

Improvement of Students' Satisfaction with Physical Factors in Educational Environments based on the Concepts of Quranic Verses and Jurisprudential Narratives

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Abstract

Physical conditions of the environment greatly affect the efficiency and effectiveness of individual and group learning. On the other hand, it is important to recognize the physical and mental needs of students. Based on Quranic verses and jurisprudential hadiths, it is necessary to lay significance on the satisfaction of people. The reason behind this claim is the fact that satisfying people leads to God's satisfaction in Islam. This research tries to identify satisfaction as one of the factors affecting the quality of school architecture and takes steps to improve the situation. In addition to addressing the basic needs, qualitative considerations are also addressed. This basic research is considered as a quantitative-qualitative research. This research takes the form of a survey and the information which has been collected, along with the relationships between the variables, have been analyzed. The statistical population of this study is high school students in Tehran. Multi-stage cluster sampling method was used for sampling. In order to measure the views of individuals, the table of purpose and content has been compiled based on studies and interviews with experts in the fields of the study. Achievements show that five main factors are affecting satisfaction: 1) Flexibility and Spatial Dimensions, 2) Readability and Accessibility, 3) Beauty of Space (Aesthetics), 4) Environmental Comfort, and 5) Territory and Participation of People. So what has been deduced is that, in order to satisfy people with educational spaces, the mentioned factors must be considered in the design. In order to realize each of these factors, there are sub factors that play main roles in designing. By taking all these factors into consideration, a learning environment can be attained, where students can spend their time without being confronted with stress and ultimately have high satisfaction.

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Keywords: Architectural design; Educational environment; Physical factors; Satisfaction; Stress reduction.

1. Introduction

Environmental psychologists believe that physical factors have an undeniable impact on human thoughts and behaviour. Creativity and innovation of architects has an impact on diversity of architectural spaces in schools, but there are many students that refuse to go to school or they don't want to spend hours in school. User's satisfaction in the higher educational environment is critical for gaining self-confidence and flourishing their potential capabilities and also it has an effect on schools' efficiency. Architectural spaces together with other education factors have significant effects on the student's learning outcomes. It is important to understand what the key factors are, how they are combined and in what way they can influence one's satisfaction. Education administrators are always trying to find strategies to increase academic performance of students in the school settings, such as offering different curriculum options, different methods of teaching, better teachers, smaller classes, tutoring after school and so on. However the physical environment factors are important and they plays a main role on the quality of educational activities. According to the humanistic perspective, the environment in which a person is grown influences personality. A number of researches indicate that physical environment can dramatically influence the efficiency and effectiveness of individual and group learning. Schools' satisfaction with their students' performance is considered in this research. In this study, we tried to characterize the students' physical and mental needs in order to achieve a better learning space. Architecture is a complete system consisting of the physical, functional and structural systems [1]. According to Louis Kahn: "School is as a place that people use it to meet their demands for learning" [2]. Environmental satisfaction is determined by individual's subjective assessment from an interacting set of factors in the environment, and values that govern a person's behaviour [3].

Research questions:

- 1- What are the physical factors that affect students' satisfaction in the girls' high schools?
- 2- Which of the extracted factors are more important?
- 3- What is the order of each extracted factor?

2. Literature review

2.1. Conceptual framework of satisfaction

Satisfaction is defined as whatever causes joy and happiness [5]. In the hierarchy of needs theory, Maslow (1954) describes the concept of "consent" as "to satisfy the requirements, needs and expectations". According to Inglehart, satisfaction is a reflection of the balance between personal aspirations and physical condition. Satisfaction is defined as a function of success rate and satisfies the physical and mental requirements [4]. Maslow identified seven categories of human needs. They are as follows: physiological needs, safety and security needs, love and belongingness needs, self-worth and self-esteem needs, the need to know and understand aesthetic needs and the need for self-actualization [6]. In fact, according to social scientists' views, satisfaction is one of the key criteria for evaluating the quality of the environment. The environmental quality is determined by people within the context of physical, social and spiritual dimensions [3]. Barker believes that there is a special relationship between physical dimensions and people's behaviour [7].

