

# **FROM HOUSE TO RETAIL EVOLUTION OF FASHION AND EDUCATION**

**Prof. Anwar Khan**



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## Evolution of Fashion and Education



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**BOOKS ARCADE**

KRISHNA NAGAR, DELHI

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Prof. Anwar Khan

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## CHAPTER 1

### EXPLORING THE DESIGN OF SHELTER HOMES AND ITS IMPACT

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#### ABSTRACT:

The design of shelter homes represents a critical aspect of addressing societal challenges related to homelessness and displacement. This abstract explores the multifaceted impact of shelter home design on residents, communities, and the broader urban landscape. The architectural and spatial considerations within shelter homes significantly influence the well-being and rehabilitation of residents, shaping their experiences and potential for social reintegration. Moreover, the impact extends beyond the individual, influencing community dynamics and fostering a sense of empathy and inclusion. At the urban level, the design of shelter homes contributes to the creation of a more compassionate and equitable cityscape. By examining various case studies and design principles, this abstract aims to underscore the importance of thoughtful and humane shelter home design in creating positive outcomes for vulnerable populations and fostering a more empathetic and inclusive society. The architectural design of shelter homes plays a pivotal role in addressing the complex needs of residents. Beyond providing basic amenities, well-designed shelters prioritize privacy, security, and a sense of dignity. The spatial layout and functionality of these spaces can impact mental health, rehabilitation, and the overall transition from homelessness to stability. An examination of successful shelter home designs reveals the significance of incorporating communal spaces, natural light, and flexible layouts that cater to diverse individual needs. The impact of shelter home design extends to the communities surrounding them. Thoughtful architecture can mitigate stigmas associated with homelessness, fostering a sense of shared responsibility and empathy. The inclusion of community spaces within shelter designs encourages interaction between residents and neighbors, breaking down societal barriers and challenging stereotypes. A well-integrated shelter home becomes a positive force for social cohesion, promoting understanding and solidarity within the community.

#### KEYWORDS:

The Built Environment, Crisis, Design Concept, Design Shelter, Shelter Home.

### 1. INTRODUCTION

The design of shelter homes stands at the intersection of architectural innovation, social responsibility, and humanitarian efforts. Shelter homes, often synonymous with havens for the homeless or those facing crises, are designed not merely as structures but as spaces imbued with compassion and functionality. This comprehensive exploration delves into the intricate facets of shelter home design and its profound impact on individuals, communities, and the broader societal fabric. From the architectural principles guiding their creation to the socio-psychological dimensions influencing residents, the design of shelter homes transcends the physical realm, aiming to provide not just shelter but a dignified, supportive environment that fosters rehabilitation and empowerment. At its core, shelter home design represents a fusion of aesthetics and purpose, challenging architects and designers to reimagine space with empathy and inclusivity. The architectural layout, material choices, and spatial configurations are carefully orchestrated to address the specific needs and challenges faced by shelter home residents. The goal is not merely to create utilitarian structures but to cultivate spaces that promote healing, dignity, and a sense of belonging.

The impact of shelter home design extends far beyond the physical realm, influencing the mental and emotional well-being of its residents. The built environment plays a pivotal role in shaping individuals' experiences, and shelter homes are no exception. The design elements, from the arrangement of communal spaces to the choice of colors and textures, are orchestrated to create a supportive atmosphere that fosters a sense of security and encourages community building among residents. Understanding the psychological implications of design is paramount in addressing the trauma and vulnerabilities often associated with homelessness or crises. Moreover, the architectural design of shelter homes reflects a commitment to sustainability and resilience. In envisioning spaces that endure, architects incorporate eco-

friendly materials, energy-efficient systems, and innovative construction techniques. The integration of sustainable practices not only aligns with global environmental goals but also ensures the long-term viability of shelter homes, reducing operational costs and enhancing their capacity to serve vulnerable populations effectively. Beyond the physical structure, the design of shelter homes becomes a catalyst for community engagement and social integration. Thoughtful planning extends to the surrounding landscape, incorporating spaces for communal activities, vocational training, and social interaction. This intentional design aims to break the cycle of isolation that often accompanies homelessness, fostering a sense of community and mutual support among residents. In doing so, shelter homes become not just places of refuge but platforms for empowerment and social reintegration. The impact of shelter home design also resonates in the broader context of urban planning and social policy. Architects and urban planners collaborate to embed shelter homes seamlessly into the urban fabric, challenging stigmas and fostering a more inclusive understanding of public space.

The design philosophy extends to considerations of accessibility, ensuring that shelter homes are integrated into the urban infrastructure with proximity to essential services, public transportation, and employment opportunities, thereby facilitating the residents' transition toward stability. Furthermore, the design of shelter homes has a direct bearing on the efficacy of social services provided within these spaces. The layout and functionality of common areas, counseling rooms, and recreational spaces are meticulously planned to create an environment conducive to the delivery of support services. This holistic approach acknowledges the interconnectedness of physical and mental well-being, recognizing that the design of the built environment profoundly influences the success of rehabilitation and support programs.

In examining the design of shelter homes, it is essential to recognize the collaborative nature of the endeavor, involving architects, social workers, policymakers, and the community at large. The participatory design process ensures that the diverse needs and perspectives of shelter home residents are considered, fostering a sense of ownership and empowerment. This collaborative approach transcends traditional boundaries, creating a symbiotic relationship between design, social services, and the lived experiences of those seeking refuge in these spaces. The design of shelter homes represents a harmonious convergence of architectural ingenuity, social responsibility, and compassion. It goes beyond the mere provision of shelter, seeking to create environments that restore dignity, foster community, and empower individuals facing crises. The impact of shelter home design resonates not only within the walls of the structure but in the broader societal narrative, challenging preconceptions, and advocating for a more inclusive and empathetic approach to addressing homelessness and crises. As we embark on this exploration of shelter home design, we unveil the transformative power embedded in the thoughtful creation of spaces that transcend the physical and touch the very essence of human resilience and hope.

## 2. LITERATURE REVIEW

L. Casson et al. [1] study focuses on the joint family structure of Pakistani society and reflects the respect and concern that families and their generations have for the elderly. However, Pakistan's population is currently aging due to cultural and demographic changes affecting life expectancy.

As a result of this change, nursing homes have become an alternative to homelessness. This study aims to investigate the experiences of the elderly and to identify the conditions that cause them to stay in shelters. This study uses descriptive research design and qualitative methods. Partial interviews were recorded and transcribed. Content analysis was conducted to analyze the content and understand the data. Five themes emerged as a result of content analysis: reasons for leaving home, experiences before entering care and preventive health measures, overcoming problems, and choosing to live in housing. Research results show that adults do not receive adequate financial, emotional, emotional, or physical support from their children



and families. It also shows that the entry of women into the labor market, the negative behavior of children, and the migration of children for better employment and employment have left the elderly abandoned and unprotected. Studies have also revealed that the elderly are forced to live in voluntary and permanent shelters due to unemployment, family conflicts, and other reasons, making them dependent, sick, weak, and lonely.

J. Soni et al. [2] study focuses on the specific needs of individuals regarding mental health. This study aimed to develop a psychosocial support program for homeless and runaway youth in Vadodara, India. Methods: Semi-structured interviews were conducted with youth and stakeholders (e.g., teachers, counselors, and supervisors) to develop a deeper understanding of youth mental health issues and needs. Important needs include learning disabilities, substance abuse reduction, anger management, and emotional management. Based on these needs, a 13-session workshop was created, using lifestyle and health-related information as well as ideas from local yoga practices. The results of the study showed increased mindfulness and decreased positive stress in the intervention group. On the other hand, there was no significant change in learning anxiety or sadness. The overall analysis of this study was designed to increase researchers' understanding of the development and implementation of mental health services for young adults in the home. N. Saim et al. [3] study focus on the aim of this qualitative study was to explore the daily experiences of young unmarried couples in residential areas in Malaysia. This study is based on the thematic analysis of 17 interviewees aged 12-18 who participated in the interviews. Of the eight themes describing the experiences of unmarried young mothers in shelters, three main themes emerged: rules and regulations, relationships with staff, and relationships with other women. The results showed that participating centers did not comply with the United Nations Convention on the Rights of the Child and Malaysian state laws. We demand that the government issue clear guidelines on the implementation of the United Nations Convention on the Rights of the Child and Malaysian domestic law.

E. Andalib et al. [4] study focuses on people who use their homes as shelters to protect themselves from infectious diseases. Sanitation and sanitation have proven to be poor in modern homes and workplaces. Architects and designers are studying the necessity and flexibility of environmental changes in case of infection to create suitable structures that will prevent the spread of the disease. These good designs should help improve people's lifestyles and mental health when it comes to work and mental health environments. Traditional buildings from some countries, including Canada, Japan, and Iran, feature entrance halls that provide a way to separate the exterior from the interior. By dividing these areas, the center of the entrance was designed to match the scale of today's buildings and served as a filter between interior and exterior. Today's equipment can prevent the spread of diseases in buildings by using neutral surfaces. Preventing contamination in a safe location can be done by removing contaminated clothing, changing or covering shoes, using disinfectants, isolating contaminated items, and ensuring adequate ventilation in the central area.

J. Pable et al. [5] study focuses on the environment for homeless people in middle-income and high-income countries and provides basic elements of good housing for housing and other places. It considers the important role that design can play for the homeless and other users and demonstrates that the built environment is an equal opportunity with other forms of treatment and strategies to get people off the streets. This book advances understanding of how to help people experiencing trauma by examining the issues, patterns, and unique gifts that create space. It offers readers the knowledge and experience gained through a close examination of the importance of architectural and interior design decisions in emergencies, changing environments, permanent housing, day centers, and integrated services. These decisions include site preparation, circulation, and finding, vision, lighting, material, and finish selections. Homelessness and the built environment are important issues for interior designers, architects, rehabilitation advocates, design researchers, students, and policymakers who want to support the homeless.

### 3. RESULT & DISCUSSION

#### *3.1 Impact of interior spaces of shelter homes:*

The impact of interior spaces within shelter homes transcends the conventional understanding of design, reaching into the realms of psychological well-being, community building, and the overall rehabilitation of individuals facing crises or homelessness. These spaces, meticulously planned and thoughtfully curated, play a pivotal role in shaping the experiences of residents and contribute significantly to their journey toward stability and empowerment. At the forefront of the impact is the creation of a sense of dignity and belonging through interior design. Shelter homes are not merely places for temporary refuge; they are sanctuaries that affirm the humanity and worth of their residents [6]. The interior spaces are orchestrated to be welcoming, devoid of the institutional sterility often associated with crisis shelters. Warm color palettes, comfortable furnishings, and personalized touches are integrated to counter the harshness of life on the streets, fostering an environment where residents feel valued and respected [7].

Furthermore, the layout and design of interior spaces within shelter homes are strategic in addressing the trauma and vulnerabilities often experienced by individuals seeking refuge. Private sleeping areas provide a semblance of personal space and security, while communal areas are designed to encourage interaction and mutual support [8]. This balance between privacy and community creates an atmosphere conducive to healing, acknowledging the diverse needs and comfort levels of residents. The interior design of shelter homes is also instrumental in facilitating the delivery of support services [9]. Dedicated spaces for counseling, vocational training, and educational programs are seamlessly integrated into the layout, ensuring that residents have access to the resources they need for rehabilitation [10]. The thoughtful design of these spaces recognizes the interconnectedness of physical and mental well-being, providing an environment where residents can engage with support services in a dignified and non-intrusive manner [11].

Community building is a key aspect influenced by the interior spaces of shelter homes. Communal areas, such as dining halls and recreation spaces, are designed to encourage social interaction and the formation of bonds among residents [12]. The intentional creation of these community-focused spaces combats the isolation often experienced by individuals facing homelessness. Shared experiences within these interior spaces foster a sense of belonging and mutual support, creating a support network that extends beyond the shelter's physical confines. Interior spaces within shelter homes also play a crucial role in fostering a sense of normalcy and routine. The design incorporates areas for daily activities, such as communal kitchens or shared living spaces, where residents can engage in daily tasks and socialize. Establishing a semblance of routine within the shelter helps in the rehabilitation process, providing a structured environment that contributes to the overall stability and well-being of residents [12].

Moreover, the interior design of shelter homes contributes to the overarching goal of empowerment. Spaces for skill development, job training, and educational pursuits are integrated to empower residents with the tools and resources needed to reintegrate into society successfully. By providing an environment that supports personal growth and skill acquisition, the interior spaces of shelter homes become catalysts for breaking the cycle of homelessness and crisis. Sustainability and functionality are integral components of interior design within shelter homes [13]. The selection of materials, furnishings, and fixtures is guided by durability and ease of maintenance, ensuring that the spaces remain functional over time. This focus on sustainability aligns with the long-term viability of shelter homes and supports their mission of providing a stable and reliable environment for individuals seeking refuge. the impact of interior spaces within shelter homes extends far beyond aesthetics; it encompasses the fundamental aspects of human dignity, rehabilitation, and community. The thoughtful design of these spaces acknowledges the unique challenges faced by residents and strives to create environments that nurture, empower, and inspire. As shelter homes continue to evolve,

recognizing the transformative potential of interior design becomes essential in shaping spaces that not only provide refuge but also contribute to the holistic well-being and resilience of individuals navigating the challenging journey from crisis to stability [14].

### *3.2 Insights of shelter homes:*

The design and operation of shelter homes offer profound insights into the complex intersection of social issues, architectural considerations, and the human experience. Shelter homes serve as a microcosm reflecting the broader challenges faced by individuals grappling with homelessness, displacement, or crises [15]. These insights delve into the multifaceted dimensions of shelter homes, shedding light on their role as transformative spaces that extend beyond providing mere refuge. At the heart of shelter homes lies the recognition of human dignity and the fundamental right to shelter. Insights gleaned from the operation of these spaces emphasize the importance of creating environments that respect the inherent worth and agency of every individual seeking refuge. Far more than physical structures, shelter homes become sanctuaries that acknowledge the humanity of those in need, offering a haven where individuals can regain a sense of stability, security, and self-worth [16].

The daily dynamics within shelter homes reveal the intricate interplay between privacy and community. Residents, often coming from diverse backgrounds and life experiences, navigate a delicate balance between personal space and shared living [17]. Insights into the communal aspects of shelter homes underscore the significance of fostering a supportive environment that encourages social interaction, mutual aid, and a sense of belonging. In this delicate dance between solitude and community, shelter homes become not just places of residence but catalysts for the formation of supportive networks among residents. Moreover, the insights gained from shelter homes underscore the importance of trauma-informed care. Many individuals seeking refuge in these spaces have experienced various forms of trauma, whether from homelessness, domestic violence, or other life challenges [18]. Understanding the nuanced impact of trauma on residents informs the design of programs and services within shelter homes, emphasizing sensitivity, empathy, and a holistic approach to mental health. Insights into trauma-informed care highlight the need for spaces that prioritize healing, recognizing that the journey toward stability involves addressing both the visible and invisible wounds carried by residents [19].

The temporal nature of shelter homes, often serving as transitional spaces, offers insights into the broader landscape of housing instability. Residents grapple with uncertainties about their future living arrangements, employment prospects, and overall stability. This transient nature underscores the need for comprehensive support services that extend beyond shelter provision, including job training, counseling, and assistance with long-term housing solutions. Insights into the temporal aspect of shelter living emphasize the imperative of holistic interventions that address the root causes of homelessness and provide pathways toward sustainable independence. Furthermore, the insights gained from shelter homes underscore the interconnectedness of social services and the built environment [20].

The success of rehabilitation and support programs relies on a harmonious fusion of architectural design and social interventions. Shelter homes serve as laboratories where the efficacy of integrated services is tested, revealing the transformative potential when physical spaces and support services align seamlessly. Insights into this synergy emphasize the importance of collaborative efforts among architects, social workers, policymakers, and the community to create holistic solutions that address the complex web of challenges faced by individuals experiencing homelessness or crises. The insights derived from shelter homes offer a profound understanding of the intricate tapestry of human experiences, resilience, and the pursuit of dignity in the face of adversity. These spaces are not just temporary refuges; they are crucibles of transformation, providing lessons that extend beyond the confines of their walls. By delving into the dynamics of shelter homes, we gain a deeper appreciation for the

complexities of homelessness and crises, ultimately guiding us toward more compassionate, inclusive, and effective solutions that uphold the inherent worth and potential for recovery in every individual seeking shelter and support.

### *3.3 Design brief of shelter homes:*

The design brief for shelter homes encompasses a multidimensional approach, considering architectural, social, and functional aspects to create spaces that not only provide refuge but contribute to the holistic well-being and rehabilitation of individuals facing homelessness or crises. The primary objective of the design is to craft environments that foster dignity, inclusivity, and empowerment. Architecturally, the shelter homes must embody a balance between functionality and aesthetics. The spatial layout should optimize the use of available resources while ensuring the creation of welcoming and safe spaces. Considerations for natural light, ventilation, and accessibility are paramount to cultivating environments that promote physical and mental well-being. The architectural design should reflect a commitment to sustainability, incorporating eco-friendly materials, energy-efficient systems, and innovative construction techniques to minimize the ecological footprint of the shelter homes.

The social dimension of the design brief emphasizes the creation of spaces that facilitate community building and social integration. Communal areas should be strategically placed to encourage interaction among residents, breaking down the sense of isolation often associated with homelessness. Additionally, the design should incorporate spaces for vocational training, counseling, and recreational activities to empower residents with skills and opportunities for personal development. The shelter homes should be seamlessly integrated into the urban fabric, challenging stigmas and fostering a sense of belonging within the broader community. Functionality plays a crucial role in the design brief, with a focus on creating spaces that support the delivery of essential services. Common areas for meals, counseling, and medical services should be efficiently organized to accommodate the diverse needs of residents. The layout should ensure privacy where needed, balancing communal spaces with individual living quarters. The design must also consider flexibility, allowing for adaptability to varying capacities and the evolving needs of the residents over time.

Security and safety are paramount considerations in the design brief. The shelter homes should be designed to provide a secure environment for residents, mitigating risks associated with homelessness. This involves thoughtful placement of entrances and exits, as well as the integration of security measures without compromising the welcoming atmosphere. Lighting, landscaping, and surveillance systems should be incorporated to enhance safety and promote a sense of security for all residents. In terms of the visual and sensory aspects, the design brief encourages the use of color, textures, and art to create environments that are aesthetically pleasing and psychologically uplifting. Thoughtful consideration should be given to the choice of materials and interior design elements to avoid institutionalization and create spaces that resonate with a sense of home. Creating a warm and inviting atmosphere contributes to the overall well-being of residents and challenges stereotypes associated with shelter environments.

Moreover, the design brief emphasizes the importance of a participatory approach, involving potential residents, local communities, and relevant stakeholders in the decision-making process. This collaborative effort ensures that the design is responsive to the diverse needs, preferences, and cultural backgrounds of those who will ultimately inhabit the shelter homes. Engaging the community fosters a sense of ownership and pride, transforming the shelter homes into integral components of the social fabric. The design brief for shelter homes is a comprehensive framework that encompasses architectural, social, and functional considerations. It seeks to create environments that go beyond the provision of basic shelter, aiming to restore dignity, foster community, and empower individuals facing homelessness or crises. This holistic approach recognizes the transformative power of thoughtful design in

addressing the complex challenges associated with homelessness and advocates for spaces that not only meet immediate needs but contribute to the long-term well-being and rehabilitation of their residents.

### *3.4 The design concept of shelter homes:*

The design concept of shelter homes transcends the conventional notions of architectural planning, aiming to create spaces that not only offer refuge but also embody dignity, compassion, and empowerment. At its core, the design concept revolves around the understanding that shelter homes are more than mere structures; they are environments that profoundly influence the well-being and future trajectories of their residents. One fundamental aspect of the design concept is inclusivity. Shelter homes are envisioned as spaces that embrace diversity and cater to the unique needs of individuals facing homelessness or crises. The design incorporates features that accommodate various demographics, including families, single individuals, and those with specific vulnerabilities. This inclusivity extends to accessibility, ensuring that the built environment is welcoming and accommodating for individuals with diverse physical abilities.

Moreover, the design concept emphasizes flexibility to address the dynamic and evolving needs of shelter home residents. Spaces are envisioned to be adaptable, serving multiple purposes to accommodate various activities such as counseling sessions, vocational training, communal gatherings, and private reflection.

