



Little changes make big differences: the effect of greenery on dormitory students' satisfaction

Los pequeños cambios consiguen grandes diferencias: el efecto de la vegetación en el grado de satisfacción de los estudiantes en las residencias universitarias

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- ◊ This study was an attempt to understand whether access to greenery is associated with dormitory students' satisfaction.
- ◊ To this end the pot plants were distributed among 200 female students living in a dormitory who were recruited through random convenience sampling. It was found that the students' satisfaction with the dormitory increased significantly after receiving the pot plants.
- ◊ The study is unique in term of highlighting the fact that even adding a small greenery to the students' living space can significantly increase their satisfaction level.

Links between dormitory satisfaction and academic achievement, happiness, sense of belonging to space, academic progress, physical and mental well-being have been well-established. However, the relationship between greenery and degree of satisfaction among university students is poorly understood. This study was an attempt to understand whether access to greenery is associated with university students' dormitory satisfaction. To this end, 200 students living in a dormitory at Kerman Islamic Azad University were recruited through random convenience sampling. The data were gathered through a questionnaire. The pot plants were distributed among the participants. Analysis of the data using T-test showed that students' satisfaction with the dormitory increased significantly after receiving the pot plants. The finding of the study will help landscape architects, planners and policymakers to maximize the satisfaction of the students at dormitory by providing the students with greenery.

Female Dormitory; Greenspace; Satisfaction; Student residences

- ◊ Este estudio trata de entender si disponer de vegetación está asociado con la satisfacción de los estudiantes de residencias universitarias.
- ◊ Con este objetivo, se distribuyeron macetas entre 200 estudiantes de una residencia universitaria seleccionadas al azar. Se detectó que el grado de satisfacción de las estudiantes incremento significativamente tras recibir las plantas.
- ◊ Este estudio es único demostrando que la incorporación de una mínima vegetación al espacio vital de las estudiantes puede incrementar su nivel de satisfacción.

Los vínculos entre el grado de satisfacción en las residencias universitarias y el logro académico, la felicidad, el sentido de pertenencia al espacio, el progreso académico, el bienestar físico y mental están ampliamente establecidos. Sin embargo, la relación entre la vegetación y el grado de satisfacción entre los estudiantes universitarios es poco conocida. Este estudio trata de explicar si disponer de vegetación está asociado con la satisfacción de los estudiantes en las residencias universitarias. Con este fin, se eligieron al azar 200 estudiantes de una residencia en la Universidad de Kerman Islamic Azad. Los datos fueron recopilados a través de un cuestionario. Se distribuyeron plantas en maceta entre las participantes. El análisis de los datos mediante el test de la T mostró que el grado de satisfacción de las estudiantes de la residencia aumentó significativamente después de recibir las plantas. El hallazgo del estudio ayudará a los arquitectos, paisajistas, planificadores y legisladores a maximizar la satisfacción de los estudiantes al proporcionarles vegetación en la residencia universitaria.

Residencia femenina de estudiantes; Espacio verde; Satisfacción; Residencias de estudiantes

1. INTRODUCTION

A great number of students experience living in a dormitory. Being in the dormitory is about staying far away from the family, the network of previous relationships and struggling with problems. Along with negative feelings

associated with new life experience, a significant number of the students may derive pleasures from their academic life and their interaction with their peers. Variety of factors such as communication between the students, their participation in unions and academic associations, social, psychological and financial support can promote the psychological ability of dormitory students [31], [7].

Much effort has been invested to enhance the quality of the dormitory life by increasing positive emotions among the students. Students' experience about events and relationships in the dormitory environment influence their morale and feelings. The changes whether positive or negative can affect the academic performance of students, their habits and behaviors [6]. However, these problems are more pronounced for non-local students (ibid, 2010).

This study is an attempt to understand whether the access to greenery is associated with their level of dormitory satisfaction. One of the major problems of a great number of dormitories around the world is that they only serve as residential communities and rarely address the student's basic needs.

However, the original purpose of some other dormitories in prestigious universities is to promote students' cognitive psychological and social growth by creating conducive environments for learning and research. Researchers have reached a consensus that the dormitory students should be treated as a modern society whose needs and expectations are very important to be considered.