2.2. Effects of Architectural space in education

School as an educational place plays a central role in the social structure and culture. Schools in the general sense are systems that are formed of five major components or subsystem: the teachers, staff and services, programs in education, peer groups and physical environment [8]. According to educational experts, colour, light, sound and equipment in schools have significant effects on learners' satisfaction [9]. In the design of learning spaces, introverted schools can be used more effectively. This type of school provides better

educational facilities for girls in most cities of Iran. Priority in the design of schools is to create the student centred learning environments. The design of educational environments such as schools is performed based on three important criteria: Responsibility, Productive work, and Lifelong learning [10]. Bluysen and colleagues pointed out the importance of the quality of indoor complex interaction, Kim and de Dear also tested the role and importance of indoor quality on people's ultimate satisfaction [11].

2.3. Determining the factors affecting students' satisfaction in educational settings

There are several factors that can be mentioned in order to increase students' satisfaction with school environment. Among these, the major ones are as follows: a) Development of learning spaces according to environmental conditions, b) Concentrating on cognitive and affective domain in the design of classrooms and campus, c) Acceptable educational facilities and services for school-age students, and d) Open innovation space to work more effectively with these facilities and equipment [12]. Learning environments and individual educational experiences, family life and family connections to school as well as those of the peer, are the main reasons in the incidence of discontented youth [13]. According to the researches, there are many effective factors on satisfaction, such as: physical comfort, environmental perceptions, psychological security, environmental attractions and a sense of belonging [14].

Physical comfort

Physical planning is in need of social and cultural requirements for space design that, in result, provides optimum space for various activities. The main objective of physical planning is to give the desired direction and balance to the environment, and an improvement plan for the physical environment [15]. High temperature, high noise level and the lack of sufficient space for people are among the factors that disturb physical comfort [16]. Optimum lighting conditions and good quality of illumination are important factors in classroom designs. Use of natural daylight in schools can improve the performance and health of students [17]. Classrooms with a warm and comfortable environment appear to be an important parameter interacting with students [18].

Sense of belonging to Space

Sense of belonging to the school is a variable that indicates the level at which students feel connected to their school's environment. In this regard, it is important to use interior elements to give students a feel of being at home [17]. Pleasant interior designs and the use of personal space are valuable for the development of sense of belonging to learning communities [18]. Involving users of architectural spaces in design processes has shown to lead to increasing activities in that space [7].

Environmental attractiveness

Attractive learning environment is looking for motivated students to learn better. Recent studies show that the colours and specific patterns have a direct effect on health, mood, emotions, behaviour and learning performance, depending on each person's culture, age, gender and level of development. Use of different colours and different lighting in different areas can also be effective in increasing the students' creativity [16]. The walls with decorated surfaces for displaying student's artwork can enhance the attractiveness of the space [19]. The importance of interior design beauty is emphasized by studies [18]. Also, the use of natural elements is an important factor in reducing stress. Certainly, nature plays a significant role in limiting negative stress.

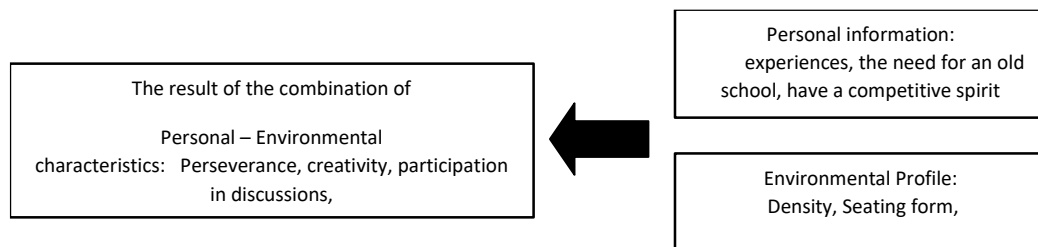


Fig.1. The Conceptual Framework of the Person - The Environment at the Educational Headquarters

(Gifford quoted from Kamelnia, 2015)

2.4. The emphasis of Quranic verses and jurisprudential narratives on the importance and necessity of respecting the position of human and satisfaction

Some of the attributes that are used by God are also used in humans, such as the satisfaction that has been used frequently; In the Surah At-Tauba (verse 100)^a, God is pleased from the first group of migrants and they are pleased with God, too. The gardens are prepared and great prosperity for them, where the rivers flow and they will always be there; but pleasure in the sense used for the essence of God differs with the satisfaction of human.