The flexibility in design allows shelter homes to respond effectively to the multifaceted challenges faced by residents, fostering an environment that supports both immediate needs and long-term goals. The concept also integrates a trauma-informed approach to design. Recognizing that many individuals seeking refuge in shelter homes have experienced trauma, the design prioritizes creating safe and calming environments. Thoughtful consideration is given to the layout, lighting, colors, and textures to minimize triggers and promote a sense of security. The goal is to facilitate healing and create spaces that empower residents on their journey toward stability.

Furthermore, the design concept emphasizes community building within shelter homes. Common areas are strategically designed to encourage social interaction, fostering a sense of belonging and mutual support among residents. These communal spaces go beyond functional considerations; they become catalysts for breaking the cycle of isolation often associated with homelessness. The design envisions shelter homes as vibrant communities where residents can share experiences, build connections, and collaborate toward a collective sense of purpose and well-being. Sustainability is another integral component of the design concept. From eco-friendly materials to energy-efficient systems, shelter homes are envisioned as environmentally conscious structures. This commitment to sustainability aligns with broader global goals and ensures that shelter homes contribute positively to the surrounding ecosystem while maintaining long-term operational efficiency.

The design concept also embraces the principles of empowerment and self-sufficiency. Shelter homes are envisioned as spaces that go beyond providing immediate relief, actively supporting residents in regaining independence.

The inclusion of vocational training areas, educational facilities, and job placement services reflects the commitment to equipping individuals with the skills and resources necessary to transition back into mainstream society successfully. The design concept of shelter homes represents a holistic and compassionate approach to addressing homelessness and crises. It goes beyond the functional aspects of architecture, weaving together inclusivity, flexibility, trauma-informed care, community building, sustainability, and empowerment. Shelter homes, as envisioned through this design concept, become transformative spaces that respect the dignity of individuals, offer a pathway to recovery, and contribute to the broader societal goal



of creating a more compassionate and inclusive community. This forward-thinking design concept redefines the role of shelter homes, positioning them as dynamic and integral components of a supportive and empathetic social infrastructure.

#### 4. CONCLUSION

The design of shelter homes emerges as a powerful instrument for social change, reflecting a profound understanding of the interconnectedness between the built environment and the well-being of individuals facing homelessness or crises. This exploration of shelter home design and its impact underscores the transformative potential embedded in thoughtful architectural concepts. Beyond the structural components, the design philosophy encapsulates principles of inclusivity, flexibility, trauma-informed care, community building, sustainability, and empowerment. By embracing these principles, shelter homes cease to be mere shelters; they become sanctuaries of dignity, resilience, and hope. The impact of shelter home design reverberates not only within the walls of these structures but throughout the broader societal fabric. It challenges preconceptions about homelessness, advocating for a more compassionate and inclusive approach to urban planning and social services. Shelter homes, as envisioned through this design paradigm, offer more than just a roof overhead; they provide environments that nurture healing, restore a sense of community, and empower individuals to reclaim control over their lives. Moreover, the design concept recognizes the dynamic nature of homelessness and crises, responding with flexibility and adaptability. The inclusivity of design accommodates the diverse needs of residents, creating spaces that respect their individuality and foster a sense of belonging. By integrating trauma-informed care, shelter homes acknowledge and address the unique challenges faced by those who have experienced trauma, offering a path toward healing and recovery. Additionally, the commitment to sustainability not only aligns with global environmental goals but ensures the longevity and efficiency of shelter homes.

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## CHAPTER 2

### ENHANCING COMMUNITY WELL-BEING: A COMPREHENSIVE EXPLORATION OF PUBLIC SPACES AND THEIR MULTIFACETED IMPACTS

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#### ABSTRACT:

This study explores the significance of public spaces, encompassing physical and virtual realms, in fostering social cohesion and community well-being. It delves into the categorization of public open spaces based on function, such as recreation, sports, and nature spaces. A comprehensive literature review provides insights into the design, challenges, and impacts of public spaces worldwide. The discussion emphasizes key qualities contributing to a successful public space, including accessibility, activities, comfort, and sociability. Furthermore, the study examines the broader impacts of public spaces on health, economy, and social dynamics within cities. The changing nature of public spaces is addressed, urging a shift from passive spectatorship to active community engagement. Several global case studies underscore the transformative potential of well-designed public spaces, emphasizing the need for adaptability and community involvement. Environmental sustainability emerges as a key consideration, prompting future research into innovative green design practices, renewable energy incorporation, and the use of sustainable materials to align public spaces with ecological imperatives. Longitudinal studies tracking the lasting impacts of well-designed public spaces will be essential for understanding changes in community cohesion, economic vitality, and overall quality of life over time.

#### KEYWORDS:

Accessibility, Activities, Community Engagement, Economic Impact, Health Impact, Inclusivity, Nature Spaces.

### 1. INTRODUCTION

A public space is a place that everyone can go to, no matter who they are or where they come from. These are places where people can gather, like plazas, squares, and parks. Walkways and roads are also open to everyone. In modern times, many believe the internet serves as a modern-day gathering place for social interaction. The significance of public places lies in their ability to unite individuals within communities [1], [2]. They function as a public service that self-organizes and provides a platform for people to share their experiences and contribute value. The bustling atmosphere of a busy street can bring about feelings of happiness and contentment. Sitting on a park bench can also assist in helping you unwind and relax. They can see different cultures and learn about diversity. Kids can meet, play, or just spend time together. These locations support individuals in feeling engaged with their local area and included in a social group. [3], [4].

Public open space, also known as POS, refers to land that is preserved for the public's enjoyment and to safeguard its unique environmental, social, and cultural characteristics for current and future generations.

Public open spaces are where people can gather and play. This comprises of nearby parks, play areas, and community green areas. In many local governments, POS is usually defined based on size and in a hierarchical way. "Active" is used for places meant for organized sports, and "passive" is used for places meant for relaxed recreation and informal activities. [5], [6].

*1.1 Public open spaces there are two primary components in the text: Function and Catchment Hierarchy.*

The function of open spaces is to have three main types. Places to have fun and relax and sport areas Outdoor areas with trees, plants, and natural landscapes.



### 1.1.1 Areas for recreation:

Parks and recreational centers are places where people may mingle, relax, have fun, and exercise. These locations support mental and physical well-being by providing engaging, enjoyable, and relaxing activities. Everyone may make use of them for amusement, company, exercise, pleasure, or other activities that make them feel fulfilled and content. Gardens, parks, and other public areas that provide people with amusement and leisure are referred to as recreation spaces.



**Figure 1: illustrate the example of Recreation spaces.**

### 1.1.2 Sport spaces:

Sports facilities are locations where individuals can engage in organized sports and hone their physical abilities. These areas are made for sports activities, like playing fields and extra space around them for safety. People come to watch or play sports. Some come to practice or compete in a sport, while others come to watch the game. The sports areas are open for community members to engage in fun and relaxed activities.



**Figure 1: illustrate the example of sport spaces.**

### 1.1.3 Spaces in nature:

Natural areas provide opportunities for people to experience and preserve local flora and fauna and the environment. They offer chances to do gentle, fun activities like walking, biking, having a picnic, playing, or looking at nature. Nature spaces can be bushy areas, coastal places, wetlands and riparian habitats, and natural land formations. These locations are maintained for the enjoyment of visitors, while also preserving the local ecosystem and its diverse flora and fauna.



**Figure 2: illustrate the example of nature space.**

## 2. LITERATURE REVIEW

Radwan *et al.* [7] discussed the designing public spaces while focusing on the individuals who will use them. Study of where and how people live in New Cairo. The size of the public space is a key factor in the value of connecting people and streets. If buildings are too big and crowded, it can make people unhealthy. Past studies found that people move faster in empty or quiet areas, but move slower in lively and dynamic urban areas. Designing public spaces in a way that makes people feel included can have a good effect on how they use and enjoy those spaces. Pacheco (2017) raises an important inquiry into whether public spaces prioritize the needs of individuals in their design. It investigates whether the space is designed with people in mind and if its size and features are suitable for them.

Catsadorakis *et al.* [8] discussed the challenges with overseeing Prespa National Park. The study explores the actions of individuals in the vicinity and the evolution of these behaviors over time. It also looks at how our conservation efforts today are connected to the social, economic, and cultural conditions both inside and outside of Prespa. In 1912-13, Prespa, a faraway and sparsely populated area near the border, was freed from Ottoman control. In the past, there were a lot of changes to the environment, like cutting down forests and people leaving during the Civil War. Then, in the 1960s, they built a system to get water to the land and some scientists found the place. Many people left from 1960 to 1980. In 1974, it became a National Park. In 1984 to 1986, there was a lot of building that hurt the environment. And in the mid-1980s, they started growing a lot of beans.

Honey-Rosés *et al.* [6] discussed the impact of increasing housing on the perception of public spaces. The purpose of this study is to evaluate how people see the quality of urban public areas when more and more buildings are added to them. In an effort to attract more people to a pedestrian-friendly area with plenty of greenery, we are exploring a new strategy. Over the following three weeks. When the asked participants to compare a street with and without our adjustments for pedestrians, we discovered that the street seemed less pleasant overall when more people were present. Although perceptions shifted little, this was still a significant development. The advantages and disadvantages of growing population density in cities must be taken into account by urban planners, especially in less populated areas.

Barelkowski *et al.* [9] discussed the upgrading the public places that are accessible is a necessary part of improving public spaces. Public space design frequently represents societal norms and creates a more vibrant urban environment that can support a range of human activities. It is crucial for the local community's members' health, wellbeing, and perceived quality of life. Even with an intuitive and composition-focused approach, urban design may

still provide visually pleasing outcomes; however, its full impact won't become apparent until it is put into usage. Therefore, it seems that the addition of analytical and decision-supporting tools is warranted. This study examines a particular method that focuses on the characteristics and typologies of open public spaces when they are faced with various purposes. It makes an effort to respond to inquiries about the relationship between the qualitative and quantitative elements of the urban environment. In this regard, parametric understanding complements the designer's professional knowledge.

Paudel *et al.* [10] discussed the exploring the role of public spaces by focusing on Kathmandu in Nepal as an illustrative example. Everyone has access to and is free to use public areas. There are places in cities designed to support people's enjoyment of the city, interpersonal relationships, and health. This study's main goal is to evaluate the current state of knowledge about urban public spaces and identify areas that need further investigation. It does this by examining several research. It was discovered that public spaces in Nepal are not well characterized as being accessible to all people and not competing for usage after examining publications published between 1990 and 2023. Information on public areas is also dispersed. Nonetheless, research conducted in Nepal revealed that the Kathmandu Valley's open spaces were overbuilt. Rapid urbanization without adequate planning and administration seems to have a significant influence on social spaces inside cities, as well as financial issues in emerging nations.

Ugolini *et al.* [11] discussed the Exploring the benefits of green spaces in urban areas and examining the differing perspectives of experts and users. It is widely recognized that public parks can have a positive impact on city communities, but their effectiveness hinges on their proper design and maintenance. In order to improve UGS, those leading the project should consider the preferences and desires of the users. This study looked at how people in cities feel about their parks and green spaces, and if they are happy with them. It also checked if their feelings match with the opinions of the people who take care of these spaces.

Gubic *et al.* [12] discussed the new urban plan in Rwanda aims to develop public spaces in various locations across the country. By 2024, Rwanda aims for 35% of its population to be residing in urban areas. The country has 12.6 million people and is growing at 2.8% each year they are also investing a lot in building roads and buildings in the capital city of Kigali and six other big cities. Kigali and other cities in Rwanda are updating their plans because they are growing quickly and need better infrastructure and services. The Ministry of Infrastructure, the Rwanda Housing Authority, local leaders, the Global Green Growth Institute, and other stakeholders have pledged to take various actions to address the issue of inadequate public spaces in Rwandan cities.

Basu *et al.* [13] discussed the people's opinions on visiting urban parks and the benefits of having green spaces. There has been a lack of extensive study on the access to public green spaces for people living in urban areas in the global South. We talked to people in four parks in Hyderabad, India to find out what they think about the natural things in the parks and how they use them. Two parks require you to pay to enter, and two let you in for free or for a small fee. Many people like the park for fun, but they can't easily find food or things to feed animals. This is a big problem for people who don't have much money. In big parks with lots of plants and trees, there are many different birds and animals to see. There are only a limited number of plant and animal species in small parks with little greenery.

Praliya *et al.* [14] discussed the Evaluating the quality of a public space is crucial for its effective management. Public areas such as parks and plazas play a crucial role in improving city life, preserving the environment, and promoting sustainability. In developing countries like India, the public spaces in cities are not great in terms of both amount and quality. There has been extensive research on creating successful public spaces in wealthy nations, but the majority of it centers around suggestions for design. Furthermore, it has been looked at how

important it is to have good management in order to make sure that public spaces are high quality and successful. But there hasn't been a lot of research on this topic in India. There is a big difference between the norms and availability of public spaces in India compared to developed countries.

Addas *et al.*[15] discussed the Evaluating the effectiveness of public spaces in Saudi universities, using King Abdulaziz University in Jeddah as a case study. Public open spaces (POSs) are places that offer many services, like places to exercise and to hang out with others. These services are important for making society healthy and for making life better. A lot of studies have been done on POSs in rich countries like the US, Australia, Spain, France, and Germany. However, point of sale systems in Saudi Arabia have not been thoroughly studied. This research looks at how well public areas on the KAU campus in Jeddah, Saudi Arabia are doing and how important they are, using a method called importance-performance analysis. Tests were used to assess potential disparities in the value and functionality of POSs.

### 3. DISCUSSION

Public spaces have to take into consideration a variety of well-considered criteria in order to satisfy the wide range of community demands. A basic feature that guarantees that the area is readily accessible by a variety of transportation options, encourages inclusion, and improves connectedness is accessibility. People from diverse backgrounds are given a feeling of belonging as a result.

#### 3.1 Key qualities of a good open public place:

There are 4 main qualities of a public space i.e Convenient; persons are engaged with activities there; the area is cozy and presents a positive image; and lastly, it is a social hub where people congregate and accommodate guests.



**Figure 4: illustrate Public Space was designed to aid in evaluating whether a place is favorable or unfavorable**



**Figure 5: illustrate the Campus Martius Park: Detroit, MI [Photo Credit: study for Public Spaces].**



### 3.1.1 Links and accessibility:

The term "access" describes how simple it is to get to and from a place as well as how effectively it integrates with its surroundings. A well-designed public area is simple to observe, easy to get to, and easy to navigate. Roads and other physical features could render an area more difficult or easier to get there. For instance, a street with many businesses might be safer and more enjoyable to stroll along than one with none. Additionally, people's comfort level in visiting a public location might also be influenced by their ability to observe it from a distance. Accessible eateries are conveniently positioned near transportation options, and their parking lots are often packed with people arriving and departing.

### 3.1.2 Consumption or Activity:

Events such as music concerts, art shows, and people being kind to one another are what contribute to making a location unique. These are the causes that draw people to go there and compel them to return. Engaging in activities within a specific location gives it a unique and meaningful character, evoking a sense of pride among community members.

### 3.1.3 Appearance and satisfaction:

The appearance and atmosphere of a location are crucial factors in determining its popularity among visitors. People often think about how safe and clean a place is, as well as the surrounding buildings and the atmosphere of the place. The significance of being able to choose a seat is often overlooked by many individuals.

### 3.1.4 Reliability:

*This is a challenging yet well-defined benchmark that a place must meet. People begin to feel deeply connected to their neighborhood and the space where they may engage in these social activities when they hang out with friends, engage in conversation with neighbours, and feel comfortable interacting with new people.*

## 3.2 How do Public Space impact a city:

Cities are more livable overall when they have high-quality public areas. We will not return often if they are not tidy and pleasant, or if we feel uncomfortable there. There are places in the city where people get together and build stronger bonds on many levels. A city's vitality and social interactions among its residents are greatly influenced by the existence of public areas. They give cities their missing pieces and give them life. Parks provide a calm and inviting space where people may sit and rest or exercise to decompress from their hectic life in bustling cities with towering buildings and plenty of traffic.

### 3.2.1 Health Impact:

Green spaces like parks play a role in purifying the air and managing pollution in the environment. In addition to helping the environment, parks can also have a positive impact on our mental health.

They made people feel better and more positive. Scientists discovered that when people are in green spaces with trees, they get less frustrated and their brains work harder, compared to when they are in areas with lots of stores and businesses but no trees. Spending time outdoors can help alleviate stress and improve overall physical well-being in a short amount of time, sometimes within just a few minutes.

Studies conducted by environmental psychologists show that observing nature, including trees, grass, and flowers, can alleviate stress, particularly for individuals experiencing high levels of stress. Being in natural places makes us feel better and can help us think of new ideas. In a study of creative people, being in nature made them more creative by helping them think in new ways, making them curious, and making them more open-minded. A city thrives and progresses more effectively when its residents are in good mental and physical health.

### 3.2.2 *Economical Impact:*

Proximity to parks and recreational spaces increases the value of nearby properties. The amount that parks and recreational areas affect home prices depends on how close the home is to the open space, how big the open space is, and what the neighborhood is like. In India, public places create jobs for street sellers and vendors. Markets show that when businesses work together in one place, it can help them make more money and also help the local economy by creating jobs and bringing in more taxes. Open spaces like parks and recreational areas have a good effect on people and the environment. They also make houses worth more money.

The research shows that living close to nice parks and gardens can make houses worth more money. The price of a home can be influenced by its proximity to parks, the size of nearby parks, and the surrounding neighborhood. In city planning, putting parks in the right places and making them look nice can make people want to live in those areas a lot. The proximity of homes to parks or nature areas often results in higher prices, as individuals value the convenience of outdoor activities and picturesque views. Also, the size and things in the open area, like paths, playgrounds, or sports areas, make the area more attractive and valuable.

### 3.2.3 *Social Impact:*

It's important for mental health to have inclusive places that everyone can visit. Parks, plazas, atriums, and streets are all destinations that people visit regularly. Public places give us a break from the busy city. Public spaces are places where people can come together to meet and spend time with each other. They help create a sense of belonging and bring together people from different backgrounds. This promotes a sense of connection and mutual understanding among individuals from diverse backgrounds. They enhance the livability of a city by promoting outdoor activities and creating a more enjoyable environment for residents, workers, and visitors. People start and join in activities and events to make a community. People are more likely to gather and spend time together in a well-planned public area.

### 3.3 *Why do open public spaces need to change:*

Privatisation has long been considered the greatest threat to public spaces. "Public space is in danger because of privatisation and individuals wanting to do their own thing." Modern life is focused on buying and selling things, and everything in our social life revolves around money and business. Parks have changed a lot and are now used more for just looking at than actually using. City parks have the potential to transform into convenient locations for social gatherings and community enhancement, rather than solely serving as spaces for exercise, thus playing a crucial role in city improvement. A park and the area around it can be more than just a place to enjoy nature. It can also be a place for people to interact and share their culture. The park is frequently filled with people engaging in a multitude of activities including running a market, spending time with their children, skateboarding, creating art, hosting events, or socializing with friends. Most cities do not seem to fully understand the benefit of having good public spaces and a good public life.

We have only started to see how parks can help improve communities. Recreational activities are often the main focus of city parks nowadays, with limited other options available. They don't bring in older people, teenagers, or people who just want to relax and walk around every day. Sometimes, there is no shade or place to buy food or drink. The problem is that if people don't have many reasons to go to a park, not many people will use them and they won't be important anymore.

Why is it important for public spaces to change? A growing number of cities are recognizing the potential of parks to enhance the quality of urban living. Incorporating parks into neighborhoods and empowering communities to maintain them and create programs has led to positive changes in urban areas.

### 3.3.1 California's Laguna Beach:

There is a park in Laguna Beach, California, that sits adjacent to both the ocean and a large roadway. The park offers attractions for kids and grown-ups, including basketball, climbing, games, walking, dining, and admiring the beautiful flora. The park holds a significant role in the community.

### 3.3.2 Reconfigure Union Square Park in New York City:

Hotels, theaters, and fashion have all had their moments of popularity at Union Square Park in New York City throughout its history. It was also a gathering place where labor unions, communists, anarchists, and socialists often met to talk and argue. In the early 1970's, the park and the area around it had become old and in bad condition. People thought of the park as a place where bad things happened. The park was fixed up and kept its old style. An additional space was designated close to the park in order to enhance its appeal. There was a farmer's market and a Christmas market located in the parking lot on the northern and western sides of the park. The park, market, and nearby area have grown and improved a lot. The market attracts individuals and offers them an opportunity to launch their own business. It also helps the community by connecting them with the nearby farms.

