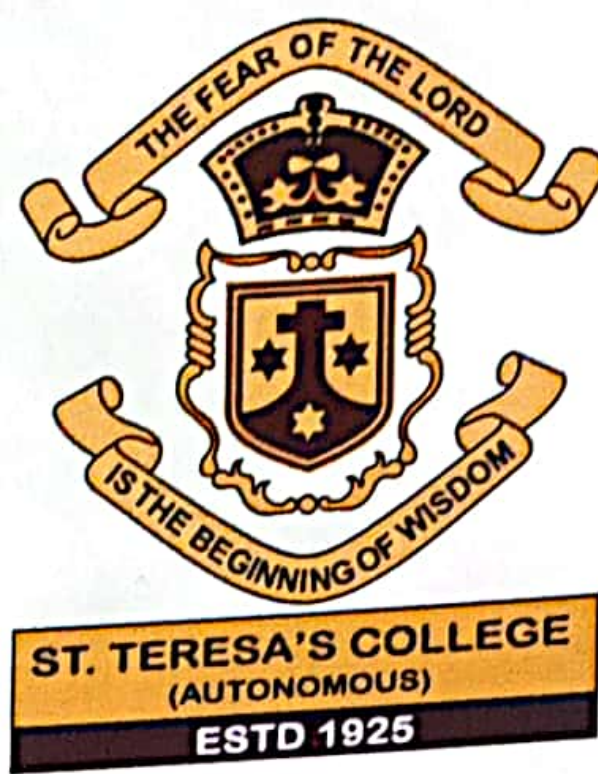


INTEGRATION OF NATURE INTO INTERIOR DESIGN

PROJECT SUBMITTED TO
DEPARTMENT OF HOMESCIENCE &
CENTRE FOR RESEARCH
ST. TERESAS COLLEGE,
ERNAKULAM (AUTONOMOUS)



AFFILIATED TO
MAHATMA GANDHI UNIVERSITY
IN PARTIAL FULFILMENT FOR THE AWARD OF THE
DEGREE OF BACHELOR OF SCIENCE IN HOME
SCIENCE

ADITI
REG NO : AB21HSC012



**ST. TERESA'S COLLEGE, ERNAKULAM
(AUTONOMOUS)**



**PROJECT WORK
ON**

INTEGRATION OF NATURE INTO INTERIOR DESIGN

(B.Sc Final Year Home Science)

Reg No : AB21HSC012

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Chapter 1

INTRODUCTION

The dwelling we reside is referred as "home," a sanctuary where we experience the utmost safety, affection, and security. The living and working environments can influence your mood, conduct, and motivation. They can also promote or inhibit social interaction and even raise or lower stress levels. There are several approaches to creating a home environment that supports recovery, mental wellness, and mood enhancement.

The biophilic approach in the design represents a way to fulfill human's inherent affinities towards nature, in order to create the best possible environment for people to reside, work, play, and learn. By consciously incorporating greenery in the interiors, we are unconsciously reconnecting with nature, bringing the great outdoors into the built environment. The biophilic approach addresses human sensorial experience via indoor-outdoor and building-nature connections and also has a significant positive impact on people's health and wellbeing. Although sustainability can be overpowered by qualitative measures, such as greenhouse gas emissions and energy reduction, biophilia is vital to those involved in the sustainable design of interior spaces. Because conditions of the natural environment clearly impact the quality of human beings' life, figuring out how to best integrate features of outdoor environment into the built space is critical to the interior design. Certainly, one of the best strategies for reconnecting indoors with nature is human-oriented interior design process, through the incorporation of biophilic concept.

Many pieces of research support the fact that the contemporary built environment has isolated people from experiencing natural systems and processes due to social trends such as urbanization, drastically increased building and population. Modern lifestyle changes also play an important role in segregating human from its inherent natural environment. Possibilities for human contact with nature in many societies in developed nations is reduced and almost non-existent and people may spend as much as 90% of their time indoors. As human beings, we need to connect with living structures in our environment. Kellert claims: the evolutionary context for the development of the human mind and body was a mainly sensory world dominated by critical environmental features such as light, sound, odour, wind, weather, water, vegetation, animals, and landscapes. People's physical and mental wellbeing remains highly contingent on contact with the natural environment, which is a necessity rather than a luxury for achieving lives of fitness and satisfaction even in our modern urban society.

The significant role of biophilia in the formation of architecture has been applied by architects since Vitruvius. When architects implemented this tool, they created architectural works which have indelible reflections on the human mind]. As Kellert describes, biophilic design is not only about greening our buildings or increasing their aesthetic appeal by inserting trees and shrubs. It is much more about finding humanity's place in nature, and the natural world's place in human society. Overwhelming evidence shows that biophilic environments, both natural and artificial, exert a healing effect on the human body. Contact with nature may affect health via multiple pathways. Pathways that have received relatively large amounts of research attention involve air quality, physical activity, social cohesion, and stress reduction. Trees, shrubs, and other vegetation may affect indoor and outdoor air quality and, through it, human health, pronounced exposure to greenery, independent of the measure, is also related to gains in people's mental

wellbeing. Since the equilibrium in nature between the production and emission of Carbon di oxide and oxygen has been disturbed, due to the development of the human race, that balance needs to be re-achieved by applying some of the design principles of nature. The appliance of biophilic design leads to the reduction of stress, raises creativity and clarity of thoughts, improves human health and eases healing. Given how quickly an experience of nature can evoke a restorative response that reconnects us with nature is essential for understanding that people need to live and work in neat environments with less stress. Designers thus face the task of better incorporating healing strategies into their work, using factors that contribute to the biophilic effect.

Based on previous alligations and the change in thinking about health, the primary goal of this paper is to examine biophilic design as a beneficial design approach in interiors. The aim is to answer the following questions: in which way do biophilic design attributes influence the overall appearance of interior spaces, and how to apply them in order to accomplish reconnection between human being and nature, between indoor and outdoor space. Trough analysis of realized modern examples it will be concluded what the guidelines for successful use of biophilic features are. Shortly, this paper aims to discuss how the love for nature and the care for overall wellbeing may influence the future of designing interiors.

1.2. Relevance of the Study

Research suggests that integrating nature into interior spaces through biophilic design can improve well-being, productivity, and creativity. Humans have an innate connection with nature, and incorporating natural elements such as plants, natural light, and organic materials can enhance mental and emotional health.

Objectives of the study

- To find out eco friendly ways of interior decoration
- To check whether people incorporate natural elements in interior designing
- To study the benefits of environmental friendly products
- To study whether calm and nurturing interior atmosphere reduce stress and anxiety

Concepts Used in the Study:

Biophilic Design : Design which integrate with nature

Sustainability: Environmental consciousness

Stress Reduction: Studies have shown that exposure to natural elements within interior spaces can reduce stress levels and promote relaxation.

Health Benefits: Indoor air quality can significantly impact health, and incorporating plants into interior design can help improve air quality by filtering out pollutants.

Chapter 2

REVIEW OF LITERATURE

Integration of nature into interior design involves incorporating elements from the natural world into indoor spaces to create a harmonious and serene environment. A literature review is a piece of academic writing demonstrating knowledge and understanding of the academic literature on a specific topic placed in context. The review of literature pertaining to the study entitled '*Integration of Nature into Interior Design*' is discussed under the following headings.