Enjoyment in man is a kind of heart and soul attraction, while God has no heart and no soul, and the essence of God is glorious of any changes; therefore, influence and passivity are not in the essence of God and it is impossible to influence the creatures in the essence of God [20]. Paradise is where all the divine blessings are provided and it has two values: one of the festivities: streams, gardens, trees and all kinds of pleasures and that heaven is the embodiment and crystallization and place of God's manifestation; Who is in paradise feels that God is pleased with him, because if anyone is angry with God, there is no place in heaven. The Holy Quran expresses both values for Paradise. The righteous have their gardens with their God, in which there are spirits, in which they are eternal, as well as pure wives, and in paradise, enjoy the glory of God (Surah Al-Imran, verse 15) and also in Surah Tobeh, verse 72, he says: "God has promised gardens to believing men and women." In which a soulful spirit is eternal, and the satisfaction of God is superior to all of them, and this is the great victory. In this verse, after expressing the blessings of heaven, he says: "The most important blessing of paradise is the pleasure of God, whose value is superior to all heavenly blessings and cannot be expressed in value compared with other things, even if they are worthy." As the greatness of God does not fit in the definition and description, and the value of God's satisfaction is superior to that of speech, and cannot be set at such a price, because a person of heaven feels that God is pleasing to him and is in the favor of him. And here is where all the blessings are beautiful and pleasing to him [21]. From the Quranic point of view, before the human beings are revealed by other human beings, were revealed by God. Among the creatures of Almighty Allah, human has a lot of special qualities when God created man; he admired himself (Momenoun Sura, verse 4). Then he gave the angels a promise to mankind. God placed the dignity and place of man so high that he was prostrate to the angels, and the angel who did not prostrate the human being was crushed by God. In Tin Sura (verse 4), it comes from the Holy Qurand: we created man in the best (the most good of the form of existence); Also in Surah Baghareh (verse 30), God's successor is given to man^e.

In addition to the succession of God, he gave another magnanimity and dignity, and he had been breathing his soul in himf. That God bless his soul in man shows the dignity and sanctity of this divine creature, and it is this feature which places man in the position of sanctification and reverence form the angels. In verse 70 of al-Asra Sura, reverence to Allah is given to the Prophet and many of the creaturesg. We truly cherished the sons of Adam, and we brought them to the land and the sea, and we gave them clean things, and gave them superiority over many of their creatures. Allah, although giving man a wisdom and authority, called prophets to guide man; to a dignified and prosperous life and ultimately to achieve perfection and divine

^a "وَالسَّابِقُونَ الْأُولُونَ مِنَ الْمُهَاجِرِينَ وَ الْأَنْصَارِ وَالَّذِينَ اتَّبَعُوهُمْ بِإِحْسَانٍ رَضِيَ اللَّهُ عَنْهُمْ وَ رَضُوا عَنْهُ وَ أَعَدَّ لَهُمْ جَنَّاتٍ تَجْرِي تَحْتِهَا الْأَنْهَارُ خَالِدِينَ فِيهَا أَبَدًا ذَلِكَ الْفَوْزُ الْعَظِيمُ"

^b "و رضوان من الله اكبر"

^c "فتباركا الله احسن الخالقين"

^d "لقد خلقنا الانسان في احسن تقويم"

^e انى جاعل فى الارض خليفه

^f " و نفخت فيه من روحى "

^g "ولقد كرمنا وجعلنا هم فى البحر "

glory. Therefore, according to the emphasis given in the Holy Qur'an, the discussion of respecting the position of man and his satisfaction is important and necessary. On the other hand, the realization of this goal can be a step towards the promotion of society.

Also, jurisprudential hadiths have been talked about their satisfaction and certainty their role on calmness. Like the hadith of Imam Sadiq (peace be upon him): Salvation and comfort are in pleasure, and sadness are in doubt and dismay (Mizan Al-Hekmah volume: 4, p. 478). Satisfaction with life is one of the effects of certainty. Sure to god, has satisfaction with life in any situation. In a narration from the Imam Alii (peace be upon him): being satisfied is the fruit of Certainty. In another narration, Imam Sajad says: "Satisfaction with divine ordinances although unpleasant, is the signs of reaching the highest levels of certainty. Life is full of bitter incidents, which is not easy to accept. Above all, acceptance of these misfortunes is patience, and above patience is the pleasure of divine appreciation.

