A Study on the Effective Factors in the Vitality of Residential Complexes
The Case Study of *Azadegan*, *Lakan* and *Golsar* Residential Complexes in Rasht

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Abstract

This survey is conducted with the purpose of studying factors effective in vitality of residential complexes. This is an important subject because through recognition of the reciprocal relation between human being and environment -as far as vitality is concerned- various attitudes and approaches can be recognized and on the other hand, for the purpose of explaining the concept of vitality in the domain of architecture, we can define some physical and conceptual criteria and indicators in residential complexes which allow improvement of mental welfare and social stability. This survey is a fundamental research conducted based on inferential method, content and comparative method. Data were collected through documentary method and through conducting field study in *Azadegan*, *Lakan* and *Golsar* Residential Complexes of Rasht and were studied through analytical-Survey Method. Data collection tools included questionnaire and photos. The theoretical framework of this research was based on the psychology of vitality and happiness-oriented approach and puts emphasis on understanding the issue and merging it with the theory of perception which is based on final result of perception of space and also based on Gibson's information theory in the domain of perceiving space elements and factors.

The data analysis reveals that the three indicators of vitality in residential complexes include mental, physical and service indicators that taking the standards of these three indicators and the degree of their influence and priority into account can be considered in designing alternatives.

Keywords: Psychology, Residential Complex, *Azadegan*, *Lakan*, Vitality, Physical Indicator

1. Introduction

Knowing that environment affects human's behavior and relationships and assuming that architects as creators of environments, are able to transfer qualities and characteristics from environment to human, it becomes necessary to pay increasing attention to environment and to the effects it has on users' vitality .The concept of living and physical and mental presence of human require mental welfare because vitality is rooted in recognition of conditions, factors and alternatives that result in recognition of space and place. To be more vivid, the relationship between human and environment does not convey a direct feedback, rather it is a mutual interaction that includes mental characteristics of human on one part and the physical and architectural elements on the other part. Hence, the goals of this essay can be classified under the following categories:

Major Goal: A survey on the factors effective in vitality of residential complexes inhabitants

Minor Goals:

1. Identification and study of mental and physical factors that create vitality in the environment
2. Identification and study of physical and architectural factors effective in improving vitality
3. Identification and study of security and facilities of complex and their effect on improving vitality.

Applied Goal:

1. To develop a proper ground for vitality of residential complexes inhabitants and based on recognition and through applying desirable elements and architectural principles

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The research hypothesis resulted from precise study of the questions involved as follows:
Mental, physical and service-related factors should be considered in designing standards in order to improve vitality in residential complexes.

To achieve its goals, this essay takes the following steps:
- Refers to psychological issues to find the precise meaning of vitality based on concepts of welfare and happiness.
- Adapts the theoretical findings to real architectural issues in order to provide a clear definition of vitality in architecture.
- Based on findings, extracts measurable indicators and standards to assess vitality of environment.

2. Research Method

With respect to the effort of this essay in presenting indicators and standards of vitality in architecture, since the discussion is of a theoretical nature, the research is classified under the category of fundamental researches and the following methods have been applied:
- To find a definition, psychological texts are used, contents are analyzed and rational methods applied
- To apply psychological principles to architectural issues, survey method is used and comparative and rational methods are used to extract indicators and standards.

3. Statistical society and size of sample

The statistical society concerned in research includes all residential complexes in the city of Rasht. Now, with the knowledge that the sample is a part of society subject of study which is selected, by this section, it is possible to gain information on the total society. Following studies, the three residential complexes of *Azadegan*, *Lakan* and *Golsar* have been selected as representatives of residential complexes in the city of Rasht, to test the hypothesis.
There are two points which should be noted in this regards; first, city of Rasht has special climatic and social conditions and is of course in the class of not a metropolitan city and not a town either with particular cultural issues and covers different entities and therefore, it was selected accordingly. Second, in selecting the cases of statistical society of all residential complexes of the city, it was tried to study three townships with different economic and welfare states to cover a series of answers which include overlapping of poor, average and high income classes.
Based on the above-mentioned subject, the questionnaires were distributed among 35 families in each complex to be answered by individuals who had minimum a university degree in the 25-40 years old range. In this part, while providing sufficient explanations around each question and informing the respondents of the specialized terms and vocabularies such as proportions, form, volume, vitality etc., a sample size of 105 individuals was made.

4. History of research

Due to the change in situations and factors affecting the urban development in recent years, residential complexes have achieved a special place in the formation of cities.
Comminutes, as urban physical spaces, are small communities which have been enclosed by physical elements such as walls, fences and doors and isolated from other neighborhoods. (Sadrmousavi et. al. 2015)
In studying different issues, although no precise definition was found on the vitality sense based on its structural implication in architecture and the innovative aspect of this article is the essence of this paper. However, there have been sources which were used in this paper as follows:
- Zabojo, Hossein; Habib, Farrokh; Rahbari Manesh, Kamal, (2011), Study the Relationship between Satisfaction from Residential Complex on man's relations, published at City Identity Journal, Vol. 8, I.A.U.
In this paper the authors has studied the satisfaction and dimensions of its effects on human life through comparative review to determine the elements and indexes of environmental satisfaction in a residential complex and describes that category in human relations through field studies and by benefitting from statistical techniques in human relations.
- Namazian, Ali, (2000) "Psychological Needs in Relations with Artificial Environment" in Soffeh Journal, Vol. 30, Tehran, Shahid Beheshti University.
The author has noted the counter relation of man and environment in the paper and uses psychology and behavioral science to describe the inter-mix of those categories in environment, space and place and practically analyzes the psychological relationship of man and his surrounding environment.

5. Theoretical Framework

Aristotle was the first thinker that paid attention to the vitality, feeling of happiness and well-being of man. In Aristotle's view, the happiness emerging from the experience of pleasure is different from the pleasure of "living good". (Izank, 1996, p. 34). He believed that satisfaction and ultimate well-being of man requires benefitting from individual abilities and active follow up of goals and perfection values. In addition, he suggests that following up those perfect goals is a valuable trend and is considered as one of the most human goals all by itself (Rayan, 2006, p. 104). All across the history, philosophers and religious leaders have offered several implications of vitality. As an example, the moralist Bentham has suggested that existence of pleasure and absence of pain are main characteristics of a good life.