## 4. CONCLUSION

Public spaces play a vital role in enhancing the social fabric and quality of life in communities. The study underscores the importance of accessibility, varied activities, comfort, and sociability in shaping successful public spaces. Examining the impacts on health, economy, and social dynamics emphasizes the multifaceted benefits these spaces offer. The evolving nature of public spaces requires a shift from passive use to active community participation, fostering inclusivity and diverse engagement. Global case studies highlight successful transformations, emphasizing the potential for parks to serve as catalysts for community development. As cities continue to evolve, recognizing and adapting to the changing needs of public spaces is crucial for sustaining vibrant and resilient urban environments. As the global urban landscape continues to evolve, longitudinal studies tracking the long-term impacts of well-designed public spaces will be essential. This includes assessing changes in community cohesion, economic vitality, and the overall quality of life resulting from sustained investments in public infrastructure. Furthermore, exploring participatory design approaches involving communities in the planning and maintenance of public spaces is a promising direction. Understanding how citizen engagement can contribute to the adaptability and inclusivity of these spaces will be critical for creating environments that truly reflect the needs and desires of diverse communities.

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## CHAPTER 3

### REVITALIZING BOMBAY'S URBAN LANDSCAPE: REPURPOSING UNUSED AREAS FOR INCLUSIVE AND SUSTAINABLE POCKET PARKS

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#### ABSTRACT:

Bombay, a bustling and space-constrained metropolis, faces challenges in providing recreational spaces for its fast-paced inhabitants. This paper explores the concept of repurposing unused areas to create pocket parks, addressing the need for accessible and well-maintained spaces for relaxation, exercise, and socialization. The focus is on transforming neglected spaces into vibrant, emotionally meaningful environments that cater to the diverse needs of the community. The study emphasizes the importance of design in shaping people's experiences and proposes two innovative park concepts to address the unique requirements of different age groups. The goal is to bridge the gap between outdoor spaces and users, fostering a sense of ownership and connection. The paper introduces two innovative park concepts tailored to different age groups, promoting inclusivity and community engagement. The aim is not merely to create green spaces but to establish emotionally resonant environments that encourage diverse activities. By incorporating sustainable features, such as native plant landscaping and rainwater collection, the proposed parks seek to contribute to a greener urban landscape. The study underscores the urgency of revitalizing Bombay's parks, portraying them as havens for physical and mental well-being. It advocates for the community's active participation in reclaiming and reshaping these neglected spaces. Ultimately, the research endeavors to bridge the gap between outdoor places and their users, fostering a sense of ownership and connection that is crucial for the cities overall vitality and resilience.

#### KEYWORDS:

Bombay, Pocket Parks, Urban Design, Recreational Spaces, Neglected Areas, Emotional Well-Being, Community Engagement.

### 1. INTRODUCTION

Bombay is a fast-paced, very busy city where nobody really has time to unwind and escape their hectic daily schedule. Space is another issue in Bombay crunch, there is hardly any space left for construction. I then began to search for "unused areas" where I might construct pocket parks with various uses. When I was a child, I used to spend a good hour or two on the building terrace engaging in different activities that let me forget about homework, school, and other obligations. Bombay is home to several parks and gardens, although they are often neglected and mismanaged. The area is somewhat unwelcoming since people are all over the place and there have been several accidents due to defective equipment. It is my desire that individuals would break off from their everyday schedules and visit these areas to work, exercise, socialize, and spend time [1], [2].

Due to the difficulties Bombay faces as a crowded and limited-space metropolis, it's critical to emphasize the need for creative solutions. People's fast-paced lifestyles make it difficult for them to relax and take a break from their demanding schedules. Furthermore, the restricted amount of space is a big obstacle to urban expansion and the formation of recreational places. By exploring the idea of "unused areas," you may draw attention to how these locations have the capacity to change the urban environment. The city's requirement for recreational spaces may be met by repurposing these small sections of land. You want to provide safe havens where people may escape the stresses of everyday life and participate in a variety of activities by establishing pocket parks with a variety of goals [3], [4].

So may make your story more accessible by thinking back to own experiences as a youngster using constructing terraces as a good diversion. This highlights the beneficial effects that these places may have on mental health by providing a haven from the demands of work and school. Anyone could bring attention to the difficulties that Bombay's parks and gardens now face,

such insufficient equipment that might cause accidents and poor maintenance. The problem of trash adds even more to the unwelcoming nature of these areas. This establishes the framework for the urgent need for revival and the addition of attractive, secure, and well-maintained recreational spaces. Gradually, design is meeting people's requirements as it develops slowly. More consideration is being given by designers to the way a person feels in a given place [5], [6].

Spaces have extremely specific relationships with people; they respond to and communicate with their thoughts. However, once again attempt to imagine that identical area with improved lighting, fresh air, vivid colors, and more enjoyable elements. That should change one's perception as a place ought to arouse a variety of feelings, emotions, and ideas in addition to making someone want to spend time there. They require to feel as if they can only concentrate on that one area and forget about everything other with ability to take action they want to overcome the gap that exists between individuals enjoying outdoor areas freely and in accordance with their own desires, free from external interference [7], [8].

Constructing environments that are both useful and emotionally meaningful is a key change in design, building on the notion that design is changing to meet human needs. A growing number of designers are taking into account the psychological effects of settings on people, realizing how important the interaction between an individual and their surroundings is. A space's design has the power to actively shape sensations and emotions by interacting with the human mind. Extending this concept, we may highlight how little design details have the ability to alter. Envision the same area with enhanced natural light, brilliant colors, lively details, and enhanced ventilation. These enhancements are not only decorative; they are calculated decisions meant to positively influence the feelings and ideas of those occupying that area. The aim is to create an atmosphere that provokes a variety of emotions and makes one want to return and interact with the area on a regular basis. It is specifically the goal of this initiative to close the gap that exists between outdoor places and their users. Encouraging people to utilize these areas in accordance with their needs and preferences is the main focus. In order to foster a feeling of ownership and a personal connection to the area, your concept intends to remove constraints and permit free and unstructured usage.

Consider about delving into more detail about how your design promotes independence and self-governance. With no outside restrictions, users need to have a feeling of agency and be free to choose how they wish to use the area. This method promotes a wide variety of activities, creating a vibrant and welcoming atmosphere where people may concentrate, take a break, or mingle in accordance with their own preferences. Additionally, highlight how your design may provide an atmosphere that allows for an instant getaway from the stresses of everyday life. The idea is for people to get so engrossed in the area that it appears like a place of refuge, allowing them to put away other concerns and focus exclusively on what the built environment is providing. Bombay has a large number of poorly cared for and neglected parks and gardens. Numerous incidents of injuries resulting from defective equipment in parks and there have been stories, but this was not given much attention by the public. No one made good use of such areas, valued them for what they were, considered how to utilize them more effectively, or considered the "feel good" component [9].

It is imperative to bring attention to the ongoing problems of neglect and inadequate upkeep. The issue of abuse that now exists not only jeopardizes these areas' aesthetic value but also puts users' safety at serious danger showing specific instances of injuries brought on by malfunctioning park equipment helps to emphasize how urgent the problem is. These occurrences not only compromise park visitors' safety but also tarnish the public's favorable impression of these areas.

Using articles to highlight the examples that have been recorded highlights the fact that while these issues were brought up, there has been little actual action or thought undertaken. Consider

about delving into further detail about the possible repercussions of this kind of neglect, not just in terms of bodily injury but also in terms of the psychological toll it may have on people who may feel uncomfortable or unsafe in these areas. Ignoring these problems jeopardizes not only the parks' operational integrity but also their ability to serve as uplifting and revitalizing spaces for the community [10], [11].

A park is an area of cultivated, semi-natural, or natural land reserved for the leisure and pleasure of people. It might have patches of grass, stones, dirt, and trees, but it could also include other artifacts such as playgrounds, fountains, and monuments. There are routes for biking, walking, and other activities in many parks. Certain parks also function as beaches since they are close to bodies of water. A garden is an area that has been intentionally created, generally outside, for cultivation, exhibition, and leisure. Both natural and artificial materials may be used in gardens. Gardens may include structure improvements, often known as follies, that include water elements like ponds and fountains. Expanding the significance of parks and gardens, it's important to explore the many facets that add to the personality and function of these areas. According to their definition, parks are places set aside for people to enjoy and relax while offering a variety of natural and artificial features. Describe the many elements that make up parks, such as grassy spaces, rocks, dirt, and trees, and how they work together to establish an environment that is in harmony with the natural world. Emphasize how parks are more than just green areas by adding elements like playgrounds, fountains, and monuments to increase their recreational value. Additionally, emphasize the adaptable parks are by emphasizing the dedicated paths for bicycling, walking, and other activities. This element fosters an engaged and active community in along with physical well-being. Some parks that are next to bodies of water even expand their services to include beach areas, offering visitors more recreational options and an improved experience.

## 2. LITERATURE REVIEW

Mkwizu *et al.*[12] discussed the study focuses at people's pleasure and experiences when they visit Tanzania's national parks formerly used methods to look at people's experiences as well as numerical data. Tanzania's Nyerere National Park is the location of our research. The data, which came from 360 visitors who completed our questionnaires, was examined using statistical methods and partial least square structural equation modeling. Information that is not numerical may be studied and understood via the application of content analysis. The research demonstrated that domestic visitors who have visited southern national parks have a deep connection with them and get pleasure from their visits. The study's limitations and potential effects.

Reindrawati *et al.*[13] discussed the Indonesia and South Africa provide examples of the risks involved in sustaining tourism in national parks. This study examines the potential risks to sustainable tourism in national parks. It uses five examples from national parks in Indonesia and South Africa. This study uses a method of reading and analyzing literature to understand a topic in a detailed way. The national parks chosen are similar in terms of their environment, location, and age compared to other national parks. The research found ten problems that can harm sustainable tourism: animals and plants disappearing, new animals and plants taking over, too much building, people not acting responsibly, the climate changing, not enough water, trees catching fire, sickness, and people hunting animals illegally. Problems specific to Indonesia include being attacked by other countries, building better infrastructure, and changing people's behavior. In South Africa, challenges include insufficient water, high prevalence of diseases, and frequent forest fires.

Xie *et al.*[14] discussed the Experts determine the distinction between recreational activities and park visits through research. This research investigated the ways in which scholars address the differences between tourism and recreation in their scholarly writing. We found that academics use the terms "recreation" and "tourism" in two main ways: when they have different

meanings related to the situation, and when they have different meanings unrelated to the situation. This was found through our analysis of abstracts from the journals of Hospitality, Leisure, Sports, and Tourism and Environmental Sciences. The terms "tourism" and "recreation" have distinct connotations in the second instance. Whether for good or ill, tourism is sometimes utilized in more biased contexts than enjoyment.

Wang *et al.*[15] discussed the appeal of national marine parks in the coastal areas of the East China Sea. Establishing marine parks is crucial for maintaining the health of the environment. The popularity of a place for tourists is a important way to see how much it is growing. In this research, we looked at reviews of marine parks in the East China Sea and how tourists feel about them to create a way to measure how appealing they are for tourism. Simple things like how nice the place looks, what services are available, how good the service is, and what activities you can do were considered as less important signs.

Nordh *et al.*[16] discussed the Investigating how small parks are created and utilized by people. The focus of this study is on the role of small parks within urban areas in promoting positive health outcomes. It also looks at what activities people might want to do in these parks. Students from Oslo University College were shown pictures of 74 small city parks. They were asked to decide if they could relax and feel better in the parks shown in the pictures. Additionally, the participants were requested to identify the park elements that induced feelings of relaxation and rejuvenation, as well as to jot down their desired activities in the depicted parks.

Talky *et al.*[17] discussed the Sustainable management of parks in a city is known as adaptive management. The city of Vancouver's parks are a good example of this. Providing good services in parks depends on managing the parks well and having strong park infrastructure that will last a long time. The purpose of this research is to improve urban parks by examining how park managers can cater to the needs of park visitors. The information for this study was gathered from both existing sources and firsthand sources.

### 3. DISCUSSION

First, decided to address issues for those on a tight budget who often move by implementing a furniture system. The intention is to produce furniture. This is composed of renewable materials and allows for quicker, simpler, more inexpensive movement. Due to its flexibility and low cost, modular furniture is a crucial component of contemporary furniture. Examining the reasoning for selecting a furniture system in more detail and paying special attention to meeting the demands of people who are on a tight budget or who move around a lot reveals a thorough comprehension of the difficulties your design seeks to solve. The strategy that has been selected centers on developing a furniture system that serves a population that may have limited resources while also making relocation easier and more economical. Stressing how important it was to use sustainable resources to build this furniture system gives your project an extra green dimension. Prioritizing the use of environmentally friendly and low-impact products is in line with current concerns over sustainability. This adds to a wider commitment to ecologically responsible design techniques in addition to meeting the immediate demands of your target audience.

#### ➤ *Concept 1 for designing a park:*

In this Matunga location, the area under the overpass has been used to create a walking and/or nightlife area where people may go to acquire a little fresh air, it may be converted into a children's area on Sundays where kids can play chess, football, and other games. I'm attempting to come up with ideas for setting up such items in a vacant area that anyone may utilize nevertheless they see appropriate.

Developing on this idea, imagine transforming a vacant, unused area into a bustling center of the town. Imagine a vibrant blend of trees, walks that are safe for pedestrians, and spaces set aside for different uses.



This area would serve as more than simply a park; it would be a multipurpose attraction that welcomed people of every stage of life. For increased sustainability, the design could include environmentally friendly features like native plant landscaping, rainwater collecting systems, and solar-powered benches.

The area might be used for fitness classes, cultural events, and outdoor markets in addition to morning and evening walks, creating a vibrant environment all week long. The park design might include pop-up regions for local artists and entrepreneurs as a way to promote small enterprises and showcase talent, so encouraging community participation. To foster a feeling of community, an outdoor amphitheater could be constructed for movie evenings, cultural events, or community gatherings.



**Figure 1:** illustrate the existing space in Matunga where they have used the space under the flyover to create a space where people can go for a morning+evening walk.

➤ *Concept 2 for designing a park:*

It is common knowledge that parks are used by everybody. They mean all age groups and young children to adults, seniors, and teens. The features that were introduced to this after the amount of room that each of these groups might employ, as seen in the pictures, would differ. They want to include a variety of activities in this idea that everyone might utilize. Indeed, the concept behind the park is to create an inclusive environment that meets the various requirements and tastes of people of all ages. To encourage both physical exercise and learning, children's play spaces might be imaginatively created with interactive installations, climbing frames, and educational features.

Adolescents may have spaces set aside for leisure pursuits like skating, outdoor video games, or self-expression via painting. To further attract younger visitors, the park may hold recurring music festivals, seminars, or contests.

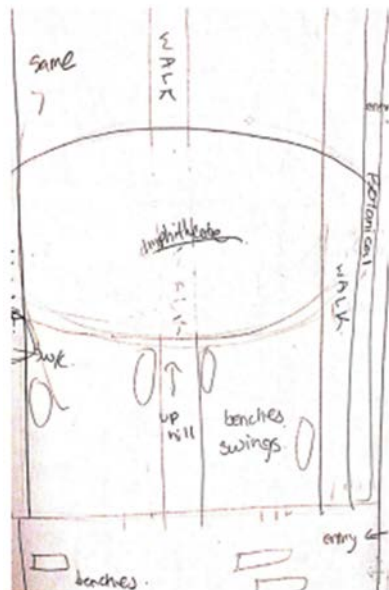
On the other side, to promote healthy living, adults may gain from exercise centers, yoga areas, and perhaps even outdoor gyms. Running and cycling lanes could potentially be included into the park's layout to encourage an active lifestyle. There may be secluded spots with seats and vegetation for those seeking a spot to unwind or socialize.



**Figure 2: Illustrate the parks are being used by everyone including all age's peoples.**

➤ *Park Study 1:*

This park idea is quite creative and has a large amphitheater that can accommodate large crowds for social events, festivals, and other activities. But the park's main focus is peace and reflection, with plenty of area set aside just for strolling among beautiful vegetation. The growing of tulsi, neem and other native plants, which supports environmental sustainability and enhances park visitors' general well-being, is one of its unique qualities. In addition to adding a sensory element, the fragrant garden supports the park's mission of encouraging a relationship with nature. Respecting the tranquil atmosphere of the park, it follows rules. Yoga sessions, personal training, and recreational shooting are not allowed, so those who are looking for peace and quiet during their walks and peaceful moments can do so in tranquil surroundings.



**Figure 2: Illustrates the design in park space only for walking.**

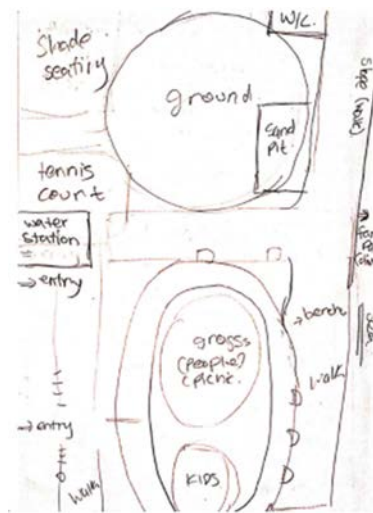
➤ *Park Study 2:*

The park idea provides a range of activities to suit different age groups and tastes. The center track encourages park visitors to lead active and healthy lifestyles by providing space for both walkers and bicycles. The track design's inclusiveness guarantees that people of all ages may



➤ *Park Study 4:*

Family parks are inclusive and adaptable areas that serve people of all ages. Its middle track encourages park visitors to lead active, healthy lifestyles by providing a space for both walkers and bicycles. The park's second half has a large track meant for track and field events. It can accommodate gatherings like school sports days and offers plenty of room for different physical activities and Sports. The Park offers specialized badminton and tennis facilities for sports aficionados, encouraging both organized sports and leisure play. A well-stocked gym gives the park an additional dimension and provides options for fitness for anyone looking for a more regimented exercise routine. The park has a water station to keep everyone hydrated and a handy shop with a variety of food choices to guarantee the safety and well-being of guests.



**Figure 5: Illustrate the design the park for Family.**

#### 4. CONCLUSION

The challenges faced by Bombay in providing adequate recreational spaces necessitate creative solutions. The proposal to repurpose unused areas into pocket parks offers a tangible way to address the city's limitations. By focusing on emotionally meaningful design and inclusivity, the study aims to transform neglected spaces into vibrant community hubs. The two park concepts presented cater to diverse age groups, ensuring that everyone can benefit from these spaces. The emphasis on sustainability and community engagement underscores the commitment to creating environments that enhance both physical and mental well-being. Implementing these ideas could contribute significantly to reshaping Bombay's urban landscape and fostering a stronger connection between its residents and public spaces. In the future, the proposed pocket parks could become focal points for cultural events, community gatherings, and social interactions, fostering a sense of belonging and pride among the residents. Furthermore, ongoing research and feedback mechanisms will be essential to refine and adapt the designs based on the evolving needs of the community.

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## CHAPTER 4

### MAITREA: DESIGN FOR A SELF-NAVIGABLE SENIOR LIVING HOME

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#### ABSTRACT:

Seniors living in India have only satisfied their physical needs to an extent but have failed to understand their emotional and social needs. The problems are very evident considering the service provided and the failure to address the needs of the people living in these senior living homes when one visits such homes as they are overlooked. There is a lack of planning in the Interior spaces and its environment that impacts the psychological needs and concerns of the residents. Senior housing concepts have continuously evolved to cater to the needs of the increasing population, thereby meeting the requirements of the elderly population. Senior housing concepts have continuously evolved to cater to the needs of the increasing population, thereby meeting the requirements of the elderly population. This paper aims to discuss a healthy Independent Living home for Senior Citizens in India as a long-term family care residence where they can live peacefully and fulfill the needs that they always dreamt off.

#### KEYWORDS:

Age Home, Elderly Home, Senior Housing, Senior Living.

### 1. INTRODUCTION

The growing number of older people is a big worry for leaders all around the world, in both rich and poor countries. Our country is also affected by this population change. The population is changing and it's causing new problems in society, the economy, and politics. The fast changes in how people make money and live have influenced many parts of society. The growth of factories, cities and people moving from place to place has led to the idea of smaller families. This means that some older family members are now struggling to get the help they need with money and their health [1]. Therefore, it is important to focus more on problems that come with getting older and to create comprehensive policies and programs to help elderly people in society. We also need to reconsider the things that people, families, and society are supposed to do [2].