The management and leadership of this community require a precise and comprehensive [31]. Paying attention to the needs of students in the designing the dormitory is imperative to make them feel at home and consequently improve their academic progress [17].

Being aware of the students' satisfaction impact on their total level of satisfaction the current study aims to examine the impact of minor changes in the students' satisfaction. More specifically the current study aims to examine the effect of providing students with plant pots on their satisfaction level. Furthermore the current study seeks to examine the relationship between greenery and degree of satisfaction among university students is poorly understood.

2. LITERATURE REVIEW

2.1 RESIDENTIAL SATISFACTION

Satisfaction has been known as fulfilment of one's wishes, expectations, or needs, or the pleasure derived from this. Satisfaction with life is a general concept, related to the way an individual perceives the life. Satisfaction is an inner experience including the positive sense of excitement and the lack of negative emotions [34].

There is some evidence that green spaces have a great influence on human's level of life satisfaction, living conditions, health, happiness and well-being, and it is relevant to the quality of life. Green spaces have a great influence on smell, sight, hearing, touch and taste senses and are very beneficial in promoting the sense of belonging to, and understanding of the environment [30].

The results of research by Ebrahimzade and Ebadijokandal [12] on the relationship between green space, human satisfaction and health have shown that green space can have a positive effect on the psychological and physical well-being

of the people. It can also increase the work efficiency and quality of life.

Unfortunately, in designing spaces, green space has received less attention. Overlooking the green space has put the psychosocial health of individuals into jeopardy and has reduced their satisfaction.

Drawing upon Maslow's theory, Mousavi and Joneidabad [28] attempted to identify the quality of residential place (i.e. open spaces and public facilities) based on the Iranian children's satisfaction with the residential complex.

Data analysis showed that variety of factors such as social, physical, management aspects of their residential places play a key role in their satisfaction with those places. Among these factors, they emphasized the beauty of the scenery, location, and size of green spaces.

Common to all studies is that access to greenery nature influence the people's residential satisfaction. There is more satisfaction than meet the eyes. For instance in a study conducted in Spain, it was found that among the variety of factors, psycho-social features such as relationships with neighbors and sense of belonging to the residential places seem to be more important than physical features [1].

The author concluded that people's experiences about the residential environment were culture-based. Such experiences encourage the people to behave in certain ways to be in harmony with the residential spaces. In their research, Jahangiri and his [19] investigated the relationship between dormitory life satisfaction and alienation (alienation: a sense of lack of space, feeling emptiness and meaninglessness, feeling away from values and anti-society) among university students in Isfahan.

The study found that there was a negative relationship between satisfaction with dormitory life and alienation and its dimensions. In other words, the more students were satisfied with the environment in which live, the less they felt alienated and the satisfaction was strongly associated with the alienation. In a study conducted in 2008, Judith explored how the characteristics of architecture students' dormitory influence the students' satisfaction then whether such characteristics can evoke a sense of being home. By being home they mainly mean decreasing the feeling of loneliness and staying in an institutional environment.

The results from interviews with students indicated that satisfaction with dormitory is associated with the personality of individuals and their judgments about the space. Moreover, the findings showed that architectural elements such as color, materials and architectural spaces directly influence the sense of being home. Creating privacy for students makes the difference between the dormitory and home.

Shakeri Ski and Litkouhi' study [24] confirmed an association between the satisfaction of dormitories and the sense of belonging to the dormitory. They also identified a significant association between the satisfaction of the room and their sense of attachment to the dormitory space.

In Iran, Behbahani et al. [6] used a four-part questionnaire to

measure the Iranian students' satisfaction with the dormitory. They found the socio-economic status of the students such as gender, educational level, and type of dormitory influenced the students' psychological perception of the dormitory such as feeling calm, feeling congested and feeling private and feeling being at home. Based on their findings, the authors suggested that all the above-mentioned factors should be considered in designing the dormitories.

Hilmy et al. [18] compared the degree of satisfaction of the students living on campus with the satisfaction of their counterparts residing off campus. The results of this study showed that variety of factors (i.e. accommodation, the condition of the dormitory, the proximity of the dormitory to university, compatibility with the roommates and required services and facilities in the dormitory) plays a key role in the satisfaction of the students.

