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RESEARCH ARTICLE

Determine the Physical Stability Indicators - Environmental Design of Residential Complexes (Case Study of Ardabil)

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ABSTRACT

This article expresses the concept of housing and residential properties, with a short overview of sustainability indicators to determine the quality of housing space, especially residential complexes and offering notions of physical stability and its components in the housing ,and pay attention to the introduction of the concepts of environmental psychology such as of the nature of the issues - the role of behavioral sciences in the theoretical design - sort of environment – capabilities of built environment and human behavior approach for dealing with the environment, that can have important role for designers. This paper presents the debate about the relationship between human behavior and the physical environment and strategies to achieve sustainable residential spaces to meet the needs of beneficiaries and the importance of recognizing the association for design (especially architecture) to establish a general framework for analyzing the human relationship with the environment. The present study is an attempt to address the principles of sustainable housing design and development of effective criteria that by analyzing the results of field studies and the views of experts and the sample implementation and compliance, some solutions are presented in the design.

Key words: housing, residential complex, sustainability, human needs, the physical environment.

INTRODUCTION

The increasing population of cities and lack of open areas resulted in city landscape shifted to vertical landscape of complexes and apartments. As cities saturated with apartments and residential complexes and following psychological and critical explorations, designers understood that the vertical growth isn't just matter; innovative and creative designers experience materials and techniques in order to promote from the mere technology to a certain level of the art which meets other human needs including living in the nature.Initial residence in complexes and watching far landscapes and approximately two dimension pictures from behind of windows can be interesting, but getting away from touching animated and non- animated elements of nature, deprivation to smell them, having no walk on the land, seeing no close picture of creatures provokes an enthusiasm which have products including inclination to build and maintain artificial nature like dry and paper flowers, artificial home waterfalls, and even keeping dried animals (taxidermy) (Aimin, Z. C. L., 2012). In this study we tried to determine proper designing strategies in order to connect vertically and horizontally the external and internal landscapes of complex applying strategic planning and identifying Weakness and strength, opportunities and treats in complexes. Having connected the building to environment and indeed connecting external and internal landscapes of residential complexes through environmental and ecological designing would help us to protect the integration of landscape, the visual quality improvement through approaches of spatial and visual continuation, creating dynamic landscapes, connecting human to the nature, improving the environmental quality of complexes (Taleb and Sharples, 2011).

Due to its very diverse limited conditions in different seasons, in Iran, classical architecture has invented reasonable solutions and methods for providing a peaceful life for man. The Iranian classical architects through benefiting from their experience and conditions they were in have strived to approximate the environmental characteristics of buildings as much close as they could. Today's, using modern technologies have added to methods of designing buildings I a way that life without these technologies is hard to ignore. Reusing past methods is pretty impossible and the past lifestyle would be unable to support today's life. However, investigating in this regard seems necessary. It should be mentioned that benefiting from traditional architecture never means a duplication of the past but the logic behind traditional forms must be learned and used (Farifteh, 1987).

In most areas in the world there are regions that identical climate exists, though in spite of similarity some specific local conditions make many big differences, which are critical in architecture and an architect needs to consider them. Therefore, for designing in any region such points must be explored and the designing plan should be prepared that will be in accordance with the local climate. Considering these conditions, specific climate factors like temperature, relative humidity, intensity and rate of annual rainfall, intensity and angle of the sun, are among the most significant factors (Olgyay, 1981). Wind speed and temperature in thermal exchange through transfer depends on each other. Continuous flow of air into indoors in contact with human's body causes evaporation of sweat and creates a sensible coolness on the skin surface (Badland and Schofield, 2005).