Therefore; moralists are pioneers of research in vitality that emphasized on emotional, mental and physical pleasures and sufferings as experienced by man (Averill, 2011, p. 153).

In the beginning of 20th century, experimental studies were developed in the area of vitality. Flogel (1925) studied individuals' moods through registering their emotional events and in some cases, their passion reactions. After that, to early 1980s, major studies on vitality and relevant concepts were made on vitality and relevant concepts including researches on background detection researches (Linley, 2009, p. 21). However, in contemporary time and as vitality has been included in scope of new eras of positivism psychology (born in 1950s) (Denier, 1997, p. 295), the recent literatures on vitality were discussed and analyzed on the basis of two approaches of pleasure and well-being aspects.

The approach based on mere focusing on seeking pleasure, omitting pain and suffering to achieve pleasure was developed along with an approach which paid attention to the habit and perfection of the man, not only as a guide towards leading a perfect and meaningful life, but also as an approach to lead to a more sustainable and durable joy and happiness (Fordyce, 1997, p. 21). In the light of this implication, the well-being approach in vitality is mainly a flower of Aristotle's viewpoint that believes man's vitality and welfare is attached to his movement towards perfection, greatness and knowing the specifications and characteristics (Ibid, p. 22). In general, it could be said that well-being approaches believe that vitality is an outcome of cognitive abilities that help people to cope with their environment and life (Linley, 2009, p. 59) and in this regards, there are some characteristics that have been introduced as psychological sources with effects on the vitality in that approach, namely, perceived domination over events and environment, source control, self-confident, knowledge, flexibility, self-efficiency and persistence (Okun, 1994, p. 121).

However, on the fundamental processes of human behavior, one should admit that environment has a potential power in providing experiences and behaviors of man and those basic processes reveal the interaction between man and environment. Information on environment is obtained through perception processes that are motivated through mental templates and are guided by human needs (Namazian, 2000, p. 35). Those templates or plans are in some extent inborn and in some extent acquired and establish the connection between perception and cognition. The templates not only direct the perception processes, but also the sensation reactions (emotion) and acts (spatial behavior) and in turn, those processes and reactions affect mental images (templates) as the output of perceived behaviors (Lang, 2009, p. 28). Human emotions and actions are limited by the capabilities of natural and man-made cultural environments and inner personality of man (McAndro, 2008, p. 9).

In this regards, perception could be defined as a goal oriented and active process of acquiring information from surrounding environment of man. In another word, perception is a point where cognition and reality meet (Iravani, 2001, p. 35). Now, by believing the obvious role of movement and multi-basis perception system, it is essential to note that what we call perception is an implication of space rather than place, as place is sensed in terms of being or not being, not as a perception; and the other point is a fundamental difference that exists between perception and cognition, as perception includes an external insight while cognition is an inner view and attitude (Feyzi, 2004, quoted).

Now, with those implications, the relationship between environment and perception defines the external mechanism of space. There are two general views on perception in that respect; first emphasizes on sensational experience and the second relies on sensory system as active and related systems. The first class explains the placement of sensory data and assumed units of perception in brain (such as Gestalt theory) and the second class believe that perception is based on information (such as Gibson's Ecologic approach) (Lang, 2009, p. 102). In this way, the categories around space quality and sense of place are concepts related to environment and aesthetic priorities in the framework of structure pattern and in this course, man's environment affects him in various levels (Ibid, quoted). Essentially, psychology defines vitality in architecture as studying the quality of reflection of needs and man's priority in domination over environment perception as well as formation of counter effects through different designs (McAndro, 2008, p. 14). Therefore, in the light of the above-mentioned interpretations and careful study of Fig. 1, as well as by viewing the index of perception domination over environment as one of the major indexes of vitality and mixing them with the theory of perception and cognition, it becomes possible to know space and its attachments as the connecting device of human soul with architecture texture; while that relation in clear way could be deducted from well-being approach on one side and the theory of perception and cognition on the other hand. That is, well-being approach introduces the subject as the perception of environment, and perception theory; whether from Gestalt view or Gibson's opinion, expresses the subject as to be the perception. Now, the point is that the theoretical framework of this research emphasizes on the environmental information and data and focusing on object, here called space.

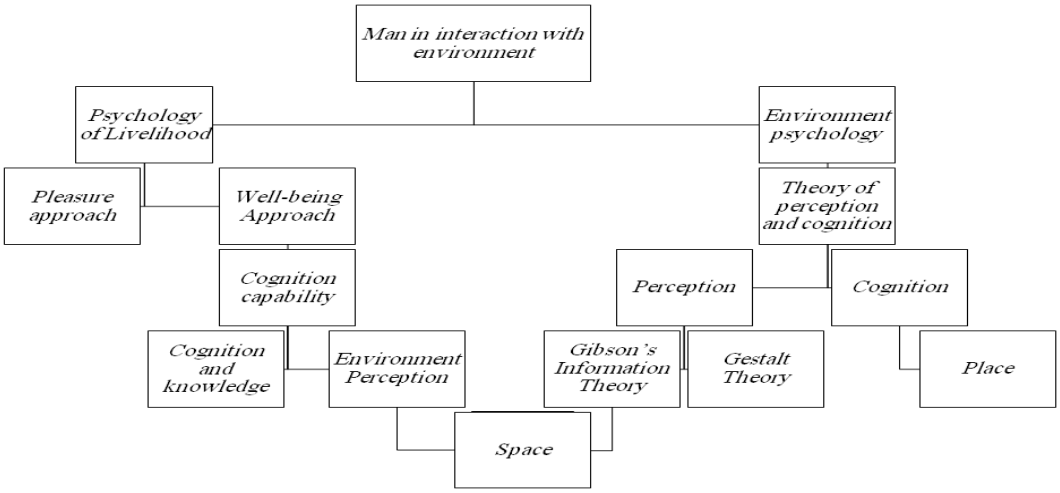


Fig. 1. The quality of life in space by considering the intention between man's mentality and environment (Source: authors)

6. Findings of Research

An account on vitality and its approaches

For several centuries, the thinkers have discussed what is a good life? Sometimes they emphasize on criteria such as loving others and pleasure or insight as characteristics of quality of life (Shahidi, 2000, p. 26).

