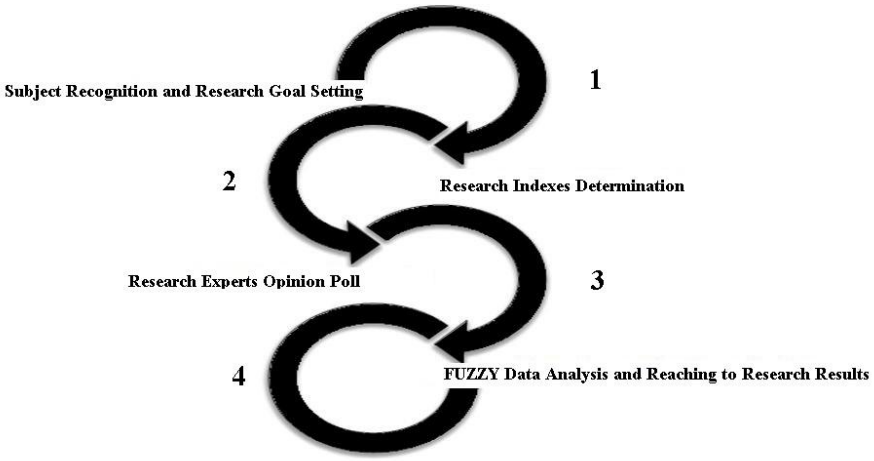

Fig9. *Conceptual Model of Research Process*

Model Mathematical and Functional Structure which has been used in this Research

The technique which has been used in this research is similarity to FUZZY Ideal Option or FUZZY-TOPSIS model which was used for the first time by some scholars called Chen & Hwang for deciding about n criterion with m options. This model uses some levels for data analyzing (Atayi, 2010: 46).

First Step, in this mode is matrix forming as follows:

$$\tilde{A} = \begin{bmatrix} \tilde{x}_{11} & \tilde{x}_{12} & \dots & \tilde{x}_{1n} \\ \tilde{x}_{21} & \tilde{x}_{22} & \dots & \tilde{x}_{2n} \\ \dots & \dots & \dots & \dots \\ \tilde{x}_{m1} & \tilde{x}_{m2} & \dots & \tilde{x}_{mn} \end{bmatrix}$$

If we use FUZZY triangular numbers in this technique, its performance would be as:

$$,c_{ij} \ ,b_{ij} \ a_{ij} \ = \ (\tilde{x}_{ij}$$

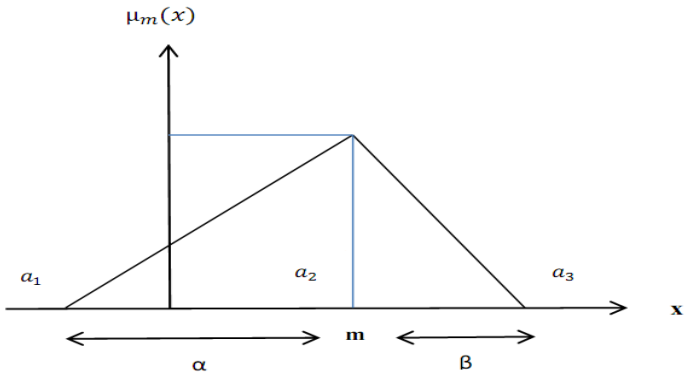

Fig10. *Membership Function of Triangular Numbers in FUZZY Environment*

Source: *Amanpoor and Alizadeh, 2013: 90*

Second Step, in this model would be forming of criteria weighting matrix which following relations are used for reaching to it:

$$w_{j1} = min_k\{w_{jk1}\}$$

$$w_{j2} = \frac{\sum_{k=1}^{k} w_{jk2}}{k}$$

$$w_{j3} = max_k\{c_{jk1}\}$$

Third Step, is making non-scale FUZZY decision matrix which this step is done through below relations:

$$\tilde{r}_{ij} = \left[\frac{a_{ij}}{c_j^*}, \frac{b_{ij}}{c_j^*}, \frac{c_{ij}}{c_j^*}\right]$$

$$\tilde{r}_{ij} = \left[\frac{a_j^-}{c_{ij}}, \frac{a_j^-}{b_{ij}}, \frac{a_j^-}{c_{ij}}\right]$$

In above relations:

$$c_j^* = max_i \ c_{ij}$$

And also:

$$a_j^- = min_i \ a_{ij}$$

Regarding above relations non-scale FUZZY matrix ($\tilde{R}$), would be obtained which is formed through below relationship:

$\tilde{R}= (\tilde{r}_{ij})_{m\times n}$ I=1, 2..., m

Fourth Step, Among calculated indexes, some indexes are positive and some ones are negative while in research model are used for calculating allocated weights; following relations are used for doing so:

$$\tilde{v}_{ij} = \tilde{r}_{ij}.\tilde{w}_{ij} = \left\{\frac{a_{ij}}{c_i^*}, \frac{b_{ij}}{c_j^*}, \frac{c_{ij}}{c_j^*}\right\}.(w_{j1}, w_{j2}, w_{j3}) = \left\{\frac{a_{ij}}{c_j^*}.w_{i1}\ \frac{b_{ij}}{c_j^*}.w_{i2}\ \frac{c_{ij}}{c_j^*}.w_{i3}\right\}$$

$$\tilde{v}_{ij} = \tilde{r}_{ij}.\tilde{w}_{ij} = \left\{\frac{a_j^-}{c_{ij}}, \frac{a_j^-}{b_{ij}}, \frac{a_j^-}{a_{ij}}\right\}.(w_{j1}, w_{j2}, w_{j3}) = \left\{\frac{a_j^-}{c_{ij}}.w_{i1}\ \frac{a_j^-}{b_j^*}.w_{i2}\ \frac{a_j^-}{a_{ij}}.w_{i3}\right\}$$

Fifth Step, is similarity to FUZZY Ideal Option and anti- FUZZY Ideal Option calculation in this model while these are calculated through following relations, respectively:

$$A^* = [\tilde{v}_1^*, \tilde{v}_2^*, \ldots \tilde{v}_n^*]$$

$$A^- = [\tilde{v}_1^-, \tilde{v}_2^-, \ldots \tilde{v}_n^-]$$

In these relations, $\tilde{v}_i^*$ is the best index amount and $\tilde{v}_i^-$ in the worst amount for indexes.

Sixth Step, is distance calculation from positive and negative ideal which is achievable through below relations:

$$S_i^* = \sum_{j=1}^{n} d = (\tilde{v}_{ij}, v_j^*)$$

$$S_i^- = \sum_{j=1}^{n} d = (\tilde{v}_{ij}, v_j^-)$$

Final Step, in this model is similarity index calculation which is achievable via below relationship:

$$cc_i = \frac{S_i^-}{S_i^* + S_i^-}$$

RESEARCH FINDINGS

In this section of the research, experts were asked for weighting thirteen indexes in three periods of time as 1921-1941, 1941-1961 and 1961-1978 on the basis of Likert scale from very low to very high for study streets. Obtaining experts views, obtained values were turned to triangular numbers for FUZZY analysis (Table, 2).

Table2. *Triangular FUZZY Numbers for Research Indexes Weighting*

Amount of FUZZY Value	Indexes Importance
1, 1, 3	Very Low
1, 3, 5	Low
3, 5, 7	Average
5, 7, 9	High
7, 9, 9	Very High

Source: *Alizadeh and Shojayian, 2014: 131*

Making FUZZY data, we made non-scale obtained values table from expert's point of view for FUZZY analysis. For example table three has been used for initial five research indexes[2].

Table3. *An example of Non- Scale FUZZY Table for Research Indexes*

Index / **Period of Time**	**Urban Experience**			**Circulation**			**Mental-Emotional Dimension**			**Quality and Compatibility**			**Aesthetic**		
1921-1941	0.1	0.59	0.9	0.1	0.35	0.9	0.1	0.56	0.9	0.1	0.54	0.9	0.1	0.71	0.9
1941-1961	0.3	0.73	0.9	0.1	0.60	0.9	0.3	0.7	0.9	0.3	0.63	0.9	0.1	0.64	0.9
1961-1978	0.3	0.68	0.9	0.1	0.68	0.9	0.3	0.66	0.9	0.1	0.49	0.9	0.1	0.51	0.9

Source: *Research Findings, 2014*

Making non- scale data, we made tunable non- scale data and then we calculated distance index from positive ideal S^+, ad distance index from negative ideal S^-. This section step of research model is shown in table four.