Lack of air flow in the environment, increases temperature and humidity and brings a stifling environment for the residents and temperature and humidity inside the building maximizes compared to outdoor. Therefore, direction and way the building is founded play a critical role (Moshiri, 1986). The used materials in side walls possess a considerable high thermal capacity and good thermal exchange. The other building elements matters in traditional typology is wind towers that wind contacts them in four directions and direct it into the building. As a result, the warm air is lighter than the outside air and the cold air goes downward and enters the room. Because of repetition of this process, a desired air stream flows that creates a relative comfort zone (Negro and Stafferi, 1984). intersecting points of formation of social capital. Queen observed that when configuration of local maximizes non-verbal communications by residents, rate of crime decreases. Children are under better surveillance and people show more inclination and satisfaction in interaction with their surrounding public environment (Queen, 1992). Also, Sullivan et al. (2004) indicated that presence of green spaces is one of approaches for increase of unofficial communications and

social happiness in the locals. Moreover, points like architectural designing of landscapes, renovation and improving existing buildings around urban spaces and different urban planning and function, in addition to prevention and decrease of crime will be critical in increase of security of urban spaces. Therefore, environmental designing play an important role in providing safety and public health.

Research questions

What is Theoretical Foundations of housing based on physical principles of sustainability? How is the Relationship of notions of sustainable development and environmental capacity in residential complex? What are the indicators of sustainability in the residential environment? What are Strategies to improve the quality and functionality of residential space to achieve sustainable development? What are housing indicators based on physical sustainability from the perspective of residents?

The importance and necessity of research

The importance of and need for research is due to changes in society and population growth and as a result increased demand for housing and higher density urban construction and shortage of land to build houses, create problems such as rising land prices, The inability of low-income and middle strata of society in the provision of land for housing construction, as well as increasing the diversity of expectations and daily needs of beneficiaries of home spaces, It can somewhat decrease housing demand in the needs of beneficiaries in major cities and with properly design space houses we can use the most out of the minimum levels to give an acceptable respond to such needs. This research aims to investigate integration of the architectural optimization in using on levels and analyze samples of Iran. In the present study has tried by field studies and direct observation of residential complexes in the city of Ardabil and distributing questionnaires among the beneficiaries to compare and evaluated Residents satisfaction of how to design with the favorable situation, so that to provide background quality for sustainable housing.

Theoretical researches

concepts of sustainability and sustainable development

Today, the term sustainability associated with the term sustainable is widely used in economic development issues, environmental and social. Dehkhoda encyclopedia has meant stability durable and lasting. The concept of sustainability is the present and future needs of the people and the distribution of resources. (Ahmad, 2004). From the perspective of the World Commission on Environment and Development, sustainability is to meet the needs of the present without compromising the ability of future generations to meet their own needs. (Dabydyan, 2003, p. 7). Investigate and explain the principles in architectural design has formed sustainable its basis and will be effective to expand and improve the quality of architectural design as well as the quality of space and responsive to the needs of the beneficiaries. (Chapman, 2007).

sustainable architecture

Sustainable architecture is as part of the proposed stability and sustainable development is a sub-category. Sustainability issues can be studied in two main areas that each provide mentioned goal and in some cases together, will overlap. First the physical stability, works on the stabilization of body of building and energy efficiency materials and strategies to empower the beneficiaries meet the diverse needs of its architectural space deals. Second, non-physical stability will be remembered as "social stability". Architectural design can play an important role in finding solutions for such operations in the architectural space. (Raesi, Abbaszadegan and Habibi, 2007). In Sustainable design we should care about physical stability, socio-economic and environmental impact of energy

consumption in buildings and cities. So a good and decent home for social cohesion and personal well-being and independence is a fundamental need. No society can achieve sustainable development if the building process won't be stable. (Lang, 1383: page 91). Home is origin and destination of human life. People get out of it for work and social activities and after doing it and experiences return home. Home is where that we after experiencing the different aspects of the world, we go back to it. Home is so important to one that it can be called center of one's world (Norberg-Schulz, 2002).

nature of design problems

Designing spaces, buildings, construction sets and urban areas are heavy-duties. Because the spectrum of human activities and aesthetic needs are so vast that understanding of how responsive environment forms is difficult. Issues must be accurately known and best solution should be developed for a specific search. In most environments the needs of users and groups of stakeholders should be met simultaneously. These needs can hardly be recognized. Many needs are sorely unconscious. People are not able to categorize them properly. Design environment problem occurs when that there is a difference between composition of the current environment and composition that meet needs of individuals and groups. Creating an environment that will enhance human perception is the noblest goals of the design. . (Lang, 2004: page 26).

role of Behavioral Sciences in Theory of design

Behavioral sciences have roles in formulating the theoretical design from a variety of ways. These include: (1) theories and models, to understand the design process and the relationship between people and provides the physical environment, (2) research methods. (Haman., 2004: page 26).

various environmental categories

1- Physical (potential - potential)
2. Social
3. Psychological
4. behavior.