- 2.1. Biophilic Interior Design
- 2.2. Adopting Nature into Interior Space
- 2.3. Depicting Nature through Art in Interior Space
- 2.4. Human- Nature relationship in Interior Space

2.1. Biophilic Interior Design

Interior design is a complex process, it represents more than a spatial arrangement of objects. Architecture enters debates when it is arranged as an interiority, that is to say, as a place that distributes functions (working, living, gathering, etc.) in a given community. Interior design is more than decorative addition that covers an engineered structure, it is a necessary dimension that turns architectural space into a liveable place with given stability, desirable order, readable cultural hierarchy, and individuality.

According to research, people spend most of their time in indoor settings. The contemporary built environment has increasingly made people isolated from the beneficial influences of nature. Human activities in built indoor spaces over time, combined with complex social relationships, lead to

certain psychological and emotional states of the users of space. In work areas, in the educational facilities, in health care institutions and in all housing environments, during the longer stay, pressure, stressful emotions and psychological fatigue occur. It has been proven that contact with nature contributes to relaxation, psychological restoration, and normalization.

Opportunities to connect our natural affinity with nature can be achieved indoors as well as outdoors usually through the offering of sensory stimulation from, or interactive participation of natural elements, such as plants and animals, air, land, water, and sky, but also through adding a new meaning to interior design and furniture, which would reflect on the health of the users. Good habitat means ecologically sound and productive environments where people function to their optimal potential.

The biophilic approach in interior design and its advanced framework is intended to be a practical methodology for the more effective design of the built environment, it is much more than just a technical tool. Its successful application depends on adopting a new consciousness toward nature as much as implementing a new design technique. Biophilia and the biophilic design itself, force people to acknowledge how much their physical and mental wellbeing relies on the quality of our relationship towards the world beyond ourselves. The positive implication is that the knowledge of biophilic properties is growing rapidly and will likely result in a revolution of product development with enormous biophilic design implications. Influenced by biophilia, new concepts have also appeared in furniture styles such as new naturalism influenced by the surrounding environment, the multipurpose furniture influenced by earth shape, the genetic furniture influenced by the systems of living creatures, and the morphological furniture influenced by plants, insects, sea creatures, planets, etc. But the word biophilia is sometimes misused by architects to support the case for "green" aspects of otherwise non-adaptive designs. The presence of plants is therapeutic, it is the main property

of biophilic architecture, but there are many other elements to be incorporated in the design.

The research conducted by Guo, J. in 2016. supports the claim that biophilic design features in interior spaces also lead to positive evaluations of the visual appearance. Biophilic design features catch people's attention and generate positive feelings towards the built environment. Negative comments on interior spaces appear to be associated with participants' general impression of the interior design itself. His study also suggests that biophilic design attributes including realistic painting and natural material also generate positive comments on interior spaces. This observation is in line with other researches that suggest that the use of a natural material, such as wood, influences user preference. Both natural and simulated nature environments facilitated stress reduction. Based on Guo's research, it can be concluded that this result implies that biophilic elements have a positive visual impact on interior design and that interior designs characterized by certain general features which correlate with basic design principles also affect positive evaluations.

2.2. Adopting Nature into Interior Space

The direct presence of nature in interior space, as the name says, represents the physical and temporary presence of nature in space. Nature present can be represented by plant life, water, animals, light, fire, as well as air, breezes, sounds, scents, and other natural elements. Common examples include potted plants, flowerbeds, gardens, water features, fountains, aquariums, and green walls. The strongest experiences are achieved through the creation of meaningful, direct connections with these natural elements, particularly through diversity, movement, and multi-sensory interactions. The direct presence of nature can also be referred to as environmental features, and it can be said that they involve the use of relatively well-recognized

characteristics of the natural world in the built environment. What follows are brief descriptions of each of the biophilic design attributes which appertain to the direct presence of nature in interior space.

Visual and non-visual connection with nature. As it was described above, in interiors, we can find some of the representations of nature in space, for example, visual connection with nature, which includes views to elements of nature, living systems, and natural processes. People express a strong and consistent preference for exterior views, especially when the vistas contain natural features and vegetation. There can also be a non-visual connection with nature through auditory, haptic, olfactory, or gustatory stimuli that engender a deliberate reference to nature, living systems or natural processes.

Air and thermal variability. Air can be listed as a vital element of nature in space. People prefer natural ventilation over processed and stagnant air because it has a direct impact on their comfort and productivity. Notable conditions include quality, movement, flow mimicking air in natural environments, stimulation of senses such as feel and smell. Good conditions can be achieved through access to the outside by simple operable windows, or by more complex technological and engineering strategies.

Presence of water. Water is essential to life and usually elicits a strong response in people. Its presence in interiors can lead to positive effects such as relieving stress, promote satisfaction, and enhance health and performance. The attraction to water can be especially pronounced when associated with the multiple senses of sight, sound, touch, taste, and movement. The effective use of water as a design element is complex and often conditioned on such considerations as perceptions of quality, quantity, movement, clarity, and similar characteristics. The desire for contact with water can be satisfied by using some of the next design strategies: including views of prominent water bodies, fountains, aquaria, swimming pools, and others.

Light and sunlight. Experiencing natural light is elementary to human health and wellbeing. Daylight represents a preferred feature by most people for their interiors. The presence of natural rather than artificial light can improve comfort and productivity, but on the other hand, the creative manipulation of light and shadow can encourage curiosity, mystery, and stimulation. Leveraging varying intensities of light and shadow that change over time, also, leads to creating conditions that occur in nature.

Appealing interior spaces often seem connected to the outside by big glass surfaces, clerestories and design strategies including reflecting colors, natural materials, colonnades, foyers, atriums, and interior Gardens. Plants are fundamental to human existence as sources of food, fiber, fodder, and other aspects of sustenance and security. Simply inserting vegetation, especially flowering plants, is one of the most successful strategies for bringing the direct experience of nature into interiors. The presence of plants in the built environment can impact reduction of stress, contribute to physical health, improve comfort, and enhance performance and overall well-being.

2.3. Depicting Nature through Art in Interior Space

Indirect presence of nature, or natural analogs, address organic, non-living and indirect evocations of nature. Objects, materials, colors, shapes, sequences, and patterns found in nature, manifest as artwork, ornamentation, furniture, decor, and textiles in the built environment. Mimicry of flowers or animals, furniture with organic shapes, and natural materials (e.g., wood planks, granite tabletops), each provide an indirect connection with nature: while they are real, they are only analogous of the items in their natural state. Aesthetically attractive nature particularly awakens our interest, curiosity, imagination, and creativity, and lack of visual contact with the natural world, lead to fatigue and, in extreme cases, the physical and psychological

problems. The strongest natural analog experiences are achieved by providing information richness in an organized manner.

Biomorphic forms and patterns. This element includes representations and simulations of the natural world. The shapes, forms, and patterns of plants and other vegetative matter are often found in interiors. These naturalistic forms can be extraordinarily diverse, from botanical motifs, tree, and columnar supports, animal motifs, shells and spirals, egg, oval, and tubular forms, arches, vaults, domes, shapes resisting straight lines and right angles to simulations of natural features, biomorphy and biomimicry.

