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Analyzing Qualitative Changes of Rural Settlements due to Rural Furniture Establishment (Case Study: Zoeram Dehestan of Shirvan County)

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Abstract
Purpose- Planning for optimum distribution of physical services and furniture in order to improve people's welfare is one of the major purposes for rural planners. Rural furniture is the main purpose of developing rural settlements to decrease environmental side effects. The quality of human environments in villages highly depends on the quality of infrastructures of physical welfare including rural furniture. Rural furniture not only improves the quality of villages, but also keeps them consistent and permanent. The present study involves analyzing rural furniture and their effects on the environmental quality of rural settlements in Zoeram Dehestan, Shirvan.
Design/methodology/approach- In this research we used an analytical-descriptive approach and data was gathered through library information and field study. Statistical population involves all rural families of Zoeram that equals to 258 families randomly selected through Cochran Formula with error level of 0.06. We used a questionnaire that its reliability was confirmed by a specific academic panel and its validity was calculated through α-Chronback coefficient. We also used SPSS software to analyze the data.
Findings- The results obtained from Chi Square Test show that among all dimensions, aesthetic and visual beauty factors with mean of 2.70 and among all rural furniture, infrastructural furniture with mean of 3.17 are the most effective factors in increasing the quality of physical environment. Also, results from Spearman Correlation and Simple Linear Regression Models show that there is a strong, direct, and meaningful relationship (Sig: 0.000) between rural furniture and the quality of physical environment. In the end, using Gray Correlation Analysis and Vikor Method, we get the results that in these villages with different qualities in rural furniture, environmental quality is not the same level and according to Spearman Correlation there is a strong, meaningful relationship between the quality of rural furniture and the quality of environment.
Practical implications- Today it is vital to consider and improve the quality of rural settlements, since it has been a major concern of local administrators and rural planners. In this respect, analyzing and measuring the level of available rural accommodations can be a helpful tool to understand and to show differences and inequalities in villages in order to provide better life quality in rural areas and be able to obtain more successful goals and objectives in establishing rural stable development and constant population growth.
Originality/value- No direct research and study considering changes in the quality of rural settlements due to establishing rural accommodations have been done so far. Therefore, it is worth performing a thorough, comprehensive research and study regarding both rural accommodations and quality of environment to show the differences and innovations in this field.
Keywords- Rural furniture, Environmental quality, Rural development, Vikor Method, Gray Correlation Analysis.
Paper type- Scientific & Research.

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1. Introduction

Since the 1960s, widespread problems have emerged in the environmental, economic, social and other issues due to the growing urban population and rural migrations. Confronting such problems, the planners found that merely focusing on quantitative issues does not resolve the rural problems and the qualitative issues should be addressed. The concept of environmental quality was introduced at the United Nations (UN) Habitat I Conference in 1976. At this conference, the environment equally was evaluated as "meeting the human basic needs and social justice" (Taghvaee, Maroufi & Pahlavan, 2012). After the Islamic Revolution in Iran, and especially in recent years, various institutions and entities, particularly the Housing Foundation of Islamic Revolution have concentrated further and multilateral attention on rural communities and rural construction and development through implementing guide plans to achieve the desired physical-environmental conditions. Accordingly, they seek to provide a decent and pleasant environment for the villagers to realize social justice and equal distribution of facilities as well as to prevent the migration of villagers to cities by motivating them to stay in the villages, which has been one of the biggest problems and dilemmas of Iran in recent years. However, based on evidence and studies, public spaces and utilities in the countryside (rural areas) lack the capacity and capability required to meet the villagers' life needs and concerns, especially the younger generation. Therefore, improving the physical quality of the villages, the beauty of the villages and the satisfaction of the villagers require proper planning, proper location, considering the native and cultural conditions, creating a functional-dimensional fit in the village, communication levels and, in particular, its furniture. Otherwise, we will always encounter the unfortunate and distorted face of the village and the residents' dissatisfaction (Malek Hoseini and Dargahi, 2010). Hence, any physical space is created to involve a certain activity and to meet the users' needs and demands. Widening of streets and passages, creation of green spaces and performing environmental-hygienic (health) activities in the village bring a boost into the village and give a special freshness and vitality to the heart of the village so that the villagers will feel a sense of security and peace of mind for living there (Hesam, Cheraghi & Ashor, 2014). Thus, the main goals of the environmental quality approach can be explained and defined in two axes of analysis and evaluation of the physical conditions of the villagers' living environment and their perceptions and mental imageries of the quality of the living environment due to rural furniture. In addition, the spatial distribution of the relationship between the two variables of the quality of furniture and the environment quality at the level of the studied area is analyzed and evaluated so that its results can be used as a basis for further assessments, planning, and policy-making in rural zones, especially in the studied area. Accordingly, the focus on increasing the quality level of villagers' settlements appears to be the main concern of the planners and managers. In such a context, the approach to assessing the quality of the environment in rural areas can be seen as an appropriate approach to understand and perceive the differences and unbalances of the quality of the rural living environment to achieve the goal of a desirable rural life. To this end, we may take an effective step towards sustainable development, stabilization of rural population, etc. (Sojasi Qeidari, 2016).

Thus, the importance of addressing this issue relies on the fact that a desirable village environment brings about dynamism, vitality and more presence of residents in the rural environment with its attractiveness and impact on the human mind. In this way, the sense of security, the sense of belonging and increased sense of happiness will be realized. Therefore, according to the main dimensions of the research (rural furniture) as well as the indices defined for the dimension (environmental quality) in the research process, the main question of the research would be as follows: How much are the qualitative changes influenced by the construction of rural furniture in the rural settlements' environment?

2. Research Theoretical Literature

The quality of the environment is a multi-dimensional concept which involves mental perceptions, attitudes and values of different

groups and individuals (Porteous, 1971). These elements have some commonalities with the concepts such as quality of life, quality of place, and the individuals' perception and satisfaction (Ghalibaf, Roostayi, Ramadanzadeh Lasbuie, Taheri, 2011). The quality of the environment in a place results from the quality of spatial components of a certain area; however, it signifies the general perception of the place rather than the sum of the components. The environment constituents (nature, outdoor or landscape, infrastructures, man-made environment, physical environment facilities, social relations, etc.) have their own features and qualities (Van Kamp, Leidelmeijer, Marsman & Hollander, 2003). Therefore, any environment with a desirable and optimal quality transfers a sense of well-being, welfare and satisfaction to the resident population (Bahrami Nejad, 2003, p. 44). Since the quality of the environment is a complex subject, the experts have provided different theoretical definitions of the concept of environmental quality. These various conceptualizations have formed based on the intellectual context of the experts or the approach used to select the indicators. Nevertheless, the lack of a comprehensive, precise and agreed definition by the scholars of the concept of environmental quality seems a quite obvious issue in the theoretical frameworks (Pourjafar, Taghvaee, Sadeghi, 2009). The main reason can be the association or overlapping of this concept with other vague and complex concepts like quality of life , livability and sustainability (Van Kamp, Leidelmeijer, Marsman & Hollander, 2003). However, the quality of the environment can be defined as an essential part of the broader concept of the quality of life (Sojasi Qeidari, Sadeghloo & Mahdavi, 2015). In addition to the physical quality, the quality of environment in rural areas is related to the quality of rural life and environment. interweaving of which forms the environment quality for villagers (Jomehpour, 2005).

The views on the quality of the rural environment can be classified into two categories. The first category involves those theories emphasizing on the objective (real) area of the environment. These views have seen the quality of the rural environment as a quality and an attribute inherent to the physical environment that exists independently from the observer as such the quality of the environment is clearly originated from the form. In this regard, the Kaplan model can be mentioned. Kaplan has developed a model on how the people experience and understand the human environment. He emphasized on the importance and necessity of gathering information about the environment and believed that the users' satisfaction with the environment requires them to have the information needed for recognition and understanding the environment. Also, the environment has to be meaningful to people, benefiting from freshness, challenges and some mystery to encourage the mind for exploration. The second category relies on the individual's mental arena, introducing the quality of the rural environment as a phenomenon or event that forms in the context of an interaction between physical and tangible features on one hand, and the cultural patterns and codes and mental abilities of the observer on the other hand. The empiricist theorists such as Lynch, Appleyard and Lange can be considered as the most important advocates of this kind of perception of the concept of the environmental quality (Bahreini, 2002). Kevin Lynch emphasized the mutual relationship and the impact of the quality of the rural environment on the quality of life of the villagers. According to him, the rural planning should be able to help enhance the quality of life by improving the quality of the environment to be useful (Golkar, 2000).

Therefore, it should be noted that improving the quality of the environment in rural settlements at different dimensions is one of the goals of rural managers and planners. In all circumstances, they try to provide a suitable environment for the life of the villagers. The environmental quality is influenced by various elements and components. The rural furniture is one of the relevant physical elements, which is located in the rural space. The rural furniture includes the non-fixed components of rural spaces that are located as complementary elements within the spaces between buildings and structures. The rural furniture plays an important role in defining the functional personality of space and is highly effective on the morale and spirit of the village and the people. In fact, as one of the main elements shaping the rural space, the rural furniture affects various issues due to its nature and temporal and spatial conditions (Shafaati, 2008). Proper rural furniture has a significant impact on reducing rural abnormalities and creates the right spaces for life through

establishing more communications between the village and the villagers. Hence, the efficiency and beauty of rural furniture are very influential in achieving healthy and viable villages (Zahedi Yeganeh & Ghadar Jani, 2011). The rural furniture appears to be of great importance due to improving the quality of rural life and enhancing the ground for growth and prosperity of creativity in the villagers (Mohandesi, Shirazi & Heydari, 2013). Thus, in today's society, the design of rural spaces and furniture should be done in such a way to meet the individuals' needs. Nowadays, the designers' task is not only to accommodate people in the social and three-dimensional space of the village along each other but another major task for them is to preserve rural attractions as the greatest artistic masterpiece by relying on indigenous culture within the heart of the rural planning (Azizipour, Lotfi, Mohammadzadeh, & Hasanvand, 2014).

