

Interrelationship between Human Behavior and Sustainability in the Built Environment

ISSN (e) 2520-7393
ISSN (p) 2521-5027
Received on 3rd Dec 2020
Revised on 20th Dec, 2020
www.estirj.com

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Abstract: An interdisciplinary art that emphasizes on the interchange concerning human beings and the environment is known as Environmental psychology. Which Introduced to the field of psychology the occurrence and impact of the built environment, which is largely ignored. To design the built environment Sustainable architecture always prefers an authentic and careful approach for energy and ecological conservation the health, mood and working capacity of people of a city Jacobabad is seriously affected by management of built environment. Which involves variables related to earth, how nature is accessed, shades, quality of air inside the building and much more. The residents also need to spend a good amount of money on the rework before and after start to live in the colony. The aspect of environmental psychology has been examining in this research work that contracts with relationship among humans and built environment variables or more specifically sustainability. The basic aim was to get perceptions from architects' engineers and residents of colonies to know that how both the humans and built environments affect each other through the case study of Jacobabad environment. And what kind of considerations should be done to reduce the impact of unpleasant environment impacts on human behavior. Secondary data is collected through the available literature while the primary data is collected through the case studies, interviews, questionnaires, and perceptions of architect.

Keywords: Environmental physiology, sustainability, human behavior, Jacobabad.

1. Introduction

The act that natural environment modifies a behavior of humans is called environmental psychology. Usually, the degree of analysis of environmental psychology has been transformed into a build environment instead of a natural environment. Now a days it has been considered critically that how man and build soundings influence each other. For instance, choices are being slimed down for upgrading surroundings by means of sustainable infrastructure and construction that suits the health of end-users much emphasis is made in designing to keep in physical touch with natural environment and enjoy view of the natural locations.

The way one can influence individual's physical condition and cognition. Aspect of environmental psychological science will be inspecting in my research which is concern with this connection between humans, inner areas, and also the ordinary surroundings, or allot of specially, appropriateness. This research will focus on to study the relationship between built environment and human behavior, designers must consider and enrich their designs by producing better build environment to help in building human health and character. Environmental psychology is an important research field that Assists architects considerate more about their built environment than space management. [1].

2. Related work

Sustainable Built Environment

There are three aspects of sustainability social, economic and environmental. This research has mainly focused on the environmental aspect of the sustainability [2].

A practice of designing the environments by which the natural environment is preserved that provides lifelong satisfaction to human being is known as sustainability. This is the key to gaining this knowledge by which designers get very knowledgeable about inner places which concern with the requests and comfort of both human being and the accepted atmosphere. It is very cooperative solution for the achievements of built environment that includes the best stability of echo system by applying the innovative methods of construction, whose aim is to provide long term feasibility and possibilities for green architecture [2].

Belongings of sustainability on Environmental Psychology

When the numerous parts of the built environment will be examined which concern with the psychology of the environment, it will help us and will show the necessities of creating successful design selections, because sensible design maintains individual's comfort [1]. Wellbeing of human depends on the choices to incorporate sustainability in Design. The sustainability of design emerges from

selection of building materials and energy to fulfill the needs of human with minimum interaction with nature. And it also includes the compromises like using those materials which are made from rapid renewables and have a recyclable quality [2].

Color

As according to the research color is verified as very important element for the house perception, building kind, way finding, feel, and image [6]. Colors provide coldness to the viewer eyes. There are some factors that influences the color perception are age, gender, and culture. White color is related with happiness and transparency. In some cultures, we can't recognize when a woman wears a white dress, in such a way that either she wearing white clothes because she likes it or she is about to get married. And from other cultures you will know sadness is signified with white clothes. This happens just because in these cultures white color shows the grief and death. Color influences on human behavior and cognition must be considered while investigation these and similar factors must be considered when investigating the influence of colors on human emotions and behavior. Innovative area of the study that faces numerous challenges is color psychology. Which is the correct way for measuring the effects of color is a major problem in this study. Different people keep different perceptions in their minds and also responses in a different way to the colors because color perception is very subjective [3].