Retirement communities have changed. Nowadays, homes for older people are more city-like and focused on providing services. They are often connected to nearby universities, offer classes, and have many extra features. Today's young people are very advanced, care a lot about the environment and other cultures, and want to stay active even when they live in a senior living facility. Older people are now living longer and happier lives than in the past. They continue to do gardening and join new groups and organizations even when they are in their seventies and eighties. They also always help out in their communities [3]. Many seniors are not quiet and reflective in retirement. Instead, they are active, joyful, and fulfilled. Most old people say they want to stay in their own homes. But old people nowadays like to do things on their own, even if they are sick. However, choosing to stay at home can make a senior less independent. Independent living homes are a safe and affordable option for seniors to live on their own while still being able to stay independent. It lets them continue to live their lives in a productive way [4].

India has more people than China now, but the number of older people in India is increasing and the birth rate is going down. This is according to studies done by the government and other organizations. India is getting 5 to 6 million more old people every year. Nirula said that in 2050, one out of every five Indians will be over 60 years old. India's senior living market has been evaluated to be worth \$10.15 billion and is expected to keep getting bigger. The market is growing because there are more older people, and the services for seniors in communities

are helping it grow too [5]. A lot of old people live by themselves and not with their kids because they like being independent. In addition, they don't want to make things difficult for their children who are working in cities and countries far from where their parents live [6].

According to a United Nations Population Fund report, numerous elderly individuals in India are compelled to work for financial reasons rather than by choice. They may not have enough money to live on without working. More than 9.3 million people who were 61 years old or older received job benefits through the program in 2019-20. The percentage of workers aged 61 or older was close to 10% in 2021. The law in India makes sure people have the right to work and provides social security. Because most of the people in India work in jobs that are not official, many older people do not have good social security. People with less money struggle in their later years and have little support from social security. The government said they will make a plan to help old people in 2021. They will build homes to make life better for old people who don't have a lot of money [7]. Older adult care homes need to have really good buildings and design skills to meet the changing needs of older adults. Senior living operators are very important. Their housing options are specially designed to cater to the needs of elderly individuals. This is different from regular housing for seniors because it takes into account their mobility and lifestyle. The services at these facilities are designed to make sure people are taken care of, feel comfortable, and have someone to spend time with. Homes for older people are made with care to fit their needs. They have rooms with safe edges, walls that are rounded, and ways for people in wheelchairs to move around easily [8]. The floors are not slippery, and there's a button to call for help in case of an emergency, placed where it's easy to reach. Worldwide, older people like to live in communities made just for them. These communities are very popular in countries like Japan, Singapore, the US, and Europe. India is still in the early stages, but the need for things is expected to grow quickly because of the changing population, longer life spans, and changes in how families and communities live together. The pandemic has affected older people a lot and has shown that they need special care [9].

There has been a lot of coverage of these issues in recent articles. A detailed study of modern homes that are designed to help older people live well. The study focuses on making sure older adults have a good time living in these homes and that the homes meet their practical and emotional needs. They checked how well things worked for people and found that things like how easy something is to use and how much energy it uses are usually talked about, but people's emotional health is often forgotten. A study looked at how new technologies can be used in home changes to help people live on their own as they get older. They studied how smart homes are set up, how they can be changed, and the problems and answers to living on your own. The research showed that by making changes to and using new technologies in their homes, older people can live more independently. This could help prevent falls and make it easier for them to get around inside their homes. The study looked at how well smart homes help older people who are not very strong, trying to find important things that make them work well and ways to use them successfully. These papers talk about how to use smart technology to help older adults stay healthy and happy in their homes. They also talk about the problems with using technology and suggest ways to fix them. This paper talks about making living spaces and communities that are good for older adults. It covers things like different types of places to live, things that affect older adults, what older adults need in their environment, keeping indoor spaces healthy, using technology to make things easier, issues with people who work with older adults, making sure everyone has the same access to health care, how people interact with each other, and problems we still need to solve.

## 2. LITERATURE REVIEW

### 2.1 Senior Housing:

Ronkainen *et al.* [10] described that more and more older people move to special housing when they start to have trouble with their bodies or minds. Moving to a new place can change how

they feel and bring both difficulties and chances in the new surroundings. This study wanted to understand how older people feel about their lives after moving into a senior housing facility for the first year. The study lasted for an extended period and required 71 elderly individuals from northern Finland to participate in regular interviews, responding to the same set of questions. They were asked questions from June 2014 to December 2015. The interviews happened three and 12 months after people moved to a new place to live. The people used a five-point scale to say how they felt about their happiness. A test was done to see if there was a difference in well-being between the two times when it was measured. The people in the study said they felt more secure but less able to do things on their own. During the first year at the senior housing facility, the participants felt a little less lonely, but otherwise, their overall well-being worsened. Senior housing organizations don't fully understand or consider how people feel during the moving process. Carefully planning where elderly people move and making sure they are happy and healthy in senior housing can bring big benefits for society and the economy.

New types of housing for older people are being made quickly in many places around the world. This shows that the current housing and care options are not meeting the needs of older people. O. Jolanki's [11] research looks at a specific kind of housing for older people in a medium-sized town in Central Finland. The complex was made to have easy-to-care-for apartments and shared spaces and to be close to parks, shops, services, and public transportation. The place has a community coordinator who works part-time. You must be at least 55 years old. The information comes from talking to 36 older people (21 women, 15 men) in interviews. They are between 66 and 93 years old. We did these interviews from November 2018 to February 2019. The conversations were recorded and written down. The data analysis looked at how people talked about their everyday lives and the things around them like buildings, nature, and society. The study uses ideas from environmental and geographic gerontology as its theoretical framework. The information was studied using positioning analysis, which is a type of looking at conversations. The senior housing in this study kept its promise of giving older people a place where they can stay active and independent. It also offers social activities and makes residents feel safe. The senior housing complex had a place where old people could live healthy and happy. Different people had different opinions about what the senior housing complex meant. Taylor *et al.* [12] studies have looked at how older people living alone feel lonely, but not many have studied how lonely older people living in senior housing feel and what causes their loneliness. This research looks at how lonely people feel in three public housing communities for older people in the St. Louis area is a place. The authors collected information for this project by asking 148 people to answer survey questions. The authors used the Hughes 3-item loneliness scale to measure how lonely people feel. In addition, the survey asked about things like age, health, how people connect with others, and the help they get from others. Multiple imputation methods were used to fill in missing data for the multivariate regression models. The study found that about 30.8% of the people were not lonely, 42.7% were somewhat lonely, and 26.6% were very lonely. In the research, feeling lonely was most linked with feeling depressed. Our study found that many older people living in senior housing feel very lonely, even though many people think they would be happy there. However, places where older people live together could be good for making them feel less lonely. Authors should help people who feel alone and are struggling with their mental health at the same time.

Elderly people who live in inexpensive housing for seniors often have long-term health problems and don't get the healthcare they need. Toles *et al.* [13] talk about research on the features and main results of medical treatments for elderly people who live in low-cost housing for seniors. The authors looked for information in three databases and found 1,284 articles. After looking at the titles and summaries, we chose 31 articles that talked about 28 different studies to review. The authors used narrative synthesis to talk about studies that looked at ways to help seniors living in housing, and what the main results were. The studies looked at how

healthcare workers like nurses and social workers helped people in groups or one-on-one. Results were put into four groups: feeling good, managing symptoms, using health care, and how well the body works. 23 out of the total studies showed that the interventions were effective. The research shows new ways to help seniors stay healthy while living in affordable housing.

## 2.2 Current status of Senior citizens Homes:

Chuang *et al.* [14] described that taking care of elderly people has become a big problem for many countries, like the US and China. In the US, there are a lot of older people because of the baby boomer generation. In China, the one-child policy has led to fewer young people to take care of their elderly parents. Even though older people may not be feeling well, most of them want to live by themselves in their own homes. That's why healthcare technology is now focusing on helping them stay healthy at home instead of going to the hospital or doctor's office. It will provide affordable and easy-to-use health monitoring for people in their homes; advanced technology to detect falls and monitor health changes; and a website for patients to report their activities and health status, and to connect with family members. This system will first start in the US, China, and Taiwan and will try to fix the problems with current home-care options.

Getting older is something that can't be stopped and affects everyone. As people age, they slowly become less able to do things. The number of old people in India is expected to grow three times and reach 2 billion. Sujitha *et al.* [15] study wants to find out how many people have trouble thinking and remembering things, and see how different factors like age, education, and lifestyle affect this. We asked 330 older people who live in nursing homes about their lives. We used a method that picked people in two stages to make sure we got a good mix of different kinds of people. A set of questions with a scale called Brief Interview for Mental Status (BIMS) was used. We looked at the data using SPSS software (Version 22). Out of 330 people in the study, about 44% had a little bit of trouble thinking and remembering, and 36% had a lot of trouble. Almost three-quarters, or 74. 8%, of people have a habit of exercising regularly. About 4% of the people in the study were currently smoking, and 5. 2% of them used to drink alcohol regularly. Combining NPHCE and NMHP could help find mild memory problems early during weekly visits to the local health center. More attention is given to Alzheimer's disease than to screening for early signs of AD.

Miura *et al.* [16] described that due to the worldwide COVID-19 outbreak, numerous individuals are adapting to a new way of living and relying heavily on technology within their homes. This may present a challenge for older individuals who are not comfortable with technology. However, some older individuals have adapted to using technology or have improved their tech skills during the COVID-19 pandemic. Studying how older people are doing now can help us understand how they feel about using technology. This article aims to explore the relationship between social support and the use of technology among elderly individuals, as well as their ease of use. According to the study, the transtheoretical model is effective in organizing individuals' adoption and usage of technology, specifically ICT/IoT services.

## 2.3 Senior Citizens Home Requirements:

Social assistive robots are being created to help older people from falling. Efting and Frennert [17] described that it needs a cheap robot with a small arm and hand that can move around in people's houses. The authors asked people what they needed from a social assistive robot by having group discussions, giving out questionnaires, and having one-on-one interviews. Older adults created and tested two robot prototypes in a lab for 2 hours and in the homes of older people for 3 weeks. The analysis of what the user needs led to a list of things the robot needs to do to stop falls. We faced obstacles, but ultimately achieved our goal of designing a robot that can be utilized by both elderly individuals and the robot arm. The old people thought the



robot was happy and nice. Their desire was for the robot to have a slimmer profile to navigate through narrow areas within the household. Additionally, they wished for it to be able to traverse doorsteps without relying on ramps and to smoothly cross carpets. In brief, testing robots in the homes of elderly individuals is crucial for understanding how they can assist with daily activities. This will help us create robots that are useful in real-life situations at home. The robot needs to function effectively to gather feedback from seniors about its potential to prevent falls and provide a sense of security for those living alone.

Factors considered in the calculation of the happiness index include individuals' income, employment status, education level, and overall well-being. The level of satisfaction you feel affects how happy you are, which is important for keeping a good quality of life in any place. The environment around us includes taking care of the retirement home's buildings and services. Hanif *et al.* [18] focus of this study is to assess the happiness of elderly individuals residing in retirement village accommodation. It's important because how happy they are can show how well the facility is managed. A study was carried out to gather responses on individuals' age, gender, and level of contentment with the retirement facility and its offerings. We also asked about other services they use there. The study involved reviewing 116 in-person surveys and utilizing factor analysis as a research method. According to the KMO test and Bartlett's test, factor analysis is a viable option for additional analysis. The study shows that the retirement home's bedrooms and bathrooms need more space. The inside and outside of the house should be clean and well-lit. It is necessary to upgrade the building's maintenance and revise transportation services to enable people to travel to more locations. The way the retirement home looks and feels can affect how the elderly people living there feel. It can remind them of their old home and their loved ones. They were not happy with the retirement home because they couldn't have privacy, felt like they had no freedom, and didn't feel safe. The findings of this study provide valuable insights for individuals deciding on retirement homes in Malaysia. This will aid in constructing residences that are suitable for older individuals and promote their happiness and well-being.

Pambid *et al.* [19] described that the Aging in Place program, the best home care system is important for helping older Filipino citizens stay in their own homes and get the services they need to stay healthy. The research looks at taking care of elderly people at home in the Philippines, and it considers the roles of local government and family traditions. The program is in Manila City and does not include elderly care in the provinces because it is hard to get to and the government does not focus on rural areas. The study aims to make a way to measure how good an elderly care system is and to create ways for communities to put the system into practice. The application of MANOVA and Pearson Correlation helped in determining how different factors and demographic variables influence the Capability index, which is crucial for evaluating the abilities of elderly individuals in the current circumstances. The research also creates a way for people in the community to decide what kind of care system elderly people should have. Through this, we can find out what the elderly aren't good at and make programs to help them improve. This will make the community better at taking care of the elderly.

### 3. DISCUSSION

#### 3.1 Current Situation of Senior Living Homes in India:

India has been called an "aging country" by the United Nations because 8.6% of the population consists of individuals who are over 60 years old. This number is likely to become three times bigger by 2050, making up 20% of the whole population. There has been a growing trend of retirement homes becoming more commercially-focused. In recent years, there has been a lot more of something growing very quickly. It is making a lot of money. Some old age homes have basic things but are not very comfortable. Not all older people are being well taken care of by the management. Some of them limit what you can do. The food they give is not very good and there isn't enough of it in a lot of places. Their bedrooms and bathrooms are not kept

clean and tidy. Certain nursing homes fail to use the funds provided by adult children to support their elderly parents, leaving the parents in a challenging position [20]. Such abuse and misuse of old age homes come into the limelight very often but no action is taken. 8.6% of the total population over 60 years elderly population will triple by 2050. There is a common belief among many that there is a sizable elderly population in our country in need of senior living facilities. The expectation is for the number to almost double, reaching 90 million by 2050. Over the next decade, the population of older adults is projected to increase by nearly 18 million, with the aging of the final wave of baby boomers reaching 65. The number of older individuals living in rural areas is on the rise, as the overall population of seniors continues to grow [21]. Although individuals are typically labelled as seniors at 65, the average age of residents in senior care facilities is generally higher.

Many senior housing places have rules that say you have to be at least 55 years old. Some older people choose to move to a place where they can get help and still be active, but most people who live in these places are around 86 years old. It is important to carefully study how many older people over 80 live in an area to see if it's a good idea to build a facility for them. It is important to consider their current and future needs to determine if constructing on that property is the optimal decision. It is not widely known that many older individuals are enjoying increased longevity. The elderly population is expected to increase in 2028. This indicates that there will be a surge in the need for services designed for the elderly. There is consideration among congregations to allow seniors to use their facility, but it may take some time before there is a significant number of seniors in need of assistance. This doesn't mean there aren't chances to help. Before deciding to provide senior services, churches need to thoroughly understand the specific needs of the elderly in their vicinity. Consideration of senior living arrangements is crucial when church facilities are being considered for repurposing, such as for assisted living and senior housing. It is essential to carefully deliberate on the living options for seniors when churches are contemplating using their buildings for assisted living and senior housing. Giving careful thought to the housing needs of seniors is imperative when churches are considering repurposing their buildings for assisted living and senior housing.

### *3.2 Importance and Demands of Senior Living Home:*

"Old age homes" are no longer popular, as senior citizens in India prefer to live in "retirement communities" where they can have independence and be with their friends in their old age. - Living on your own is different from being in a nursing home or a hospital. It doesn't mean giving up freedom. Independent living involves approaching later life from a fresh perspective. The next chapter continues to offer the positives of freedom and opportunities for personal development without the burden of work. It maintains the benefits of being free and having the opportunity to learn and develop. The next chapter still allows for freedom and personal growth without the constraints of work. It also helps seniors deal with some of the problems and reminds them of getting older and the cost of taking care of their home. It's a community that is already made and respects people's privacy. Fifteen years ago, in India, people were not okay with senior parents living apart from their children because of cultural beliefs. Nowadays, children often move to different countries or cities for work, leaving their parents behind.

### *3.3 Impact of spaces on the needs of Senior Living Homes:*

Retirement communities should provide support for residents to maintain their independence, receive assistance as needed, and access specialized care for memory and nursing needs. Elderly individuals, whether independent or in need of assistance, should have access to amenities such as enjoyable pastimes, medical support, nutritious meals, and physical activity in retirement facilities. But people still live there. They need to create a welcoming space for residents to interact and engage in enjoyable conversations and pastimes. These services are like hotel services. Retirement homes should have extra help for people who need assistance with daily activities [22]. These everyday tasks can be simple things like bathing, cleaning the

house, making food, driving or finding rides, handling money, taking medicine, and spending time with others. Other than living on your own and living with some help, retirement homes also provide a range of care options, from help with memory to advanced nursing care. If you need more help in the future, you won't have to move to a new place that makes you feel uncomfortable or doesn't seem right. So, seniors should choose a retirement home that will take care of them for the rest of their lives and make them feel secure about their future. They are in a place that can assist them at every stage. This will also let them be near their family members who need different kinds of care. It is a different kind of housing for older people over 65. As people age, they can select from a range of living options, activities, and support services to ensure their health and well-being are maintained.

The way a senior home is decorated can have a big impact on how people feel about it, how much money it makes, and how happy the residents and staff are. Many old people and their families like to choose a senior living home that looks and feels like a real home. - No one wishes to live in a gloomy, antiquated, uncomfortable, or unattractive home, regardless of their age. When designing for the elderly, it's important to think carefully about what elements and features in the room will help them be more independent, able to do things on their own, and stay healthy. According to research, when designing spaces, it's important to include places where people can spontaneously meet and socialize, relax and find peace of mind, have control over their comfort, connect to nature, and experience change and different things to see, hear, and experience. At the end of the day, design is very complicated, and so are the people living in these places.

### *3.4 Case Study:*

The 2nd Innings provides a nice way of life in a fancy, refreshing, and safe place. This project is carefully organized to make sure people have a happy, comfortable, and safe life. Paying attention to the small and big needs of older people, like their food, safety, and healthcare. Also, making sure their house is clean and they have things to do for fun. Many of the people who stay at 2nd Innings are lawyers, accountants, and managers who are used to a fancy lifestyle, like those living abroad. 2nd Innings is a place to live that is like staying in a nice hotel. It has good security, healthcare, and wellness services, as well as help with cleaning and other services. It also has a gym, swimming pool, club, spa, library, and indoor and outdoor games. The Solana East Cobb is run by The Arbor Company, which has been helping older adults across the country for over 30 years. The Arbor Company is committed to making sure that seniors always feel their best by offering a great lifestyle and amenities. Their knowledge and love for helping seniors makes them different from others. They have resources to help their team stay up-to-date with the best ways to care for seniors. The Solana helps people live a healthy lifestyle and make good friends. They have different living options for people who need help, including independent living, assisted living, and memory care. They give personalized care to all the people who live in their community. In this community, there are different types of care available: independent living, assisted living, and Evergreen Memory Care.

### *3.5 Future development in the Senior Living Homes:*

The retirement community's nursing home offers excellent care for its residents. Elderly people often need nursing care when they can't take care of themselves anymore. Proficient medical professionals are brought on board to aid older adults in their daily routines and maintain their health. Retirement home care encompasses assistance with meal preparation, personal hygiene, medication management, getting dressed, engaging in activities, doing laundry, and participating in social gatherings. They also provide special care for people who can't get out of bed and help prevent bedsores. Patients have the option to stay in rooms that are shared with other patients or in private rooms by themselves. Retirement homes are the most expensive when it comes to nursing facilities, as they demand a lot of attention. Retirement homes offer



both long-term and short-term intensive care for individuals in need, whether they are recovering from illness, surgery, or injury. Memory Care specializes in providing care for those experiencing memory challenges.

Some retirement homes are designed to take care of people with memory problems. Those with dementia require additional care, and these establishments offer the necessary assistance to ensure they can continue performing tasks autonomously. To help dementia patients who have trouble with directions, memory care places use a color system and have a circular layout. Dementia patients have trouble processing lots of information, so they are given a calm and organized space. Memory care facilities feature uncomplicated designs and equipment to alleviate stress in elderly residents. Moreover, memory training tools can aid in preserving and enhancing your existing cognitive abilities. Aging individuals can continue living in their current location as their requirements shift. If they need more help, they can move to a different level of care in the same community. It lets them live in the same place as their spouse and friends. It stops the worry and problems of moving. More importantly, it helps them get the medical care that they need in a place that makes them feel safe and comfortable. The unseen costs, services, and things that make life comfortable in retirement homes are what matter to older people when they make their choices. These things in retirement homes help people stay healthy and active. In the community, residents have access to a clubhouse, lounges, event spaces, dining rooms, cafeterias, housekeeping, fitness centers with classes, a pool, maintenance, transportation, and Wi-Fi.