No independent studies have been done on evaluating the quality of furniture with an emphasis on improving the environmental quality in the rural areas so far. In fact, relatively few studies have been conducted in relation to the topic of furniture (Table 1).

Table 1. Review of the research literature
(Source: Research findings, 2015)

Creator	Research findings
Malek Hosseini & Dargahi (2010)	By benefiting from rural furniture along with observing the principles of locating and designing, the villages can induce an impact on improving the physical environment.
Shoorche and Shemshadi (2015)	Lack of proper urban spaces and furniture and failure in proper designing and use of urban furniture appropriate to the environment and space in the totality of the city have imposed an adverse effect on the quality of urban life and health (physical spaces) as well as the sense of satisfaction of the citizens (perceptual spaces).
Akbarian Ronizi and Shaykh-Baygloo (2015)	The environmental quality of the villages has been evaluated above the average level in such a way that out of the studied environmental quality indices, the index of functional and structural quality has the greatest impact on tourism attraction and improvement of the environment's quality.
Sojasi Qidari (2016)	The highest effect of implementation of the rural guide plan in the village is related to the form component, while the least effect is related to the functional component of the three components of the environmental quality. Therefore, one can argue that the guide plan is often done with a form approach and formal impact is more than its functional effect.
Torino (2006)	The turbulent and confusing furniture of the urban environment, which is the result of an inappropriate approach to the layout, leads to reduced visual beauty and the decreased quality of the environment. Thus, the citizens do not feel comfortable in such a place and cannot establish a friendly relationship with it.
Bulut and Atabeyoglu (2007)	The importance of urban furniture elements in establishing the relationship between people and the functional and aesthetic effect on the space and giving identity varies based on various quantities and qualities. Therefore, furniture elements are highly important not only for functional purposes but also they can be beneficial due to their effects on restoring the urban perspectives.
Feng and Zia (2014)	The development of furniture in urban spaces reflects irregular conditions as such the human considerations are not appropriate, and the ambient colors do not match the surrounding environment. Also, due to the regional features, the objects are not placed in their proper place. The environmental awareness and consciousness of ecology are low due to lack of planning. Therefore, the need for planning to improve the ecology of the environment seems essential.

According to the studies, the rural furniture can improve the quality of rural environments in case of adhering to different design principles. Since no man-made environment will sustain without considering the characteristics of the cultural environment and the intended measures of their users, doing a research on rural furniture in the village of Zoeram appeared essential to recognize the current status of the furniture in the area. Accordingly, such a necessity seemed to further focus on beautifying and giving identity to the sights and spaces of the alleys and streets of Zoeram Dehestan (rural district) in the space of passages and squares, creating places to sit, proper distribution and diffusion of furniture in this area to be used by different age groups and all social

classes, (e.g., healthy and disabled people) in order to achieve comfort and convenience, and more social interactions among furniture users, which ultimately reflect the collective memories of these individuals (Heidarinia, Amanpour, Atashafrouz & Nazarpour Dazki, 2014).

The classification of the furniture elements has been presented in different forms, which can be introduced in four main groups as follows: decorative furniture (fountains, statues, springs, water supply, chairs and benches, play equipment, sports equipment, canopies, sunshades, etc.), infrastructure furniture (cover and coating, floor covering, flooring, channelization, making street curb, shield and separator, lightning rod, etc.), communication-conducting furniture (passages, sidewalks, signs, and panels, speed bumps, road surface marking, telephone kiosks, bridges over water ditches, etc.) and service-providing furniture (garbage cans, pots, post boxes and charity boxes, bus stations, WCs, gyms, etc.).

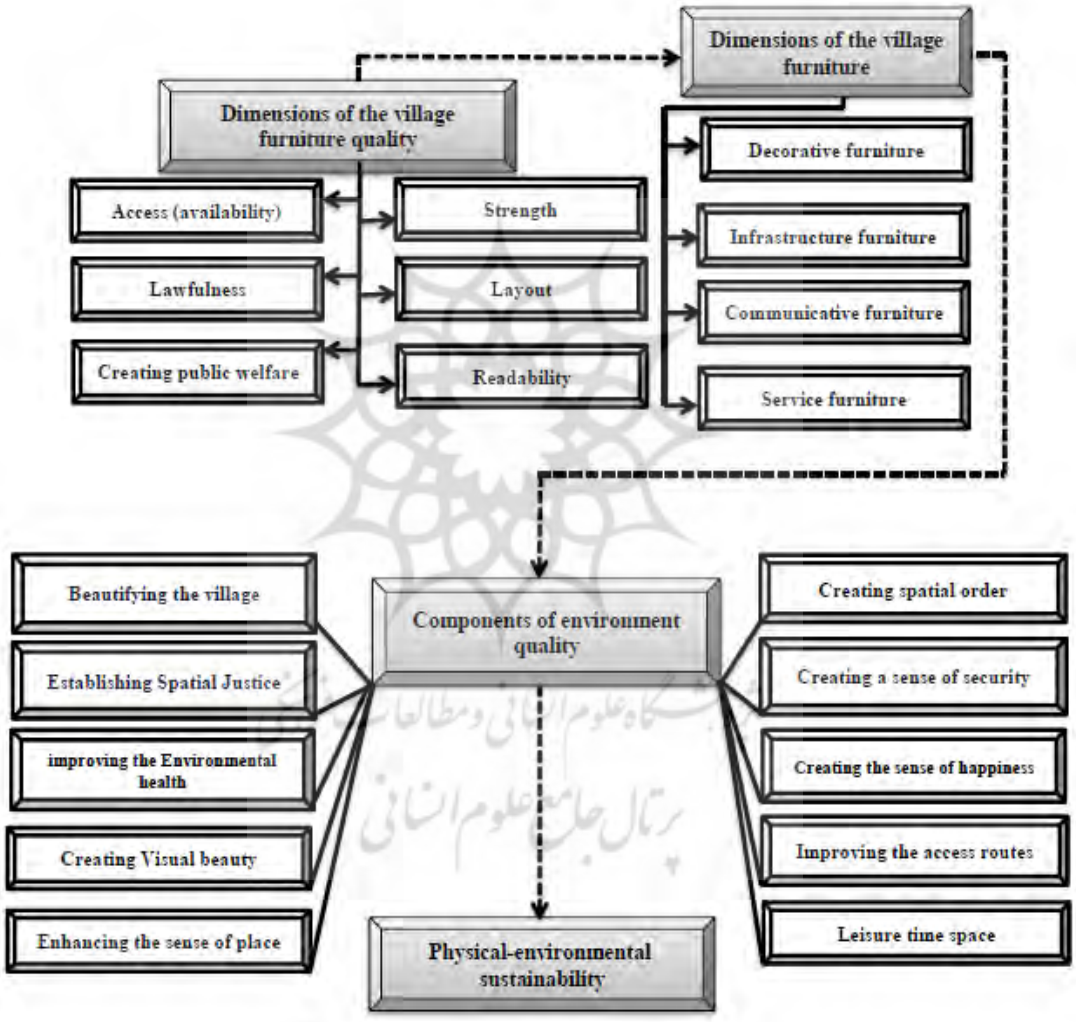

Figure 1. Conceptual Model of the Research
(Source: Research Findings, 2016)

Therefore, improving the environmental quality in rural settlements can be realized through proper designing and use of rural furniture tailored to the rural environment and the villagers' requirements, by increasing the quality of furniture in various aspects such as strength, layout, legibility and other features, improving the accessibility, beautifying, creating the sense of happiness, enhancing the environmental health, and the like (Figure 1). Hence, improving the quality of rural

environment does not depend on increasing rural facilities such as increasing the number of furniture, but it emphasizes on the standards of welfare and recreation by considering the conditions of rural communities in various areas. Therefore, on a macro scale, developing appropriate infrastructures as well as their management seem essential to meet the needs of different classes in line with improving the environmental quality.

3. Research Methodology

3.1. Geographical Scope of the Research

According to the latest census in 2015, the city of Shirvan includes three districts (Central, Sarhad, and Qushkhaneh), nine rural districts (Takmaran, Jirestan, Hoomeh, Zoeram, Ziarat, Golian, Sivkanlu, Qushkhaneh-ye Bala and Qushkhaneh-ye Pain) and 174 villages. The studied village was selected from the central district. The rural district of Zoeram is limited to rural district of Ziarat from the north, to the rural district of Golian from the south, to Tukur Village and Yengi Qaleh-ye Bala Village from the east, and to Bojnord from the west (Figure 2).