Built environment

Built environment is part of cultural, geographical or land environment. Architecture Environment is formed of the surfaces of materials with mixed color - texture - light and different degrees of transparency and the spaces between them. And these factors are essential design criteria. Environment is a set the adaptability the human makes between geographical and cultural environments. With a change in the built environment possibility of changing in abilities is created in the world. To provide new activities and new experiences by providing better aesthetic activities environment condition also changes. The cause of these changes is respond better to the geographical Environment, living - cultural to humanitarian purposes. (Haman., 2004: page 93).

Built environment and human behavior

About the relationship between the environment and human behavior four positions are detectable theoretically.

- Optional approach: that believe the Environment has no effect on human behavior

Ability-oriented approach:

Ability-oriented knows environment as to provide human behavior more than it knows.

Algebraic approach: Algebraic body is that human behavior is determined by the nature of the geographical environment used by him. (Haman., 2004: page 78). In This study among the architectural approach, Ability-oriented has been based of work. The intersection of other approaches of architecture is paying attention to the face and body, although sometimes more qualitative issues are paid as well. In Ability-oriented approach, the researcher first familiar contact with the environment and space users of physical spaces and then introduces and analyzes the architecture. To achieve the desired results in a social perspective, the researcher utilizes existing methods in the social sciences to enter his own society and with specific tools will evaluate the environment's behavior and their relationships.

Environment capabilities

The psychological theory proposed in 1979 by the name of James Gysbvn that said: capabilities of anything, whether material or immaterial, are part of that thing that makes it usable for special being or a member of a species. Gibson had the desired physical configuration of an object or a place behavior that makes it usable for certain activities. Some demands are meet easier from other requirements by an object or the ground - alive or cultural environment. Some of the activities in the particular configuration of the built environment will meet the needs of some people, and do not meet others needs. The important thing is that Environment capabilities of a good - or bad thing are something that environment suggests with its configuration features and materials. Notion of capability in spite of simple meaning has strong conceptual and basic design environment theory. Different patterns of built environment have the ability to provide the behavior and different aesthetic experiences. Therefore capabilities built environment limited or expand, behavior and aesthetic choices, depending on the configuration of environment. People change the natural and artificial environment to transform and change ability and continue (Haman., 2004: page 91).

Concept of residence

Home and its architecture, as the most pervasive, yet most exclusive space in human life, has been considerable for everyone always in ideas, creating and manufacturing. Residence and comfort is one of the basic needs of humanity and of the first things that people always try to find a decent answer to it. Housing must be a place for comfort of residents in objective and subjective dimensions, and in fact a place where body and soul in comfort (Ghaemal, 1996, page 25). Norberg-Schultz views "residence represents a meaningful link between humans and the given environment. This link is originated from trying to find an identity, a sense of belonging to a place. Thus, when a person is aware of the settled and, therefore, its existence is recorded in the world. "(Falahat, 2006: page 59). Design houses in its wake have many of the values and concepts associated with cultural influences. In English, there are two words in relation to home. The word «House» which means residence and «Home» has a personal concept. The word housing and residence is synonymous with Accommodation controversy and relax. Although the definition of home is shelter, but at there are factors that the value of human will be manifested there (granted, 1386, page 125). In Sura Nahl, verse 80 we read: "God for your residence gave you home to find peace." Martin Heidegger with qualitative approach believes that the real crisis is not the lack of housing but the real crisis is search of a man for residency (Brig. Gen., 2004: page 40).

Definition of housing

At the second meeting of human settlement in 1996, which was held in Istanbul affordable housing is defined as follows: "Adequate shelter does not mean just a roof over one's head but a suitable the shelter is proper,

environment, physical access and good security, property security, stability and durability of structures. Lighting, ventilation, heating adequate basic infrastructure such as suitable water supply, health, education, waste disposal, environmental quality of suitable health, suitable and accessible location with regard to work and basic facilities to all will be provided with respect to affordability of people. "House is established as an architectural body in our identity and gives us security.