In his research, Kenneth [21] examined the satisfaction degree of Tennessee students with their dormitories. Data were collected through a questionnaire. The study found that in comparison to males, females were more satisfied with the roommates, maintenance, study facilities and dormitory officials. However, the females were less content with the noise in the dormitories than the males. In general, students residing in the dormitories shared by four were significantly more satisfied with the policy of visiting, but they complained that their opportunities to visit different people were more limited than the students in traditional dormitories.

There is also some evidence that the environment in which people live can evoke a positive sense of humor and attachment to the place. Communal life in the dormitories can create opportunities for the people to exchange their ideas and promote the sense of belonging to the setting. Unfortunately, the lack of attention to the psychological needs of students in dormitories can rarely evoke a sense of attachment to the dormitory environment.

Over the past decades, the focus has been on human physical needs. The development of science has shifted this focus from the human physical needs to human psychological, cognitive, aesthetic, emotional, and sensory needs and has increased the satisfaction of residents in the dormitory.

In her research, Rahnamee Namin [32] found a significant relationship between the status of the dormitory in terms of design, surrounding environment, improving the status of dormitories and the surrounding environment could increase the degree of satisfaction of the students living in dormitories and decrease their depression, stress, and frustration.

2.2 THE POSITIVE EFFECTS OF GREEN SPACE

In a descriptive study, [5] investigated the relationship between nature and desired urban spaces. Reviewing the available literature showed that greenery (i.e. green roof, green walls, and green corridors designs) contribute to urban space quality by influencing its beauty and its vivacity [26].

Moreover, greenery also plays a key role in air quality. Levy-Leboyer and Ratiu [25] carried out a study on 73

households residing in the city or in the suburbs of Paris. The participants were asked to identify the essential norm of residential spaces. Interestingly, the study found that this norm was moderated by different values such green spaces.

Kiani and his colleagues [22] examined the effects of green urban spaces on the life quality of Iranian citizen. The descriptive-analytic research showed that green spaces in the city can improve different aspects of life such as social, economic and ecological.

Likewise, Amirshakri and his associates drew upon seeking-escaping theory to examine the mental and social effects of outdoor greenery such as park on the quality of life. To this purpose, Shirazi citizens who used to pay a visit to parks in Iran were asked to identify the reasons for visiting urban parks.

Analysis of the data showed that nature had a great impact on the different aspect of life quality. Participants reported that being in contact with nature was an opportunity to relax and escape from of their busy lives. According to the participants, nature served as a platform to have a social reunion and feel better about them. Moreover, Iranian emphasized that nature was a place for having fun [3].

Tan [37] examined the discrepancy between the expectations and realities of green home features through the lens of homeowners in Malaysia and investigated how green housing affects their lives. The results of the study showed that homeowners were most satisfied with the green features such as landscaped parks with facilities.

According to the participants, such features were important to improve indoor air quality. Participants preferred to live in a home with verdant and landscaped greenery than the conventional house because the natural shades by greenery could cool down the house naturally and help to lead a healthy living experience. In addition, the participants in this survey, by and large, agreed that green features help them with savings in utilities.

Conedera and his colleagues [10] found that having a view of green slopes of mountain positively contributed to the quality life of the residents. The positive perception of green spaces and frequency of using them were important in predicting the life quality.

Nowadays, architects have recognized that nature can have the potential to improve the aesthetic aspects of our surrounding environment. The attitude of human towards nature is related to his perception of the environment. Human perceptions, his psychological values, and satisfaction arise from his interaction with the natural environment and natural elements. In this regard, perceptual feedback he receives influence his behaviors and activities in the environment [11].

Hamid and Babamiri [14] examined the relationship between green space and mental well-being. (coping with the normal stresses of life, working productively and fruitfully, and contributing to her / his community). The authors collected their data through a questionnaire and analyzed them were using variance analysis. They compared two groups of people:

Those living in villas which were surrounded by green spaces with the residents of apartments.

The study found significant differences in the satisfaction and mental well-being of both groups and revealed that people who had access to green spaces for a longer period were more satisfied with their residential place and experienced higher mental status than their counterparts.