These attributes in the built environment often resemble or copy forms found in nature, including beehives, nest-like structures, shell forms, and cliffs. These forms can be used for both decorative and functional purposes. On the other hand, some interesting architectural forms bear very little resemblance to life forms encountered in nature, yet are clearly viewed as organic, and can transform a static space into one that possesses the dynamic and ambient qualities of a living system.

Natural materials. People generally prefer natural over artificial materials, probably due to the inability of artificial materials to reveal the organic processes of aging and other dynamic features of natural materials. The transformation over time may provoke an intuitive understanding among some people of the benefits flowing from the movement of nutrients and energies through natural systems.

Materials and elements from nature, through minimal processing, also reflect the local ecology or geology and create a distinct sense of place. Prominent natural building and decorative materials often found in interiors are wood, stone, wool, cotton, and leather, used in a wide array of products, furnishings, fabrics, and other interior design elements.

Natural colors. People are attracted to bright flowering colors, rainbows, beautiful sunsets, glistening water, blue skies, and other colorful features of the natural world, but the use of bright colors can be challenging because they need cautious applying. Natural colors, such as earth tones, characteristic to soil, rock, and plants, are thus often used for good effect of biophilic approach by interior designers.

2.4. Human- Nature relationship in Interior Space

This element reflect biologically based human affinities for the connection with the natural environment. Regardless of the human tendency to grace the visual sense, other sensory responses to nature are very important to humankind, particularly touch, sound, smell, taste, time, and motion.

Hearing - water, touching plants, smelling flowers, sensing the movement of the air often moves us both emotionally and intellectually. Researches find that multisensory experience with nature in the interiors can greatly contribute to comfort, satisfaction, enjoyment, and wellbeing. This explains our innate and learned desire to be able to see beyond our immediate surroundings, our fascination with the slightly dangerous or unknown.

Sensory variability. Human satisfaction and wellbeing are reliant on perceiving and responding to sensory variability, especially when this occurs in structured and organized ways within the built environment. As it was said before, the aesthetic attraction to nature is one of the strongest inclinations of the human being.

Human curiosity, imagination, creativity, exploration, and problem-solving are often triggered because of humans biologically encoded tendency towards nature. Some of our most successful interior designs glorify the natural process and form.

Prospect and refuge. Prospect represents good views of surroundings that allow people to observe both opportunities and dangers, while refuge provides structures of safety and security. These conditions can be both functional and satisfying in the built environment. As it was explained, refuge reflects a site or natural environment's ability to provide a protected setting for human. In the built environment, this is often accomplished through the design of comfortable and nurturing interiors. Prospect, on the other hand, emphasizes discerning distant objects, habitats, and horizons.

Chapter 3

METHODOLOGY

Sustainability has become a blanket term for green practices. Many people want to be eco-responsible but are unsure of what being sustainable truly entails. Biophilic interior designing is one of the sustainable method which leads to green practice. Research methodology is the specific procedures or techniques used to identify, select, process, and analyze information about a topic. In a research paper, the methodology section allows the reader to critically evaluate a study's overall validity and reliability. The methodology adopted for the study entitled '*Integration of Nature in Interior Design*' is discussed in following headings:-

3.1. Selection of Method

3.2. Selection of Area

3.3. Sample and Sample Size

3.4. Selection of Tool

3.5. Collection of Data

3.6. Consolidation and Analysis of Data

3.1. SELECTION OF METHOD

The method adopted for the study is survey method. The online survey was made through Google forms and circulated via WhatsApp as a link to homemakers of various states in India.

3.2. SELECTION OF AREA

The area selected for study includes sample from people of different states of India especially Kerala, to study the integration of nature in interior designing.

3.3. SAMPLE AND SAMPLE SIZE

The sample selected for this study were Hundred adult men and women from different states of India

3.4. SELECTION OF TOOL

Since the study mainly focused on the integration of nature in interior designing and associated with sustainable living, online questionnaire was framed based on the questions related to it. Online questionnaire was used as the tool for the study is given in Appendix 1.

3.5. COLLECTION OF DATA

The survey was conducted through online with the help of online questionnaire in the form of google forms, questions were made with multiple choices and spaces to answer, forms were circulated among adults aged between 18-50 through online.

3.6. CONSOLIDATION AND ANALYSIS OF DATA

The data collected from the survey is analyzed and discussed under Chapter 4: Results and Discussion' with appropriate diagrams and descriptions.

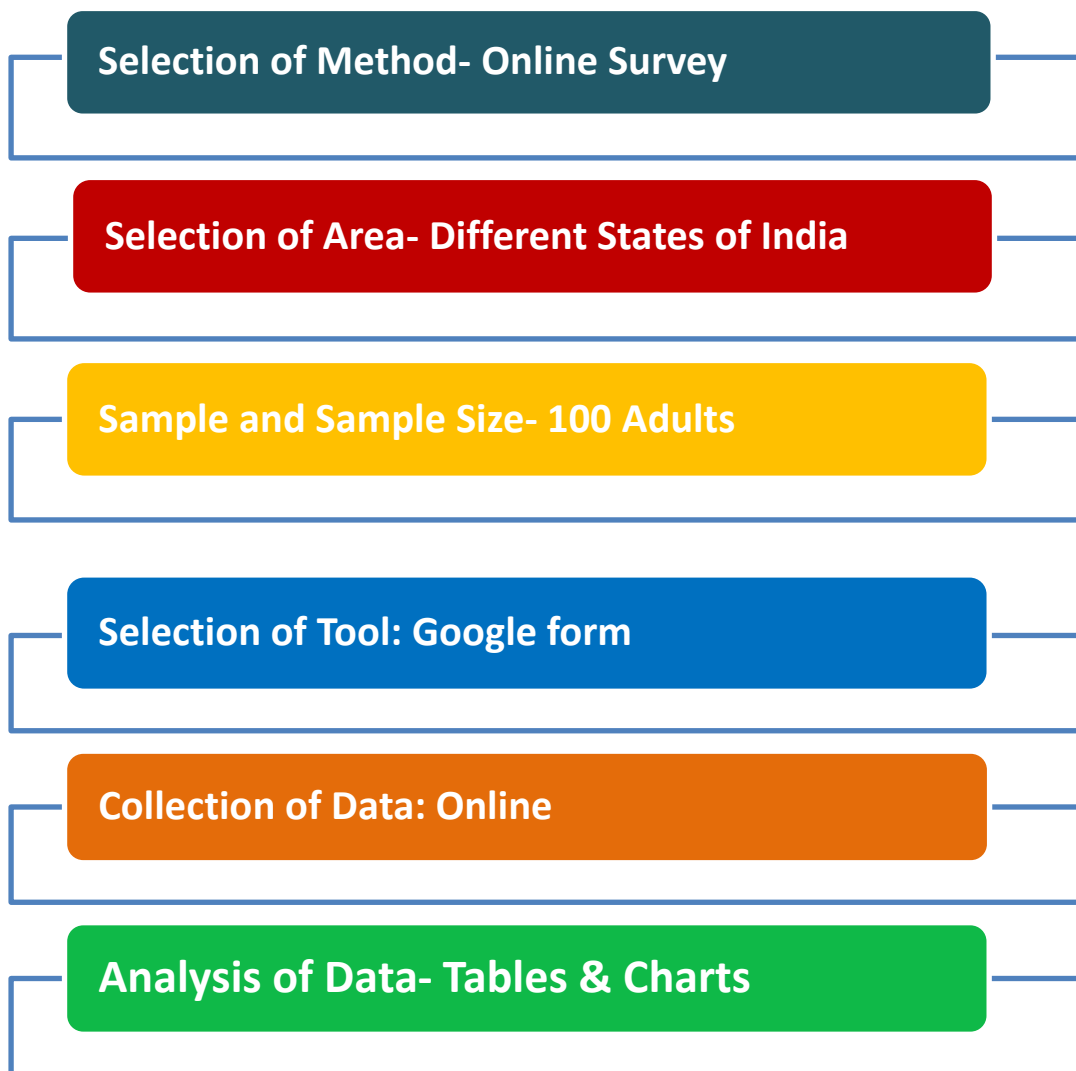


Figure 1
Research Design

RESULTS AND DISCUSSION

The results of the study entitled “Integration of Nature into Interior Design” which was conducted with an aim to analyse the involvement of eco friendly materials into interior designing is presented and discussed under following headings:-