Access to nature

(Rachel Kaplan 1989) Researched that when humans look after at the green areas and different natural areas related to greenery either from the windows of home or from any work place they will be less dissatisfied in physical health. Additionally, there environment will provide full happiness and satisfaction [4]. The better cognitive functioning can be yield by the "Access to nature and green environments. More we can achieve the impulse control, and greater mental health overall. Less connection with the access to nature causes disturbances hyperactivity anxiety and so many clinical depressions [5]. People feel very good when the natural lighting system is narrated in their houses. Access to nature and green environments yields better cognitive functioning, more it enhances the willpower, desires, and better spiritual health overall [6]. This is linked to exacerbated attention deficit/hyperactivity disorder Symptoms, higher rates of nervousness sicknesses, and difficult situations of clinical Misery. "Research conducted by Rachel Kaplan reveals similar findings: when people are spending their most time in green areas and other natural things, they feel more satisfied with their lives. The most views which provides relaxation to the viewer eye are not morally natural but show some signs of human inclining;

such views have particular water, shorn turfs, and bunches of trees [5]. A sensible number of sealed plants in interior environments can reduce stress also, but natural scenery through windows provide greater benefits [6].

Indoor Air Quality

(Kopec, D.A 2006) kopec Indoor air quality with unbalanced temperature could lead to a severe sickness in humans. Many diseases attack humans when indoor temperature is unbalanced, diseases like headaches, exhaustion, unending cough, and constant watching, nose and other frustrations. Analysis specifies about carbon dioxide CO₂ levels in mixture with other indoor pollutants like unstable organic compounds free by building materials, office machines, workplaces, cleansing products, equipment, human bio effluents, formaldehyde, and dust is responsible for symptoms related to SBS) [7]. By taking suspicious planning throughout the preparation methods we can accomplish the totally contented thermal comfort facility and indoor air quality in buildings [8]. Indoor air quality is another factor that makes the nature of people very bad. people pay for deferent types of diseases that attack people if this factor is not properly considered in the building's design. That cause many types of diseases like pains, weakness, chronic coughing and overactive sinuses, and chronic eye, nose, and throat irritations. Research indicates that carbon dioxide levels in combination with other indoor pollutants—such as volatile organic compounds released by building materials, office machines, cleaning products, equipment, human bio effluents, formaldehyde, and dust—are responsible for symptoms related to SB [9]. When people are physically suffering in an environment, their intelligence also suffer and become so negative. Negatively affected people never get happiness in life as well. The only way to enhance human intelligence is to make them a natural resource which makes their life of humans and buildings very good [9].

3. Methodology

Research initiated with the problem identification the health, mood and working capacity of people of a city Jacobabad is seriously affected by management of built environment indifferent environments to approach a proper solution for this problem a step by step methodology was adopted where the factors which are responsible for the negative impact of environment which were studied by reviewing the literature and past researcher, in order to gain first-hand knowledge about variables of environments and their causes. Various questionnaire, surveys and physical interviews were conducted from two colonies of Jacobabad. With the reference of the made survey data was analyzed with help of software SPSS and MS excel. Finally, in the light of obtained results in this study recommendations are given in order to aware architects and residents to prefer sustainable life.

4. Data Analysis

Questionnaires were collected by two different colonies of Jacobabad to determine and analyze the accurate data and categorized living area, while collecting the information regarding the environmental impacts on residents of both colonies. The questionnaires were designed in Likert scale and also details and pie charts, were generated to obtain more accurate information and results.

4.1 Color

As the Jacobabad city is the hottest city of Pakistan and there is important role of colors in the human life also. That’s why one colony that is railway colony has no color which puts negative impact on the environment and while the other colony has used so much lighter and colder colors in it as according to the climate because colder colors resist the temperature.



Figure-3: Showing the color of exterior of the Railway colony.



Figure-1: Showing the color of exterior of the Family Line colony.