Alitajer and Mostaghimi [2] investigated the effect of nature in the interior and exterior design of therapeutic centers on the quality of life of cancer patients. The findings of this study revealed that the therapeutic environment can significantly contribute to the satisfaction and quality of life and their morale.

The results of this study showed that the green spaces and even images of nature inside and outside of therapeutic centers and in the room of the patients could increase their satisfaction and the quality of life in the treatment stages. Even patients preferred to be accommodated in a room with a large window facing the greenery. The study found that greenery could significantly reduce depression and lift the spirits of the participants.

Different features of the environment in which people live can also foster a sense of proximity and community in variety of ways and consequently increase satisfaction [9].

In a mix-method study, Johari et al. [20] investigated the effect of environmental factors on physical and mental well-being and academic progress of students. To this purpose, the data were collected from university students through a questionnaire. Analysis of the data identified several factors such as security students, the number of roommates and the green space of the dormitory.

Sharghi and Mohtashemi [35] found that contact with nature and especially plants are beneficial for the human soul and body. A shortage of green space in the high-rise buildings was associated with many mental and physical problems. To avoid health problems, people who lived in apartment buildings had to either leave their building or keep some plants inside the building.

In a field study, Nadimi and his associates [29] investigated the effect of the landscape and the design of dormitory environments on students' satisfaction. The findings of the research revealed that the majority of students were interested in viewing natural environment, pristine and intact sceneries, the distant natural horizons, the sunrise and sunset, the surrounding environment of the dormitory whether it is a park or green space. The authors concluded that students' interest in nature and its elements should be considered in designing the dormitory spaces to increase their satisfaction.

Given that nowadays people have to cope with mental stress associated with the modern life in cities, facilitating the access of students to green space for promoting a sense of tranquility their health status and satisfaction is necessary [4].

In their descriptive research, Nahibi and Hasan Dokht [30] examined the effect of green space on improving the quality

of urban life. To this end, the authors extracted the indicators from the observation and the questionnaire. Participants in all age emphasized the role of nature and its benefits in enhancing the quality of modern life. The results of this study showed that from participants' point of view green space as an inseparable component of their environment could boost their quality of life.

A careful perusal of literature shows that research has tended to focus on the satisfaction of the citizens with green spaces. In spite of growing research on students' satisfaction with their dormitories, little evidence exists on the effect of greenery on students' satisfaction. Even few is available on Iranian students. As satisfaction with greenery is determined by culture, conducting a study on Iranian students can be of great help to meet their needs.

The significance of green space in promoting a healthy life has attracted the attention of scholars of different disciplines. A growing body of research has document different benefits of green space on the humans' health. Hartig and his associates [16] argued that air quality, physical activities, social attachment, and stress alleviation are different ways through which natural environment can promote health.

Li and his associates (2008) found that relaxation promoted by the nature contributes to immune systems through expression of anti-cancer proteins. Similarly, Kuo [23] reported a positive association between immune systems functioning and nature. In a study carried out in Britain, adequate exposure to Green space was found to decrease the mortality rate associated with cardiovascular problems [24].

A strand of studies have shown that having contact with green space can be healing and improve mental health. Green space puts people in a better mood [15] and helps them to recover from challenging and daunting tasks, [13].

Bratman et al. [8] examined the effect of green spaces on self-referential thoughts and they found that green spaces can reduces depression by influencing neural activity related to negative self-referential thoughts.

Even though a lot is documented on the benefits of green spaces in various populations (e.g. worker), our knowledge about the effect of green spaces in dormitory rooms on the health of university students is scarce. Few available studies have mainly focused on the benefit of campus green spaces. For example, in a study conducted by McFarland and his colleagues [27], it was found that the students who were in contact with campus green spaces more often, perceived their academic cognitive as higher than those who rarely or less frequently used these spaces.

Similarly, Tennessen, and Cimprich [38] found that college students in dormitory with a natural view from the windows showed better attentional restoration and could perform more efficiently.

In another study, Shibata and Suzuki [36] examined the impact of plants on undergraduate students' task performance. The study found that those who had foliage

plants in their room showed a better performance on creative tasks than those who did not. Shibata and Suzuki [36] concluded that nature as a source of inspiration can stimulate students' creativity.