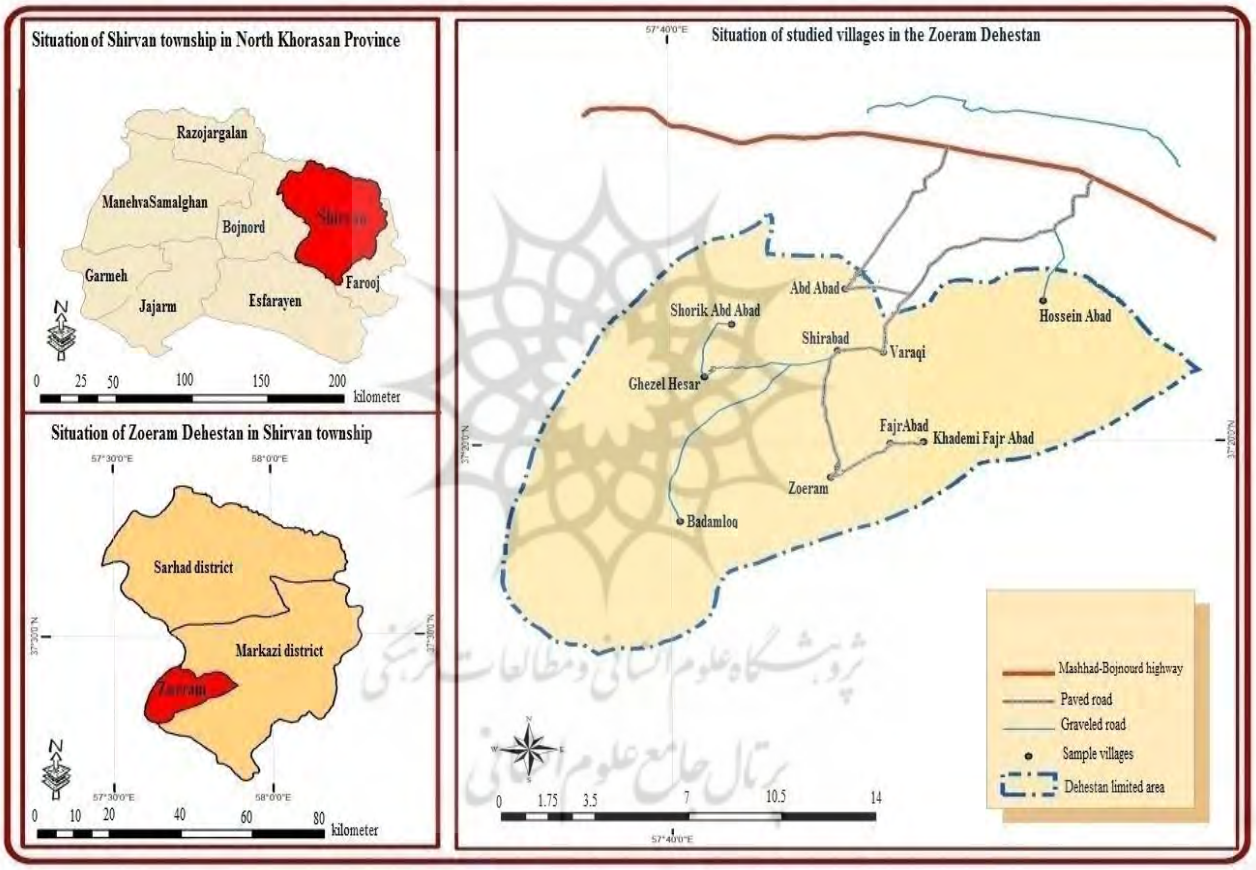

Figure 2. Location of studied villages in the research area
(Source: Research Findings, 2016)

3.2. Methodology

The present study was an applied research based on the objective and type, while it was classified in the descriptive and analytical studies group in terms of nature and methodology. The data was collected through the library method and the field studies were made using a questionnaire. The research variables were designed in the form of 6 dimensions of the furniture quality with 14 indices and the environmental quality with 10 indices , respectively, through theoretical and review literature (Cheraghi, Jafarian, Abbasi & Badri, 2015; Farahani, Einali, Ghasemi Viari, 2014; Zeinali, 2013). Each statement was presented in the form of the Likert spectrum for each of the ten indexes and six dimensions. The validity of the indices was examined through a specialized panel and the reliability was verified as 0.99 using the Cronbach's alpha coefficient which indicated the high capability of the questionnaire. To complete

the questionnaire, sampling was first done in the region of the rural district of Zoeram, Shirvan. The sample villages were selected by complete enumeration method and the simple random sampling approach was used to choose the sample from the statistical population. The sample size was determined using the Cochran formula at the error level of 0.06, leading to the selection of 237 households as samples. Finally, by promoting the samples in the low populated villages to the minimum necessary level, a total of 258 households were obtained as the sample size and the questionnaires were then completed (Table 2).

Table 2. Number of households in villages of Zoeram Dehestan (Rural District), Shirvan
(Source: Statistical Center of Iran, 2011 & Research findings, 2015)

Village	Population	Number of households	Number of the household of the sample	Corrected samples
Hossein Abad	3665	866	97.9	98
Abd Abad	910	259	29.2	29
Varaqi	242	73	8.2	10
Badamloq	261	82	9.2	10
Ghezel Hesar	140	34	3.8	10
Khademi Fajr Abad	160	49	5.5	10
Shorik Abd Abad	193	61	6.9	10
Shirabad	75	22	2.4	7
FajrAbad	620	202	22.8	23
Zoeram	1320	447	50.5	51
Total	7586	2095	237	258

Two descriptive and inferential statistical methods and the multiple-criteria decision-making (MCDM) were used to analyze the data. Thus, the data were analyzed in the inferential statistics using the Chi-square test, correlation test, and the simple linear regression. Finally, the villages were rated by the Vikor model and Gray Relational Analysis (GRA) based on the quality indices of furniture and quality of the environment. In addition, the Spearman correlation test was used to determine the relationship between the quality of furniture and the qualitative changes in the rural settlement environment.

4. Research Findings

The descriptive findings of the research indicated that the majority of respondents were in the age range of 40-49 years with a frequency of 71 people (27.5%). Gender analysis also showed that 151 men (58.5%) and 107 women (41.5%) consisted the whole respondents. Accordingly, in the group of villagers, 63.2% were married and 36.8% were single. Also, 43.4% and 35.7% of all respondants (N=258) had elementary education or were illiterate, respectively. Other subjects had junior high school (8.5%), high school (6.6%) and diploma (3.1%) degrees. The level of academic. education with 2.7% accounted for the least number of the respondents. Of the respondents, 64.3% were employed in the agricultural sector. Other descriptive findings suggested that the use of furniture among the villagers, the availability of welfare facilities in the playing field, and the extent of the playground allowing the children to play mass and collective games were at moderate to high levels.

Analytically, the results of table 3 showed a moderate level equal to 2.56 as the total satisfaction rate of people regarding rural furniture. Among the studied furniture categories, only the rate of communication furniture was lower than the assumed average. Therefore, one can argue that the situation of rural furniture is desirable. In case of ten indices of the dependent variable, the average respondents' opinion about the impact of rural furniture on the environmental quality was at a high level given the hypothetical average of 2.5. According to the respondents, the lowest impact of rural furniture was related to the index of accessibility improvement. This difference was significant at the level of 0.05% and the difference between the components of the examined numerical desirability was positive. In relation to the sub-variables of the research, one can state that among the dimensions of the quality of furniture, the rates of readability dimensions

were lower than the hypothetical average. Thus, the readability status of the furniture was at a weak level. Then, this effective factor can lower the quality of the rural settlements. For example, non-readability of different boards and panels at the village weakens the sense of navigation. In other words, high strength, proper layout, observance of rules, etc., in the furniture increase the quality of the village environment. Considering the fact that most of the mean values of the furniture quality were close to moderate and at the same level as the assumed average, one can infer that the quality of the rural furniture is desirable.

Table 3. Chi-square or X^2 of independent, dependent and substitute variables
(Source: Research Findings, 2016)

Dimensions	Mean	SD	Chi-square	sig	Degree of freedom
Independent variable: Rural furniture					
Decorative furniture	2.85	0.749	203.318	0.000	4
Infrastructure furniture	3.17	0.859	132.736	0.000	4
Communicative furniture	1.88	0.485	381.354	0.000	4
Service furniture	2.35	1.066	235.181	0.000	4
Rural furniture	2.56	0.721	192.349	0.000	4
Dependent variables: Environment quality					
Beautifying	2.77	0.674	253.744	0.000	4
Spatial Justice	2.66	0.675	242.271	0.000	4
Environmental health	2.70	0.658	256.806	0.000	4
Visual beauty	2.77	0.673	257.388	0.000	4
Enhancing the sense of place belongingness	2.67	0.657	250.953	0.000	4
Creating spatial order	2.72	0.691	250.411	0.000	4
Creating a sense of security	2.72	0.679	256.457	0.000	4
Sense of happiness	2.72	0.691	220.992	0.000	4
Improving the access routes	2.64	0.634	219.132	0.000	4
Leisure time space	2.65	0.646	277.465	0.000	4
Sub-variable: Quality of rural furniture					
Strength	2.56	0.599	200.411	0.000	4
Layout	2.50	0.573	256.806	0.000	4
Readability	2.42	0.545	343.202	0.000	4
Access (availability)	2.54	0.541	335.992	0.000	4
Lawfulness	2.62	0.604	223.899	0.000	4
Creating public welfare	2.62	0.585	225.992	0.000	4
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Dimensions	Mean	SD	Chi-square	sig	Degree of freedom
Sub-variable: Quality of rural furniture					
Strength	2.56	0.599	200.411	0.000	4
Layout	2.50	0.573	256.806	0.000	4
Readability	2.42	0.545	343.202	0.000	4
Access (availability)	2.54	0.541	335.992	0.000	4
Lawfulness	2.62	0.604	223.899	0.000	4
Creating public welfare	2.62	0.585	225.992	0.000	4

The Spearman correlation test was used to investigate the relationship between rural furniture and environmental quality indices due to the nonparametric variables with a relative scale. The results of table 4 showed a strong direct correlation between the rural furniture and the ten indicators due to the significance level lower than 0.01 and the test statistics. Thus, the highest effect of rural furniture was related to the indicator of creating a sense of happiness and felicity with the test statistics of 0.770, while the lowest was related to the index of creating the space for leisure times (0.735).