It is becoming increasingly apparent that an increasing portion of seniors will require support with housing and care as they age. However, things in the future may not be completely positive. The lack of workers is causing concern in the industry and may lead to increased wages. This presents a major challenge as the industry depends on individuals to provide care for patients. A major concern in this industry is the shortage of workers. The COVID-19 pandemic has brought about significant changes in our society since 2020, and these changes will have a lasting impact on the senior housing industry. The industry will have to continue adapting to the evolving "new" normal by reducing the workforce, modifying facility design and safety protocols, and managing increased operational expenses and decreased demand in the coming years.

### 3. CONCLUSION

Old-age homes allow older people to live comfortably and safely. It's important to figure out how many old-age homes are available. Ways to improve old age homes in India include improving communication with and giving better care to the elderly, making wise decisions, providing healthcare and counseling, managing resources well, improving infrastructure and facilities, and using technology. Also, dealing with problems effectively and helping older people with their needs. Reasons why older people live in old age homes are, not getting along with their family, being kicked out of their homes by family, not being able to take care of themselves, feeling very lonely and isolated, having health issues, and feeling overwhelmed by mental health issues. In conclusion, by improving old age homes, we are helping senior citizens in a really big way.

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## CHAPTER 5

### REHABILITATION FOR SPECIAL NEEDS: AN EXPERIENCE FOR THE MIND

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#### ABSTRACT:

Space not only caters to the physical aspects of a being but also aids the mental health of a being. Hence, this research and investigation contributes to rehabilitation spaces to enable the mind to connect to deeper intangible aspects of one's being. Shades of the spectrum is academic research aimed at the relationship of space with an individual with special needs. Space not only caters to the physical aspects of a being but also aids the mental health of a being. While such spaces help and improve the responsiveness of an individual with developmental delays, it's not applied to most rehabilitation centers in the country. Hence, this paper investigates rehabilitation centers for individuals with special needs to identify opportunities for improvement and enable the mind to connect to deeper intangible aspects of one's being. The present study also investigates the lifestyle and routine of specially challenged individuals, focusing on mentally challenged adults (18+ years) to identify possible areas of intervention concerning ease of living, convenience, and overall quality of life.

#### KEYWORDS:

Mind, Intangible, Emotion, Flow and Accessibility, Usability.

#### 1. INTRODUCTION

In 2010, it was estimated that between 785 and 795 million individuals aged 15 or older were living with disabilities worldwide. The World Health Survey reports that approximately 110 million individuals are affected. According to the Global Burden of Disease Survey, approximately 190 million individuals are affected. More than a billion people, including kids, have a disability. This accounts for approximately 15% of the earth's inhabitants. Despite being a significant health concern, there has been limited research on the prevalence and causes of disabilities in India [1]. Disability is like an iceberg in a way. This happens because it is difficult to detect the less pronounced symptoms of physical and mental impairment. According to the World Health Organization, the prevalence of disability is estimated at 10%, but a report from India suggests it may be as low as 2%. Mental disabilities are the most prevalent type, affecting 36% of people with disabilities, while overall 3% of the population has a disability [2].

Diseases and injuries among young children cause almost one-quarter of all the years lived with a disability around the world. But even more (36%) of the disabilities are because of conditions that happen between the ages of 15 and 44. Since these people are at the age where they can work and support their families, they need more help to make sure their families and their lives are good. Another 15% of the reasons for illness or injury happen to older adults between 45 and 59 years old, and a similar amount happens to elderly people. Many old people in India have long-term health problems, and there are more old people than before [3]. This makes people worry about old people being unable to do things for themselves. Due to the high population in China and India, these two countries have the largest number of young people with disabilities aged 15 to 44. Because India and China have a lot of people and many people get sick or hurt, they make up almost 40% of the total years that people live with a disability. It's important to understand how big the problem is, what causes different types of disabilities, the services available to help with disabilities, and how the healthcare system in India deals with disabilities [4].

“The individual requirements of a person with a disadvantaged background or a mental, emotional, or physical disability or a high risk of developing one.” Special needs are an umbrella term for an array of diagnoses. A special needs individual may have delayed development of the brain causing them to have learning disabilities or serious cognitive

impairment. Special needs often refer to an individual with Autism, Down Syndrome, Hearing Impairment, Visual Impairment, ADHD (attention deficit hyperactivity disorder), Learning Disabilities, Cerebral Palsy, and Multiple Disabilities, which is a combination of any two or more [5]. Autism is a complex developmental disorder distinguished by difficulties with social interaction, verbal and non-verbal communication, and behavioral problems, including repetitive behaviors and narrow focus of interest. Autism Spectrum Disorders include Asperger's Syndrome, Rett Syndrome, and childhood disintegrative disorder. Physical therapy, occupational therapy, speech-language therapy, sensory therapy, animal-assisted therapy, role play, Aqua therapy, vision therapy & vocational training [6]. A congenital disorder arising from a chromosome defect causes intellectual impairment and physical abnormalities including short stature and a broad facial profile. It arises from a defect involving chromosome 21. Physical therapy, occupational therapy, speech-language therapy, emotional and behavioral therapy, and vocational therapy. Learning disabilities are disorders that affect one's ability to understand or use spoken or written language, do mathematical calculations, coordinate movements, or direct attention. Recognized when a child reaches school-going age. Occupational therapy, cognitive behavioral therapy, social skills & speech therapy, educational and focused counseling [7].

ADHD (attention deficit hyperactivity disorder) is a chronic condition marked by persistent inattention, hyperactivity, and sometimes impulsiveness. It tends to run in the family & begins in childhood and often lasts into adulthood. Occupational therapy, cognitive behavioral therapy, social skills & anger management, medical and family counseling Cerebral Palsy (CP) is the term used for a group of non-progressive disorders of movement and posture caused by abnormal development of, or damage to, motor control centers of the brain. CP is caused by events before, during, or after birth. The abnormalities of muscle control are often accompanied by other neurological & physical abnormalities [8]. Physical therapy, Occupational therapy, speech-language therapy, emotional and behavioral therapy, music therapy, sensory therapy, aqua therapy, acupuncture & hippo therapy. Total blindness is total inability to see. Visual impairment or low vision is a severe reduction in vision that cannot be corrected with standard glasses or contact lenses and reduces a person's ability to function at certain or all tasks. Occupational therapy, music therapy, sensory therapy, aqua therapy & vocational therapy. A reduction in the ability to perceive sound; may range from slight inability to complete deafness. It could be a genetic deformity or due to an accident [9]. Occupational therapy, vocational therapy, drama therapy, aqua therapy, art and dance therapy. A term referring to the combination of impairments in a child, for example, mental retardation along with blindness, or mental retardation along with physical disabilities, which creates severe logistical problems to accommodate them in special schools. Depending on the combination of any two or more mentioned above [10].

Design is evolving and catering to more specific needs of human beings. Spaces are being designed to be more inclusive and sensitive to an individual with a disability. If you notice, it's more towards the physical aspect of inclusiveness but what about the mental aspect of it? The relationship of a space with an individual goes beyond the external surfaces of the body, it reacts and speaks to the mind as well. Was there a time when the space made you feel claustrophobic? But now if you imagine that same space with some sunlight, bright colors, and more windows does it change how you feel? If it does, this is where the mind comes into play. A space can evoke multiple feelings, emotions, and thoughts and this direct link to the mind can also be used to help in the healing process of an individual. Have you ever wondered how an individual with special needs perceives a space? Colour? Symbol or Light? All you may think is that it's going to be different, but different how? And do you think this difference in perception can be used to improve the experience for them? An individual with special needs has a very sensitive mind and designing a space for them should be through their perspective, convenience, and accessibility.

Once designing a space considers factors for the mind, it'll then be justified to call a space inclusive. This paper aims to link the gap between designing for the body and the mind by creating a space and a design system for a vocational training institute where an individual with special needs will be able to inhabit the space without much external assistance and hence, will make them feel independent and confident in the space. This will give them an incentive to connect with the space and make it their own and hence will evoke a feeling of inclusiveness.

## 2. LITERATURE REVIEW

### 2.1 Rehabilitation center:

Eraslan and Ayaz [11] discussed about People can visit healing gardens to experience a sense of comfort and healing. They are designed to help people recover and improve their mood. Lots of hospitals have gardens outside. But these gardens don't have the right tools and have bad designs. It doesn't listen to what users want, from choosing plants to deciding how to build things or what equipment to use. Healing gardens should be designed to meet the needs of people with different difficulties. This study shows how the outdoor area of a rehab center is made into a garden to help people feel better physically and mentally. We examined the area and engaged in conversations with its users to determine what they required. Then we made a plan with the help of psychologists and drew pictures to show how each place should be. The module designs shown in the pictures can be used in any type of healing garden.

Al-Hussami *et al.* [12] described that the rehab center helps people who are addicted to drugs or alcohol. Many rehab centers help people with different problems and tailor their treatments to the specific needs of each group. This leads to really good treatment methods and a lot of knowledge. This study suggests creating a center to help people who are addicted to drugs to get better both mentally and physically. The plan includes using medicine, exercise, and therapy, and creating a good environment to help people fully recover and become good members of the community. The main areas focused on in this project are the administrative, medical, leisure, living, and support areas. The project will be North of Cornish Road, where there are public buildings and houses around. This project will give homes to people who need them, in exchange for their work. The homes will have everything the residents need.

### 2.2 Facilitate in Rehabilitation Center:

Sepahvand *et al.* [13] study wanted to make a new way to organize patient information and nursing reports for rehabilitation. The authors did a study at Rofideh Rehabilitation Hospital in Tehran, Iran. The authors first looked at existing research and then used the Delphi method. First, we read a lot of different books and articles. After reading a lot of books and articles, the first version of the Kardex was created. Next, the Kardex was sent to rehabilitation nursing experts four times, and their comments were used. The nursing care plan for rehabilitation was completed after four sessions. The Kardex has information about what patients need for food and daily care, education for patients, checking for bedsores, preventing falls, and talking to rehabilitation departments.

P. Struthers [14] discusses individuals who provide rehabilitation assistance, including those employed by government agencies or other organizations, as well as the available services for individuals with disabilities in a specific area of Cape Town. We are looking at how much it costs to hire and keep rehab staff, and figuring out how to spend money in the district. The findings indicate that the majority of the funds allocated for staff expenses are concentrated at two government-run facilities within the region.

The majority of the funding goes towards the regional psychiatric hospital and its residential facility for individuals with severe intellectual disabilities, totaling 76% of the spending. 24% of the money spent is used to pay for the rehabilitation staff who work in the district. The special school, which only admits 6% of disabled children in the district, receives 70% of the district's funding.



Rehabilitation is often unavailable to many people with cognitive impairments, regardless of whether they have physical disabilities. There is not much money spent on hiring rehab staff at the local health center. The non-governmental organization is the exclusive provider of funds for community rehabilitation. The research indicates that one health district with ample resources does not distribute funding for rehabilitation services equitably. It also gives suggestions on how to make things better.

Leite *et al.* [15] are interested in exploring the beginnings of a cancer rehabilitation center in Brazil, which was established in 2008. Authors think this information will help set up more centers in Brazil and around the world. Cancer rehabilitation care is not well organized and is often stopped and started. There are only a few places that give cancer rehabilitation. Information on how to create rehabilitation centers could help build new centers. The authors give information about how we hired people, set up treatment plans, and the things that help or make it difficult. The authors also give numbers of how many specialists work here and the usual ways we do things at our rehab center, along with other things. It's possible to create cancer rehab centers in a country that's not very rich.

### 2.3 Future development in the Rehabilitation center:

The Rehabilitation Engineering Research Centers (RERCs) in the United States were created in 1970 to improve the lives of more than 50 million Americans with disabilities. Reinkensmeyer *et al.* [16] look at 19 RERCs that are working on different projects involving medicine, engineering, and other sciences. While most of the research staff are engineers, the program now includes 36 different types of jobs. RERCs have changed and grown since the 1970s. They have expanded their focus to include a broader range of disabilities and are utilizing new technologies, particularly those related to information. Acknowledging that people rely on each other in a society that uses a lot of technology, RERCs focus on making sure that everyone can use and benefit from new ideas and products. The way researchers look at things has changed. Now they see users as able to change and get better by learning, practicing, and being flexible. New types of rehab technologies show that the program is getting bigger. The review finishes by addressing potential avenues for growth and future endeavors for the RERC program.

The ankle joint complex (AJC) is very important for keeping your balance and moving forward, but it can be harmed by neurological injuries like a drop foot after a stroke. Rehabilitation helps reorganize the brain and nervous system, and robots like the Parallel Ankle Rehabilitation Robot (PARR) are important for improving ankle strength and movement. Dong *et al.* [17] study looks at PARR technology from 1999 to 2020. It examines how it is set up, the parts that make it move, how it is controlled, and how it is used for rehab. The authors looked at 65 articles about 16 different types of machines. The authors found out about how they are designed, what kind of actuators they use, how they move, and how they are optimized for movement. It is very important to have precise trajectory and control when studying PARRs. The study focuses on the specific parameters of PARRs and highlights the importance of having three degrees of freedom and rotation centers that line up. Researchers are focusing on creating actuators that use both air power and electricity because they have benefits. It is suggested to use a system that can adjust to different conditions and combine muscle signals to track performance in real time. It is crucial to utilize diverse rehabilitation techniques that take into account movements and incorporate clinical trials when designing a targeted rehabilitation program for clinical use. Hu *et al.* [18] found out that rehabilitation can help with rotator cuff injuries, and people are interested in how it can help with recovery. There are more and more studies on this topic happening all over the world. No one has studied this topic using numbers and pictures. This study wanted to look at the most popular areas of research and the latest trends in treating rotator cuff injuries. It used a method called bibliometric analysis and visualization to do this. The study also wanted to see what the future might look like for treating



these injuries in real-life medical practice. Authors got information about how to treat shoulder injuries by looking at articles in a database from the Web of Science. The authors looked at 795 publications for this study. Each year, there were many more books and articles written and published. The United States wrote the most papers on this topic and these papers were cited the most. The most popular words were “rotator cuff”, “rehab”, “physical therapy”, “care”, and “tel rehab”. In conclusion, the amount of publications has been increasing steadily. Countries around the world need to work together better to do more research with a lot of people involved and make the research better. In addition to traditional rehab for shoulder injuries like exercising or moving the shoulder gently, telerehabilitation is also becoming popular with advances in science.

### 3. METHODOLOGY

#### 3.1 Study design:

This research utilized data from the aforementioned educational institutions and obtained valuable insights through observations, interviews, and direct engagements with students and trainees. The information learned from these experiences helped build a strong base and gave clear guidance for the design. By being part of the institute, the study used both academic knowledge and the real-life experiences and concerns of the students/trainees. This approach made sure that the design changes were not just based on theory, but also on what's happening in the schools, making them more useful and important.

#### 3.2 Conceptual level:

By conducting a descriptive study, we were able to compile data from existing literature and develop recommendations for adaptable and multifunctional rehabilitation center design. It was discovered how smart technology impacts daily tasks, the kind of environment, and the connection and utilization of spaces within a rehabilitation center for the prototypes.

#### 3.3 Interview questionnaires:

Two things are needed: first, an interview with questions, and second, making models for a rehabilitation center. A virtual experimental platform was used to gather input from Sulabha Special School Mumbai regarding their preferences for the rehabilitation center. The present study decided to gather 180 samples from the Sulabha Special School and categorize them into 2 groups based on the requirements. The research started with a conclusive questionnaire which is listed below:

#### **What does your organization/institute offer?**

- i. Which group of people?
- ii. Are most of the students residing close to the school?
- iii. If not, how do they travel? Is there a transport system provided by the school/organization?
- iv. Is the space that you work in a disability-friendly space? If yes, elaborate with examples.
- v. What are the challenges of the current infrastructure? Elaborate with examples. (E.g.: No provision of ramps, absence of elevators, sharp edges, heavy doors, etc.)
- vi. What changes would you bring to make the space more disability friendly?

#### **What are the features of someone with special needs according to you?**

- i. How do you think a person with these challenges can overcome them without medication?
- ii. What are your techniques for dealing with them?
- iii. What are the benefits of your techniques?
- iv. How was your first interaction with a challenged individual?

- v. What kind of therapeutic activities can be done at home?
- vi. What ice-breaking techniques do you use to bond with your students?

**How important is recreation for the students?**

- i. Do you think the institution/organization has adequate provision for recreation?
- ii. What infrastructural changes have you made to cater to the recreation of special needs persons?

**What kind of space do you conduct your therapy in?**

- i. What kind/types of therapy are conducted here?
- ii. How do your students interact with that space?
- iii. Have you had to do anything specifically to aid the interaction of your students with the space?
- iv. How does space affect your therapy?
- v. Ultimately, how important is space for your practice?

**Have you visited any rehabilitation centers?**

- i. How has your experience been?
- ii. What was your physical and emotional rehab center?
- iii. What more according to you can rehabilitation centers do to facilitate their residents better? (In terms of emotion, interaction, productivity, and efficiency)?

**What are your thoughts on the infrastructure of these rehabilitation centers?**

- i. Just like there are guidelines for physical disability, if one were to design spaces for special needs persons, what are the main factors to be considered?
- ii. What are the basic guidelines of your infrastructural plan?
- iii. What do you think these rehabilitation centers give the most importance to? In terms of functions and departments?
- iv. How do you think a space can consider the sensory needs of individuals with special needs? (E.g.: Touch, sight, smell, taste & sound)
- v. What are some of your ideas for incorporating the five senses in a space?
- vi. What would you do to incite positive emotions through a space?
- vii. What characteristics of space can affect the emotions of an individual?

**What kind of interaction do you have with the parents?**

- i. Are there therapeutic workshops conducted for the family?
- ii. In what ways can parents be more involved in the coping and development of their children?
- iii. According to you, what are the main challenges faced by the parents?

**3.4 Site selection and designs:**

Sulabha Special School is located in Tilak Nagar, Chembur, Mumbai. Sulabha Trust is a non-governmental organization started in 1979, the year of child. It is a 7-storey building including the ground and terrace. It accommodates 108 students in school, 20 additional students for vocational training, and 20 external students for therapy. The total staff strength of the school is 25 people. The school started with a handful of children with the following objectives. To give a proper place in society to Mentally handicapped children belonging to various classes and rehabilitate them by:

1. Imparting to them suitable skills to adjust to normal society emotionally.
2. Imparting to them academic knowledge as far as possible.
3. Imparting pre-vocational training to enable them to be economically self-sufficient.

The study also looked at some pictures of smart technology. Creating a plan to see how we can use smart technology to make the inside of buildings work better in the future, especially in

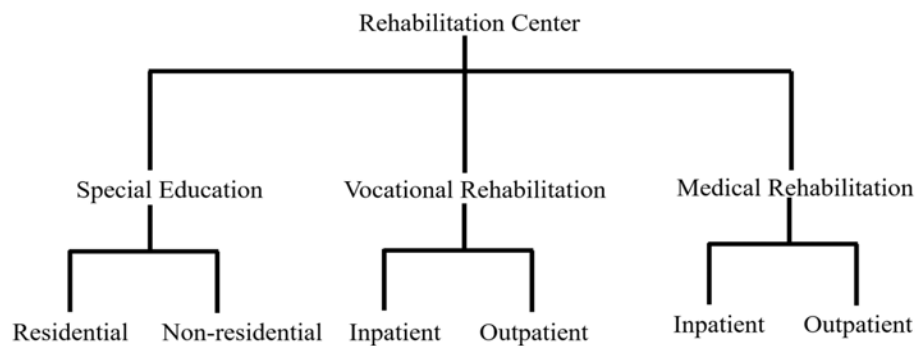
Sulabha Special School. Flexible rehhibition center Prototypes were created by integrating the principles of spatial flexibility and interior design into different facets of technology. After figuring out how big the prototype should be, we planned out the inside based on what we knew, what people said in surveys, examples from other countries, things that are in smart homes, and ways to make things flexible in the redhibition center. The researcher made plans and designs for the rehabilitation centers to make them better and more popular among individuals.