Types of social housing

Social housing is a specific type of apartment units with a common courtyard and open space and can enjoy the benefits of a semi-private home. In this type of housing can bring more variety and diversity in the field while providing facilities and open green space and parking in the area are equipped. A residential block with linear chain B: individual residential block C: multiple fin block D: residential block with internal courtyard E: a combination of residential blocks F: Miscellaneous residential block. (Zonouzi and Shepherd, 1995).

Housing at least

In the least housing there always has been discussed at low-income households and the type of housing available to them. The quantity has been mentioned before, but the quality is superior today, the least energy (water, electricity, gas, etc.) is wasted, the area is not high, maximum utilization is done and has maximum quality. (Ahari, Z., 1991, page 4).

Space quality

Observations of created spaces in Western countries have shown that necessarily paying attention to body does not create a good space. In order to make a good space to be considered as good Environment it is needed that space respond to the needs of the human. Maslow's hierarchy of human needs theory is the most complete in dealing with this issue, and most people behave according to the Maslow's hierarchy of needs. In translation for classification of Maslow's needs to design we approached Table 1.

Maslow acknowledges that many of the requirements are related to the built environment so that some of needs are based on physiological and psychosocial or combination of these factors. But in addition to meet the needs of humans in space, their rights must also be addressed in the control of space. One of the requirements of having good atmosphere is meaning and connection with people and these elements are known as readability of space. In the physical part Quality space can be examined. Spatial qualities are qualities of the topological space. Meaning that quality of space does not dependent on the geometry of space but the depends on the relationship that results from the geometric relationships. Such as the proximity of the elements, order, the separation, inscribed disruption and continuity. They are also considered in the layout of space and as noted earlier on the basis of is due to spaces communicate with each other. (Raesi, Abbaszadegan and Habibi, 2007).

MATERIALS AND METHODS

The study was descriptive, analytic survey that is collected by referring to reliable sources, publications and reference libraries, materials for the research topic and necessary comparison was carried out. And through observation and field studies and interviews, existing portfolio were examined and opinions of beneficiaries living in residential complexes of selected samples were analyzed by software Spss.

RESULTS

Extracting stability factors in promoting quality of housing space

Flexibility

The idea of the flexible design of residential units from the beginning of the 20th century were made as part of the Modern Movement by architects such as Le Corbusie, Mies Vndrrvhh and Habrakn and burgers The idea of developments in technology that makes isolation of fixed structures from its elements possible, With the current methods and approaches such as folding furniture, furniture moving, overlap of functional spaces in internal composition of building were also provided. For designers there will be a tend to create space in the building for each of types of activities. Dedication often makes the pursuit of other activities in specialized space difficult; Users use of space should be able to modify it according to their needs so that its activities become easier. The concept from the view of psychologists called adaptation. Lang explains that when the Environment is suitable, it must change to answer it. If the Environment does not adapt to the activities of users it won't be used and the environment eventually becomes obsolete. Flexibility can be considered both micro and macro scale. Flexibility in the macro scale is the ability to change the use of the building as a whole unit or parts of the building. This kind of flexibility can enhance user's choice in the long run. . With increasing age of the building and lower their cost of funding, in order to accommodate more types of uses they become more considered. Flexibility of small scale will be considered the ability of certain spaces within the buildings in the order that can be treated using a wide range of practices. The scale of the Flexibility is compatible with lives mechanisms of mainly with the vast majority of ordinary users. The issue directly affects environmental quality and a choice of daily activities of majority of people. Therefore, they are very important and essential. Flexibility of macro scale, because it will deal with major changes to the user, blends with the requirements of the overall building and, therefore it should be paid attention to the first steps of designing should. Flexibility of small scale will conflict with smaller decisions, so it is vital for users and can be examined later in the final stages. . (Haman., 2007)

Forms of Flexibility of

The species flexibility is defined as diversity of (multi-functional space), versatile (seasonal and daily movement) and variability (segregation and aggregation).

Diversity (multi-functional space)

Diversity is the ability to provide a variety of different uses of space. Such flexibility deals with space and time variables. Space for multi-function units can simultaneously be used for different functions at different times.