Such satisfaction from life is the result of the creation of two certainties in a person: first, the certainty that all the advancements of life are divine destiny. In the verse it says^k: "Everything that happens on earth occurs from unpardonable events, as well as what happens in personal life, from other illnesses and miseries, all is divine destiny". Second, the certainty is that divine appreciation is based on wisdom, and every incident and phenomenon has a wise cause, which in most cases does not come to our senses. These two beliefs bring man to a position beyond acceptance and patience, and that position is a satisfaction of life [22].

2.5. Methods of measuring satisfaction

Measurement of environmental satisfaction is very complexes that are related to many factors. In the result of literature review related to the degree of satisfaction, suggests that understanding the extent satisfied by any person is depend on different situations such as : social, economic, cultural and physical situations. Satisfaction with living conditions is evaluated by asking respondents for measuring good or bad environment in which they live [23]. Satisfaction is a comparison depending on the difference between a person's environment and standard conditions [24]. Further studies on satisfaction have been about citizens' satisfaction with the residential environment that they were expressed in 1975. So Environmental satisfaction can be measured based on two components: Quality of the environment and Members properties

2.6. Research Design and Methodology

The methodology of this research consists of a quantitative – qualitative approach for examination of the hypothesis. In quantitative research, data collection and analysis is done by relying on formulas and mathematical models; but in qualitative research Information obtain with natural evidence, actual experiences and observations. Survey method has been adopted to address the field for answering research questions and to find the level of correlation between variables. Therefore, the Survey is the collection of data In order to analyse the relationships between some variables. Statistical data are collected from the samples. The sampling population of this study consisted mainly of one purposefully sampled group (70 people of two high-school students in Tehran). Sampling technic of this research is multi-stage cluster sampling method which may help for better validity and reliability. Sample size clarified through valid statistical technics. In order to assess the individual's point of view, was done depth interviews with 15 people of experts and specialists in the field of study that formed purpose and content table. This table was

h "الرَّوْحُ وَالرَّاحَةُ فِي الرِّضَا وَالْبَقِيَّةِ ، وَ الْهَمُّ وَالْحُزْنُ فِي الشَّكِّ وَالسُّخْطِ"

i "الرِّضَا ثَمَرَةُ الْيَقِينِ"

j "الرِّضَا بِمَكْرُوهِ الْقَضَاءِ مِنْ أَعْلَى دَرَجَاتِ الْيَقِينِ"

k "مَا أَصَابَ مِنْ مُصِيبَةٍ فِي الْأَرْضِ وَلَا فِي أَنْفُسِكُمْ إِلَّا فِي كِتَابٍ مِنْ قَبْلِ أَنْ نَبْرَأَهَا"

used for preparation of research questionnaire that was designed in two parts which included some images and descriptive options. Questionnaires have been distributed among the samples, and after classifying the obtained data, SPSS 23 software was used for analysis and extracting main factors.

3. Analysis of results

According to a survey conducted on the results obtained from the questionnaire that is analysed by SPSS program. Based on the results of factor analysis five factors were extracted and variables were belonged to each factor and the measure of sampling adequacy is 0.63 thus, the sample size was adequate (KMO). Rotated factor matrix shows that five extracted factors are match with designed questions and the explanatory variables for the research model. Finally based on the questions related to each factor, according to expert teachers redistricting each factors, has been agreed on five factors: 1) Flexibility and spatial dimensions, 2) Intelligibility and accessibility, 3) Aesthetic space, 4) Environmental comfort, 5) The scope and participation.