## 4. RESULT AND DISCUSSION

### 4.1 Rehabilitation Overview:

Rehabilitation is a treatment or treatment designed to facilitate the process of recovery from injury, illness, or disease to as normal a condition as possible. The rehabilitation center is a facility that provides therapy and training for rehabilitation e.g. Drug abuse, Alcohol abuse, or any kind of physical therapy required for an individual. The center may offer occupational therapy, physical therapy, vocational training, and special training such as speech therapy. The purpose of the rehabilitation center is to provide therapy and training, which help restore some or all of the patient's physical, sensory, and mental capabilities that were lost due to injury, illness, or disease [19]. Different disabilities have different rehabilitation facilities, some of them are Neurological rehabilitation, Cardiac rehabilitation, Drug rehabilitation, Alcohol rehabilitation, physical rehabilitation, medical rehabilitation, and vocational rehabilitation shown in Figure 1. The three major types of rehabilitation that directly relate to my topic the vocational rehabilitation, physical rehabilitation, and medical rehabilitation. However, physical rehabilitation is always a necessary part of any vocational or medical rehabilitation. At the same time, special schools are institutes, which also have physical rehabilitation as a part of it. The three categories of rehabilitation for this paper are:

1. Special education institutes.
2. Vocational training centers.
3. Medical rehabilitation centers.



**Figure 1: Representing the three major types of rehabilitation for individuals with special needs and the branches within it.**

### 4.2 Interview result:

#### Subject 1: Mrs. Trishala Jain, Teacher

I am a teacher at an institution that caters to specially-abled individuals. I have been working for 15 years now and I believe that Special needs children should have equal opportunities in life.

**Statement:** “The space should promote emotional stimulus and active interaction within it.”

The institution is disabled-friendly as ramps, lifts, and physical access are provided in the space. There is always provision for additional wheelchairs and other such medical equipment.

There is a provision for quiet/silent zones in the institution as well as in every class. This is for children who get agitated by sudden stimulation, which causes them discomfort and therefore these silent zones are available to help them calm down and relax. They are equipped with games, soundproof wall treatment, low light, and comfortable seating. In case of expansion, the institution won't be able to accommodate multiple functions and people due to the permanency of the classrooms. Classrooms should be flexible and open to have multiple functions. Recreation is a very important element in their lives as it helps them express themselves and also stimulates their mind and body. Board games and outdoor activities are beneficial and hence the space should have adequate open and free space. Therapies are conducted in the most natural setting, e.g. If the child is struggling with writing, the therapy will be conducted in class itself. The current infrastructure of rehabilitation centers seems very claustrophobic and certain elements add to more stimulation rather than reducing it. The space isn't motivating enough for the teachers or trainers and also there is a lack of resources. The space should promote emotional stimulus and active interaction within it. The furniture should be suitable for the individual depending on their age, disability, and flexibility. Sign boards and visual cues are very important factors to help these individuals understand and use the space. They should be contrasting to suit the visually impaired individuals. The space should be easy to understand and comfortable enough to feel like home.

### **Subject 2: Mr. Nilay Kachalia, Therapist**

I am a therapist and I've been working with a child on the Autism spectrum for 30 years now. I mainly conduct therapy or workshops on expression arts such as drama, art, or music.

**Statement:** "These children have a very sensitive mind and they must be exposed to nature more to bring out their natural responses and allow them a freedom in expressing themselves."

The space for Special needs individuals must be uncluttered and as natural as possible. Natural lighting and open green spaces are very beneficial for the minds of these individuals. Most of the therapies should be conducted in a natural environment to bring out the best in the individuals. Ventilation in a space is very important as it affects the state of mind and causes agitation in an individual if it's neglected. The flooring should not be slippery and must be soft to avoid injuries. Expression arts therapy is extremely important as these individuals have trouble expressing their thoughts and wants and therefore this medium helps to understand what they truly feel. Skills relating to nature must be added e.g. gardening, as it allows them to express their love and care for a living organism. Other such activities like cooking, cleaning, and painting help with their movements and flow of thought. The space should make use of music and walls in the space to create a lively and personalized atmosphere. The space should be mindful of how the space is used to provide for elements. E.g.: Soft flooring, colorful walls, light doors, and furniture.

### **Subject 3: Mrs. Nidhi Raj, Parent**

I am a parent of a child who has Down Syndrome along with partial visual impairment. All I want for my child is to be accepted in society and treated like everyone else.

**Statement:** "The environment at home is very important. If the child or adult with special needs isn't exposed to positive things at home then it could lead to serious problems. "

Spaces designed for the intellectually delayed individual must be sensitive to the senses. Spaces should be able to filter out external sounds and harsh light. Since every child is very different from the other, certain spatial elements must be designed in a way to cater to multiple needs at the same time. If a certain child is agitated due to sunlight and another wants the sunlight, the space should allow the flexibility to cater to both needs. Multi-functionality in a space must be thought of because new activities and therapy techniques will have different requirements from a space. The space should allow adequate interaction and release points. If the child or adult has ADHD then the space should provide activities or elements that keep him / her involved

and busy. Recreation is an important aspect and adequate facilities must be provided for the same. Uncluttered space leads to uncluttered minds. More open spaces allow more opportunities for them to open up their mind, body, and soul. Circular spaces give a feeling of being infinite and could be used to an advantage as it doesn't have any corners.

#### *4.3 Requirement of Rehabilitation Center:*

Special education is tailored to meet the needs of students with disabilities. The services and support one child receives may be very different from what another child receives. It's all about individualization and giving kids the resources, they need to make progress in school. Children with severe multiple disabilities who have difficulty in coping with regular schools are referred to such special schools. Most of these special schools are located in urban areas and run by voluntary organizations. A majority of them are residential schools and boarding lodging and other services are provided free of cost. At present more than 3000 special schools for disabled children are functioning across the country. Sadhana institute for the Intellectually impaired – Mumbai. Vocational training is mainly skilled-based. The students are trained in some form of trade or craft that they want to pursue later in life, forgoing traditional academics. Vocational training programs allow students to get ready for specific careers. These programs generally focus on providing students with hands-on instruction and can lead to certification, a diploma, or a certificate.

It can range from hand trades to retail to management. Some examples are construction, business, health services, art and design, agriculture, information technology, auto repair, plumbing, and so on. NASEOH, Shraddha Autistic to artistic – Mumbai. These are medical institutes that cater to the immediate medical needs of special needs individuals. These centers have inpatient and outpatient services and departments. "Inpatient" means that the procedure requires the patient to be admitted to the hospital, primarily so that he or she can be closely monitored during the procedure and afterward, during recovery. "Outpatient" means that the procedure does not require hospital admission and may also be performed outside the premises of a hospital. Generally, therapy is counted as an outpatient service as well, where the patient can visit the hospital/institute for certain specific therapy sessions. NIMHANS – Bangalore.

#### *4.4 Design for Rehabilitation Center:*

Intensive research and analysis have led to the final design of the vocational training institute for adults with special needs. This design has focused on incorporating nature, easy accessibility, better circulation, and a space that keeps your mind at ease without much complexity.

The approach towards the design was to be more functional in terms of the layout and have simple informative graphics for easy navigation in the space. The space should be able to make the users feel confident and safe to move around by themselves. The colors in the space are used in a manner to add life to the space but also be informative in certain areas. The design consists of soft floors and filtered light to avoid distress to students who are sensitive to light.

The design promotes easy ventilation in the space by avoiding full-height walls and also promotes easy movement in the space by the absence of doors in most places. The design mainly focuses on the interiors however keeping the exteriors in mind. The furniture is soft-edged and flexible allowing the space to be adjusted and used in different ways. Flexibility is something that's been kept in mind to promote multi-functionality in a space. Hence, the design focuses on simple details to benefit the navigation in the building as well as improve the quality of working in the space.

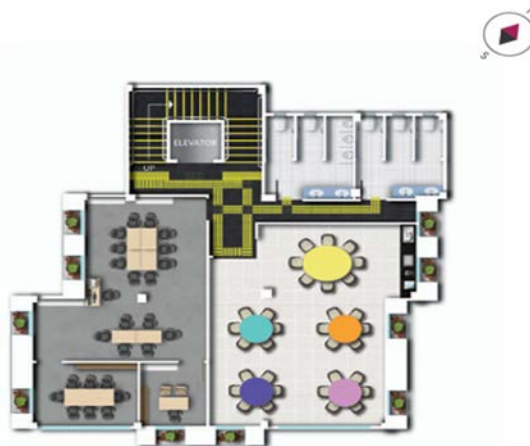




**Figure 2: Representing the Ground floor rendered plan.**

#### 4.4.1 Ground floor:

The entrance to the building compound is on the South side and the building is well shaded by all the trees surrounding it. The trees are tall enough to reach the 4th floor, shading most of the interiors and allowing only diffused sunlight to enter the space. The entrance to the building is guarded with a simple metal gate and the pavement consists of tactile paving throughout the structure to guide the Visually Impaired in and around the building. The front facade of the ground floor consists of tilted vertical wooden louvers, which create a feeling of semi-privacy and openness at the same time. The reception is the first area one will see as they enter the structure shown in Figure 2. The reception area is also a waiting area for parents and visitors. The reception area is separated from the larger open multipurpose area by jute screens. Adjacent to the reception lies an open space with a stage towards the end, this space could be used for multiple activities and internal shows conducted by the institute.



**Figure 3: Representing the First floor rendered plan.**

The East facade of the building faces the landscape area through the louvers and the North facade opens up into it. Moving forward from the reception, there is a medical room on the left followed by a unisex washroom. The corridor eventually leads to the landscape area with a long bench to either relax, play, or connect with nature. Similarly, opposite the washroom and behind the reception is the gym, which contains a large window facing nature and it can be opened to have a direct connection with nature. The internal walls are 2.5 meters in height leaving 1/2 a meter gap between the wall and ceiling. This is consciously done to allow better ventilation and airflow within the space shown in Figure 3. The design proposes more green space to allow a natural connection between the students and nature as it is extremely therapeutic. The staircase and elevator are provided to navigate vertically. The staircase has



hand-railings on both wall surfaces and a reflective yellow strip on the nose of the steps to provide contrast and depth perception for the Visually Impaired. Each room has speakers installed in them to play music in every area of the building.

#### 4.4.2 First floor:

As the elevator or steps guide you towards the first floor, The first observation would be the free open space above to promote better ventilation and create a sense of openness. As you enter the floor, the extreme right-side end consists of the washrooms. The interiors of the washroom are simple white tiles with a single-colored washbasin and door. Apart from the washroom, the floor consists of the office/staff room and the lunch room. The space on the left starts with a group of four tables and chairs as a work area for the teachers. There is another smaller table with a computer and printer for office use. The area has one smaller worktable for the teachers.



**Figure 4: Representing the Second floor rendered plan.**

The office area also includes the conference room and the principal's cabin. Apart from the office, there is a smaller pantry and lunch room provided. The pantry is within the lunch room itself and it consists of a ledge with a sink, water cooler, coffee tea machine, and a microwave. The lunch room accommodates around 30 people in total. This room doesn't have a door to promote free movement in the space. Before every entrance into a space there is a Braille board with the name of the space the person is entering, this is to assist the Visually Impaired. Similarly, there is a change in the texture of the flooring as you step into a room from the main corridor/circulation space. The change in texture also indicates that they have now stepped into a different zone. The lunch tables are simple circular tables in bright colors to stimulate their mind while eating. Colors like orange are said to improve appetite and make the food look more appealing. The windows let in natural light to come in and have planters placed on their ledge, while the narrow and long window at the top will have tinted glass in coordination with the color used in the washroom, this will brighten up the ceiling when the light reflects color on it and will create an interesting play of subtle color. Shown in Figure 4. Below the windows, there are these small niches, which have been filled out by storage cabinets and evened out with the wall to avoid any surprising elements jutting out. Each room has speakers installed in them to play music in every area of the building. Every floor has a dominant color and the small window near the ceiling reflects those colors. Blue is the dominant color for the first floor.

#### 4.4.3 Second floor:

The washroom interiors are the same on every floor except for one dominant color change, which in this case is orange. This floor is the multi-purpose floor, which comprises the

multipurpose performance room, occupational therapy room, counselors' cabin, and a speech therapy room. The occupational therapy room is in close relation with the counselor's cabin because the counselor in charge of individual counseling also conducts the physiotherapy/occupational therapy for the same the larger area on the left is the multipurpose hall, which can be used for expression arts therapy like music, dance and drama. The right side consists of the physiotherapy room, counselor's cabin, and the speech therapy room adjusted to the counselor's room.



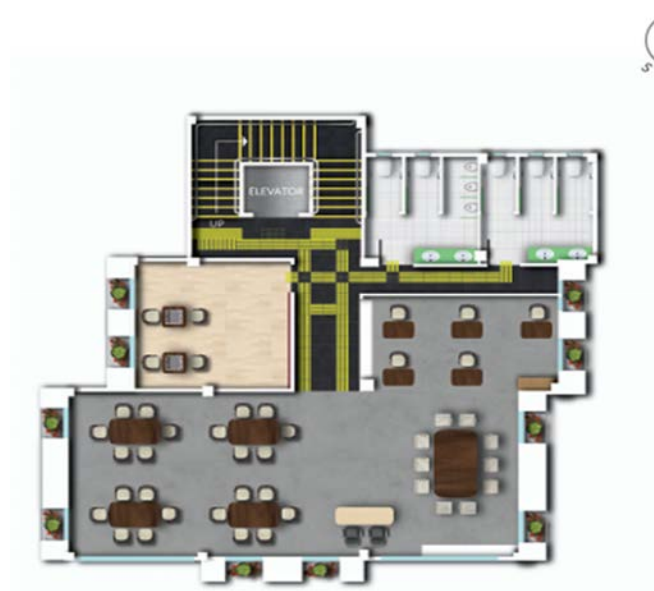
**Figure 5: Representing the Third floor rendered plan.**

Wooden flooring was chosen to improve their floor time and the flooring should be warm and comfortable to express various feelings and emotions through therapy, also if any student falls then he/she will not get majorly injured. The walls are clad with mirrors so the students can visualize their activities and movements. In the normal scenario, when these two spaces are used separately, the partition door separates the two areas, this then shows that the occupational therapy room doesn't have a door and focuses on a barrier-free design. The opposite was done for the multipurpose room in order not to disturb other people around that room with sudden sounds during expression arts therapy. When the space opens up to be used together, the partition doors fold up and fit into the exact dimensions of the corridor, automatically creating a door. Each room has speakers installed in them to play music in every area of the building. Every floor has a dominant color and the small window near the ceiling reflects those colors. Orange is the dominant color for the second floor.

#### 4.4.4. Third floor:

The third floor starts with the vocational training programs. Looking at the plan Figure 5 the first room on the left is an AV room (Audio Visual room), the flooring chosen is wood with soft carpets as this room has floor seating but also takes into consideration individuals who cannot sit on the floor and hence chairs are provided for the same. The room adjacent to it is the computer skills program, which accommodates 18 students and two students share a desktop. All the internal walls are 2.5 meters in height while the floor height is 3 meters. The AV room and the computer room have doors as compared to the kitchen to avoid additional sounds other than the presentation taking place in class. The room to the right is the cooking and baking room, which has basic equipment like a burner, sink, oven, cold storage, and a water cooler. However, there is adequate space on the counter for additional equipment. The furniture used in the kitchen are metal tables as they are easier to clean however, they will be lined with foam tape around the corners to avoid injury. The kitchen countertops are dark granite slabs and the storage cabinets are white laminate cabinets, which have colorful and indicative

graphics on them. Each room has speakers installed in them to play music in every area of the building. Every floor has a dominant color and the small window near the ceiling reflects those colors. Purple is the dominant color for the third floor.



**Figure 6: Representing the Fourth floor rendered plan.**

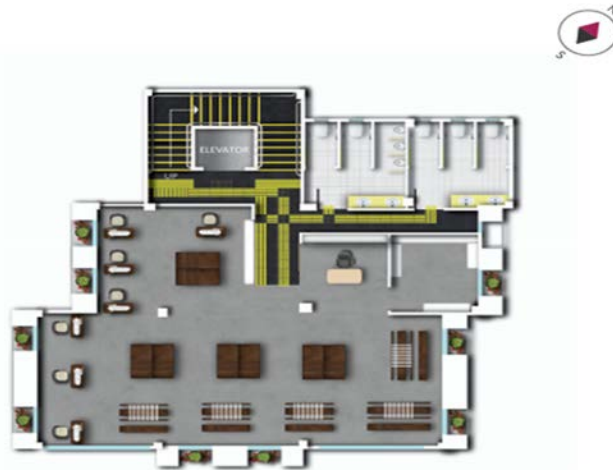
#### 4.4.5. Fourth floor:

The fourth floor is a combined workspace for gift making, bookbinding, and jewellery making as none of these functions need specific areas or machinery. Hence, this space is a more open space to work on any of the three mentioned above. As you enter this floor Figure 6 the first room on the left is a playroom where an individual can relax, take a break, and play games. The color of the wood is carefully chosen to show the contrast between the flooring and toys or board game pieces to make it possible for the partially Visually Impaired individual to spot the toys or pieces without relying on others. The room has two small tables for people who want to play board games shown in Figure 6. The walls are treated in a way to is interactive and allows creative flow of mind. The first walls to the right and left of the entrance are plain white walls, which can be used for painting. This also adds an element of personalization to the space. One of the walls is a Lego wall, which allows them to expand their creativity and build structures. The last wall on the right is a chalkboard wall and the one opposite that is a soft board panel, which allows them to add pictures of themselves, and things they love and personalize the space more. This will help them boost their confidence and will allow the space to be called their second home. Apart from this, the larger workspace area has various types of seating to best suit their comfort. As you enter the larger space, there is a display cabinet on the right where all their handicrafts are displayed. There are four worktables with chairs which accommodate 6 people on each, so for people who would like to work and interact with many people, it would be suitable. Some individuals may not like to interact with others and it may cause discomfort, hence individual seating is also provided for them. While people who like to sit on the floor (especially for jewellery making) can work on the low-rise table and cushions. Each room has speakers installed in them to play music in every area of the building. Every floor has a dominant color and the small window near the ceiling reflects those colors. Green is the dominant color for the fourth floor.

#### 4.4.6 Fifth floor:

The fifth floor is occupied for hand-loom and tailoring. The floor consists of 5 hand-loom machines 3 small ones and 2 big ones shown in Figure 7. The big ones are for making quilts

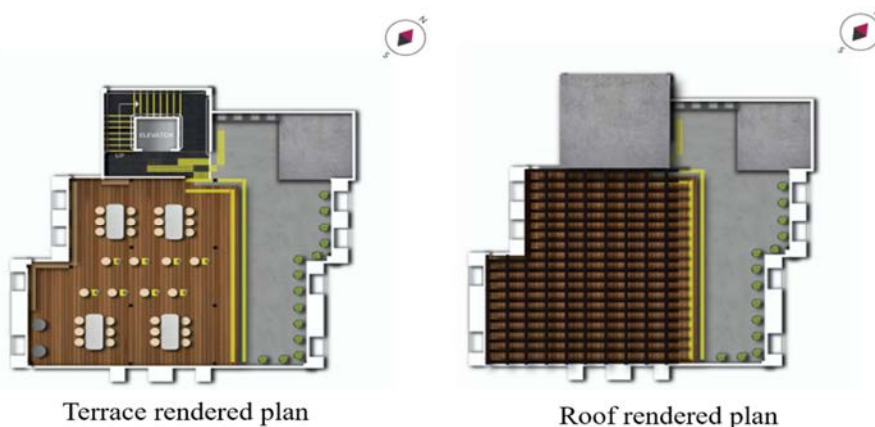
and the small ones are for tablecloths and kitchen napkins. The space has individual stitching units and common worktables. The floor also has an additional storage room for the end products and any additional equipment needed. As you enter this space, the display cabinet is a way to show their work and also give them a reason to be proud of themselves for doing such great work. There is a simple screen to create a sense of privacy for the instructor in the class. Another display cabinet is placed behind the teacher. Every floor has a dominant color and the small window near the ceiling reflects those colors. Yellow is the dominant color for the fourth floor.



**Figure 7: Representing the Fifth floor rendered plan.**

#### 4.4.7 Terrace and Roof:

The terrace is used for the pottery and ceramic program. Pottery was introduced in the design as it has a therapeutic quality and is very sense-oriented shown in Figure 8. Due to these qualities, the program wouldn't do justice if it were placed inside. Since it includes working with natural and earthy materials, the program made more sense if it were placed within nature itself. Hence, it was allocated on the terrace after safety design precautions were planned on the terrace. The terrace also caters to plants and adds more nature to the building. Since gardening is also a skill, they should learn to understand how to nurture a living organism, plants were introduced all around the building. Each student has their plants to care for and thus this adds to their life skills and also allows them to express their emotions differently to a different being. There are wooden shelves for display and drying of the products and each of those shelves has a roll-down cloth for their damp area as well.