There is another research that describes life that shows more individualistic view on quality of life because it gives rights to individuals to choose if their lives are valuable or not. This approach on a good life is called vitality that sometimes is synonymous with "joy" (Denier 1997, p. 203). Individual's assessment of their lives might be based on cognitions or passions. Therefore, individuals will have higher vitality when they experience satisfaction of life and feeling of happiness and seldom show negative passions such as sorrow and rage (ibid, p. 294). The vitality category has become a subject of experimental research in 1960 and recently, it has been restudied by Denier 1999 (Venhoven, 2003, p. 125). Since 1973 vitality has appeared as a scientific term in international papers on psychology; while in some scientific papers, vitality has been synonymous with "welfare" or "mental welfare" and "satisfaction of life" (Panahi Shahri, 2003, p. 78). In general, is a branch of behavioral sciences that studies individuals' assessment of their lives and covers different concepts on momentarily moods to general judgments on life (Denier, 1997, p. 294).

In answering the question of 'what is vitality'? Psychologists have given two answers. A group only believes it as the experience of a positive passion such as satisfaction of life in generally or partially, and/or pleasure; however, another group of researchers, in addition to believing passion and sensational dimensions for it, believe some cognitive aspects for it too. The cognitive dimension notes the cognitive and judgment factors as well (Venhoven, 2003, p. 125), while the sensational dimensions considers vitality as a passionate and feeling state and/or superiority of positive passion over negative passion (Kar, 2006, p. 112). At the same time, it must be noted that in most questionnaires, both passion and cognitive aspects are assessed (Argabel, 2003, p. 131). However, the question is that what are the categories of vitality and what criteria or standards must be focused in assessing this concept? In reply to this question, it could be said that different people believe in different concepts of a good life. Some people give high importance to individual relations while others, give more value to welfare and security. Some other people believe that environment improves their vitality (Denier, 1997, p. 296). Ryan and Desi believe that researches made on vitality area could be included in two groups: researches that mainly focus on categories and principles of pleasure seeking, and researches that focus on meaning, and self-flourishing and relevant categories. Those two researchers believe that seeking pleasure and well-being are supplementary approaches in man's vitality (Ryan, 2006, p. 135). In fact, the well-being and pleasure seeking approaches have no disagreement on the concept of happiness or good feeling; however, the pleasure approach mainly focuses on a particular consequent named "the existence of positive emotion and absence of pain" while perspective approach mainly focuses on the contents of individual's life and the process of his relationship with life and environment (Linley, 2009, p. 118).

Based on mentioned interpretations, two approaches on vitality could be interpreted.

- Pleasure seeking approach: Based on pleasure seeking approach, individuals try to gain pleasure and refrain from pain; therefore, vitality in pleasure approach is accompanied by and equivalent to pleasure or mental joy (Averill, 2011, p. 155). Spangler and Palersia on this research believe that mood and passions of people reflect their reactions against environmental events and happenings. Therefore, in the template of this approach,

vitality indexes include satisfaction of life, existence of positive mood and absence of negative mood (Ibid, p. 157) and happiness and welfare are products of sum of those three elements. In fact, the dominant principles in psychologists view that follow pleasure seeking tradition is that vitality includes mental happiness and cover individual's judgment on good and bad indexes in life in a broader aspect. With respect to the indexes of vitality in terms of pleasure seeking approach, psychologists and sociologists have often paid attention to that view (Shahidi, 2010, p. 74-75).

-Well-being approach: The well-being research approach in psychology significantly differs with pleasure seeking approach. In this approach, vitality is defined as psychological well being and as flourishing the actual potential of the individual (Izank, 1996, p. 34). The well-being mainly focuses on individual's contents of life and the existing procedure in "good life". In fact, the goal of researches in well-being vitality includes specifying what elements constitute good life and what the outcomes of such life are (Kar, 2006, p. 116). In the existentialistic philosophy, it suggests that many events of life are beyond our control and welfare is the outcome of type of confrontation and interactions with those events (Averill, 2011, p. 160). In this context, positive welfare happens when the individual feels governs over environment and could organize his behaviors (ibid, p. 161).

7. Vitality and environmental factors

With respect to the interaction of man and environment and an instrumental relation named space, which is perceived through the environment factors and elements, architecture indexes and elements have large effects on man's vitality; on the other hand, in a general view, the architectural and environmental factors could be divided as follows (Zabihi, 2011, p. 106)

- Accesses
- Mass and space
- Urban figures
- Environment
- Quality and quantity characteristics

- Accesses: This item includes external access and the method and quality of connecting the residential complex to the major and minor veins of the city on one hand and internal accesses and methods, shape and quality of connection of various sections of a residential complex, as important factors in environmental vitality.

- Mass and space: This includes form, volume and layout of blocks to each other and establishing spatial core, providing open spaces and outdoor with good quality, creating an aesthetic combination between construction mass and urban space and amount of enclosures that could all serve as effective factors on individual's vitality.

- Urban figure: This includes integrity and unity of building, neatness of façade and coordination with peripheral texture that have effects in individuals' vitality.

- Environment: This includes the existence of sufficient and various green spaces, sufficient light, suitable view along with elements such as trees and bushes, water and vegetations and subsequently, desirable and fresh air, which are important factors in individuals' vitality.

- The quantitative and qualitative characteristics: This item includes spatial and geometric proportions, texture and color of materials, quality of natural and artificial lights, openings and suitable views in terms of structural quality, peace and silence, respect, safety and friendly relations which are effective in vitality of people in psychological term.

Regarding the quantitative characteristics, one may note the population density, per capita and economic concerns of habitants.

-In addition to above-mentioned factors, service and facilities specifications are to be noted that include welfare facilities, recreation and sports spaces, meeting halls, playgrounds and services and all are able to have significant effects in the joyfulness of the inhabitants of residential complex.

8. Vitality in architecture framework

Based on the above-mentioned subjects and considering natural factors, vitality indexes in architecture, as noticeable in Fig. 2 too, could be divided and described in three scopes as follows:

- Psychological indexes: This includes peace and silence, mutual respects, amount of safety and sense of security (Gifford, 2009, quoted). The degree of friendly and close relations, have suitable personal place, division of public and private limits, density and population in residential complexes (Mortazavi, 2001, p. 28).