Table 1-Frequency and Percentage of agreed students

| Extracted factor | Number of questions | Stability |
|------------------------------------|---------------------|-----------|
| Flexibility and spatial dimensions | 5-18-6-21-22-19-20 | %12 |
| Intelligibility and accessibility | 28-23-27-29 | %11 |
| Aesthetic space | 16-8-13-17-15 | %9 |
| Environmental comfort | 1-24-26 | %6 |
| The scope and participation | 25-9-6 | %6 |

3.1. Flexibility and spatial dimensions

Based on the results listed in the table, to achieve flexibility and spatial dimensions, create a variety of spaces and the ability to change the layout of the spaces has an impact factor of 0.56 that has the highest importance. The ability to use a variety of tables and chairs is based on the next level and has an impact factor of 0.44. Existence of sufficient open space for school activities and there is space between the tables and chairs were less coefficients effective.

Table 2- Flexibility and spatial dimensions

| Questions - Flexibility and spatial dimensions | impact factor |
|--|---------------|
| 20- I would like to attend school if there are diversity of environments and the ability to change the layout in areas where I am with my friends. | 0.56 |
| 17 - When I'm using a variety of tables and chairs I am interested in studying. | 0.44 |
| 21 - It is pleasant to me, if in the school has adequate open space and be able to do vary activities. | 0.40 |
| 18 - It is pleasant to me, if there is a lot of space between the tables and chairs. | 0.29 |

3.2. Intelligibility and accessibility

In relation to the Intelligibility and accessibility, the ability to see the schools' ground for students in the class, has an impact factor of 0.56. And having the ability to quickly recognize their own areas of focus

to conduct their activities, has an impact factor of 0.53. Easy availability of school places and not confused, has an impact factor of 0.33.

Table 3- Intelligibility and accessibility

| Questions - Intelligibility and accessibility | impact factor |
|--|---------------|
| 24 - If I could see the schools' ground in the class, can focus on teacher. | 0.56 |
| 29 - I would like when I'm at school, I know well where I have to go to do any work. | 0.53 |
| 28 - I would like school spaces be readily available and not to get confused. | 0.33 |

3.3. Aesthetic space

The use of colours and special templates in the classroom has an impact factor of 0.49. Being in the beautiful classroom has an impact factor of 0.42. Applying fountain and beautiful plants outside the building, the difference in the colour of the walls in the classrooms and hallways have has an impact factor of 0.39. Beauty of the interiors and beautiful templates has an impact factor of 0.38, well designed and beautiful has an impact factor of 0.37.

Table 4- Aesthetic space

| Questions - Aesthetic space | impact factor |
|--|---------------|
| 19 - I'll feel good, in class designed with colors and special templates. | 0.49 |
| 22 - I'll do well to study, in a beautiful classroom. | 0.42 |
| 23 - It is pleasant to me, if in the exterior space there are waterfront and beautiful plants. | 0.39 |
| 13 -It is pleasant and attractive to me if the color of the walls in the classrooms and hallways are varied. | 0.39 |
| 8 - The beauty of interior space interested me to attend in school. | 0.38 |
| 16 -I'm interested in be in the beautiful designed class. | 0.37 |

3.4. Environmental comfort

Heat and cold temperature in the class in conjunction with Environmental comfort has an impact factor of 0.20 and Natural lighting in conjunction with this factor has an impact factor of 0.19.

Table 5- Environmental comfort

| Questions - Intelligibility and accessibility | impact factor |
|---|---------------|
| 1 - Heat and cold temperature in the class has an effect on my concentrate and study. | 0.20 |
| 5 - I'll study better in good and natural light. | 0.19 |

3.5. The scope and participation

Spaces that allow any person to work with their friends in the place that have been decorated according to their taste have an impact factor of 0.51 on the scope and participation factor. Participation in forming of class has an impact factor of 0.32. Comfortable feel like being at home have an impact factor of 0.30.

Table 6- The scope and participation

| Questions - The scope and participation | impact factor |
|--|---------------|
| 25 - I would like to work in group with my friends in the spaces decorated according to our taste. | 0.51 |
| 9 -I'm interested in participate in shaping classroom space. | 0.32 |
| 6 - I'm interested in studying in comfortable places like being at home. | 0.30 |

According to the above given findings on the students idea, Flexibility and spatial dimensions has an effective factor on student's satisfaction. The reverse of Scope and participation had the lowest agreement. But overall agreement with all operating has been very high. The resulting matrix of rotation is shown in Table 1. The Matrix plays an essential role in interpreting the results of factor analysis and each variable that have load more in a factor it belongs to that factor.