Adaptation (seasonal and daily movement)

Adaptation is the ability to adapt to the new conditions of a space. In practice, it includes the implementation of all internal changes, such as changes in personality and the structure and composition of spaces and the elements small. In planning new residential complexes, the most effective way to achieve adaptability, is not being of internal components constant and the possibility of combining various together. For example, when the kitchen and service are considered fixed input, the remaining space can be adapted to other functions. The map of the traditional housing in Iran, due to following facades and public spaces of the house of a pattern formation and construction of fixed spaces daily and seasonally adjusted by adjusting the horizontal and vertical relations of Home, use of different areas at different times of day and in different seasons has been possible. Since the summer and winter stay, basement,

balcony and roof of the house provides to conform to the different conditions of life. The flexibility institutor in the scale is the yard, central element of house.

Variability (segregation and aggregation)

The housing design flexibility, is called the ability to increase or decrease quantity or separation and aggregation areas and to return to the original plan to expand or reduce the area. In this case, flexibility means the ability to respond to the growing family at various stages of life. In other words this ability will make it possible to change the size of residential units in the smaller or larger. The concept of variability will be connected with changes in infrastructure, space needs, and the residential units.The variability is achievable both by adding to existing infrastructure home, and with spaces separating it (without the area). (SAREMI and Radmard, 1997: pages 53-68).

Flexible Housing

Flexibility In general terms is defined, the ability to bend, flexibility, sensitive not to modify or change a ready capacity to adapt to different purposes or conditions, freedom from stiffness or rigidity. One of the basic principles of designing flexible is avoiding the inflexibility. Schneider & Till, 2005: 287)). This should be considered in two aspects: the number of spaces and places for social and cultural growth and meet the relevant requirements. Hence, first quantity of spaces that can meet the needs of the spiritual and social growth be investigated. In other words, spaces that are flexible (Habibi et al., 67: 82) flexible structures sought to respond to the changing conditions of use, performance, or place. The need for flexibility and adaptation to new conditions, not only originates from desirable and possible conditions, but also from the economy (Parent et al., 89: 6). The solutions expected to understand the relationship between needs and standard requirements, are the use of public participation and opinions of beneficiaries in the planning and design process. Public participation in this process will increase to accommodate their housing needs, and public satisfaction for housing rises. Providing changing ability and ability to accommodate space with needs and the living space according to the personal taste are the characteristics of an ideal home. Flexible housing is defined as housing for the user, that provides socio-economic stability through the life of the building. (Objective process, 82: Page 65).

Flexible approaches to at least housing

The main purpose of downsizing and mass housing, savings in materials, manpower, cost, space and urban services. In order to achieve this objective, one of the important indicators of housing is marginalized and lack of attention to them cause problems in the operation time of the houses Such as ignoring the architectural design of houses and the consequences of the reduction of the size mentioned. Reducing the net area of residential spaces is possible in two ways: considering the minimum area required for an application or delete a space. Remove means to remove a function of space or integration with other functions Since the space for other functions has been predicted, and therefore the problem of provide enough space to meet the minimum needs of users come up that resulting in a lack of physical and psychological welfare of the residents in these areas. Since at least housing, possibility of providing more space is not available for different functions; to increase the welfare of the inhabitants there should be appropriate solutions in order to make optimal use of existing spaces indoors. That provides a comprehensive response to the different needs of residents in the limited space. Flexibility is one of including options that can cause maximum efficiency by collision of multi-dimensional spaces with minimum spaces. A necessary prerequisite for the flexible space is using a multi functional; for this purpose same spaces must be classified and time limit should be identified for their use. With this action spaces behavior in specific time periods during the day was marked and the possibility to take advantage of them for same performance arises during non-interference functions. (Nikravan Monfared and Arfaei: 2004: 81).

CONCLUSION

To achieve physical stability factors in the design of residential complexes in the city of Ardabil, 6 residential complexes comprising a population of 170 randomly with 20 percent sample size was used. A closed questionnaire included 26 questions were prepared and provided to residents. After obtaining the opinion of population, data analysis was done in spss software. Reliability of test is according to Cronbach's alpha coefficient 876 /.

Determine the fine Factor

Questions were classified based on correlation and linear regression. Then the 5 factors affecting the sustainability of the social and physical sustainability was extracted from the perspective of residents. The parameters of each of the factors are listed in Exhibit 1 to 5.