- Texture indexes: This includes amount of restriction and enclosures, form and volume, spatial proportions, quality and type of façade, texture and color of materials, methods of using natural light, amount of using artificial light, wind and ventilation, openness and windows and perspectives in the textures of residential complexes.

- Service indexes: This includes: Methods of design and layouts of site elements, external accesses, surface of services, shape of path and local accessibility, neighborhood, proportional spaces and existence of meeting halls and green spaces.

9. Questionnaire development and sampling

therefore, based on existing hypothesis**:** There are Psychological, structural and service indexes in form of designing criteria that improve vitality in residential complexes; and based on the presented indexes in Fig. 2, a questionnaire (table number 1) has been developed and

was used in Azadegan, Lakan and Golsar residential complexes in city of Rasht and was distributed among 105 families subject of test. In addition, it should be mentioned that in developing questionnaire (table number 1), studying the effects of six psychological indexes has been assigned to another paper for the following reasons and therefore, the series of questions in table 1 started from number 7:

-Differences in research methodology and type of analysis through using surveying method in Delphi method and the view of experts along with a deep interview.

-Fundamental differences of questions in the psychological indexes range and requiring standard questionnaires in psychology discipline.

-Preventing redundancy and unnecessary prolongation of the paper

-The approach adopted in paper in providing explicit points on structural design.

With those interpretations, in short, it could be said that as vitality is the alert state of mind, it could be measured by questions and in this respect, Oxford questionnaire has a high reliability and credit (Argabel, 2003, p. 149). This questionnaire includes seven categories of vitality; positive cognitive process, social obligations, positive emotion, sense of control, physical proportion, self-satisfaction and mental knowledge.

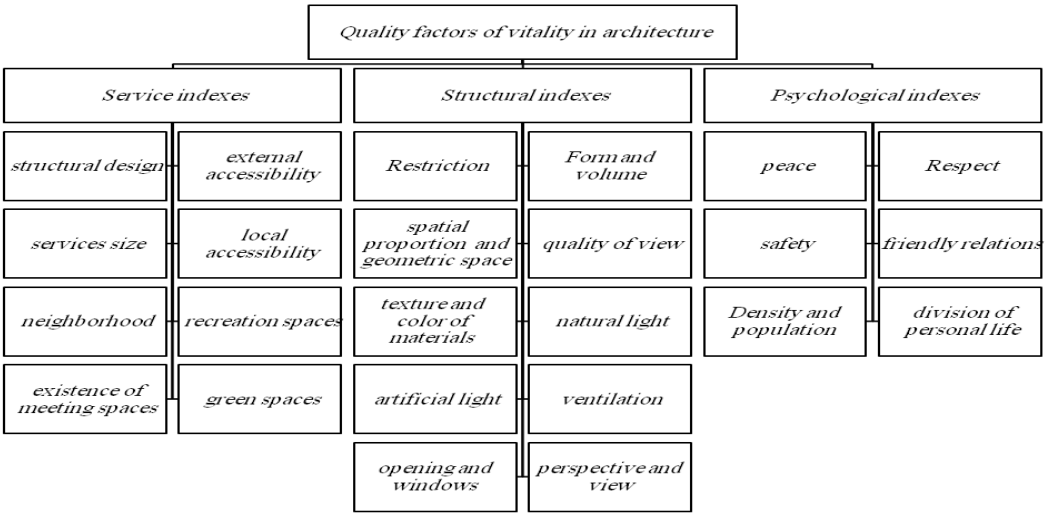


Fig. 2. Vitality indexes in architecture (source: authors)