[2] Please not that only some tables have shown in this section due to being long

Table4. *Calculating Distance from Positive and Negative Ideal for Research Indexes*

Index	A		B		C		D		E	
Period	S^+	S^-	S^+	S^-	S^+	S^-	S^+	S^-	S^+	S^-
1921-1941	0.283	0.309	0.319	0.277	0.286	0.305	0.288	0.302	0.206	0.340
1941-1961	0.205	0.343	0.280	0.312	0.208	0.336	0.216	0.324	0.215	0.326
1961-1978	0.210	0.333	0.273	0.326	0.212	0.329	0.296	0.293	0.234	0.305
Index	F		G		H		I		J	
Period	S^+	S^-	S^+	S^-	S^+	S^-	S^+	S^-	S^+	S^-
1921-1941	0.200	0.358	0.273	0.326	0.310	0.228	0.272	0.330	0.306	0.285
1941-1961	0.206	0.340	0.285	0.306	0.336	0.208	0.273	0.326	0.300	0.289
1961-1978	0.220	0.319	0.309	0.283	0.326	0.273	0.309	0.283	0.287	0.303
Index	K		L		M					
Period	S^+	S^-	S^+	S^-	S^+	S^-				
1921-1941	0.285	0.306	0.208	0.336	0.300	0.289				
1941-1961	0.283	0.309	0.220	0.319	0.233	0.306				
1961-1978	0.312	0.280	0.295	0.295	0.300	0.289				

Source: *Research Findings, 2014*

Calculating distance index from positive and negative ideal for each of thirteen indexes in three periods of time, we calculated similarity index and final weight for architectural changes and selected streets shaping up trend in three periods. Results have shown in table five.

Table5. *Calculation of Similarity Index and Final Weight of Selected Streets Architectural Changing and Shaping Up Periods*

Period	S^+	S^-	CC_i	$Rank$
1921-1941	3.542	3.996	0.530	2
1941-1961	3.265	4.052	0.553	1
1961-1978	3.590	3.917	0.521	3

Source: *Research Findings, 2014*

Final Results of similarity to FUZZY Ideal Option model analysis (FTOPSIS) show that, the period of between 1941 and 1961 has had the highest weights (0.553), and also the most least shaping up and change. This is while, according to experts points of view, the period of time between 1961 and 1978 have had the most least weights (0.521) and consequently the highest changes and shaping up among thirteen selected indexes on study streets.

CONCLUSION

Street and its related studies are the bass of many theories and definitions in urbanism and architecture domain. As the street has had great validity among many western theorists and planners like Surya Mata, Kenzo Tange and other architects like Jacoobs, Alexander and others. The street also has had a great role in our traditional and historical cities both of architecture and urbanism dimensions. It is considered as one the main basis for forming Isfahan school after Safavieh bright architecture and urbanism period of time. However, rising Pahlavi government, especially from 60's onward, and introducing master and detailed city plans, street objective and subjective function witnessed different changes and gradually closed to its mixed and western architecture and urbanism pattern. In this regard, this paper tried to study street shaping up trend and its architectural change in western region of Iran, emphasizing on Modarres street in Kermanshah, Ekbatan and Baba Taher streets in Hamedan and Enghelab and Ferdosi streets in Sanandaj city in three consecutive period of time as 1921-1941, 1941-1961, 1961-1978, considering thirteen selected indexes about street architecture. For reaching to research aim, we used thirty related study expert's point of view. We also used similarity to FUZZY Ideal Option (FTOPSIS), for analyzing of obtained values. Results showed that, the period of between

1941 and 1961 has had the highest weights (0.553), and also the least shaping up and change in main architectural indexes. This is while, according to experts points of view, the period of time between 1961 and 1978 have had the most least weights (0.521) and consequently the highest changes and shaping up among thirteen selected indexes on study streets

REFERENCES

[1] Eghbali, Naser and Rahimi, Mahmood, (2010). "*Sanandaj City Structure, Surrounded by Informal Settlements*", Scientific Journal of Human Geography, Vol II, Issue IV.

[2] Amanpoor, Saeid and Alizadeh, Hadi, (2013). "*Evaluation of Sustainable Development Indicators in Kermanshah Province Using Regression Analysis and FUZZY Analytic Hierarchy FAHP*", Journal of Urban and Regional Geography and Planning, No. 9, pp 83-96.

[3] Ansari, Mojtaba, (1999). "*Iranian Garden Values*", Doctoral Dissertation. Faculty of Fine Arts. Tehran University.

[4] Aufstrusky, Vatsylav, (1999). "*Urbanism from Initials to Athens Cahrter*", translated by Laden E'tezadi, First Publication, Beheshti University Press.