4. Discussion and Conclusion

This research relies on the concepts of Quranic verses and jurisprudential hadiths, which relay the necessity and importance of people's satisfaction, since satisfying individuals ultimately leads to God's satisfaction. The research tries to identify satisfaction as one of the factors affecting the quality of school architecture and takes steps to improve the situation. The analysis shows that flexibility and spatial dimensions, intelligibility and accessibility, aesthetic space, environmental comfort and the scope and participation are main factors that directly influence satisfaction. The results of the research show that in order to satisfy pupils in learning spaces, designers should take the above mentioned into consideration. Finally, based on findings, recommendations are proposed in the form of design principles for the achievement of pupils' satisfaction.

As can be seen in fig. 1, there are known 5 factors that they causing a feeling of satisfaction on students. These five main factors are in this order: 1) Flexibility and spatial dimensions, 2) Intelligibility and accessibility, 3) Aesthetic of space, 4) Environmental comfort and 5) the scope and participation. So based on the literature study and findings, according to the principles in the design of learning spaces is recommended.

- For **flexibility and spatial dimensions factor** there are principles such as: variations in space and the ability to change the layout of the spaces; use of varies tables and chairs; design open spaces for diverse activities and much space between the tables and chairs.
- For **Intelligibility and accessibility factor** there are principles such as: view from the classroom to the schools' ground; design legible for quick access to considered spaces for each special activity and easy access to school spaces and prevents people from getting confused.
- For **Aesthetic space factor** there are principles such as: use of colors and special patterns; having

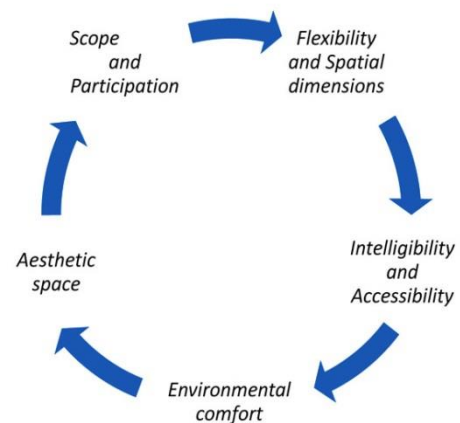


Fig. 2. Model of students' satisfaction in educational spaces

perfect outdoor courtyard and applying fountain with appropriate vegetation; use the colors, textures, patterns and attractive to cover floors and walls and beautiful design.

- For **Environmental comfort** there are principles such as: heat and cold temperature in class and use of natural light.
- For **the scope and participation** there are principles such as: design educational environment so that people can engage in teamwork and spaces should be decorated according to their taste; the possibility of forming a class room by students and ability to create a comfortable space for people.

Table 7- recommended principles in the design of learning spaces

| R | Extracted factors | Principles |
|---|------------------------------------|---|
| 1 | Flexibility and spatial dimensions | <ul style="list-style-type: none"> • Principle 1 - Variations in space and the ability to change the layout of the spaces. • Principle 2 – Use of varies tables and chairs. • Principle 3 - Design open spaces for diverse activities. • Principle 4 - Much space between the tables and chairs. |
| 2 | Intelligibility and accessibility | <ul style="list-style-type: none"> • Principle 1 - View from the classroom to the schools' ground. • Principle 2 - Design legible for quick access to considered spaces for each special activity. • Principle 3 - Easy access to school spaces and prevents people from getting confused. |
| 3 | Aesthetic space | <ul style="list-style-type: none"> • Principle 1 - Use of colors and special patterns. • Principle 2 - Having perfect outdoor courtyard and applying fountain with appropriate vegetation. • Principle 3 - Use the colors, textures, patterns and attractive to cover floors and walls. • Principle 4 - Beautiful design. |
| 4 | Environmental comfort | <ul style="list-style-type: none"> • Principle 1 - Heat and cold temperature in class. • Principle 2 - Use of natural light. |
| 5 | The scope and participation | <ul style="list-style-type: none"> • Principle 1 - Design educational environment so that people can engage in teamwork and spaces should be decorated according to their taste. • Principle 2 - The possibility of forming a class room by students. • Principle 3 - Ability to create a comfortable space for people. |

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