4.1 Background Information of the Sample

The background information pertaining to the selected sample comprised of age, address, education, occupation, family income etc. The data were consolidated and discussed in Table 1.

Table : 1

Background information pertaining to the Sample

Age	18-25	86
	25-40	8
	40-60	9
Education	Below graduate	44
	graduate	50
	Above graduate	14
Occupation	student	86
	worker	22
Family income	Under 5 lakhs	39
	Above 5 lakhs	69

4.1.1 AGE OF RESPONDENTS

The sample consists of 108 respondents with different age groups. Out of them 68.1% were in early adulthood. Rest 31.9% were in their late adulthood.

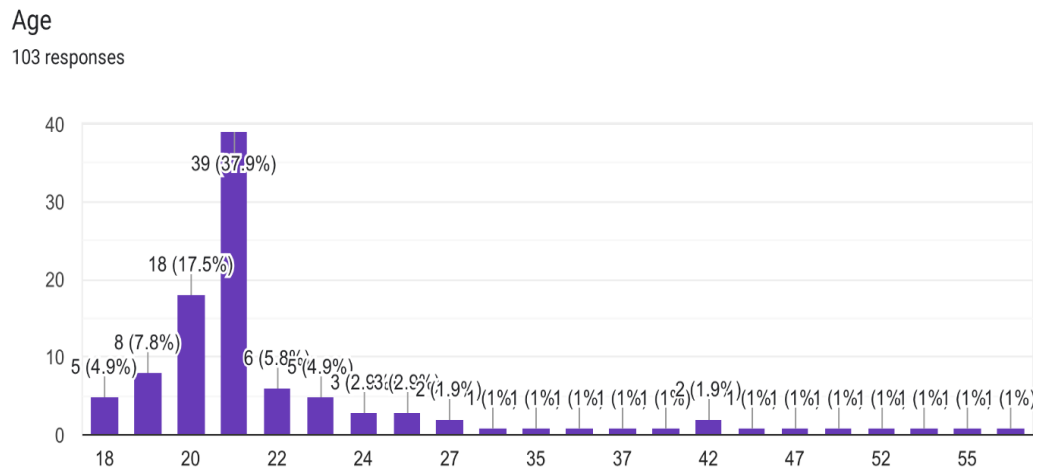


FIGURE 2: Distribution of adults among age

4.1.2 EDUCATION

The respondents were majorly graduate with 45.5% and 40.7% below graduate. Rest 13% were above graduate doing their higher studies.

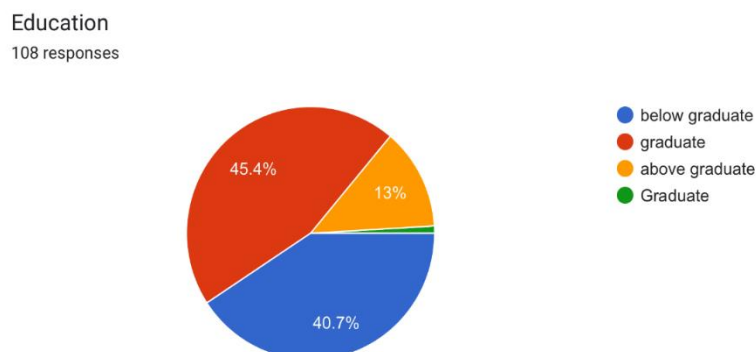


FIGURE 3: Distribution of adults based on their education

4.1.3 OCCUPATION

Out of 108 respondents, majorly people were students with 79.6% and 12% doing service in private sector, 8.4% were divided among government, agriculture, business sector.

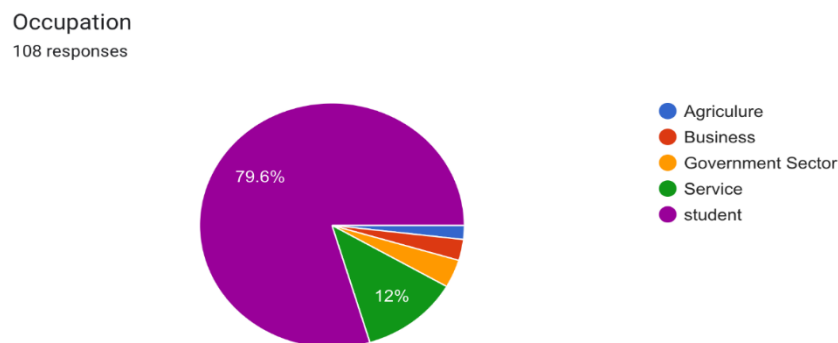


FIGURE 4: Distribution of adults based on their occupation

4.1.4 FAMILY INCOME

From the following survey it was identified that 36.1% of the respondents had their family income below 5 lakhs, 37% had their family income between 5-10 lakhs, 19.4% had between 10-25 lakhs and rest 7.4% belonged to upper class with family income above 25 lakhs.

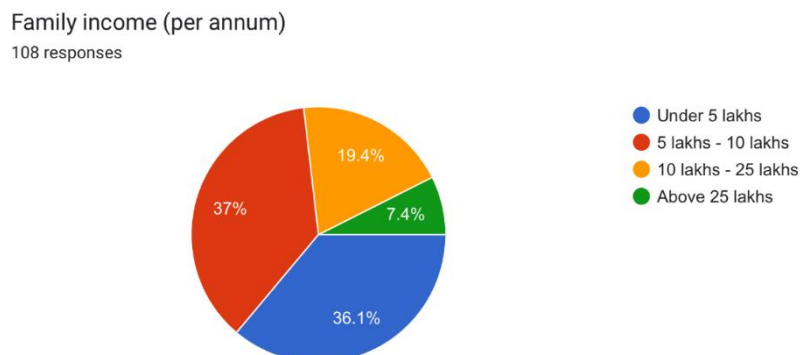


FIGURE 5: Distribution of adults based on their family income

4.5 INCORPORATION OF NATURE IN INTERIOR DESIGN

From the following survey, it is seen that 63.9% adults have moderately incorporated nature into interior designing, 13% adults have highly incorporated but the other 17.6% have incorporated it very less.