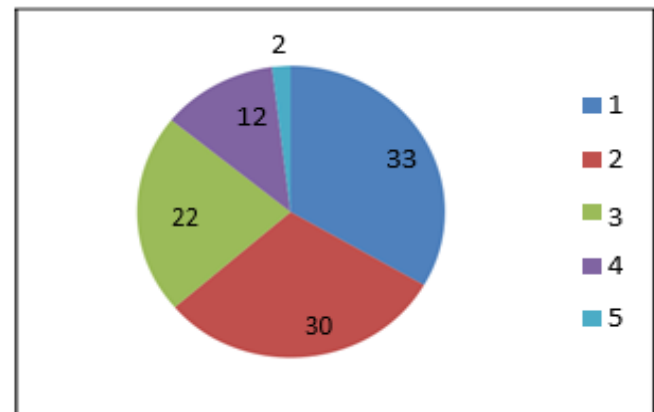


Figure-4: Data analyzed through questionnaires for obtaining results for color satisfaction of the Railway colony.

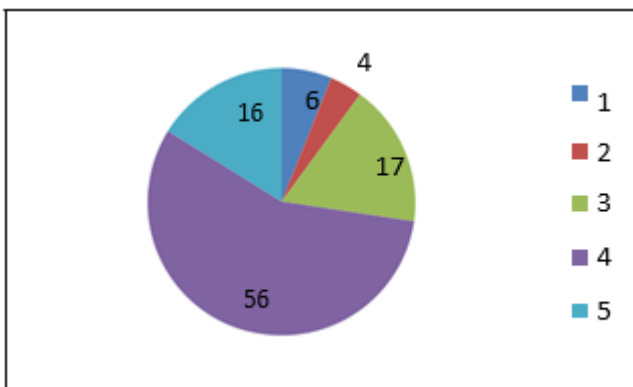


Figure-2: Data analyzed through questionnaires for obtaining results for color satisfaction of the Family Line colony.

4.2 Access to nature

People living close to trees and green spaces are less depressed, unhealthy, inactive, or do not rely on any one, according to a new report. *Healing Gardens*, researchers found that more than two-thirds of people choose a natural setting to retreat to when stressed [10]. When humans look after at the green areas and different natural areas related to greenery either from the windows of home or from any work place they will be less dissatisfied in physical health. Additionally, there environment will provide full happiness and satisfaction [11]. The better cognitive functioning can be yield by the “Access to nature and green environments. Figure no 4 shows the green spaces of the family line colony these kinds of area encourage for walk ability work ability and increases mental health that is really beneficial for the colony people. While the figure no 5 shows the stagnant water and unwanted shrubs of the other colony which are providing negative impact on the health and wellbeing of residents of railway colony.



Figure-5: Showing how nature is accessed in the Family Line colony.

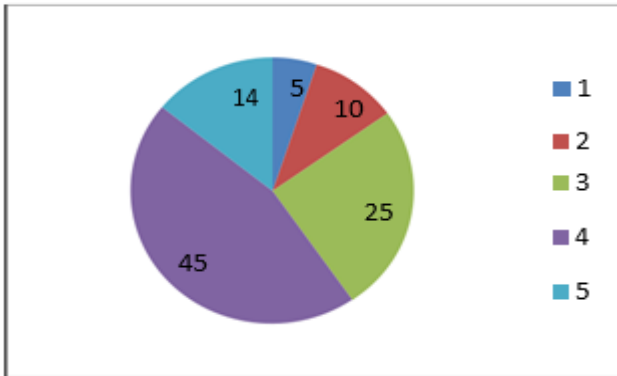


Figure-6: Data analyzed through questionnaires for obtaining results for how nature is accessed in the Family Line colony.



Figure-7: Showing how nature is accessed in the Railway colony.

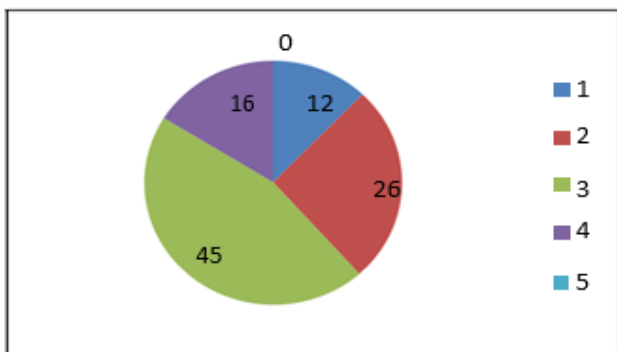


Figure-8: Data analyzed through questionnaires for obtaining results for how nature is accessed in the Railway colony.