Table 1
Questionnaire development on research hypothesis

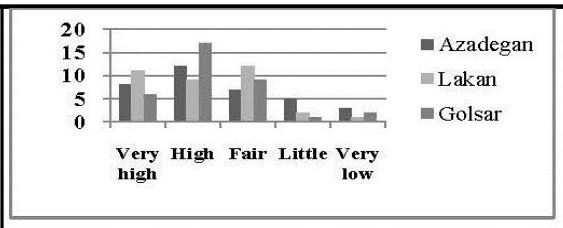
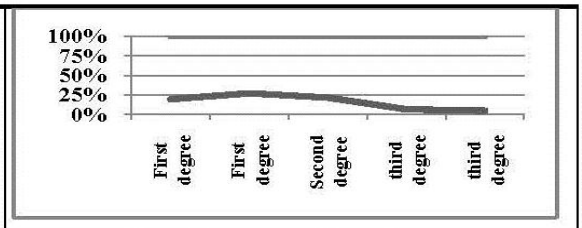
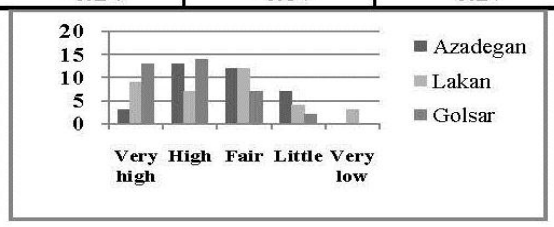
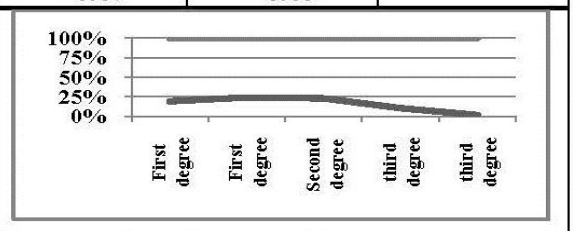
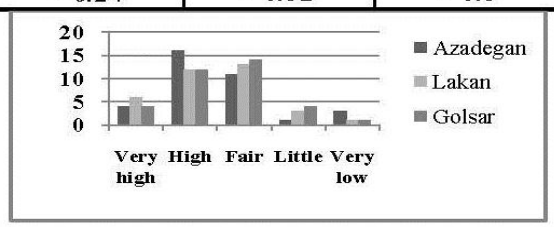
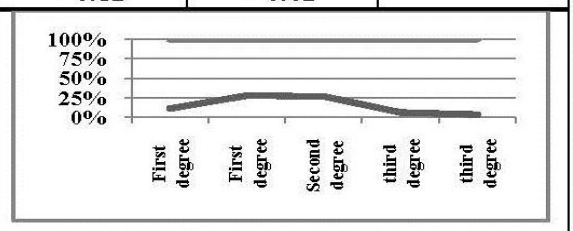
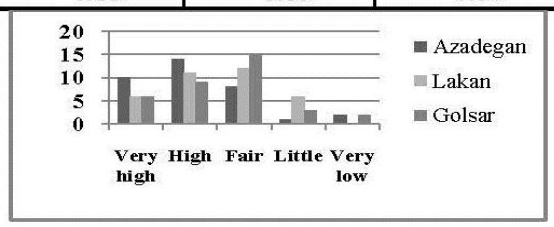
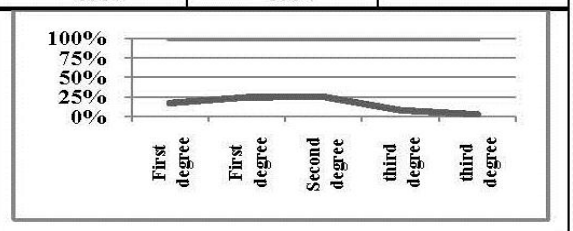
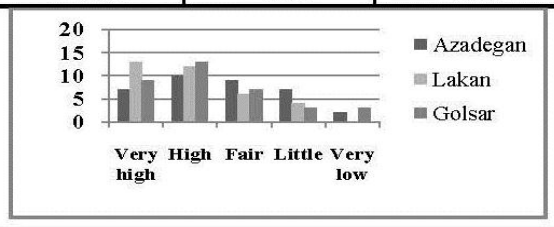
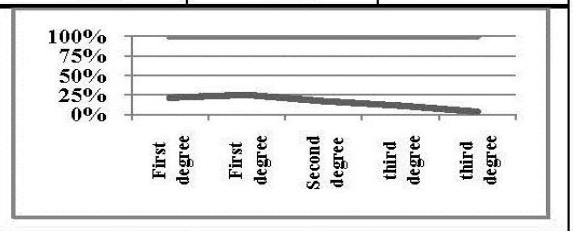
Hypothesis	**There are psychological, structural and service indexes in designing criteria for promoting vitality in residential complexes**
Structural zone	**Effect of structural factors of architecture of residential complexes in promoting vitality**
	7- How much the enclosure factors proportion to surrounding constructions in this complex in the complex affects your vitality?
	8. How much the form and volume of this residential complex affect your vitality?
	9. How much the existing proportions in this complex (horizontal and vertical geometry) in this complex affect on your vitality?
	10. How the façade of complex affect your vitality?
	11. How much the texture and color of materials used in building on surface, floor and walls affect on your vitality?
	12. How much the placement of complex towards sun and using natural light affects on your vitality?
	13. How much the local artificial or extended lights affect on the amount of your vitality?
	14. How much the placement of your complex in the path of wind and natural ventilation affects on your vitality?
	15. How much the existence of balconies, races and windows to outside affect your vitality?
	16. How much the view and outdoor in complex affect on your vitality?
Service zone	**Effects of service and facilities factors in residential complexes in promoting vitality**
	17. How much design and layout in complex site affect the amount of vitality?
	18. How much access of complex to urban transportation networks affect on your vitality?
	19. How much the size of services in the residential complex affect on your vitality?
	20. How much the shape of path and local accessibility affect on your vitality?
	21. How much neighborhood of complex with noisy or populated spaces such as highway affects on your vitality?
	22. How much the recreation and entertainment spaces such as swimming pool and playgrounds in the complex affect on your vitality?
	23. How much the meeting halls of neighbors in the complex affect on your vitality?
	24. How much green site in complex affect on your vitality?