1. How far you think you have incorporated nature into the interior design?

108 responses

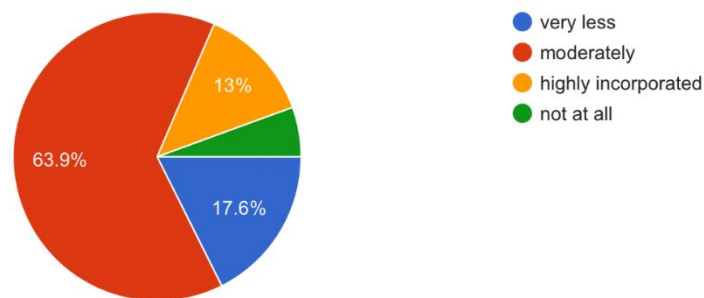


FIGURE 6: Incorporation of nature

4.6 SPECIFIC THEMES

Different people had different types of themes in their mind. Majority of them wanted forest theme, then 27.8% had interest in beach theme, 22.2% wanted sky based theme and 11.1% wanted underwater theme. There were some people who also wanted nature and space theme, and some had no specific interest in themes.

2. Are there any specific natural elements or themes you have in mind?

108 responses

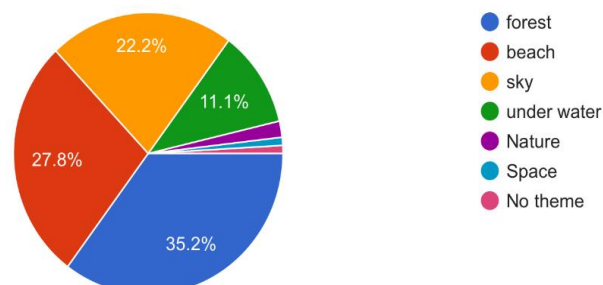


FIGURE 7: Specific theme choice

4.7 TYPES OF FURNITURE

Majority of people use wooden furnitures inn their house, and others use mostly furnitures made of metal items. Very few of the respondents use plastic and synthetic foam based furnitures.

3. What type of furniture you have in your interiors?

108 responses

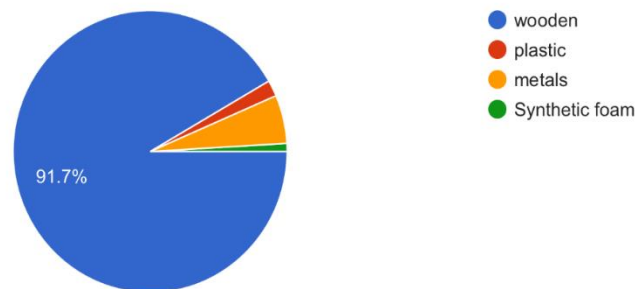


FIGURE 8: Type of furniture used

4.8 USE OF ECO-FRIENDLY OR SUSTAINABLE PRODUCTS

4. How far you have included sustainable or eco-friendly materials in interior?

108 responses

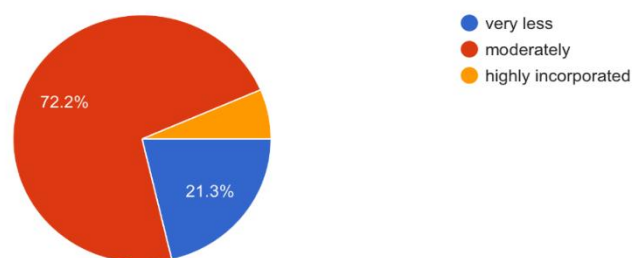


FIGURE 9 : Inclusion of eco-friendly products

Using Eco-friendly products is essential for reducing environmental impact. They are made from sustainable materials, often biodegradable or recyclable. From the following survey, 72.2% people have moderately incorporated sustainable products in their interiors. Some of them (21.3%) have highly incorporated & rest 6.5% have very less incorporated it.

4.9 INTERIOR SCAPING

Interior Scaping, also known as interior landscaping, is the practise of designing, arranging, and maintaining living plants indoor spaces like offices, homes, public buildings etc. Majority of the respondents has knowledge about interior scaping.

5. Do you know about interior Scaping?
108 responses

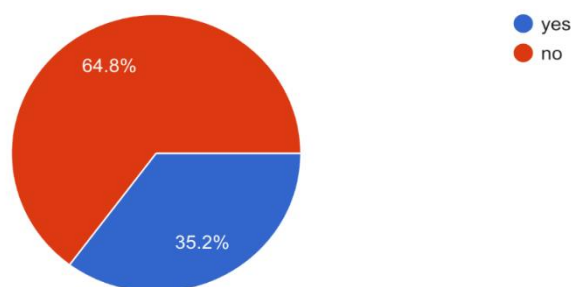


FIGURE 10 : Interior scaping

4.10 INCLUSION OF INDOOR PLANTS

Plants being a part of nature has so many benefit when including it as a part of interiors. They can be aesthetically arranged, increase oxygen level inside home, can spread pleasant aroma and add colours into interiors. Most of the people have keen interest in adding plants as part of the design with

97.2% of response. Rest 2.8% said no to include plants as part of their interior design.

6. Would you like to have indoor plants as part of the design?
108 responses

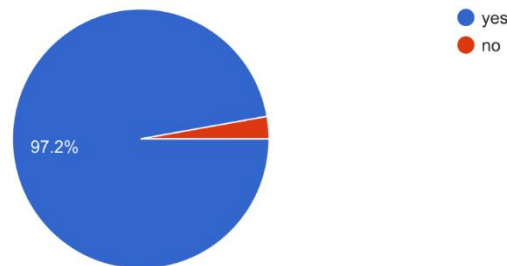


FIGURE 11 : Inclusion of indoor plants

4.11 STRESS AND ANXIETY

The presence of plants has been found to have a calming effect on people with reducing stress and anxiety. Simply being around plants can evoke feelings of relaxation and tranquillity. About 97.2% of respondents thinks that plants do help in reducing stress and anxiety, and other 2.8% don't think that plants can help for reducing mental stress.

7. Do you think plants have a role in reducing stress and anxiety ?
108 responses

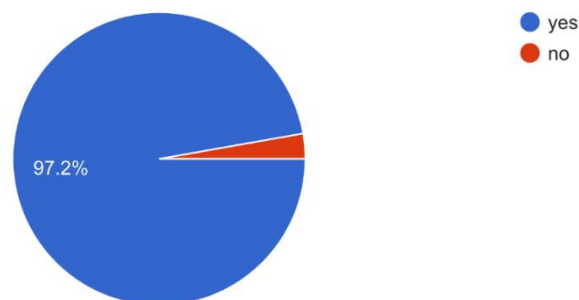


FIGURE 12: Role of plants in reducing stress

4.12 NATURAL LIGHTING

Natural lighting is important in interior design for its mood-enhancing effects, visual comfort, energy-efficiency, ability to highlight design elements, connection to nature and health benefits. From the following fig, it is seen that 71.3% of the respondents have high importance of natural lighting in their house. 26.9% have moderately importance and rest of them are satisfied with artificial lightings.