4.3 Indoor Air Quality

It is related to the health and comfort of building occupants that refers to the air quality either inside of the building or surroundings of structures and also determines the quality of environment of building according to the needs and demands required for the good health and wellbeing of people.



Figure-9: Showing indoor air quality in the Family Line colony.

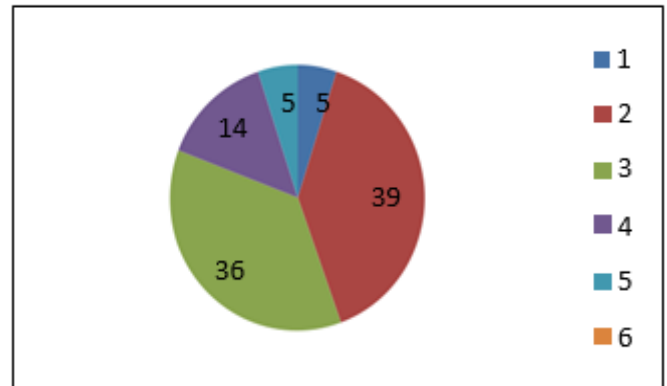


Figure-10: Data analyzed through questionnaires for obtaining results for indoor air quality in the Family Line colony.



Figure-11: Showing indoor air quality in the Railway colony.

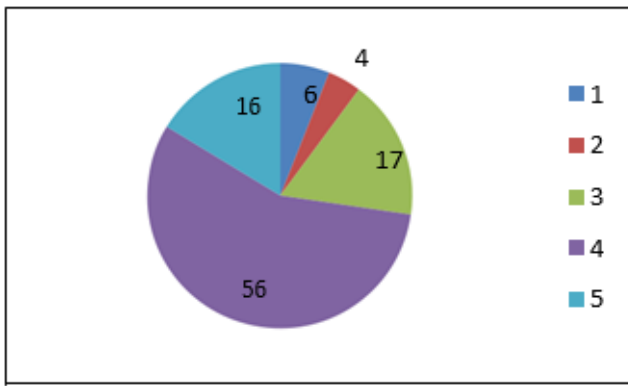


Figure-12: Data analyzed through questionnaires for obtaining results for indoor air quality in the Railway colony.

5. Results and Discussion

Through the analysis obtained data, it was assessed that following are the problems that are created due to unsustainable built environment. Devaluation of property, resident's un-satisfaction thermal comfort disturbance, decrease workability, dull aesthetic appearance of environment, poor performance, increase maintenance cost.

6. Conclusion

Research shows that sustainability is the only way to make people feel better in spaces that are mostly connected to natural features and designs. And their elements follows the sustainability aspects. Combining accurate, timely research into projects helps to be more positive, and provides expressive impacts on both the environment and human health. As was previously stated by Lechner, for the long-term healthy society it is necessary to make the environment healthy first which is most essential. To make the society sustainable and to consider about the good health and wellbeing of people, this can be achieved only when we will understand the relation between human and built environment. According to my research surveys interviews and case studies it is proved that there is a strong relationship between human behavior and sustainable built environment. So, architects should be careful while designing such environments for the human being. Because design considerations directly effect on the human behavior. The idea of sustainability, or ecological design, is to ensure that our actions and decisions today do not inhibit the opportunities of future generations. The large degree and size of the building is one of the problems that should be scale back because it doesn't suit the climate and environment. Extra usage of Energy consuming materials and less considerations of sustainability. Connection of buildings with each other that creates acoustical issue with open areas.

Concept of congested spaces then open areas. Irresponsible planning and environmental degradation through exploitation of resources generates waste and pollution that

damages ecosystems. Less awareness about the important measures of sustainability. Like reduce, reuse, recycle, and regenerate.

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