**Figure 8: Representing the terrace and roof rendered plan.**

There are two electric kilns placed on the corner and adequate work tables are added considering their need for glazing and working on damp models. The pottery wheels are placed in the center for easy accessibility to the tables on either side. Finally, there is provision for sinks to wash their hands post working. This area is shaded by a wooden roof with a translucent frosted glass. The translucent frosted glass helps in avoiding direct and strong sunlight in the space which may agitate or cause discomfort to some. The translucent frosted glass diffuses the light and doesn't cast any strong shadows which again may cause confusion and discomfort to some. The roof also tilts inwards to allow the rainwater to flow out into the terrace and towards the nahn trap in the corner of the terrace. This water could in turn be used for rainwater harvesting and could be utilized for the plants in the building.

## 5. CONCLUSION

This thesis paper explored designing spaces for the especially abled adults. The paper focused on incorporating sensory elements and visual cues within the space to cater to the mind and not just the body. Designing is an ever-growing process, there is never an end to it. Every design proposal has room for improvement and such is this proposal as well. There is a need for re-designing spaces to make it more inclusive and accessible to all the masses. A design, that doesn't cater to just one particular group of people, essentially fails in its purpose. We have already established that there is a need for more inclusive spaces, but do we know if there exists a demand? There are designers, principals, therapists, and parents who do demand a design that is inclusive space, but then again compared to the entire population that's barely a fraction of people.

The first step for this idea to flourish is to create awareness. Do people know what 'inclusive' and 'barrier-free' designs are? If more and more people are aware of these concepts, our society will be a wonderful place a few years down in the future. This thesis has covered only a fraction of design elements and cues that could benefit the mind of the especially abled and make the space more efficient. This proposal is a culmination of six months of work, hence there is always room for improvement. The elements of the design proposal aren't only catering to specially abled adults, it could be applied in multiple spaces that cater to various age groups of people as well. The proposal over all is a more efficient and inclusive way of navigation and a way to let your mind react to the space. To conclude, spaces that cater to the mind are challenging but necessary.

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## CHAPTER 6

### TRANSFORMING RETAIL EXPERIENCES: UNDERSTANDING THE MOTIVATION BEHIND CONSUMER PURCHASES

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#### ABSTRACT:

The way people shop has changed a lot in recent years. Now, they use their phones to check prices and reviews while they're in the store. They also ask for advice on social media. And they can buy things online and get them delivered quickly. - Some experts in the industry are speculating that traditional retail stores could undergo significant changes or even vanish altogether due to these shifts. Some people think that the way we shop will change a lot in the next five years. They say that big changes are coming and stores need to do something now to be successful in the future. Moreover, customers want new experiences. As technology gains greater relevance in people's lives, they have an increased influence on their perception of the world. It is crucial for retailers to provide the products and services that align with shoppers' preferences in order to differentiate themselves from their rivals. The competition in retail is quickly going beyond using 'omnichannel' strategies. Today, people want smart and easy experiences that are customized to their needs. The competition in physical stores is now more about giving customers a good experience instead of just having low prices. This change is taking place because people want their shopping experiences to be more interactive and engaging. Nowadays, stores need to do more than just sell things. They need to create special moments for their customers that meet their individual needs. As technology becomes more important in retail, stores must focus on making the in-store experience better to attract more customers. Stores and brands can use this to communicate directly with their customers, share information about their products, and enhance the shopping experience for customers at any location.

#### KEYWORDS:

Channel Retailing, Fashion Industry, Fashion Retail, Omni Channel, Retail Industry.

### 1. INTRODUCTION

Retail comes from the word "more retail" in French, which means cutting and dividing in tailoring. This word has been around since 1365. The word was first used in 1433 to mean "selling small amounts of something". The original meaning of the word "retail" was to cut or shred something. Retail is the last step of buying and selling things. This means that stores and shops are really important for the world's economy. Retailing is when businesses sell things directly to regular people for their own personal use. A retail store is a business that makes most of its money from selling goods to customers [1]. These are the last businesses in a chain that connects makers to buyers.

Manufacturers usually create things and then sell them to stores or companies that buy products in bulk. Wholesalers buy products from manufacturers and sell them to retailers, who then sell them to customers. Any company that sells directly to customers, whether they make, buy in bulk, or sell items, is involved in retailing. It doesn't matter how things are sold. A store offers different items and services to customers and helps with storing and moving items. It also helps both customers and the companies that make and sell the items [2].

#### 1.1 Retail Concept:

The retailing concept is about focusing on the customer and making sure the whole company is working together to create and put into action a marketing plan. It gives rules that all sellers, no matter how big or small, must follow. The retailing concept includes four main areas. The store looks carefully at what the customer wants and tries to make them happy. The store knows what it wants to do and plans how to do it. The store gives customers good deals on products that match the price and quality that their customers want. The firm makes sure that everything it does helps it reach its goal and is meant to work as well as possible to give customers good value [3].

### *1.2 Characteristics of Retailing:*

Retailing is different from other businesses in many ways. It has these features. Retailing involves talking directly to the people who use the products. It is the only place where promotions can happen in the entire process. Retail sales are usually sold in small amounts. Where a store is located is very important for its success. In many stores, the services they offer are just as important as the things they sell. There are more stores than other parts of the value chain [4]. This happens mostly from 10-11 to cover the needs of different areas and how many people live there. A retailer is someone or a company that helps get products to the people who will use them. They are the last company in a line that connects makers to buyers. Stores do certain things like figuring out what customers want, stocking different products, gathering market info, and getting money to operate [5].

### *1.3 Kinds of Retailing:*

According to India's National Accounts statistics, the unorganized sector includes businesses that are not regulated by any law and those that do not keep regular records of their activities. In retail, it covers stores selling a variety of things like fruits, shoes, and services like shoe repair. These things or help might be sold or offered from a store or a moving place, and there could be between 10-20 people working there. So, the usual ways of selling things for not much money, like small neighborhood shops and markets, are still popular. These include places like small grocery stores, flea markets, street vendors, and small shops selling clothes or electronics. the person who sells paan, the person who fixes shoes, etc. It is called the unorganized sector . Organized retailing means business activities carried out by official stores that are registered for sales tax and income tax.[6]. These are big stores and shops that are owned by big companies, and also some smaller shops. Organized retail stores are well-run stores or big chains of stores that sell things customers like in a nice, welcoming atmosphere. Some popular stores and brands include Vishal Mega Mart, Big Bazaar, Wills Lifestyle, Shoppers Stop, Reliance Trends, Spencers, Reebok, Nike, Catmos, Lilliput, McDonald's, Pizza Hut, Barista, Cafe Coffee Day, Koutons, Cotton County, Peter England, Titan, Raymonds, Sony, Samsung, Next, LG, and Apollo Pharmacy [7].

### *1.4 Fashion Industry in India:*

With over a billion people and many city shoppers in India, people have been thinking a lot about the fashion market there. But it's hard to know for sure what's true. Overall, India is a growing market in the world and the buying power of people is quickly changing, both worldwide and in India. Big stores from other countries want to make more money by selling their products to a lot of people in India and other countries that are doing really well economically. As people have more money to spend, they are buying more things that they want instead of just things they need. One of the first types of products to be affected by this change is clothes. Darshan Mehta, who is the CEO of Reliance Retail, says that the Indian fashion retail business will slowly but surely grow. Yes, there may be some small problems for a season or two when demand is not as high. But if we look at the big picture, the increasing popularity of Indian fashion will keep growing for the next few decades. Over the past ten years, the Indian fashion retail industry has had its ups and downs [8].

Over the past few years, India has once again seen great fashion labels open their doors on her land. The reasons for that again could be various, to mention a few the GST bill passage, the renewed FDI policies, more disposable income, employed millennials with access to social media, westernisation, and change in corporate trends; have made Indians very open-minded and daring with their fashion choices. They want to try out new fashion trends and are willing to purchase from international brands as well. Indians have a deep-rooted relationship with fashion and luxury. There is no limit to the changing trends in fashion and the demand to have

the best of the lot automatically pulls the consumer to the epicenter of fashion brands, which are shopping malls. Indian women have played a very important role in this, being the millennials with a spending power and a social status retail fashion industry in India has boomed. Various Indian models have been spotted by big names in the fashion industry and have been cast by them for recent fashion shows, to name a few, Donatella Versace, Marc Jacobs, and Christian Dior. This last occurred a decade ago when Lakshmi Menon scored a few ad campaigns with international names [9]. This has resulted in the outset of a lot of big names entering India and looking at India as the newest growth engine, post the slowdown of China.

For Indians apparel has been a symbol of social status since the beginning and the entrants of big brands have not only increased the turnover of the fashion retail market but also made India being observed as the sea of opportunities for international brands. Spending on apparel has never been a great deal for Indians which is a pro in the expansion of the Indian retail market. Leading international brands have adapted to the Indian culture rather than trying to westernize Indians, gone are the black Friday and the 4th July sales. Even Amazon has come with Diwali and Independence Day sales as Indians tend to shop more during festivals. These fashion houses have understood the taste of Indians and are trying to fit in a special line of clothing for their Indian outlets. For instance, shoe giant Christian Louboutin has teamed up with Indian wear designer Sabyasachi to co-create a limited edition shoe collection, which is not only ethnic but trendy as well. Matching the cultural taste of Indians, as traditional wear is still predominant in India on auspicious occasions and weddings, hence Indian fashion designers like Manish Malhotra and Anita Dongre are successfully operating overseas. The entry of Indian fashion designers into international markets has also played a very important role in opening doors for international fashion giants to enter Indian markets.

## 2. LITERATURE REVIEW

### 2.1 Fashion Retail Industry:

J. Jarosz [10] described that customer loyalty is a confusing thing. A lot of people think that it's mostly about attitude and can be influenced by customer loyalty and affiliation programs. Research shows that in competitive markets, people are more likely to stick to a brand out of habit rather than because they like it. From this view, there may not be as much increased interest in loyalty programs as we had hoped. This article talks about customer loyalty programs and their technologies. It focuses on the three stages of implementing these programs. Finally, we give some ideas for improving how loyalty programs are done.

Marketing has adopted digital strategies as a result of technological advancements, moving away from traditional techniques. Accessing the whole world is now possible for customers with just one click. The internet and faster digital communication have made consumers more informed about the value they get for their money. U.Rathnayaka [11] study aims to understand how digital marketing affects the way people shop for clothes. Our study relied on pre-existing information, upon which we based our conclusions. The study looked at how online marketing has changed the fashion industry, and how it affects the way people shop. The analysis suggests employing customer relationship marketing to handle the effects of digital marketing on the fashion retail sector after examining the information. It also illustrates how professional marketers should conduct themselves and approach building customer relationships in the online fashion industry.

Large amounts of data are causing big changes in the fashion retail industry and changing the way fashion businesses usually operate. Today, popular fashion brands and new businesses are using Big Data to improve how they work and make more money. Sliva *et al.* [12] study seeks to inspire and offer guidance to fashion retail managers, experts, and academics as it investigates the implementation of Big Data in fashion retailing. It will give a summary of where the industry currently stands. This article provides a brief overview of the emerging

trend of Big Data in the fashion retail industry, drawing on research from various sources such as industry, market, and academic studies. Many fashion brands are not using Big Data fully yet. The researchers found that Big Data is utilized in the fashion industry to forecast trends, minimize waste, enhance the consumer experience, interact with consumers, enhance quality control, diminish counterfeit products, and streamline supply chains. The writers also point out big problems that need to be fixed so the fashion industry can use Big Data to understand and predict what customers will want. This summary gives a starting point for more studies on how Big Data is used in fashion retail. The significance of this paper lies in its analysis of how Big Data is transforming the operations of fashion stores. Fashion industry managers and professionals can benefit from using the guide to navigate Big Data issues.

### *2.2 Evolution of the Fashion Industry In India:*

Guo and Shao [13] described that the clothing industry has caused damage to the environment and depleted resources in the process of producing garments for consumers. The new studies on buying eco-friendly clothes look at rewards, reasons, and plans, but they don't pay enough attention to the selling of second-hand clothes. Utilizing international trade data, this study investigates the worldwide trade of secondhand apparel from 2011 to 2020. The highest amount of things brought into the country was in 2014, but the most money made from imports was in 2018. In 2020, the amount of money made from imports went down a lot. Between 2016 and 2020, Pakistan, Ukraine, and Kenya were the top countries that imported goods. China was the second-highest country for exporting goods in 2020. The more money each person has in a country, the less likely they are to buy and sell secondhand clothes from other countries. China sells a lot of things to other countries, but the amount each person sells is not very much. More research can look at what makes trade volume go up and how the network of trading countries changes over time using industry information and typical countries.

M. Khaire's [14] research investigates the development and worth of the luxury fashion sector in India. Studies of information from different places showed that the way early business people talked about the industry, and the way people reacted to it, helped to determine the industry's value. These social and thinking processes selecting and approving things, giving opinions and feedback, presenting things together, comparing and measuring helped more people understand the industry and its value. The results are the basis of a general model that shows how society decides what is important by making it holy. This adds to the existing information about how society creates value.

### *2.3 Disruption in The Fashion Retail Industry:*

Rana and Ha-brookshire [15] study looks at how well a company manages its knowledge, deals with supply chain issues, and handles problems to prevent disruptions in the U. S The fashion retail industry is going through tough times, like a pandemic. We used an online survey to get 320 responses from people in the U.S. People who work in stores and sell clothes and accessories. We used a method called structural equation modeling to analyze the data. Results: In the U. S, having the right systems and tools helps to make knowledge sharing and collaboration easier in two specific knowledge management centers. Clothing stores where you can buy fashionable clothes. The KPC was linked to SCA, and SCA was linked to both before and after U. S policies Stores that sell clothes and accessories. This research helps us learn more about how organizations manage their knowledge and respond to problems in their supply chains. It shows how being able to adapt quickly can help companies deal with disruptions in the market. This information helps fashion stores figure out how to improve their organization by managing knowledge well. Using new technology and creative ideas to make our supply chain fast and strong, so we can handle any future problems in the market.

Nucamendi-Guillén *et al.* [16] described that clothing stores usually don't last long, can change a lot, and are hard to predict. So, how well they do depend a lot on how flexible and quick to respond the organization is. This paper will show a way to help manage inventory by using

statistical and random analysis to avoid having too little or too much of a product for a certain amount of time. First, it makes a plan for keeping track of how items are doing over time. This strategy is developed based on historical sales data and issues with inventory. It helps predict how much demand there will be in the future and prepares for any unexpected changes in demand. The results show that some products can have no shortage at all in the early stages, while others can have a reduction in shortage of about 90.5 percent. Also, the company's earnings went up by more than 57%. Although the methodology was successful, we did not consider cultural and behavioral factors. A big study is recommended to figure out if these things should be added to make the method work better. The way we do things is easy to do and quickly fixes problems with demand. It also helps us sell more and make more money for the company. This paper suggests a way to predict how a product will perform in the early stages. Also, restocking rules help to easily change future orders to make sure items are available and reduce excess inventory.

### 2.5 The Omni-Channel Strategy:

Harrington *et al.* [17] described that significant shifts are happening in the fashion and retail industry. Selling through different stores and websites is now common for all kinds of retail and fashion brands, even the old-fashioned ones. However, multi-channel retail is rapidly evolving into omni-channel retail, and the distinction between the two is significant. Especially when dealing with the supply chain. Multi-channel retail has been used for a while. The word means selling through multiple channels, like online and in stores. Stores made of bricks, paper catalogs, online shops, and small booths. In many companies, each sale or advertising platform was handled on its own, with its predictions, promotions, and even price changes. Multi-channel retailing costs a lot of money because it requires keeping many different inventories and supply chain assets. Also, it doesn't match the way people shop now. Omni-channel retail means that customers can shop and return items using any method, online or in person. Omni-channel retailing integrates all selling avenues into a unified platform. This is to give customers a personalized shopping experience and provide them with the products they want.

Blumenstein *et al.* [18] described that the retail industry's issues and competition from abroad have led to an increasing reliance on Omni channel retailing by stores to survive. Omni channel retailing facilitates seamless shopping experiences across multiple platforms, including in-store, online, and through mobile apps. In this study, the authors want to find out how retail brands notice changes in a fast-changing market by figuring out the specific things they do. Because the topic is new, this study uses a method that looks at specific cases to figure things out. This research is based on four examples of fashion stores that use different ways to sell their products, along with one case from an expert and one from a different industry. The authors gathered many pieces of evidence to check if the information is accurate, consistent, and can be applied to different situations. Our primary method for obtaining information was through the use of semi-structured interviews. The research shows that retail brands need eight specific ways to notice changes in a fast-changing industry. Identifying and understanding. In addition, the results show that the ability to sense things is either based on reacting or taking action beforehand, depending on what the retail brand is focusing on changing. This research offers valuable insights for retail brand leaders and teams, enabling them to recognize and adapt to changes effectively.

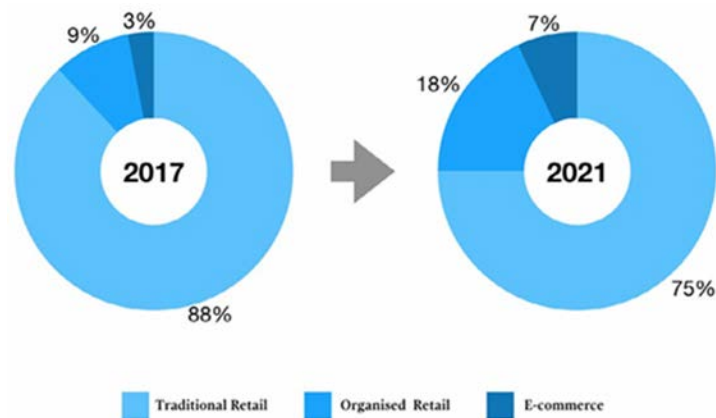
## 3. DISCUSSION

### 3.1 Retail market in India:

Retailing in India started with the opening of small kirana stores and family-owned shops. The stores served the people in the area. In the end, the government helped rural stores and many local businesses were created with the support of the Khadi & Village Industries Commission. In the 1980s, the economy started to improve and this changed how stores sold things. The first few companies to start retail stores were in the clothing industry, like Bombay Dyeing, S



Kumar's, and Raymonds. Later Titan opened stores in the organized retail industry. Over time, new businesses started selling products instead of making them. Shopping malls brought the idea of shopping as a fun activity to India. Shopping centers appeared in the city, offering a top-notch experience for shoppers. Finally, big stores and regular stores appeared.



**Figure 1: Representing the significant scope for expansion in the retail industry.**

The industry is always getting better at managing how goods are moved, sold, and delivered, using new technology and improving the way things work behind the scenes. This would result in more companies joining together, buying other companies, and making big investments. The industry needs to change as consumers change. The stores we shop at in the next five to ten years will probably be very different from what they were at the beginning of the century. They will focus more on new ideas, working together, and quickly adapting to change. In the late 1800s and early 1900s, most towns had small stores that sold only one type of product. That view slowly changed when department stores were introduced [19]. A big change in how people shop has made supermarkets more common in cities all around the world. This big change in history created a way to get lots of different kinds of food and products to people in a better and higher amounts. In India, the retail sector can be split into two parts: Organized and Unorganized retail sectors. Organized retailing means stores that are registered with the government and pay taxes. They are involved in day-to-day selling activities. This can include big stores, big private retail businesses, or retail chains shown in Figure 1. On the other hand, unorganized retailing includes a lot of small shops run by individual owners, like grocery stores, tobacco shops, general stores, pharmacies, and street vendors. In rich countries, most people buy things from big stores, not small ones. But in poorer countries, lots of people still buy things from small, informal shops [20].

### 3.2 Online and offline shopping:

Consumers shop today across channels, both online and in brick-and-mortar locations. They shop from various locations tablets, phones, laptops, social channels, and physical store locations. While e-commerce is growing at staggering speeds, the importance of brick-and-mortar shouldn't be ignored. There are many speculations made on the preferences of a consumer, offline vs online. Studies say that even 54% of Gen-X choose offline shopping over online shopping. Both channels of shopping have their pros and cons. Various consumers still choose the good old physical stores and there are others for whom online shopping is the holy grail [21]. E-commerce has paved its way unbelievably, for instance nowadays even farm fresh vegetables get delivered online which is one of the major drivers of the individuals opting to use e-commerce for groceries, earlier it was limited to just shopping. Not only the older generation but also the Gen-X is looking at eating healthy and being fit, the availability of such vegetables has paved an excellent path for online businesses.