8. How important is natural lighting to you?

108 responses

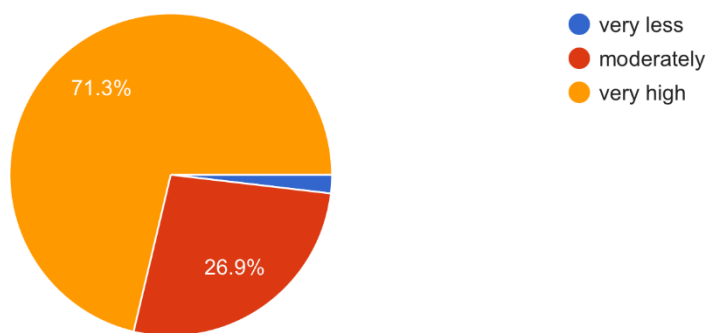


FIGURE 13: Importance of natural light

4.13 METHOD OF INCORPORATING NATURAL LIGHTING

There are so many methods of incorporating natural lighting into interiors. Out of 108 respondents, 85 people wanted big windows, 50 people wanted sheer curtains, 37 people wanted to incorporate glass ceiling and some suggested for having windows and doors as per vastu direction so that sunrays can come during day time and some wanted more number of balconies.

10. Are you interested in nature-inspired artwork or decor items ?

108 responses

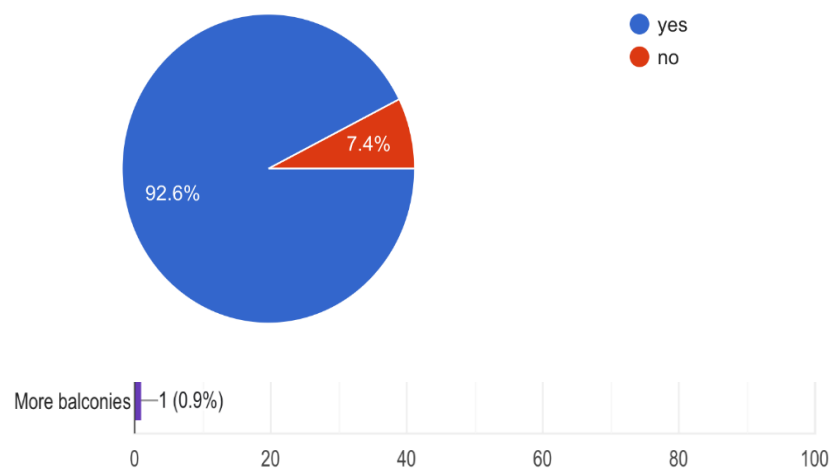


FIGURE 14: Incorporation of natural light

4.14 NATURE INSPIRED ARTWORK OR DECOR ITEMS

From the following survey, 92.6% people showed interest in including nature Inspired artwork and decorating items.

11. Mention the nature-inspired artwork used in interior

108 responses

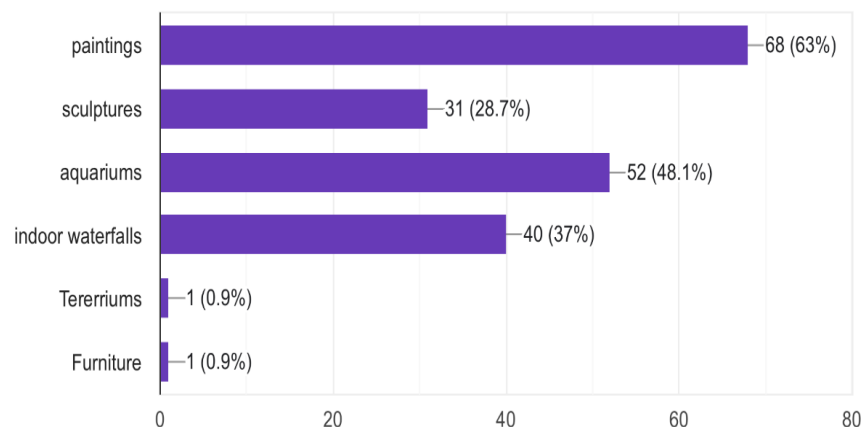


FIGURE 15: Nature insired artwork

4.15 TYPES OF NATURE INSPIRED ARTWORK Nature-Inspired artwork in interior design adds a sense of tranquility, beauty, and connection to the outdoors, enhancing the overall aesthetic and creating a more inviting and calming atmosphere. In the opinion of the respondents, 68 people showed interest in paintings, 31 people wanted to add sculptures, 52 people wanted to keep aquariums, 40 people wanted to add indoor waterfalls, and other 2 suggested for terrorriums and furnitures.

4.16 GARDENS AS A PART OF INTERIOR

Incorporating gardens as part of interiors have various benefits ranging from adding design and beauty, enhancing air quality, reducing stress, and creating a peaceful ambience, temperature regulation etc. Many people (74.1%) from the respondents have terrace garden/balcony garden and open garden as part of their house.

12. Do you have terrace garden/ balcony garden or open garden visible from indoors?
108 responses

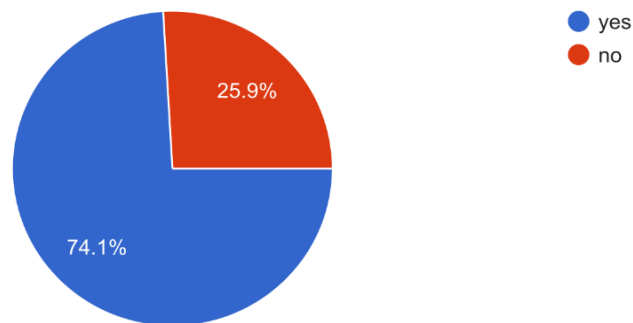


FIGURE 17: Inclusion of garden

4.17 SPECIFIC WELLNESS FEATURES

Wellness features aim to create spaces that support the holistic health and well-being of their occupants. In the modern generation where everyone lives a very hectic life, adding a personal space according to their interest can provide them a sense of serene environment. According to the response of survey, 56 people wanted to have meditation corner which is very important nowadays in everyone's busy schedule, 62 people wanted reading corner, 29

people wanted aromatherapy corner. Rest of them suggested for music room, gym corner where they can do exercise, and a painting corner as well.

13. Are there specific wellness features you wish to include?

108 responses

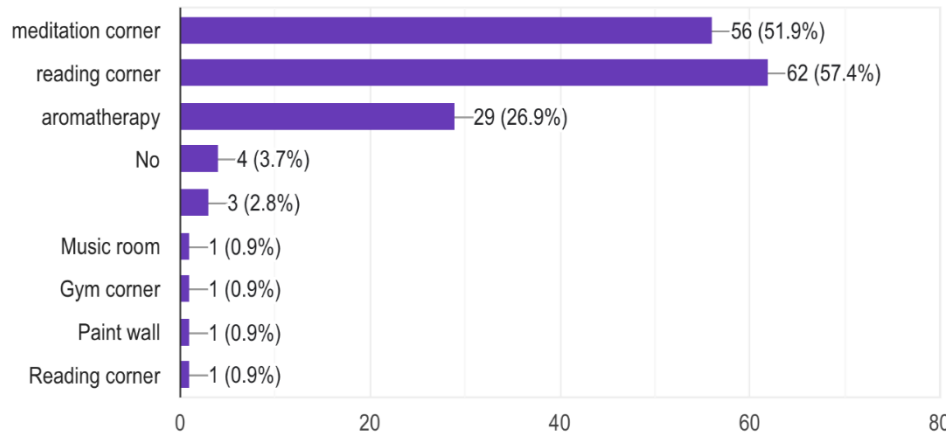


FIGURE 18: Specific wellness features

4.18 RECYCLED FURNITURE

14. Do you use furniture/ accessories made from recycled materials?

108 responses

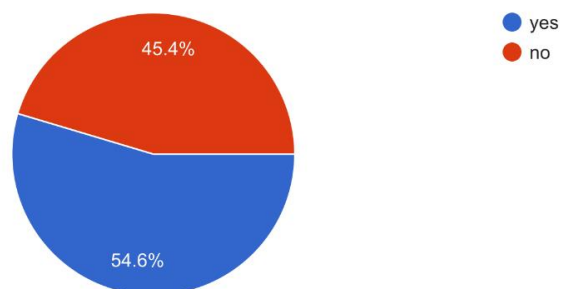


FIGURE 19 : Use of recycled furniture

According to the survey, 54.6% people use furnitures made from recycled materials. Other 45.4% people don't use furnitures made from recycled materials.