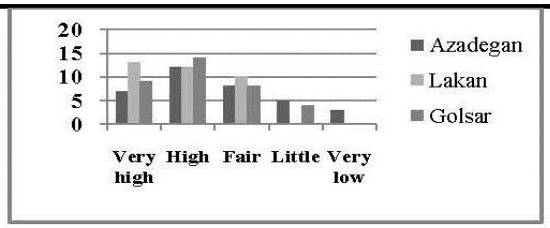
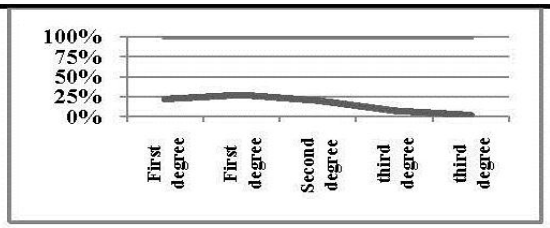
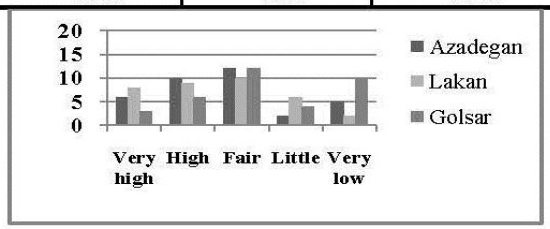
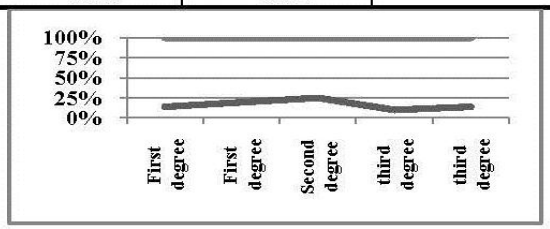
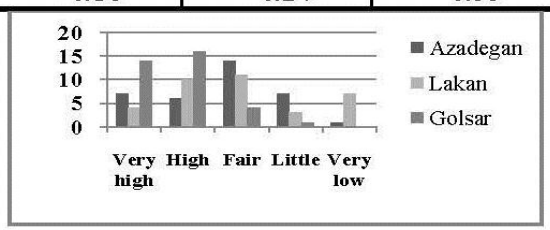
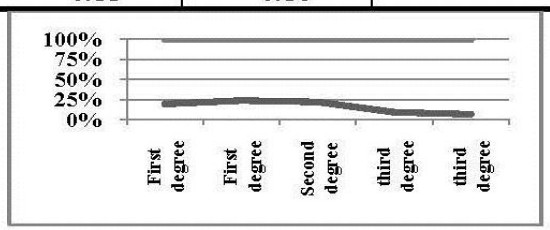
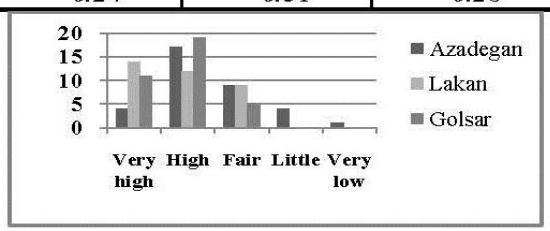
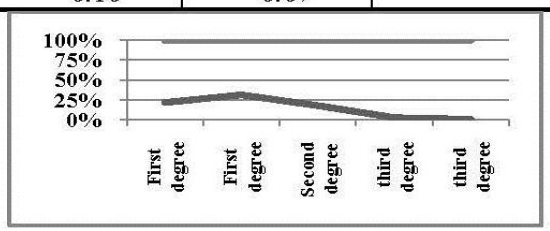
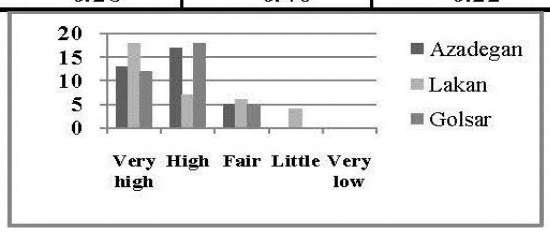
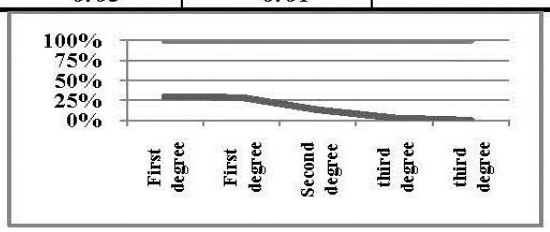
Table 2
The digital frequency of responds in the three residential complexes: *Azadegan*, *Lakan* and *Golsar*, based on structural and service indexes (source: authors)

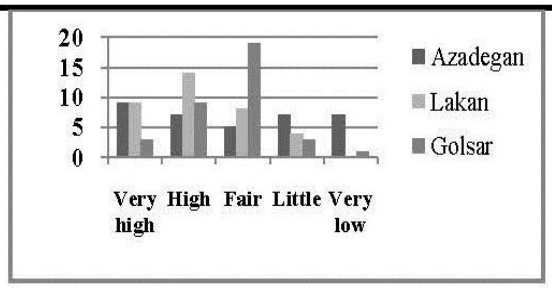
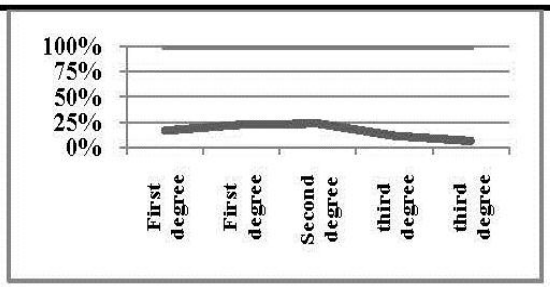
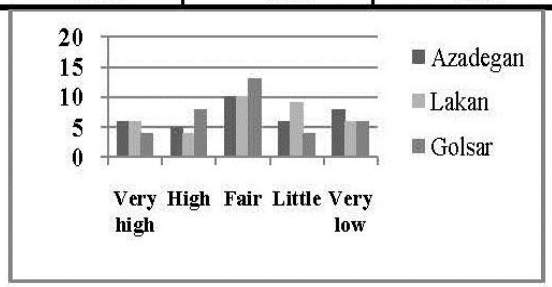
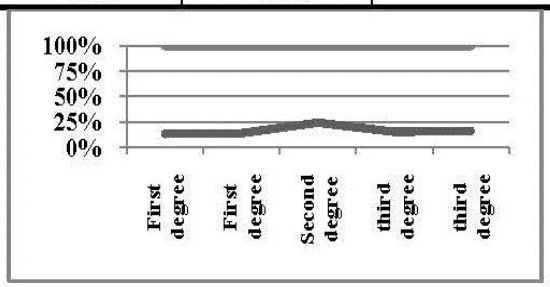
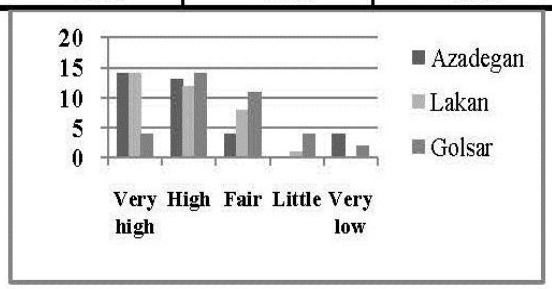
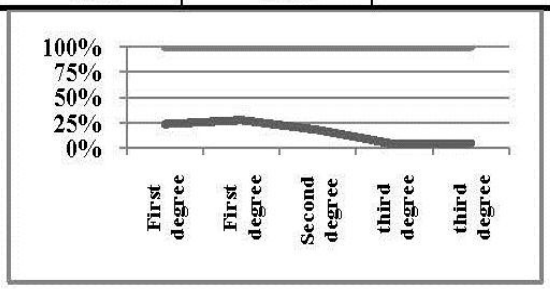
Degree of effects in indexes	Very high first degree effect			High Second degree effects			Fair Third degree effects			Little little effects			Very low ineffective		
Residential complexes	Azadegan	Lakan	Golsar	Azadegan	Lakan	Golsar	Azadegan	Lakan	Golsar	Azadegan	Lakan	Golsar	Azadegan	Lakan	Golsar
Restriction	2	5	12	7	13	5	17	12	9	8	3	3	1	2	6
Form	3	10	4	12	17	10	13	6	16	5	2	3	2	-	2
proportions	5	8	2	11	13	11	8	8	18	7	4	5	4	2	2
façade	3	10	8	3	11	11	12	7	11	11	6	4	6	1	1
texture and color	10	9	10	4	10	17	10	9	4	7	2	4	4	5	-
natural light	8	11	6	12	9	17	7	12	9	5	2	1	3	1	2
artificial light	3	9	13	13	7	14	12	12	7	7	4	2	-	3	-
ventilation	4	6	4	16	12	12	11	13	14	1	3	4	3	1	1
opening	10	6	6	14	11	9	8	12	15	1	6	3	2	-	2
opening	7	13	9	10	12	13	9	6	7	7	4	3	2	-	3
External accessibility	7	13	9	12	12	14	8	10	8	5	-	4	3	-	-
services	6	8	3	10	9	6	12	10	12	2	6	4	5	2	10
site layout	4	4	6	6	10	16	14	11	4	7	3	1	1	7	-
local accessibility	4	14	11	17	12	19	9	9	5	4	-	-	1	-	-
neighborhood	13	18	12	17	7	18	5	6	5	-	4	-	-	-	-
neighborhood	9	9	3	7	14	9	5	8	19	7	4	3	7	-	1
meeting halls	6	6	4	5	4	8	10	10	13	6	9	4	8	6	6
green site	14	14	4	13	12	14	4	8	11	-	1	4	4	-	2