Given the fact that a significant relationship was found between the independent and dependent variables with a strong intensity and a direct relationship the simple linear regression was used to test the research hypothesis to study the effect of independent variable on the dependent variable.

Table 4. Spearman correlation test

(Source: Research Findings, 2016)

Index	Test statistic	Significance level
Beautifying	0.739	0.000
Spatial Justice	0.757	0.000
Environmental health	0.740	0.000
Visual beauty	0.754	0.000
Enhancing the sense of place (belongingness)	0.745	0.000
Creating spatial order	0.736	0.000
Creating a sense of security	0.753	0.000
Creating the sense of happiness	0.770	0.000
Improving the access routes	0.701	0.000
Leisure time space	0.735	0.000

4.1. Assessing the Effectiveness of Rural Furniture on the Environment Quality

In the regression, the rural furniture was the independent variable, while the quality of the environment was the dependent variable, which was examined using the ten indexes. The model assumptions were also evaluated to prepare the regression models. Thus, the results of the findings in table 5 showed the value of correlation between rural furniture and environment quality equal to 0.862, which was direct with a very strong intensity. As shown in the table, the value of the adjusted coefficient of determination is 0.742. Since this value is closer to 1, it indicates that the independent variable, rural furniture, could have explained a large amount of the variance in the quality of the environment. In this model, the value of F is 741.160 and its significance is also equal to 0.000, which is smaller than 0.05 and meaningful. Then, the independent variable is quite capable of well explaining the changes of the dependent variable. Therefore, the null hypothesis of the test, which suggests the insignificance of the regression model, is rejected with a confidence level of 99%. The value of beta is equal to 0.862 in this model. The high beta value indicates its relative importance and role in predicting the dependent variable.

Therefore, one can argue that the rural furniture has a significant and influential impact on the quality of the rural environment. Thus, the presence of furniture in the studied villages leads to the beautifying of the village, enhanced

environmental health, increasing the sense of belonging, creating a spatial order, and so on.

Table 5. Regression analysis of the impact rate, the existence of a relationship and the coefficients of relationships intensity on the quality of the environment
(Source: Research Findings, 2016)

Standard error	Adjusted coefficient of determination	Correlation value
0.333	0.742	0.862
Components	Sum of the squares	Degrees of freedom
Regression effect	82.607	1
Remainder	28.533	256
Total	111.139	257
Mean of squares	Test statistic (F)	Significance level
82.607	741.160	0.000
0.111		

Variable name	Non-standard coefficients		Standardized coefficients	T	sig
	B	B error	β error		
Constant factor	0.779	0.074	0.862	10.578	0.000
Rural furniture	0.704	0.026		27.224	0.000

4.2. Ranking of Villages Based on Quality Indicators of Rural Furniture

The Gray Relational Analysis (GRA) technique was used for spatial analysis of the differences of quality indices of rural furniture among the studied villages. The GRA technique has an algorithm with specific steps. The GRA technique is used to select the preferred option based on a number of criteria. Accordingly, there are three categories of criteria in the gray decision matrix, including the bigger the better (the same positive criteria in the Topsis and Vikor technique), the smaller the better (the same negative criteria in the Topsis and Vikor technique), and the closer to the optimal value the better (it is not considered in the Topsis and Vikor technique). As the indicators of rural furniture quality are positive, they were placed in the matrix of the gray decision based on the same option as the bigger the better and calculated accordingly. The GRA steps are as follow:

1. Creating the Gray relation: The main idea of the GRA as a quantitative analysis method is based on the fact that the amount of proximity and correlation between the two different factors, which is growing in a dynamic process, should be measured according to the degree of similarity of their curves. The higher similarity indicates a higher degree of the relationship between the series and vice versa. The Gray relation scale is used to measure the rate of this similarity. In this step, each option is evaluated based on each criterion or index (Azar, Junaghani & Ahmadi Nik Jounaghani, 2014; Mohamadi & Molaei, 2010).

2. Values unscaling: When the units of measurement of performance of different indices are different, the effect of some indicators may be ignored. It may also happen when some performance indices have a wide range. One of the following three formulas is used to normalize the values.

$$Xij = \frac{Yij - \min(Yij)}{\max(Yij) - \min(Yij)} \quad \text{The bigger the bette} (1)$$

$$Xij = \frac{\max(Yij) - Yij}{\max(Yij) - \min(Yij)} \quad \text{The smaller the better} (2)$$

$$Xij = \frac{|Yij - Y^*|}{\max\{\max(Yij) - Y^*, Y^* - \min(Yij)} \quad \text{The closer to the optimal value of } Y^* \text{better} (3)$$

Yij: Index value of each village, Min (yij): The lowest value of each village index, Max (yij): The highest value of each village index, y*: optimal value

In the present study, the first formula was used to normalize the values since with higher values of each of the quality indices of the rural furniture, the studied villages will have the furniture with a higher quality.

3. Definition of reference target series: After creating gray relations using the above equations, all functional values will occur between zero and one like in the case of using the concept of normalization. The closer xij to one, the more utility it will have. As a result, the best choice will be the scales series, which all its options equal to 1. All functional values of the reference target series are equal to 1, which is defined as follows:

The closer the series of scales of option i to the reference series, the more utility it will have (Table 6).

4. Gray relational coefficient: The closeness of each xij to the corresponding xoj is measured using the gray relational coefficient. The larger the gray relational factor, the closer it is. The gray relational coefficient is calculated as follows:

$$\overset{\circ}{X} = (\overset{\circ}{X}_1, \overset{\circ}{X}_2, \ldots, \overset{\circ}{X}_4, \ldots, \overset{\circ}{X}_n = (1,1,\ldots,1,\ldots,1) \quad (4)$$

$$r(\overset{\circ}{x}j, xij = \frac{\Delta min + r\Delta max}{\Delta ij + r\Delta max} \quad (5)$$

$$\Delta ij = \overset{\circ}{x}j - xij \quad (6)$$

To calculate the above, the **Δ ij** must be calculated:

Therefore, the smallest value of Δ ij is min and the Δ max will be the largest value of Δ ij. In this equation, r is the coefficient of detection, which is used to extend or limit the range of the gray relational coefficient. It should be noted that the detection coefficient is sometimes displayed with ρ or ζ, with a value between 0 and 1. It is usually considered to be 0.5. Based on Chang and Lane (1999) sensitivity analysis study, the value of 0.5 is a balanced detection coefficient and has a good stability (Table 7).

Gray Relation Rank: After calculating all Gray relation coefficients y (xij, xij), the Gray relation rank is calculated using the following equation:

$$r\,(Xoj - Xij) = \sum_{j}^{n} \mathrm{Wj\ Y}\,(Xoj - Xij) \quad (7)$$

This phrase shows the degree of correlation between the reference target series and the comparative series. In these calculations, w is the weight of the indexes, which is calculated by techniques such as FAHP or entropy, point assignment, etc. In this study, the opinions of 15 experts (Ph.D. students, professors of Geography, Urban Planning and Architecture department of Ferdowsi University of Mashhad and Birjand) in this context and the FAHP method were used (Table 8).

In sum, the score and rank of each village can be seen in table 9. According to the table, the villages of Fajrabad, Zoeram, and Hosseinabad are ranked first to second, while the Ghezel Hesar Village is in the ninth place. This means that the first three villages have a higher quality furniture and the last village has a lower quality furniture than other villages.

Therefore, in the villages of Fajrabad, Zoeram, and Hosseinabad, the quality of decorative, infrastructure, communications-guidance and services furniture are at a better level in terms of strength, layout, legibility, access, lawfulness and providing public comfort and welfare. This is due to the closeness of their geographical location to the city of Shirvan and the arrival of tourists initially at these destinations, adhering to the principles of design, the number of furniture and the handling of worn-out furniture by rural administrators compared to the village of Ghezel Hesar and other similar villages lacking such circumstances. Figure 3 shows the spatial position of the studied villages in terms of the dimensions of rural furniture quality.

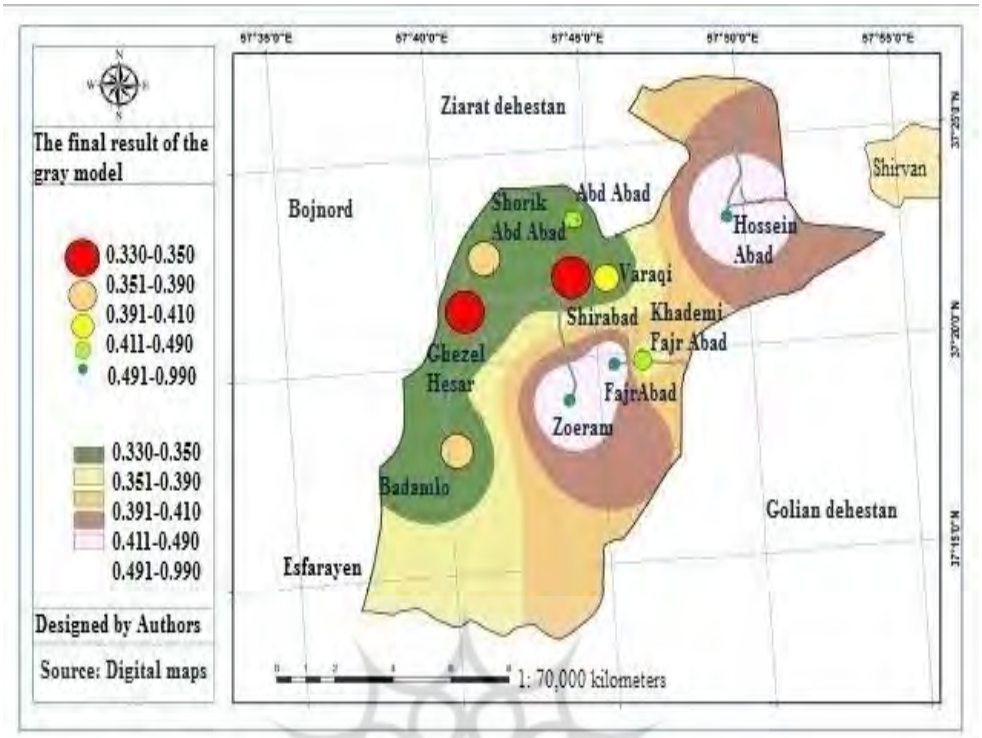

Figure 3. Score obtained from analysis of Gray's relation separated by the studied villages
(Source: Digital maps of North Khorasan Provincial Government, 2016)