Though these studies have enhanced our knowledge about the contribution of green space to students' health, much investigation is needed about the contribution of green spaces in dormitory rooms on health.

The reason is that students' experience about campus life may be most strongly associated with their room where they spend most of their time. This study hopes to contribute to design and management of urban green spaces in dormitory room to improve students' health.

3. METHODOLOGY

This study is quantitative in nature. It aimed to examine the effect of green space on a girl dormitory satisfaction. In order to examine the effect of greenery on the students' satisfaction a total number of 200 pot plants were provided. The university has 4 dormitory blocks that are located near each other. In order to compare the students' satisfaction level before and after receiving the plant pots one block was selected as the case study.

The students room were selected randomly and each room was given a specific number of questionnaire based on the number of residents. Data was collected through a questionnaire in two phases from the first September to the ninth October in 2016.

In the second phase of the study, 200 pot plants provided by prospected university were distributed among the participants. A week later, questionnaires were redistributed among the participants to re-measure their satisfaction with the dormitory.

3.1 INSTRUMENT

The questionnaire used in this study includes two sections. The first section of the questionnaire gathers the demographic

data such as gender, age, dormitory location, educational level and the second section includes the following questions which are related to satisfaction:

- ◆ Overall, I am happy with my dormitory.
- ◆ Overall, I'm happy with the block in which I live.
- ◆ I advise my friends to stay in this block.
- ◆ I want to live in this block next year.
- ◆ I do not like to be transferred to another block.
- ◆ Overall, I am satisfied with my residence.

To measure the students' degree of the satisfaction, the subjects were asked to rank their answer on the Likert scale and select one of the following alternatives:

- a) I am not satisfied at all,
- b) I am not satisfied,
- c) I am satisfied,
- d) I am very satisfied.

4. FINDINGS

The demographic findings of this study showed that: 7% of the subjects were 18-20 years, 32.5% were 21-23, 44%, were from the age group 24 to 26, 10%, were from the age group 27 to 29 and only 6.5% were 30 years and above. Also, 28.5% of subjects were undergraduates, 57% graduate students, and 14.5% Ph.D. The overall satisfaction of students from the dormitory is shown in Table 1.

The results of Table 1 show that before receiving pot plants, the satisfaction rate of 14% of the subjects was very low, 46% low, 36.5% high and 3.5% too high. The satisfaction of students has increased with a slight change in the students' room. The results of this research showed that 3% of the subjects were not satisfied with their dormitory environment at all, 18.5% were not satisfied, 69% were satisfied and 9.5% were very satisfied.

Variable	I am not satisfied at all	I am not satisfied	I am satisfied	I am very satisfied
Satisfaction before receiving the pot plants	%14	%46	%5/36	%5/3
Satisfaction after receiving the pot plants	%3	%5/18	%69	%5/9

Table 1: The degree of satisfaction among the participants.

Variable	Test	Number	Mean	Standard Deviation	T value	Degree of freedom	Significance level
Satisfaction	Pre-test	200	2/295	0/748	-9/332	199	0/000
	Post-test	200	2/891	0/519			

Table 2: Correlated T-test results.

Using the correlated T-test, the hypothesis of the study "There is a significant relationship between the greenery in the dormitory room and students' satisfaction" was tested.

The hypothesis was approved a 95% confidence level and a measurement error of 5% and the mean satisfaction in the post-test was more than the pre-test.

Therefore, we concluded that greenery significantly increased the satisfaction of dormitory students (Table 2).

5. CONCLUSION

This intervention study was the first attempt to investigate whether access to greenery is associated with university students' dormitory satisfaction. To this end, 200 participants in the dormitory received pot plants and their satisfaction before and after receiving of the pot plants were measured.

This study found that the satisfaction of the individuals after receiving of the pot plants was significantly increased and the slight changes in the environment increased the satisfaction of individuals.

The results of this research are in line with the research of Nadimi et al. [29], whose study revealed that green space increases satisfaction. Given that research on this issue is already underway, future research needs to establish whether the type of pot plants is related to the satisfaction of residents living in dormitories.

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