10. Analysis of findings

In the first step, based on the statistical information and data extracted from table number 2, in this stage, the numerical frequency of each index has been placed in column diagrams (table number 3: frequency of each index). Based on this term, the degree of effects of each index was obtained by aggregation of answers or in another word, the numerical sum of responds of each index was drawn based on placement in the expansion of responses: very high, high, average, low and very little through indexes W1, W2, W3, W4 and W5, and based on percentage in linear diagrams (table 3: The degree of effects of each index). Then, based on the contents of table 3 and following subjects, the average score of each index was calculated based on its numerical frequency and answers given by the volume of the sample. In the meantime, the key point that is highest average of scores in data analysis and table has been shown by index W_H and as the highest degree of effect in each index with scores. Practically and in more tangible way, this maximum score could be observed in the linear diagram and its peak point in the degree of effect of each index in table number 3. Now, the notable point on the graphs of degree of effects of each index is the method and form of shape variations of graphs; that is, as a sample in index with the title of enclosure it is possible to observe a homogenous process of upward and downward shift of grafts and in another indexes such as form, through repetition, a similar pattern of upward and downward shifts could be seen in the graph line. It seems that such interval of variations could be known as an objective sign on the amount of desirability of each index in the statistical society subject of study.

Natural light						
scores	$W1=\frac{25}{105}=0.24$	$W2=\frac{38}{105}=0.37$	$W3=\frac{28}{105}=0.27$	$W4=\frac{8}{105}=0.07$	$W5=\frac{6}{105}=0.05$	$W2=W_H=0.37$
artificial lights						
scores	$W1=\frac{25}{105}=0.24$	$W2=\frac{34}{105}=0.32$	$W3=\frac{31}{105}=0.3$	$W4=\frac{13}{105}=0.12$	$W5=\frac{3}{105}=0.02$	$W2=W_H=0.32$
Ventilation and wind						
scores	$W1=\frac{14}{105}=0.13$	$W2=\frac{40}{105}=0.39$	$W3=\frac{38}{105}=0.37$	$W4=\frac{8}{105}=0.07$	$W5=\frac{5}{105}=0.04$	$W2=W_H=0.39$
opening and windows						
scores	$W1=\frac{22}{105}=0.21$	$W2=\frac{34}{105}=0.33$	$W3=\frac{35}{105}=0.34$	$W4=\frac{10}{105}=0.09$	$W5=\frac{4}{105}=0.03$	$W3=W_H=0.34$
view						
scores	$W1=\frac{29}{105}=0.28$	$W2=\frac{35}{105}=0.34$	$W3=\frac{22}{105}=0.21$	$W4=\frac{14}{105}=0.13$	$W2=\frac{5}{105}=0.04$	$W2=W_H=0.34$

external accessibility						
scores	$W1=\frac{29}{105}=0.28$	$W2=\frac{38}{105}=0.37$	$W3=\frac{26}{105}=0.25$	$W4=\frac{9}{105}=0.08$	$W5=\frac{3}{105}=0.02$	$W2=W_H=0.37$
servicing						
scores	$W1=\frac{17}{105}=0.16$	$W2=\frac{25}{105}=0.24$	$W3=\frac{34}{105}=0.33$	$W4=\frac{12}{105}=0.11$	$W5=\frac{17}{105}=0.16$	$W3=W_H=0.33$
Site layout						
scores	$W1=\frac{25}{105}=0.24$	$W2=\frac{32}{105}=0.31$	$W3=\frac{29}{105}=0.28$	$W4=\frac{11}{105}=0.10$	$W5=\frac{8}{105}=0.07$	$W2=W_H=0.31$
local accessibility						
scores	$W1=\frac{29}{105}=0.28$	$W2=\frac{48}{105}=0.46$	$W3=\frac{23}{105}=0.22$	$W4=\frac{4}{105}=0.03$	$W5=\frac{1}{105}=0.01$	$W2=W_H=0.46$
neighborhood						
scores	$W1=\frac{43}{105}=0.42$	$W2=\frac{42}{105}=0.40$	$W3=\frac{16}{105}=0.15$	$W4=\frac{4}{105}=0.03$	$W5=\frac{0}{105}=0$	$W1=W_H=0.42$

recreation spaces						
scores	$W1=\frac{21}{105}$ =0.20	$W2=\frac{30}{105}$ =0.29	$W3=\frac{32}{105}$ =0.31	$W4=\frac{14}{105}$ =0.13	$W5=\frac{8}{105}$ =0.07	$W3=W_H$ =0.31
meeting spaces						
scores	$W1=\frac{16}{105}$ =0.15	$W2=\frac{17}{105}$ =0.16	$W3=\frac{33}{105}$ =0.32	$W4=\frac{19}{105}$ =0.18	$W5=\frac{20}{105}$ =0.19	$W3=W_H$ =0.32
green site						
scores	$W1=\frac{32}{105}$ =0.31	$W2=\frac{39}{105}$ =0.38	$W3=\frac{23}{105}$ =0.22	$W4=\frac{5}{105}$ =0.04	$W5=\frac{6}{105}$ =0.05	$W2=W_H$ =0.38

11. Results and Conclusion

In conclusion and based on the mentioned subjects, it seems that in promoting vitality in residential complex in general, a combination of three indexes of psychological, texture, structure and services are involved and each index, based on its criteria could improve the living quality of habitants of residential complexes. Nonetheless, based on researches, the criteria of each index is classified based on the point that all include existing data and are of course, free from classification and importance degree and are included in the priority list.