4.19 SEGREGATION OF WASTE

Segregation of waste involves sorting different types of waste materials for recycling or proper disposal. It helps reduce landfill waste, conserve resources, and promote a cleaner environment. Maority of the people segregate waste before disposing off which constitutes 83.3% and 16.7% don't segregate the waste materials.

15. Are you segregating waste produced at your home, before disposal?

108 responses

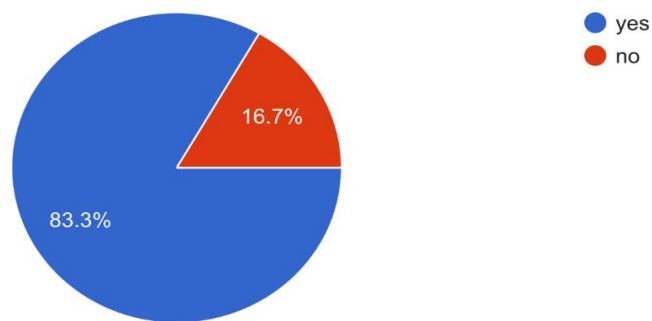


FIGURE 20: Segregation of waste

4.20 METHODS OF DISPOSAL

There are several methods of disposing waste which includes composting, biogas, dumping, incineration, recycling, and others. The following table shows the methods of disposal respondents use in their daily life.

Method of disposal	No. of respondents
composting	55
biogas	17
dumping	32
incineration	12
recycling	55
Municipal corporation	25

TABLE 2: Method of disposal

4.21 METHOD OF CONSERVING ENERGY

Conserving energy involves reducing energy consumption through various practises such as using energy-efficient appliances, improving insulation, and adopting sustainable habits like incorporating solar panels, using led bulbs, use of natural lighting during daytime. The following bar graph shows the respondents way of conserving energy.

17. Method of conserving energy at home

108 responses

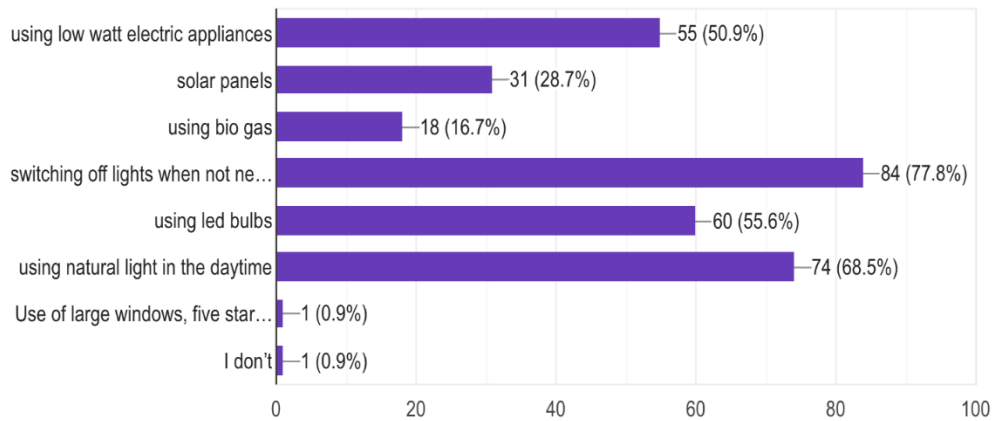


FIGURE 21: Method of conserving energy

4.22 CONSERVATION OF WATER

18. Methods of conserving water at home ?

108 responses

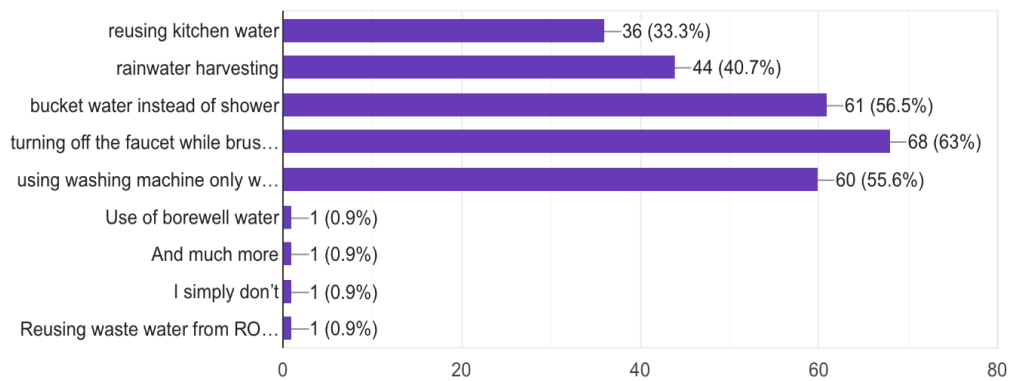


FIGURE 22: Method of conserving water

Conserving water is crucial for ensuring a sustainable future. Reducing water consumption and its wastage, saving money on water bills

can preserve freshwater. There are several ways of conserving water. According to the survey conducted, 6 people reuse kitchen water, 44 people are doing rainwater harvesting, 61 people use bucket water for taking bath, 68 people mindfully turn off faucets while brushing, and some use borewell water.

4.23 STEPS TOWARDS CONSERVING NATURE

The respondents were asked to tick the following steps which they will take towards conserving nature and their contribution to the environment.

The steps were

1. I will reduce water consumption.
2. I will reduce energy consumption.
3. I will segregate and dispose waste.
4. I will purchase and use eco friendly products.
5. I will popularise recycling.
6. I will practise organic farming.
7. I will change lifestyle to reduce carbon footprint.
8. I will plant and Maintain trees.
9. I will join hands with social groups to protect our environment.

The following table shows the no. of respondents who ticked their way of contribution to environment.