Table 6. Definition of target series
(Source: Research Findings, 2016)

Index / Villages	Having high durability	Use of robust materials	Coverage of the whole village	Visible to everybody	Consistency with the building color	Conformity with the culture	Compliance with the environment	Accessibility for all	Quick access for everyone	Observance of the construction standard	Suitable dimensions	Satisfaction with the furniture	Creating environmental attractiveness	Accelerating rural activities
Hossein Abad	0.01	0.02	0.03	0.01	0.13	0.10	0.05	0.04	0.02	0.01	0.00	0.00	0.00	0.03
Abd Abad	0.57	0.55	0.61	0.52	0.60	0.57	0.59	0.56	0.55	0.59	0.63	0.61	0.60	0.60
Varaqi	0.78	0.77	0.78	0.74	0.68	0.76	0.69	0.67	0.63	0.66	0.71	0.74	0.73	0.72
Badamloq	0.78	0.78	0.82	0.80	0.76	0.82	0.82	0.71	0.73	0.71	0.80	0.80	0.79	0.79
Ghezel Hesar	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Khademi Fajr Abad	0.53	0.51	0.58	0.53	0.60	0.52	0.55	0.48	0.56	0.49	0.52	0.48	0.47	0.58
Shorik Abd Abad	0.78	0.75	0.83	0.79	0.87	0.92	0.90	0.83	0.85	0.80	0.84	0.82	0.84	0.85
Shirabad	0.89	0.92	0.92	0.88	0.89	0.96	0.99	0.90	0.93	0.93	0.94	0.93	0.96	0.94
FajrAbad	0.56	0.58	0.59	0.58	0.63	0.55	0.65	0.51	0.58	0.58	0.61	0.56	0.57	0.53
Zoeram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00

Table 7. Determining the Gray factor in the studied villages
(Source: Research Findings, 2016)

Index / Villages	Having high durability	Use of robust materials	Coverage of the whole village	Visible to everybody	Consistency with the building color	Conformity with the culture	Compliance with the environment	Accessibility for all	Quick access for everyone	Observance of the construction standard	Suitable dimensions	Satisfaction with the furniture	Creating environmental attractiveness	Accelerating rural activities
Hossein Abad	0.99	0.96	0.94	0.98	0.79	0.83	0.92	0.93	0.95	0.98	1.00	1.00	1.00	0.95
Abd Abad	0.47	0.47	0.45	0.49	0.46	0.47	0.46	0.47	0.47	0.46	0.44	0.45	0.46	0.46
Varaqi	0.39	0.39	0.39	0.40	0.42	0.40	0.42	0.43	0.44	0.43	0.41	0.40	0.41	0.41
Badamloq	0.39	0.39	0.38	0.38	0.40	0.38	0.38	0.41	0.41	0.41	0.39	0.39	0.39	0.39
Ghezel Hesar	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Khademi Fajr Abad	0.49	0.50	0.46	0.49	0.46	0.49	0.48	0.51	0.47	0.50	0.49	0.51	0.52	0.46
Shorik Abd Abad	0.39	0.40	0.38	0.39	0.36	0.35	0.36	0.37	0.37	0.39	0.37	0.38	0.37	0.37
Shirabad	0.36	0.35	0.35	0.36	0.36	0.34	0.34	0.36	0.35	0.35	0.35	0.35	0.34	0.35
FajrAbad	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.99	1.00
Zoeram	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.99	1.00

Table8. Determining the Gary relationship Rank and weight through FAHP

Index / Villages	Having high durability	Use of robust materials	Coverage of the whole village	Visible to everybody	Consistency with the building color	Conformity with the culture	Compliance with the environment	Accessibility for all	Quick access for everyone	Observance of the construction standard	Suitable dimensions	Satisfaction with the furniture	Creating environmental attractiveness	Accelerating rural activities
Hossein Abad	0.17	0.06	0.14	0.03	0.01	0.07	0.01	0.20	0.05	0.06	0.01	0.10	0.03	0.01
Abd Abad	0.08	0.03	0.07	0.01	0.00	0.04	0.01	0.10	0.03	0.03	0.01	0.04	0.01	0.01
Varaqi	0.07	0.02	0.06	0.01	0.00	0.04	0.01	0.09	0.02	0.03	0.00	0.04	0.01	0.01
Badamloq	0.07	0.02	0.06	0.01	0.00	0.03	0.01	0.09	0.02	0.03	0.00	0.04	0.01	0.01
Ghezel Hesar	0.06	0.02	0.05	0.01	0.00	0.03	0.01	0.07	0.02	0.02	0.00	0.03	0.01	0.00
Khademi Fajr Abad	0.08	0.03	0.07	0.01	0.00	0.04	0.01	0.11	0.03	0.03	0.01	0.05	0.01	0.01
Shorik Abd Abad	0.07	0.02	0.05	0.01	0.00	0.03	0.01	0.08	0.02	0.02	0.00	0.04	0.01	0.01
Shirabad	0.06	0.02	0.05	0.01	0.00	0.03	0.01	0.08	0.02	0.02	0.00	0.03	0.01	0.00
FajrAbad	0.17	0.06	0.15	0.03	0.01	0.09	0.02	0.21	0.06	0.06	0.01	0.09	0.03	0.01
Zoeram	0.17	0.06	0.15	0.03	0.01	0.09	0.02	0.21	0.06	0.06	0.01	0.09	0.03	0.01

Table 9. The sum of Gray relation rank and score of each village
(Source: Research Findings, 2016)

Villages	Resilience ultimate score	Ranking
Hossein Abad	0.95	2
Abd Abad	0.46	4
Varaqi	0.41	5
Badamloq	0.39	6
Ghezel Hesar	0.33	9
Khademi Fajr Abad	0.49	3
Shorik Abd Abad	0.38	7
Shirabad	0.35	8
FajrAbad	0.99	1
Zoeram	0.99	1

4.3. Villages Rating Based on the Quality of the Environment Indices Due to the Presence of Furniture

Based on the ten indices of environmental quality, the indices were weighed and the villages were prioritized by the Vikor model. This model has several steps. The first step includes the formation of a decision matrix. In this matrix, the criteria used in the rural environment quality indices are placed in the columns and the studied villages are in the rows. The second step involves the calculation of the normalized values. In the third step, the best and worst values for all criteria functions (Chang & Hsu, 2009, p. 3228) are determined. If the criterion function indicates the profit (positive), the best and worst values are calculated based on the following equation:

$$f_i^* = \max_j f_{ij} \quad , \quad f_i^- = \min_j f_{ij} \qquad (8)$$

If the criterion function indicates the cost (negative), the best and worst values are calculated based on the following relation:

$$f_i^* = \min_j f_{ij} \quad , \quad f_i^- = \max_j f_{ij} \qquad (9)$$

Hence, the best and worst values for the criteria can be determined (Table 10).

Table 10. The best and worst values for all the criteria functions

(Source: Research Findings, 2016)

Index / Villages	Beautifying the village	Establishing Spatial Justice	Improving the Environmental health	Creating Visual beauty	Enhancing the sense of place	Creating spatial order	Creating a sense of security	Creating the sense of happiness	Improving the access routes	Creating the leisure time space
fi*	0.152	0.154	0.151	0.152	0.152	0.153	0.153	0.154	0.149	0.151
fi-	0.072	0.070	0.070	0.072	0.072	0.071	0.070	0.072	0.068	0.071

The fourth step determines the weight and degree of importance of the features. In this study, the Shannon entropy method was used to determine the weight of the indexes. The weights of the proposed criteria were also determined and calculated by several relevant experts and assigned to each indicator (Table 11).

Table 11. Weights of criteria based on the entropy method

Index / Villages	Beautifying the village	Establishing Spatial Justice	Improving the Environmental health	Creating Visual beauty	Enhancing the sense of place	Creating spatial order	Creating a sense of security	Creating the sense of happiness	Improving the access routes	Creating the leisure time space
EJ	0.985	0.982	0.984	0.985	0.984	0.984	0.984	0.984	0.985	0.985
d	0.015	0.018	0.016	0.015	0.016	0.016	0.016	0.016	0.015	0.015
w	0.095	0.112	0.099	0.094	0.101	0.103	0.099	0.101	0.094	0.098

Considering the environmental quality indices in the study area, the indices of establishing space justice (11.2%) and creating a sense of happiness (10.4%) had the highest importance compared to other indices in the studied villages.