[5] Badariotti D. Banos A. Moreno D. 2007 - *Influence of network metrics in urban simulation: introducing accessibility in graph-cellular automata*, 15th European Colloquium on Theoretical and Quantitative Geography, Montreux, Switzerland.

[6] Cardillo A. Scellato S. Latora V. Porta S. 2006 - *Structural properties of planar graphs of urban street patterns*, Physical Review E 73, 066107.

[7] Clos, John. (2013). *Relevance of street patterns and public space in urban areas*, UN-Habitat.

[8] Önder, D. E., & Gigi, Y. (2010). Reading urban spaces by the space-syntax method: A proposal for the South Haliç Region. *Cities*, *27*(4), 260-271.

[9] Izadi, Saied; Nikkhoi, Mona and Samavati, Sahar, (2012). " *Assessing Quality Components Roles in Pedestrian Domains in Urban Streets Vitality and Efficiency, Case of Study: Hamedan Bu- Ali Sina Street*", Journal of Tourism Space examined the role of quality in the implementation of vitality, Issue 3, pp 103-119.

[10] Atashinbar, Mohammad and Mansoori, Amir and Sheibani Mahdi, (2012). "*Order, A Key Factor in Scientific Analysis of Street Landscape*" .Baghenazar Journal. Issue 23, pp 93-102.

[11] Ale Hashemi, Aida, (2012). *"Ghazvin Street: Garden Presence in City, Ghazvin Street Restudying on the Basis of Abdi's Poetry and Other Documents"*. Baghenazar Journal. Issue 22, pp 65 75.

[12] Pakzad, Jahanshah, (2009). "*Urbanism Thought Process*", Second Edition. New Town Development Company Publications, (2009).

[13] Habibi, Seyyed Mohsen and Ahari Zahra. "*Walking through the Garden to the Street*" .Fine Art magazine .Issue 34, pp 5-15, (2008).

[14] Habibi, Seyyed Mohsen, (2006). "*From Flux to the City*", Sixth Edition. Tehran University Press, (2006).

[15] Haggett P. and Chorley R. J. (1969), Network analysis in geography, Edward Arnold: London.

[16] Dabirsiaqhi, Seyyed Mohammad, (2002). "*The History of the Building in Qazvin and its Monuments*". Qazvin Cultural Heritage.

[17] Zakerhaghighi, Kianoosh et al, (2014). "*Analysis of the Hamadan City Physical Development during Recent Decades and its Projections till 2030, Using Remote Sensing*", Proceedings of the National Conference on Sustainable Architecture and Urban Landscape.

[18] Shia, Ismail, (2008). "*With the City and Region in Iran*". Third edition, University of Science and Technology.

[19] Stallabrass, J. (2011). Contemporary art pyrrhic victory. Art Newspaper, Venice Guide.

[20] Alizadeh, Hadi, and Shojaeian Ali, (2014). "*Locating of Multi- Purpose Spaces for Crisis Management after the Earthquake, the Typology: Old Shooshtar City Context*", Journal of Urban and Regional Geography and preparation, Issue 11, pp 127 -140.

[21] Kamrava, Mohammad Ali, (2008). "*Introduction to Contemporary Iran Urbanism*", Third Edition .Tehran University Press, (2008).

[22] Tolley, Rodney. *Calming Traffic in Residential Areas.* Great Britain: Brfi Press, 1990.

[23] Tang J. 2003 - *Evaluating the relationship between urban road pattern and population using fractal geometry*, UCGIS: University Consortium for Geographic Information Science Summer Assembly 2003, 1-13.

[24] Golestani, Saeid and Sharifzadeh, Somayyeh, (2011). "*An Exploration of the Safavieh Street Features*". Baghenazar Journal. Issue 17, pp 59-69, (2011).

[25] Madani Poor Ali, (2010). "*Public and Private Spaces*", translated by Farshad Noorian. First Printing. Tehran University Press.

[26] Marshall S. 2005 - Streets & patterns, Routledge.

[27] Naghshe Pirvayesh Consulting Engineers, (2010). "*Enghelab Street Urban Design*", Sanandaj, Kurdistan Province Housing and Urbanism Organization, Volume II, Second Edition.

AUTHOR'S BIOGRAPHY

This research has been extracted from Ali Alaei's doctoral dissertation under title of "Street Shaping Up Trend and Its Architectural Changes in Western Region of Iran During 1920- 1978 (Case of Study: Kermanshah, Hamedan and Sanandaj Cities)" which was done under supervision of Mr. Dr. Hossein Soltanzadeh at Islamic Azad University.