19. Steps taken towards conserving nature/ Your contribution to environment sustainability (Please tick)

108 responses

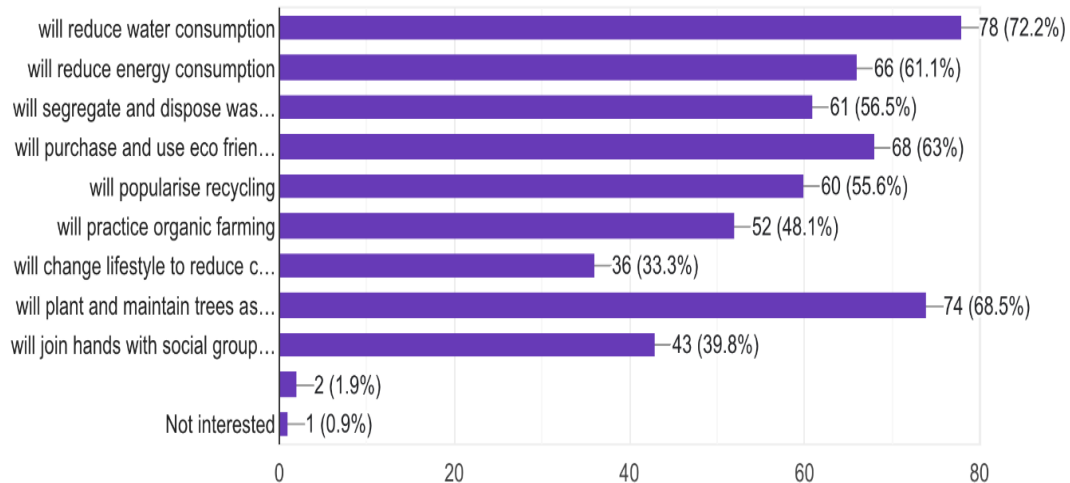


FIGURE 23: Steps towards contributing nature

SUMMARY AND CONCLUSION

Interior design begins with human experience. Considering the physical, mental, and emotional needs of people, interior designers use human-centered approaches to address how we live today. Creating novel approaches to promoting health, safety, and welfare, contemporary interiors are increasingly inspired by biophilia as a holistic approach to design.

Biophilic Design integrates the natural world into the modern world, creating healthier and more balanced spaces. It is based on the idea that human beings have an innate affinity for nature and, therefore, thrive and have a greater sense of well-being when in contact with natural elements. This approach embeds nature at the heart of interior design, architecture, and urban planning, recognizing the aesthetic value of nature and its positive impact on mental health, well-being, and productivity. The study on the topic entitled **"Integration of Nature into interior design"** are summarised below:-

1. The survey was conducted among 108 in and out of Kerala.
2. The sample consists of adults between 18-60 age group.
3. 68% of them were between the age of 18-21 and 31.9% of them were between of 21-60.
4. Forty five percent were doing graduation and 40.7% were below graduate level and 13% were doing their higher studies.
5. Based on the survey conducted among these adults majority of them were student 20.4% belongs to private sector and public sector.

6. Most of them belonged to middle and lower class income family group. Only 7.4% had their family income above 25 lakhs.
7. The study reveals that 63.9% have moderately incorporated nature in their homes and 13% have highly incorporated it.
8. The study also reveals that different people have different types of themes in their mind to incorporate in their home like beach forest sky.
9. Majority of the respondents use wooden furniture which is very eco friendly and sustainable.
10. The study reveals that 72.2% of the respondents use eco friendly products in their house.
11. The survey reveals that only 64.8% of them know about interior scaping but majority of them wants indoor plants as part of their design.
12. The presence of plants reduces stress and anxiety. Majority of the people agree to it and wants to have open garden/terrace garden as part of their design.
13. For 71.6% of the respondents , natural lighting is very important, proceeding with 26.9% with moderately important which shows most of them wants big windows , sheer curtains , glass ceiling , big doors as part of their design.
14. 92.6% people wanted nature inspired artwork included in their design which can be of many types like paintings, sculptures , aquariums indoor waterfalls , terrariums etc.
15. Specific wellness feature is one of the very important space in house. People wanted different types of wellness features in their house like meditation corner , reading corner , music room , gym corner etc.

16. According to the study , 54.6% of people use furniture made of recycled materials which in turn saves a lot of money for middle class family group and contributes to the environment also.

17. The study shows that 83.3% people segregated their waste before disposal and use environmental friendly disposal methods like composting , biogas, recycling etc.

18. The study shows that everyone contributes to conservation of energy with different methods like using energy efficient appliances , solar panels, using led bulbs , using natural light in day times . All these methods helps in conserving energy.

19. The study shows that everyone contributes to conservation of water with different methods like 56% of them use bucket water for bathing, 40% does rainwater harvesting , 33% resides kitchen water and several other methods.

Conclusion

From the above summarised points, the study came to a conclusion that integration of nature into interior design will have a big impact on future of earth. It is appreciated by many people and majority of them wants to incorporate eco-friendly items. Considering the physical, mental, and emotional needs of people, it can be concluded that nature evokes positive emotions, physiology, cognition, and health. Contact with nature elements reduces stress while improving creativity and clarity of thought, thereby enhancing overall wellbeing and even expediting healing. In addition, the visual presence of greenery and water has been shown to reduce noise annoyance. It can be said there is good and there is a bad design. However, any design that celebrates the biophilic concept should be considered as a good one. In today's society, when there are many problems created by a lack of human-nature contact, we need to completely rethink our architecture, and

spaces we work, learn, and especially, live in. These considerations produce new challenges, but also many opportunities for professionals involved with the built environment to revolutionize the way we design. The reconnection between indoors and nature is going to happen through the human-oriented interior design process, utilizing the biophilic approach.



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APPENDIX

QUESTIONNAIRE TO ELICIT INFORMATION REGARDING SUSTAINABLE INTERIOR DESIGNING PRACTICES IN URBAN HOUSEHOLDS

1. Name:
2. Address:
3. Age:
4. Education :
5. Occupation:
6. Family income :
7. How far you incorporated nature into the interior design?
a. very less. b. moderately c. highly incorporated
8. Are there any specific natural elements or themes you have in mind?
a. forest b. beach c. sky d. any other (Specify).....
9. What type of furniture you have in your interiors?
a. wooden b. plastic c. metals d. any other (Specify).....
10. How far you included sustainable or eco-friendly materials in interior?
a. very less. b. moderately c. highly incorporated
11. Do you know about interior scaping?
a. yes b. no
12. would you like to have indoor plants as part of the design?
a. yes b. no
13. Do you think plants have a role in in reducing stress and anxiety ?
a. yes b. no
14. How important is natural lighting to you?
very less. b. moderately c. very high
15. Method used for incorporating natural light in interior?
a. b. c. d.

16. Are you interested in nature-inspired artwork or decor items ? yes no
17. Mention the nature-inspired artwork used in interior
 a. paintings b. sculptures c. aquariums d. indoor waterfall e. any other
 (Specify).....
18. Do you have terrace garden/ balcony garden or open garden visible from indoors?
 a. yes b. no
19. Are there specific wellness features you like to include?
 a. meditation corner b. reading corner c. aromatherapy elements
20. do you use furniture/ accessories made from recycled materials?
21. Are you segregating waste produced at your home, before disposal? Yes
 No
22. Method of disposal of waste practiced

	Organic waste	Paper	Plastic	Bio medical	Battery	CFL
Composting						
Bio gas						
Dumping						
Incineration						
Recycling						
Any other (specify)						

23. Method of conserving energy at home
 a.
 b.
 c.
24. Method of conserving water at home
 a.
 b.
 c.

25. Steps taken towards conserving nature/ Your contribution to environment sustainability (Please tick)

- Will reduce water consumption
- Will reduce energy consumption
- Will segregate and dispose waste in proper way
- Will purchase and use eco friendly products
- Will popularize cycling
- Will practice organic farming
- Will change life style to reduce carbon foot prints
- Will plant and maintain trees as far as possible
- Will join hands with social groups to protect our environment

Any other (specify) :