The fifth step involves calculating the distance between the options with the ideal solution. At this stage, the distance between each option and the ideal positive solution is calculated. Then, the calculation of its aggregation is performed based on the following relations (Chang & Hsu, 2009, pp. 3228-3229):

$$R_j = \max_j [w_i (f_{ij}^* - f_{ij}) / (f_j^* - f_j^-)] \quad (10)$$

Where Sj is the distance from option i to the ideal solution (the best combination) and Rj is the

distance between option i and the ideal negative solution (the worst combination). The excellent ranking is done based on Sj and the bad ranking will be made based on the Rj values. The sixth step is to calculate the Qi value of the Vikor model for i = 1, 2, …, m. The Qi value is calculated by the following equation: $Q_i = v\left[\frac{S_i - S^*}{S^- - S^*}\right] + (1-v)\left[\frac{R_i - R^*}{R^- - R^*}\right]$ (11)

Wherein:

$S^* = \min_j S_j \ , S^- = \max_j S_j$ (12)

$R^* = \min_j R_j \ , S^- = \max_j R_j$ (13)

Also, v is the strategy's weight (the majority of the criteria) or the maximum group utility. The $\frac{S_i - S^*}{S^- - S^*}$ represents the distance from the ideal positive solution of the i[th] option. In other words, $\frac{R_i - R^*}{R^- - R^*}$ represents the distance from the ideal negative solution for the i[th] choice**.** If v>0.5, the Qi index will have a maximum agreement. In addition, if v<0.5, the Qi index will be indicative of the maximum negative attitude. In general, v = 0.5 implies the equal group agreement.

The seventh step involves the ranking of options based on the Qi values. According to Qi values of the options calculated in Step 6, the options can be rated. The options with a higher Qi value are placed at a lower priority and the smaller Qi values imply higher ranks (Table 12).

Figure 4 shows the spatial position of the studied villages in terms of the dimensions of the environmental quality.

Table 12. Ranking of the level of quality of the rural environment based on the distance to the ideal solution
(Source: Research Findings, 2016)

Village	Sum (S)	max(R)	Q	Rating
Hossein Abad	0.000	0.001	0.000	1
Abd Abad	0.703	0.075	0.685	5
Varaqi	0.837	0.101	0.870	7
Badamloq	0.896	0.109	0.935	8
Ghezel Hesar	0.999	0.112	1.000	10
Khademi Fajr Abad	0.999	0.064	0.784	6
Shorik Abd Abad	0.551	0.085	0.654	4
Shirabad	0.953	0.103	0.937	9
FajrAbad	0.609	0.068	0.606	3
Zarvarom	0.605	0.010	0.073	2

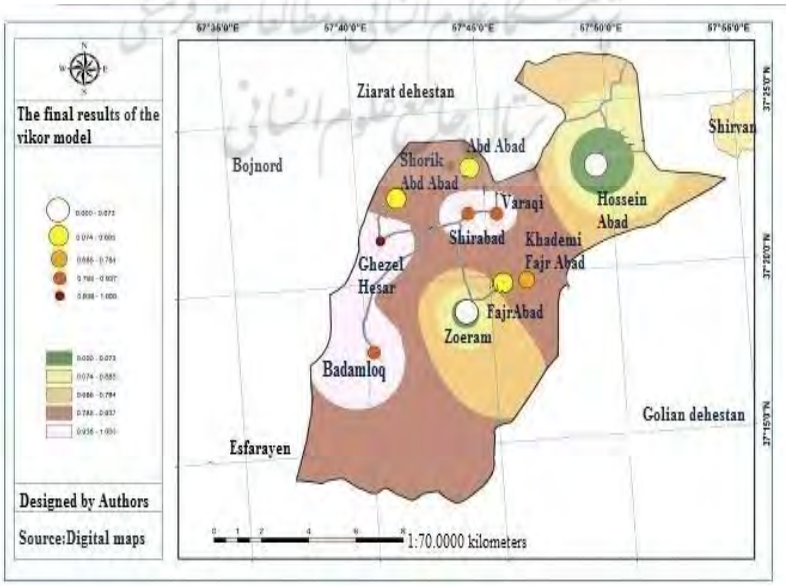

Figure 4.The score obtained from the Vikor analysis separated by the surveyed villages
(Source: Digital maps of North Khorasan Provincial Government, 2016)

The results of this model indicated that the village of Hosseinabad ranked 1st and Ghezel Hesar village with the 10th place have had respectively appropriate and inappropriate situations according to the ten indices of environmental quality compared to other villages. Thus, the studied villages appear to have a significant difference in terms of benefiting from ten indices of the environment's quality. As the village of Hosseinabad had a higher quality furniture in GRA model, it has had an optimal condition in terms of ten indices of the quality of the rural environment, as well. Therefore, one can argue that the high-quality furniture will affect the quality of the environment. Hence, the village of Hosseinabad and similar villages compared to the village of Ghezel Hesar have a better environmental quality due to benefiting from the quality of furniture and observance of design principles (legibility, layout), etc. Thus, improving the quality of the existing furniture in the village has led to the enhancement of beauty, improved environmental health, the creation of the visual beauty and many other factors. Some images of the furniture in the area covered by the study are given below, suggesting the same indication.

Figure 5. Images of the furniture in the studied area
(Source: Research Findings, 2016)

4.4. The Relationship between the Quality of Rural Furniture and the Environmental Quality of the Rural Settlements

The Spearman correlation test was used to investigate the relationship between the quality of rural furniture and the quality of the rural environment given the nonparametric variables with a relative scale.

The findings of Table 13 indicated that a significant relationship is established between all the environmental quality indices and the quality of the furniture since the significance value is at the error level less than 0.05 with a confidence of 99%. Among the indices related to the environmental quality, the variable of creating the space for leisure times with a correlation coefficient of 0.811 justifies the quality of the furniture more intensely (very strongly) than other variables explaining the quality of the environment. In this sense, increasing the spaces and places of spending leisure times in the rural environment will result in the welfare and comfort of the villagers. One can also admit that in the studied villages, the mentioned index in the dimension of quality of the environment has overshadowed the quality of the rural furniture by a positive attitude (welfare of villagers).

Table 13. The relationship between the quality of furniture and the quality of rural environment
(Source: Research Findings, 2016)

*	Index	Beautifying the village	Establishing Spatial Justice	Improving the Environmental health	Creating Visual beauty	Enhancing the sense of place	Creating spatial order	Creating a sense of security	Creating the sense of happiness	Improving the ب access routes	Creating the leisure time space
Strength	Sig	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	R	0.776	0.784	0.761	0.752	0.761	0.799	0.768	0.785	0.764	0.793
Layout	Sig	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	R	0.767	0.766	0.771	0.761	0.771	0.765	0.776	0.753	0.748	0.781
Readability	Sig	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	R	0.742	0.755	0.736	0.756	0.755	0.743	0.741	0.740	0.731	0.749
Access (availability)	Sig	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	R	0.765	0.759	0.754	0.763	0.770	0.770	0.763	0.774	0.785	0.783
Lawfulness	Sig	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	R	0.794	0.765	0.778	0.771	0.781	0.777	0.793	0.774	0.769	0.782
Welfare and Comfort	Sig	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	R	0.787	0.780	0.780	0.777	0.791	0.811	0.805	0.791	0.786	0.811
Furniture quality	Sig	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	R	0.765	0.760	0.751	0.744	0.761	0.770	0.764	0.762	0.757	0.777

Finally, among the indices related to the quality of the environment, the variable of improved accessibility with a correlation factor of 0.731 explains the quality of rural furniture (readability) with a lower intensity (strong) compared to other variables in the examined dimension. Thus, with lower access to activities, the legibility or, in other words, the consistency between the quality of the environment and the quality of rural furniture will be mutually less visible. Therefore, one can acknowledge that the quality of rural furniture is an effective factor in the qualitative changes of rural settlements.

5. Discussion and Conclusion

In this research, we tried to discuss and address the qualitative changes of rural settlements due to rural furniture. A desirable and satisfying settlement needs to enjoy essential, service-providing and facilitating comfort and welfare equipment to provide the living conditions for the general public. Accordingly, we tried to evaluate the current status of rural furniture regarding making changes in the rural settlements. The research results, also, indicated that the satisfaction rate of people with the whole rural furniture is at a moderate level. Hence, factors such as considering the need of villagers (such as having a shelter at the bus stop, especially in winter), the abundance of furniture and handling of destroyed furniture by the rural district administrators, and the visibility of furniture in any space (e.g., garbage bins with colors distinguished from the green space) affect the satisfaction level of the villagers in the use of the furniture.

In case of the ten indices of the dependent variable, one can say that the average respondents' opinion about the impact of rural furniture on the environmental quality was at a high level given the hypothetical average (2.5), while the least impact of rural furniture was on improving the accessibility index according to the respondents. This difference is significant at the level of 0.05% and the difference between the components in terms of examined numerical utility is positive. Regarding the sub-variables of the research, one can suggest that the dimensions of legibility are lower than the hypothetical average. Therefore, the legibility of the furniture has been at a poor level, which can be an effective factor in lowering the quality of the environment. The results of Spearman correlation also showed a significant relationship between rural furniture and rural environment quality. The simple linear regression was used to measure the impact of rural furniture on increasing the quality of the environment to

test the research hypothesis with regard to the significance of the relationship between the independent and dependent variables of the study. The results of simple linear regression also demonstrated that the relationship between the independent variable, i.e., rural furniture, and the quality of the environment is significant given the value of significance of 0.000, which is less than 0.05. Therefore, the rural furniture has a significant effect on increasing the quality of the rural environment. In other words, people will have a good feeling of quality of life in rural environments by increasing the number and variety of furniture in the rural environments. The results of the GRA model also showed that the villages of Fajrabad, Zoeram, and Hosseinabad were placed in the first to second ranks and the Ghezel Hesar Village ranked ninth due to the geographical location closer to the city, the presence of tourist attractions, the treatment of worn out furniture by rural district administrators, etc. This means that the first three villages have higher quality furniture and the last village has lower quality furniture compared to other villages. In addition, the results of the Vikor model suggested that the village of Hosseinabad with the first rank and Ghezel Hesar Village with the 10th place compared to other villages have had, respectively, desirable and undesirable conditions in terms of ten indices of environmental quality. Hence, the studied villages seem to have a significant difference in terms of having the ten indicators of the environment quality. The Spearman correlation results also revealed the influential effect of the quality of rural furniture on the qualitative changes of rural settlements. The results of this study were consistent with the results of the studies by Azimi, Molaeihashjin, Asheghi (2012), Malek Hosseini and Dargahi (2010), Sandooghabadi Etc. (2014) considering the effect of these physical elements on the level of satisfaction of individuals, and thereby, their effects on increasing the quality of the environment. However, these results are contradictory to the study of Azad Khani and Akbari (2013) where the low quality furniture in the study area has been effective in reducing the satisfaction of individuals. Tailored to the research results, some suggestions were presented in this study as follows:

- Locating rural furniture should be done based on the status quo and how the spaces are used by people. This will enhance the participatory sense and improve the cultural and social richness of the village. It also increases the people's satisfaction rate.
- Optimal use of indigenous materials to build the furniture of villages to maintain the authenticity and indoctrinating the sense of solidarity of the residents and employing the villagers in this field by establishing manufacturing workshops to build rural furniture to create jobs and reduce costs.
- Attention to the needs of users, both the old and the young, healthy and disabled, in locating and designing rural furniture.
- Conducting social studies regarding the needs, tastes and behavioral patterns of different rural groups to incorporate such factors in the design and installation of a variety of furniture in the village.
- Preserving, optimizing and organizing the existing furniture and handling the destroyed furniture by the rural district administrators in the villages.
- Providing the grounds for tourist attraction based on the potential and capabilities available (such as providing accommodation for tourists to stay in the village).
- Increasing the number and variety of available furniture and equipment by giving priority to those with more shortage (such as the establishment of restrooms in different villages, drinking fountains, gyms, telephone kiosks, etc.).
- Establishing suitable and standard stairs and steep levels at the entrance of spaces and public places for the use of the disabled.

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Reference

1. Akbarian Ronizi, S. R., & Shaykh-Baygloo, R. (1394/2015). Assessment of environmental quality in rural tourism (Case Study: Karaj, Asara District). *Journal of Rural Reaserches*, *6*(2), 433-457. [In Persian].

2. Azad Khani, P., & Akbari, T. (1392/2013). Investigating the role of urban furniture on the satisfaction of Ilam citizens. *Paper presented as a lecture at The first national Architecture and Sustainable Urban Spaces Conference (pp. 1-11),* Ferdowsi University, Mashhad, Iran. [In Persian].
3. Azar, A., Jounaghani, S .H., & Ahmadi Nik Jounaghani, P. (1393/2014). *Fuzzy theory and its application in decision making* (1th Ed.). Tehran: Safara Press. [In Persian].
4. Azimi, N., Molaeihashjin, N., & Asheghi, A. (1391/2012). Examining the physical impacts of implementation of Rural Guide Plans from rural residents view point case study: Miandoab County. *Journal of Studies of Human Settlements Planning,* 7(19), 25-37. [In Persian].
5. Azizipour, G., Lotfi, Z., Mohamadzade, S., & Hasanvand, B. (1393/2014). Evaluating the design of street furniture in Khoramabad Inghelab Street. *Paper presented as a lecture at The first national conference on urban planning, urban management and sustainable development (pp. 1-9),* Iranian Institute, Iranian Architecture Society, Tehran, Iran. [In Persian].
6. Bahrami Nejad, D. (1392/2003). *Recognizing and assessing the quality of the urban environment in the urban context (Case study: Shiraz City)* (Unpublished master's thesis). Urban planning, Faculty of Literature and Humanities, Shiraz University, Shiraz, Iran. [In Persian].
7. Bahreini, S. (1381/2002). *Urban design process* (3th Ed.) .Tehran: Tehran University Press. [In Persian].
8. Bulut, Y., & Atabeyoglu, O. (2007). Fountains as urban furniture in historical urban structure and usage culture: Erzurum City case. *Building and Environment, 42*(6), 2432-2438.
9. Chang, C.L., & Hsu, C. H. (2009). Multi-criteria analysis via the VIKOR method for prioritizing land-use restraint strategies in the Tseng-Wen reservoir watershed. *Journal of Environmental Management, 90*(11), 3226-3230.
10. Cheraghi, M., Jafarian, Z. M., Abbasi, S., & Badri, S. A. (1394/2015). Evaluating the effects of Rural Conductor Plans on creation of a lively rural habitat Case study: GhaniBiglou, Zanjan County. *Journal of Management System, 2*(4), 50-59. [In Persian].
11. Farahani, H., Einali, J., & Ghasemi Viari, H. (1393/2014). The role of capacity building in the management of earthquake risk reduction in rural areas Case study: Rural District of Sombol Abad, Abhar County**.** *Journal of Housing and Rural Environment, 33*(145), 63-74. [In Persian].
12. Feng, B., & Xia, P. (2014). Study on the method of landscape ecological design for the urban furniture. *Journal of Applied Mechanics and Materials*, 2(522-524), 1645-1648.
13. Ghalibaf, M. B., Roostayi, M., Ramezan Zade Lasbuie, M., & Taheri, M. (1390/2011). Evaluation of quality of urban life in Tehran, Yaft Abad Region. *Journal of Community Geography, 9*(31), 33-53. [In Persian].
14. Golkar, K. (2000). Parameters of quality in urban design. *Soffeh Journal, 11*(32), 38-65. [In Persian].
15. Heidarinia, S., Amanpour, S., Atashafrouz, N., & Nazarpour Dazki, R. (1393/2014). Investigating the status of urban furniture (Case study: Gale Tel). *Paper presented as a lecture at The First National Conference on Geography, Urban Planning and Sustainable Developmen (pp.1-16),* University of Industrial Air, Tehran. Iran. [In Persian].
16. Hesam, M., Cheraghi, M., & Ashor, H. (1393/2014). Analysis of Environmental Impacts on Rural Physical Development Case Study: Shahkooh Sofla. *Journal of Housing and Rural Environment, 33*(148), 64-78. [In Persian].
17. Jomeh Pour, M. (1384/2005). *Introduction to rural development planning* (1st ed.). Tehran: SAMT Presses. [In Persian].
18. Malek Hoseini, A., & Dargahi, M. M. (1389/2010). Rustic furniture design. *Journal of Geography and Urban Planning: Zagros Viewpoints, 2*(6), 151-163.[In Persian].
19. Mohamadi, A., & Molaei, N. (1389/2010). Applying a Multi Criteria Decision Making Model Based On Grey Theory In Performance Evaluation Of Firms. *Journal of Industrial Management, 2*(4), 111-124. [In Persian].
20. Mohandesi, M., Shirazi, H., & Heydari, M. M. (1392/2013). Assessment the needs of the audience in the tend of urban furniture design in Old Texture of Shiraz Case study: Sang Siyah Region. *Paper presented as a lecture at The First National Conference on Architecture,Restoration, Urban Planning and Sustainable Development (pp. 1-12),* Hegmatane Environment Evaluators Association, Hamedan, Iran. [In Persian].
21. Porteous, J. D. (1971). Design with people: The quality of urban environments. *Journal of Environment and Behavior, 3*(2), 78-155.

22. Pour Jafar, M. R., Taghavi, A. A., & Sadeghi, A. R. (1388/2009). The effect of improving visual art on improving the urban public environments, case study: Tehran- Azadi Street. *Journal of Urban Management*, 7(24), l66-80. [In Persian].
23. Sandoogh Abadi, M., Fathollahi, G., & Mansouri, R. (1393/2014). The effects of urban furniture on social relationships, *Paper presented as a lecture at the first conference of Niaresh, permanent city (pp. 4-17), Safiran Mobin Cultural Institute*, Tehran, Iran. [In Persian].
24. Shafaati, A. (1387/2008). *An analysis on civil streets with emphasis on sidewalks (Unpublished master's thesis).* Geography Department, Faculty of Humanities & Social Sciences, Tabriz University, Tabriz, Iran. [In Persian].
25. Shoorche, M., & Shemshadi, F. (1394/2015). Spatial representation of urban furniture elements and their role on quality of life and citizen's satisfiction Case study: Malayer. *Paper presented as a lecture at The First National Conference on Tourism, Geography and Clean Environment* (pp. 1-20), Bu-Ali Sina University, Hamedan, Iran. [In Persian].
26. Sojasi Qeidari, H. (1395/2016). Guide Plan Implementation Impact Assessment on Environmental Quality in Rural Area North and South Fendresk Rural district. *Journal of Geography and Planning*, *20*(57), 151-173. [In Persian].
27. Sojasi Qeidari, H., Sadeghloo, T., & Mahdavi, D. (1394/2015). Explanation the role of destination environmental quality on improving of tourist intellectual imaging Case study area: tourism destination rural of Rood bar- Ghasran rural district. *Journal of Spatial Planning*, *19*(2), 62-88. [In Persian].
28. Taghvaee, A. A., Maroufi , S., & Pahlavan , S. (1392/2013). Evaluation of the Effects of Environmental Quality on Residents' Social Relations: Aab-Kooh Sector in Mashhad City. *Journal of Naqshejahan,3*(1), 43-54.[In Persian].
29. Torino, H. (2006). *Street furniture*. (2th Ed.). Kent Town. Australia*:* Wakefield Presses.
30. Van Kamp, I., Leidelmeijer, K., Marsman, G., & Hollander, A. D. (2003). Urban environmental quality and human well-being toward a conceptual framework and demarcation of concepts: A literature study. *Journal of Landscape and Urban Planning, 65*, 5-18.
31. Zahedi Yeganeh, A., & Ghadr Jani, R. (1390/2011). Effects of urban furniture on identity of cities and citizens. *Journal of Information Technology*, *62*, 24-28. [In Persian].
32. Zeinali, H. (1392/2013). *Study of the status of urban furniture (Case study: City of Shandiz)* (Unpublished master's thesis). Urban planning, Faculty of Humanities, Islamic Azad University, Shirvan, Iran. [In Persian].