In this regards, with respect to the existing answers and analyzing all graphs, it seems that in order to promoting vitality in a residential complex, the criteria could be arranged as priorities in the process of design. Each one of those criteria is available in the architecture structure and plays roles. In the meantime, the order and priority of those criteria determines their importance from the viewpoints of users in a more précised way as follows:

- Criteria such as first degree design in which, indexes W1 and W2 are related to the expansion of very high answers and high have taken their places as top, and among other indexes, such as the average additional limit (WH: available in score measurement in table 3).

Another significant point in this research is the neighborhood criteria that takes 42 percent in the vastness of the answers with very high: W1 and is regarded as the

most important priority of designing a residential complex with the aim of promoting vitality, followed by the scores which are notable in Fig. 3. Criteria such as local accessibility, ventilation and wind, green site, external access, natural light, form and volume, views and perspectives, spatial proportions, artificial lights, site layouts, texture and color of materials.

Second degree design criteria in which, W3 and W4 indexes relate to the range of average and low answers have taken their place among other indexes of additional average index (WH: existing in score measurement in table 3).

The notable point is that among those criteria, criteria such as enclosure and limitations, opening and windows, service surface, existence of meeting halls, recreational spaces and quality of buildings reveal signs from low effect and no effects in achieving vitality in a residential complex, as noted by the respondents.

In this arrangement and based on this research, it seems that the designer is somehow able to consider the degree of importance of all criteria mentioned in the course of designing residential complex with the aim of promoting vitality for the purpose of improving the connection between artificial environment and user. Now, in this course and based on Fig. 3, this factor could be obtained as the structural and service alternatives by using first and second degree criteria in the process of design and benefitting from priorities (up to low) so, as an example, designer will be able to take the primary priorities in residential complex for the purpose of improving vitality first through expansion and description of neighborhood in his architectural analysis and then consider elements such as method and shape of local accessibility, ventilation and wind in the process of formation and development of the building.

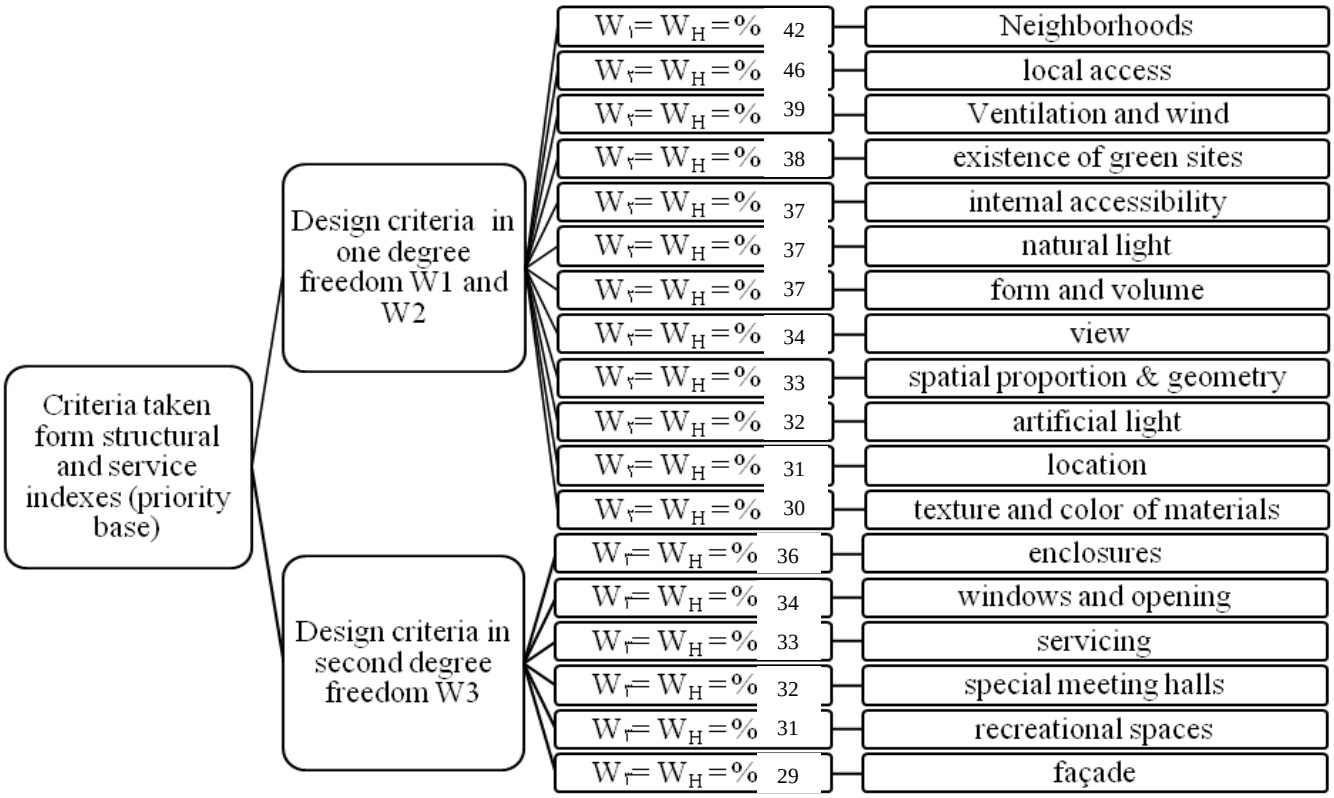


Fig. 3. Criteria of promoting vitality in residential complexes in priory list from up to down (source: author)

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