The names chosen for agents

In this step for each factor corresponding with operating parameters an architecture title was selected. The first factor: the tangible, the second factor reliability, the third factor responsiveness, the fourth factor assurance and the fifth factor was named empathy.

Explain the factors that affect the physical and social sustainability in the design of residential complex

The tangible

Including factors that have specific aspects and are considered as the first factor of the assessment. It seems that the residents evaluate quality of a home based on decoration and equipment. For other evaluation criteria we can mention appropriate and proper design of residential areas.

Reliability

To assess the quality reliability, we can mention criteria such as resistance of house to disaster (Earthquake Bad-floods), animal attack and insects, the quality of materials used and so on.

Responsiveness

To assess the responsiveness we can mention the assessment criteria, such as social and cultural needs, psychological needs, and easy access to the required facilities and so on.

Assurance

For evaluation criteria of these factors we can mention to feel safe at home, feeling the heat and comfort, harmony with regional climate and housing structure's safety.

Empathy

To assess empathy we can mention criteria such as social empathy in the neighborhood, sense of belonging to place, relationships and interaction with neighbors and so on.

Statistical analysis of the factors affecting the physical and social stability

The data from the survey of experts were analyzed. Inferential statistics has been made through correlation and linear regression with spss software. The effectiveness of factor from the perspective of statistical population in each compound separately is presented in Tables 2 to 6.

housing quality gap

SERVQUAL model is a function of the challenge between expectations and performance and the purpose of this method is to identify and fix design flaws that can be done through the assessment. The main objective in the quality of housing is to reduce the gaps as possible. Therefore, designers should eliminate these gaps, or reduce it. The gap between expectations and performance are the most important challenge in the quality of housing and accommodate all five divisions in itself. The results of this study show that the overall quality of residential complexes in this study, especially the housing Mehr is less than the usual expectations. As Figure 6 shows, there is a significant difference between the expectations and performance of housing. The findings show that between expectations and performance in relation to each of five dimensions there is a significant difference Indicating lack of satisfaction with the quality of housing. As we can see, the biggest gap is in the assurance dimension and lowest is in the empathy dimension. In Figure 7 expect performance gap is shown in each of five dimensions of housing quality.

Sustainability in architecture can be divided into two categories according to dealing subject. Physical stability, which is also referred to as climate stability and non-physical stability which here is called "social stability" studies to improve the quality and sustainability of the mentioned events in the architecture body. sustainable design can Socially be defined as follows: Designing a space to be suitable within the culture, attitudes and way of human life. And the life which includes these elements be able to be present for a longer period. According to the definition provided, for achieving space sustainability we can utilize three axes in designing. Consistency of physical and behavior patterns, raising quality space and making space flexible. Of the most efficient ways to find the connection between the physical patterns and the impact of these two models are used, is the method of "space layout" Which will help can to study the connection of current patterns and to test the efficiency of the proposed project prior to implementation. To enhance the quality of space, it will also increase the quality of life that it will contribute to sustainable space. Access to good quality space, requires in addition to considering physical items, human dimensions also need to be addressed. To increase the scope of the sustainability space, space flexible solution can be used. Thus one would expect mentioned atmosphere to be able to respond to behavior patterns changes in the future.

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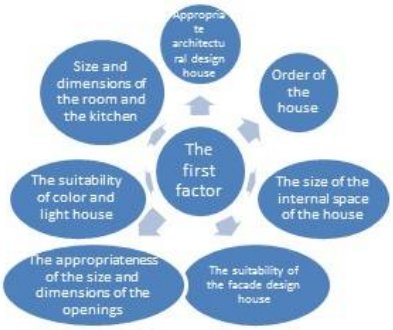

Figure 1: The first parameter (the author)

Figure 2: The second operating parameter (the author)

Figure 3: The third operating parameter (the author)

Figure 4: The fourth factor parameters (the author)

Figure 5: The fifth operating parameters (the author)