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بررسی تغییرات کیفی محیط سکونتگاههای روستایی ناشی از احداث مبلمان روستایی (مطالعهٔ موردی: دهستان زوارم شیروان)

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چکیده مبسوط

۱.مقدمه

توجه به افزایش سطح کیفیت سکونت‌گاه‌های روستاییان به عنوان دغدغه اصلی برنامه‌ریزان و مدیران می‌باشد. در چنین بستر و زمینه ای رویکرد سنجش کیفیت محیط در مناطق روستایی در پرتو مبلمان روستایی می‌تواند به عنوان رهیافتی مناسب برای شناخت و درک تفاوتها و نامتعادلی‌های کیفیت محیط زندگی روستایی در جهت دستیابی به هدف زندگی مطلوب روستایی باشد تا از این طریق بتوان در راستای در دستیابی به توسعه پایدار، پایدارسازی جمعیت روستایی و ... تلاش کرد. لذا اهمیت پرداختن به این موضوع از این جهت است که محیط روستایی مطلوب با میزان جذابیت خود و اثرگذاری بر ذهن انسان موجبات پویایی و سرزندگی و حضور بیشتر ساکنین در فضای روستایی می‌شود و بدین طریق امنیت خاطر، حس تعلق خاطر، افزایش حس شادکامی و ... تحقق می‌یابد. بنابراین با توجه به ابعاد اصلی پژوهش (مبلمان روستایی) و همچنین شاخص‌های تعریف شده برای بعد (کیفیت محیطی) در فرایند پژوهش، سوال اصلی تحقیق بدین صورت مطرح می‌شود که تغییرات کیفی محیط سکونت‌گاه های روستایی تا چه اندازه ناشی از احداث مبلمان روستایی است؟

۲.مبانی نظری تحقیق

ارتقاء کیفیت محیط در سکونت‌گاه‌های روستایی در ابعاد مختلف از اهداف مدیران و برنامه‌ریزان روستایی می‌باشد و در همه شرایط تلاش می‌گردد تا محیط مناسبی برای زندگی روستاییان فراهم شود. کیفیت محیط تحت تاثیر اجزا و عناصر مختلفی است که یکی از آن عناصر کالبدی، مبلمان روستایی می‌باشد که در فضای روستایی قرار دارد. مبلمان روستایی از آن جهت که موجب بالا بردن کیفیت زندگی روستایی و زمینه رشد و شکوفایی خلاقیت در روستاییان می‌شود از اهمیت بسیاری برخوردار است. از این رو در جامعه امروز باید طراحی فضاها و مبلمان روستایی به‌شکلی صورت گیرد که بتواند پاسخگوی نیاز افراد باشد. بنابراین با طراحی مناسب و به کارگیری مبلمان روستایی متناسب با محیط روستا و نیاز روستاییان و با افزایش کیفیت مبلمان از جنبه‌های گوناگون از جمله استحکام، جانمایی، خوانایی و مواردی دیگر؛ بهبود دسترسی، زیبایی بخشی، حس شادکامی، تقویت بهداشت محیط و مواردی نظایر آن که ماحصل آن ارتقاء کیفیت محیط در سکونت‌گاهای روستایست محقق می‌شود. لذا ارتقاء کیفیت محیط روستایی در گرو افزایش امکانات روستایی از جمله افزایش تعداد مبلمان نیست، بلکه تاکید بر استانداردهای رفاهی و تفریحی با در نظر گرفتن شرایط اجتماعات روستایی در زمینه های گوناگون است. بنابراین در مقیاس کلان، توسعه زیرساخت‌های مناسب و مدیریت آنها به منظور پاسخگویی به نیاز اقشار مختلف در راستای ارتقاء کیفیت محیط امری ضروری است.

۳.روش تحقیق

پژوهش حاضر از نظر هدف و نوع جزء تحقیقات کاربردی و از نظر ماهیت و روش در گروه تحقیقات توصیفی و تحلیلی است. جمع‌آوری داده‌ها از طریق روش کتابخانه‌ای و مطالعات میدانی با استفاده از پرسش‌نامه می‌باشد. برای عملیاتی‌سازی مطالعه، متغیرهای تحقیق در قالب ۱۴ شاخص کیفیت مبلمان و ۱۰ شاخص کیفیت محیط در قالب طیف لیکرت طراحی گردید.

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روایی شاخص‌ها نیز از طریق پانل تخصصی و بررسی پایایی پرسش‌نامه با استفاده از ضریب آلفای کرونباخ انجام گرفت که مقدار آن ۰,۹۹ بدست آمد که نشان دهنده قابلیت زیاد ابزار پرسش نامه است. جامعه آماری پژوهش شامل تمام روستاهای دهستان زوارم شیروان است که به صورت تمام شماری و انتخاب نمونه از جامعه آماری به صورت نمونه‌گیری تصادفی ساده و حجم نمونه با استفاده از فرمول کوکران در سطح خطای ۰/۰۶می‌باشد که ۲۳۷خانوار به عنوان نمونه انتخاب شدند. در نهایت با ارتقای نمونه‌ها در روستاهای کم جمعیت به سطح حداقل لازم، تعداد۲۵۸ خانوار به عنوان حجم نمونه آماری به دست آمده است.برای تجزیه و تحلیل داده‌ها از دو روش آمار توصیفی و استنباطی و همچنین تصمیم گیری چندشاخصه (MCDM) استفاده شده است.

۴.یافته‌های تحقیق

یافته‌های تحقیق بر اساس آزمون خی‌دو نشان داد که میزان رضایت افراد از مجموع مبلمان روستایی در حد متوسط می‌باشد. در بین شاخص‌های ده‌گانه کیفیت محیط می‌توان گفت که متوسط نظر پاسخ‌دهندگان نسبت به اثرگذاری مبلمان روستایی در کیفیت محیط با توجه به میانگین فرضی (۲,۵) در سطح زیاد بوده به گونه‌ای که کمترین اثرگذاری مبلمان روستایی مربوط به شاخص بهبود دسترسی‌ها بوده است. در ارتباط با سایر متغیرها می‌توان اظهار داشت که در بین ابعاد کیفیت مبلمان، ابعاد خوانایی پایین‌تر از میانگین فرضی قرار دارد، لذا وضعیت خوانایی مبلمان در سطح ضعیف بوده است که می‌تواند عاملی تاثیرگذار در پایین آوردن کیفیت محیط باشد. نتایج حاصل از همبستگی اسپیرمن و رگرسیون خطی ساده نیز نشان داد با توجه به اینکه مقدار sig برابر با ۰,۰۰۰ است که کوچکتر از ۰,۰۵ و معنادار است ارتباط و اثر معنی‌دار و خیلی قوی بین مبلمان روستایی و کیفیت محیط روستایی وجود دارد. لذا مبلمان روستایی تاثیر معناداری در افزایش کیفیت محیط روستا دارد. نتایج حاصل از مدل تحلیل رابطه خاکستری نیز نشان داد روستاهای فجرآباد، زوارم و حسین آباد در رتبه‌های اول تا دوم و روستای قزل حصار در رتبه نهم قرارگرفته‌اند. به این معنی که سه روستای اول از کیفیت مبلمان بالاتر و روستای آخر از کیفیت مبلمان پایین‌تری نسبت به سایر روستاها برخوردارند. همچنین نتایج حاصل از مدل ویکور نشان داد که روستای حسین آباد با کسب رتبه ۱ و روستای قزل حصار با کسب رتبه ۱۰ در مقایسه با دیگر روستاها از نظر شاخص‌های ده‌گانه کیفیت محیط به ترتیب دارای وضعیت مطلوب و نامطلوب بوده‌اند. بنابراین مشخص می‌شود که روستاهای مورد مطالعه دارای تفاوت قابل ملاحظه‌ای به لحاظ برخورداری از شاخص‌های ده‌گانه کیفیت محیط هستند. نتایج حاصل از همبستگی اسپیرمن هم نشان داد کیفیت مبلمان روستایی عاملی اثرگذار در تغییرات کیفی سکونتگاه‌های روستایی است.

۵. بحث و نتیجه گیری

بر اساس آزمون رگرسیون خطی ساده و همبستگی اسپیرمن مشخص شد مبلمان روستایی تاثیر معناداری در ارتقاء کیفیت محیط روستا دارد. به گونه‌ای که کیفیت مبلمان روستایی نیز عاملی اثرگذار در تغییرات کیفی سکونتگاه های روستایی است.لذا انجام مطالعات اجتماعی در خصوص نیازها، سلایق و الگوهای رفتاری اقشار مختلف روستایی جهت منظور کردن در استقرار انواع مبلمان در روستا، حفظ، بهسازی و ساماندهی مبلمان موجود و رسیدگی به مبلمان‌های تخریب شده از سوی دهیاران در روستاها، فراهم نمودن زمینه جذب گردشگر با توجه به پتانسیل و قابلیت‌های موجود (مانند فراهم نمودن مکان اقامتی برای ماندن گردشگران در روستا)و توجه به عواملی که در اشتیاق و مراجعه بیشتر روستاییان به مبلمان در فضاهای مختلف دخیل هستند و در ارتقای کیفیت محیط اثرگذار می‌باشد پیشنهاد می‌شود.

کلمات کلیدی: مبلمان روستایی، کیفیت محیط، توسعه روستایی، مدل ویکور، تحلیل رابطه خاکستری.

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