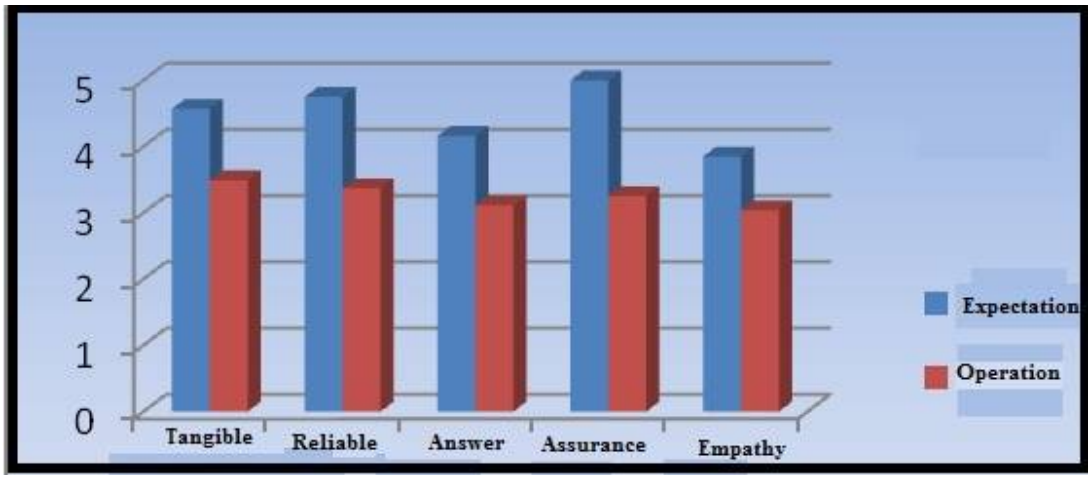

Figure 6: expect performance gap in each of five quality dimensions (source, author)

Table 1: Return Maslow design

Need Physiology	Haven
Takes security	Physical and psychological security
Attachment	A symbol of environmental activism
Self-actualization	Freedom of choice
The need for beauty	Beautification official

Table 2: Results of tangible dimension in six studying complexes (source, author)

Too little	Low	Average	High	Too much	Question
21/25	30/16	29/1	15/83	3/75	Beast
26/91	30/41	20/32	18/32	8/33	Workers
9/75	27/65	10/7	32/26	20/31	Nir
11/88	20/98	14/17	30/46	19/03	Nastaran
6/11	25	15/9	43/9	10/01	Aftab
14/8	26/18	28/12	20/46	10/56	farhangyan

Table 3: Results of reliability dimension in six studying complexes (source, author)

Too little	Low	Average	High	Too much	Question
25/41	30/25	16/23	10	2/5	Beast
29/32	24/37	23/11	10/37	12/5	Workers
28/39	18/63	21/53	10/7	20/57	Nir
18/47	15	30/05	26/3	10/25	Nastaran
15/85	25	27/8	20/5	11/67	Aftab
23/15	34/36	15/62	20/52	6/7	farhangyan

Table 4: Results of responsiveness dimension in six studying complexes (source, author)

Too little	Low	Average	High	Too much	Question
33/75	36/25	16/87	10/87	4/16	Beast
48/05	28/12	25/1	20/62	16/87	Workers
4/87	23/15	28	23/2	20/75	Nir
5/95	19/62	25/2	20/07	25/37	Nastaran
10	20	20	26/7	23/3	Aftab
14/65	19/42	24/15	20	16/85	farhangyan

Table 5: Results of security dimension in six studying complexes (source, author)

Too little	Low	Average	High	Too much	Question
45/5	20	28	4/5	5	Beast
32/5	33/5	17	13	6/66	Workers
6/34	20/86	25/80	26/84	20/98	Nir
11/92	24/17	23/16	20/02	20/96	Nastaran
14/68	30/34	11/34	28	16	Aftab
19/52	36/1	30	12/18	12/22	farhangyan

Table 6: Results of security dimension in six studying complexes (source, author)

Too little	Low	Average	High	Too much	Question
39/5	27	20	12/5	1	Beast
22	26/5	24/5	12/5	14	Workers
11/72	20/05	24/88	27/06	16/34	Nir
15/63	20/72	25/72	27/12	11/44	Nastaran
12/52	38/6	15/14	16/34	15	Aftab
23/02	19/52	20/16	21/26	16/12	farhangyan