There is no doubt in the goodness of the brick-and-mortar stores, there is a part of the population that still chooses offline shopping for everything. But there is a tough competition that has begun between online vs. Offline retail. The meltdown of the brick-and-mortar is what experts like to call it. One major driver of this trend is a growing acceptance of eCommerce as a way to purchase in expanded categories of merchandise. Even products that used to seem immune to online competition, such as large furniture and eyeglasses, are feeling the pressure from e-commerce competitors. Online businesses are at a certain advantage over brick-and-mortar stores, and they take complete advantage. Online businesses don't come under the scanner of having huge and admirable stores where they need to hire excellent staff, spend money on interiors, and most importantly the high rents in the real estate industry. Brick-and-mortar stores without any financial support find it difficult to survive in this generation as there already is tough competition with the e-houses but also to survive in this expensive form of business is next to impossible.



**Figure 2: Representing the overview of the omnichannel strategy.**

The online stores take advantage of this benefit they receive by just having a warehouse at their call out of which they can run their corporate office as well. Online stores run some exceptional discounts, these discounts run almost throughout the year be it on clearance or an occasion their USP of entering this competitive market is running discounts. Who does not love discounts, be it the newer generation or the older everyone including men and women dog discounts on merchandise they want to shop. This has been one of the major causes of the reduction in brick-and-mortar stores. They can't keep up with such discounts due to high overhead expenses, they can only run discounts maybe twice or thrice a year. This has further resulted in a lot of consumers visiting stores to feel, try, and see the products and purchasing them online. The burst of online shopping could be due to various reasons a few would be the rapid growth of the IT sector in India and the presence of the MSME (Ministry of Micro Small and Medium Enterprises), GST; these are a few factors that have paved the way for online retailers to operate and start. It has become very easy to start a new business be it e-commerce or offline in India

now and this is changing the retail structure of the country completely, making it look completely different for even the international entrants.

### *3.3 Omni-Channel Strategy:*

The omni-channel trend is based on the idea of people always being connected. The busy consumer is always using smartphones, tablets, and computers because they don't have much time and travel a lot for work and home. Consumers are changing their behavior because more young people and Internet devices are becoming popular. Shoppers now want to interact with brands using different types of media at any time of the day. This helped make omnichannel more important for retailers who want to keep up with the competition [22]. One might be easily convinced that the benefits of E-tailing will take over the brick and mortar stores soon enough, however, studies show that from 2016 to 2018 the E-tailing Platforms in the retail market have risen by only 20%, which seems less when compared to the brick and mortar stores which have risen by 60%.

Today, many online stores have opened real stores to show their products and services to their customers. These shops will be like places to try things out and will give extra services like trying things, bringing things back quickly, and showing how products work. However, many traditional physical stores have also started selling their products online by creating their own websites or partnering with existing online retailers like Amazon, Snapdeal, Jabong, or Myntra. Stores now know it's important to give customers different ways to buy things. Many stores are using technology to showcase their products and help customers in person. This includes kiosks and customer support, as shown in Figure 2. The paragraph below talks about some stores that are using the Omni-Channel strategy in their physical stores. So, the argument about online shopping versus traditional stores doesn't matter anymore. Both ways of shopping need to be combined to make sure customers have a good experience. This way of shopping, which combines online and in-store options, is called omni-channel retailing. Many companies have become successful because they can sell their products in many different ways. Here are some companies that use the omnichannel model.

### *3.4 Fashion Industry in India:*

Retail houses in India face a major problem of lack of infrastructure, Brands want to open doors in India but with a lack of space, the scope reduces drastically. The lack of High Streets in India has also affected the retail growth. The malls that are being made don't fulfill space requirements and are not being appreciated by fashion brands. One of the well-appreciated malls is the DLF mall which has worked its way very well with fashion houses as they met up with brands while the mall was still being made and have given spaces for their stores as per their requirements. Though there is a lack of brick-and-mortar stores in India, there are a lot of fashion houses that have entered India in just the online market. The scenario of Online shopping has changed completely in India with more and more millennials working and operating smartphones, it is estimated that by 2020, 329 million Indians will be using e-commerce services. While fashion houses do require Grade A real estate to make a presence in India, E-commerce has been a good hold for them and has enabled a great increase in the growth of the fashion retail industry in India.

The FDI policies have been a major pullback in the growth of the Indian fashion industry, the loosening of the FDI policies has made India a great opening place for Indian retail houses, though the pricing of the clothes from these Fashion houses due to import duties, high rents, etc have somewhere been a setback for Indian consumers. A Segment of the market that travels around the world prefers shopping from other cities as they find it value for money, that's a key to Indian consumers into shopping, for brands is to give value for money. The fashion houses have also been considering the policies to be followed and duties to be paid before entering the Indian markets. The new FDI policies and passage of GST do make it easier for the brands to enter India but these are still long shots as per a few of the giants in the World. A

lot of Indian-born brands have become major competitors for International fashion houses, they take advantage of the fact that they understand the consumer much better than International brands, and they work around the mindsets of the Indian consumer with their campaigns, launches, designs, and sale plans, the international retailers are taking a cue from the Indian born as well and there is a process which works vice versa as well in the sense that there have been the designs that have been simultaneously being used by both fashion stores in an attempt at understanding the consumer market better and making all types of fashion available easily for the buyers.

For instance, Tata Trent brand Westside has completely changed the way they approach the consumers, be the way their stores are being re-done, their displays, and their products, they are persistently very successfully winning consumers' hearts. Westside has attempted to adopt Westernization with an Indian touch. The growth of the Indian retail Franchise Industry has been viewed from various perspectives by experts to give a ballpark estimate on its future is very difficult. To say the least, a few including international experts call the Indian market "The Next Chinese Market". Though a lot disagree and state, that India will be the next India, it is nothing like the Chinese markets, in terms of consumption velocity and growth. Furthermore stated by industry giant, India's apparel market will be worth \$59.3 billion in 2022, making it the sixth largest in the world, comparable to the United Kingdom's (\$65 billion) and Germany's (\$63.1 billion), according to data from McKinsey's FashionScope. The aggregate income of the addressable population (individuals with more than \$9,500 in annual income) is expected to triple between now and 2025.

### *3.5 Factors Influencing Consumers Purchasing Behaviour:*

Sensory marketing tries to fix the problems with traditional marketing, which is too focused on logic and reasoning. Traditional marketing works on the belief that customers make logical decisions. Sensory marketing is about how the things people see, hear, and feel affect how they feel and what they buy. These experiences affect our senses, feelings, thoughts, actions, and relationships, not just how they work. Sensory marketing is about making products look and feel good, so people want to buy them. It focuses on the design and packaging of the products and how they are displayed in stores. It has been noticed that a powerful brand can use the human senses to make customers feel good and trust the brand. Sensory marketing is a way to attract and persuade customers by appealing to their senses to affect how they feel and act. Our memories and emotions are connected to our senses. The company suggests using five sensory strategies that focus on using human senses to market their products.

It strengthens the connection between the brand and the customer. A sensory sound plan is used to make a brand's identity and image stronger. Sound and music give meaning to people and inspire them. Songs from when you were young are often used to remember things. The store Abercrombie & Fitch has a good plan: They play popular songs that are mixed together to create a special feeling in the store. Every song from the firm has a strong bass sound. The music is really loud and sounds like it's from a nightclub. The songs are combined to create anticipation for something new. There are no spaces between the tracks, so the music stays at the same speed and volume in the store. People enjoy the music and dance to the beat. Workers also like to dance, which makes them feel relaxed and like they are at a fun party.

The objective of sensory branding is to accommodate a systematic integration of human senses to positively optimize its effect on consumer purchase behavior. Human senses such as smell, touch, and feel must be employed to their optimum, given the current dynamics. The social, economic, and cultural considerations must be taken into account while devising these marketing strategies to ensure maximum compatibility with the consumer. Furthermore, there has been a drastic shift in the consumer marketing segment, with the advent of the 21st century. Reliance on social media platforms, digital technology, and the internet as a medium to communicate and reach out to potential consumers across market segments has led to the

development of marketing techniques that achieve a breakthrough with consumers at the impersonal level. There has been an objective shift from a need-based buying approach to an aspiration-based buying approach, particularly in this market segment. With the growing purchasing power and rising standards of living, coupled with the increasing exposure to global trends the average consumer no longer follows the same buying thought process that he did a decade ago.

The consumer now focuses on the semantic benefits of each purchase in addition to the utility of the product. The additional features of the product, the buying process, and the afterthought, all of which make up the consumer experience are all considered by the consumer before a final purchase has been made. Consumers are now more picky and good at recognizing visual things, which makes it harder for brands to attract them. Products and services should match people's needs and emotions in their daily lives. There has been a dynamic change in the consumers wherein now there is a growing value consciousness in the consumer wherein, the consumer agrees to invest his economic resources in the determination of maximum brand value. The brand value goes beyond just the product, the in-store consumer experience, and after-sales services. This value adds to the utility of the product in terms of the additional benefits the consumer derives from the purchase. Companies that don't appeal to the senses fail to connect with customers. The reason for making a brand that appeals to the senses is that it is easy to remember, different from others, happens quickly, and is good for people. Sensory branding is not about everyone or a group of people, it is about each person. An ad is not the same as a real life experience for a person. Companies need to pay more attention to how their products appeal to the senses of sight, smell, taste, touch, and hearing in order to make their marketing strategy more effective and make more money.

### *3.6 Topshop Entering The Indian Market:*

Topshop is one of the top-of-the-line international retail fashion brands, that offers both modern and less costly apparel to its loyal customers. The logo is beloved for the quick fashion clothing and add-ons it presents, the entirety reputedly proper off a runway! The brand represents precise styles, which might be more unique, as well as a basic selection of merchandise. Topshop has been promoted and used by many celebrities who interact with the non-public styling of the emblem, like Kate Moss. Topshop is the most compelling brand underneath the Arcadia institution. From its humble origins as a part of Peter Robinson in 1964, the logo has grown exponentially all around the globe. Their flagship store opened at Oxford Circus in the United Kingdom in 1994, recording decades of their presence in the market. Nowadays, the flagship Topshop store is one of the biggest fashion retail outlet stores in the world. The Topshop flagship stores set the mark for the expansion of their stores internationally they have over 500 stores, across almost forty-six international locations, including Sweden, Spain, Singapore, Russia, Malaysia, the UAE, Turkey, and America.

Topshop.com, their online sale portal, ships products to over 100 countries and has helped aid logo recall even in countries where there aren't any physical shops. Topshop is already on its way to becoming an international empire, which is possible with the increase of emerging markets wherein other rapid fashion companies are also setting themselves up. The Arcadia institution has entered into partnerships with neighborhood retail brands to ensure their smooth and viable entry into new markets. They joined Leonard Green and companions (LGP) to consolidate their presence within the United States of America, then LAB's idea to enter into China (in Hong Kong), and are looking at pursuing partnerships to gain entry in Asian markets where an extensive consumer base awaits them. There had been many milestones on their route to becoming a global brand and the Indian marketplace is one which they should quickly enter on a huge scale.

The Indian market is developing at a much faster rate due to its younger population demographic and rising disposable income which has raised the purchasing power of the



average urban Indian substantially. The ability for exponential growth in the Indian marketplace exists largely due to interest in manufacturers who provide top-notch styles at reasonable prices. This has been visible with different worldwide brands like Swedish H&M and Spanish Zara. They have adopted the right strategy and have been developing appreciably in India for more than a decade. Topshop can launch a version adapted to Indian style preferences which caters to the specific tastes of the Indi and teenagers while keeping their brand undiluted. Selecting the ideal location that can begin their growth in India, as well as a clear goal market initially is the key. The competition they may face from popular brands that are already well-established in India is also a component that can be handled strategically, and Topshop has the bandwidth to capture the marketplace in India in case they decide to embark on such a strategy very soon. India has a growing economic system with good-sized human and herbal assets. These factors make it one of the world's largest developing markets, with enormous potential. The GDP increase has been consistent, with the charge at 6.7 in 2017. The retail marketplace accounts for a significant part of the GDP, among 10-20%, with the ongoing rise of e-commerce and it's estimated to grow exponentially

#### 4. CONCLUSION

Technology is playing a big role in changing how shoppers and stores interact with each other. The retail landscape is shifting towards a more interactive connection between consumers and the technology they use to make purchases. This has caused a big change in who has more power - the stores or the people who shop there. Today, people care more about the things they do and the memories they make when they shop, rather than just how much something costs or what it is. With more knowledge and choices, shoppers can now have more control over how they interact with the stores they want to buy from. To become leaders, stores need to use new technologies to offer unique experiences. In the end, they will need to improve their concentration and capability to adjust to people's different likes and dislikes. In the future, stores need to create enjoyable and profitable experiences for customers by paying attention to their actions, preferences, and the environment they are in. It's really important for stores to understand their customers and to make sure they have a good experience both online and in person. This helps to keep customers interested and involved. Retailers need to know which way customers like to communicate, like online, through their phone, or on social media. They need to do well in this, it's important. Digital experiences are changing how retailers and customers interact with each other. Nowadays, consumers have increased influence and are more vocal about their expectations for companies to improve. Changing both physically and online to bring in, keep, and help customers is now a must for stores to stay in business, not just something nice to have.

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## CHAPTER 7

### BLING: UNDERSTANDING THE JEWELLERY INDUSTRY IN THE VIEW OF INDIA'S YOUTH

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#### ABSTRACT:

India is considered the center of the world's jewellery market because it has skilled workers who can make jewellery at a low cost. It also has a great history that affects every part of the Indian way of life, and jewellery has always been a very important part of it. Even now, at weddings and other celebrations in India, women receive jewellery from their parents and relatives. This also helps them feel secure in case of emergency. In Indian culture, purchasing gold and jewellery is seen as a way to invest money for the future. The Gems and Jewellery industry is important for India's economy, and India sells a lot of Gems and Jewellery to other countries. Indian cities and towns have many jewellery stores everywhere. With this situation, any jeweler from the West would hesitate before opening a store in India. Studying how people buy jewellery and doing a survey also tested if people would buy from a jeweler from the West. The study found that if the jewellery brand changes how it looks and acts, it can attract more young people to its store.

#### KEYWORDS:

Gold Jewellery, Indian Jewellery, Jewellery Sector, Luxury Goods, Store.

#### 1. INTRODUCTION

India is becoming a big market for luxury items around the world. Even though this market has been slower than China to like Western luxury brands, there are signs that it is ready for luxury brands just like China. India has more and more people who can read and write. They have the potential to have great jobs and money to spend. Currently, there are 70,000 millionaires in India, who are part of the wealthiest group of buyers. The country is making more money per person now and the services industry is growing quickly, which is helping to create more wealth inside the country. The luxury industry is doing well because there are more people of working age [1].

The people in India who like to buy expensive things are very fashionable, and they will probably buy more luxury items than people in the West very soon. India really likes jewellery and this has led to many expensive brands becoming very popular among Indian people. The Indian luxury market is growing because more people are becoming middle class, there are more millionaires, cities are getting bigger, people have more money to spend, trade policies are good, there are a lot of young people, and social media is getting more popular. India has the most young people in the world. Millennials have a lot of money to spend, so they have a big influence on what people buy [2]. They like fancy things more than older generations. So, it's very important for luxury sellers to understand this group of customers who are getting bigger and the things that are important to them. Due to more wealth, people in developing cities are spending about 14% more each year, while people in top cities are spending about 12% more each year. Growing cities like Ludhiana and Surat are now in the top 10 for selling luxury cars [3].

Today, it is really important for fancy brands to provide special services and really great products. We need store workers who are trained to make customers feel understood and valued, instead of just pressuring them to buy things. They should be able to connect with people and build lasting relationships with them.

Customers should have a great shopping experience, feel special, and be well taken care of before, during, and after they buy something. To do this, fancy companies need to spend money on new technologies and creative ideas. The market for used luxury items is growing quickly in India because it makes expensive things more affordable for Indian buyers who are careful with their money [4]. New businesses like Luxepolis, Confidential Couture, and Envoged see a lot of room for growth in this market that hasn't been used much yet. They think this market will grow a lot in the future. Recently, Gucci, Burberry, and Stella McCartney have promised not to use fur in their products. Young Indian consumers care more about the environment now. A new study by Mastercard found that 70% of people in India care about buying things that are good for the environment and made by ethical companies [5].

### *1.1 History of Jewellery in India:*

India has a very important history that has a big impact on how people live in India. Jewellery has always been an important part of Indian life. The different history of India has made a big impact on the way jewellery is made. Indian jewellery has been around for almost 5000 years. Since ancient times, Indian people have always loved wearing jewellery, especially women. Gold, silver, rocks, and jewels. The important parts of Indian jewellery are its defining features. The jewellery made in India comes in many different styles and designs, depending on the region it comes from. Indian jewellery has a special design that is only found in India and nowhere else in the world. For instance, the special silver designs in Odisha and Andhra Pradesh are different, and Meenakari jewellery enameling is famous in Rajasthan. Nagercoil in the south is known for temple jewellery and Delhi is famous for Kundan jewellery. The Indian jewellery industry has many different types of ornaments that can be worn on different parts of the body, and they come in many different styles and designs. Long ago, people wore necklaces, rings, and anklets made of rough stones and metals to make themselves look pretty [6].

Over time, people figured out how to make gold and silver shiny and how to find pretty rocks in mines. Even when ruling empires, the wealthy kings wore jewellery to make themselves look like Gods. All the jewellery, like rings, earrings, bracelets, necklaces, crowns, and ankle bracelets, was made of gold and valuable stones. The Mughals liked to use expensive gems and detailed carvings in their jewellery, while the Rajputs preferred enameled jewellery. In India, houses have many different types of jewellery art such as Meenakari and Kundan, as well as stone and beadwork.

The art of cutting and shining valuable stones makes them look beautiful and artistic. Emeralds, rubies, garnets, amethysts, corals, sapphires, and turquoises are colorful stones that people use to make gold and silver jewellery look more beautiful [7]. Women in South India are famous for wearing a lot of gold jewellery. Gold from South India is thought to bring good luck and show high social status. Antique jewellery is old jewellery that has a dull and rough look. It has an old-fashioned charm and is known for this.

### *1.2 Current Indian Jewellers:*

The gem and jewellery business is very important for the Indian economy. India's jewellery industry is mainly focused on gold jewellery and diamonds. 80% of the jewellery in India is made of gold, while the rest is made of diamonds and gemstones. Additionally, India has the biggest industry for cutting and polishing diamonds in the world. This is helped by the government's rules and regulations and the banking sector. Most of the gold jewellery made in India is used and bought within the country. However, many rough diamonds processed in India are sent to other countries as polished diamonds or jewellery. India uses the most gold in the world and is also the top country for cutting diamonds. Gold and valuable jewels have been very important in Indian society and economy. Valuable gems and jewellery are important to Indian traditions and customs.

Gold has always been very important in India as a way for people to save and invest their money. Even now, it is still very popular and is the second most common way to save money after putting it in a bank [8]. The market for Gems and Jewellery (G&J) involves finding, making, and selling valuable metals and gemstones. The G&J market is important for India's economy because it is big within India and also helps to sell things to other countries. India buys the most gold and processes the most diamonds compared to other countries in the world.

### *1.3 Future of Jewellery in India:*

In the next few years, the Gems and Jewellery industry will mainly grow because big stores and brands are getting bigger. Well-known brands are leading the market and creating chances to expand. More shops being run by companies means more choices in what they sell and how they look. People are expected to want more jewellery because good things are happening in the industry. The jewellery industry is changing because people are starting to like different things because of the Western way of life. Customers want new and different jewellery, and big jewellery stores can give them what they want better than smaller, independent stores. Furthermore, as people in India make more money, they are buying more jewellery because it shows their status. Furthermore, new technologies will keep affecting rich people who buy expensive things, and new ways of using technology to shop will also be important for how consumers see luxury shopping. PC Jewellers, PNG Jewellers, and Popley and Sons want to use virtual reality (VR) to give their customers a new way to experience their products. The customer needs to wear a special headset and can use it to look at different pieces of jewellery and see all the details up close. People can start a business by renting out jewellery. They can let others borrow jewellery for events or weddings instead of those people buying the jewellery themselves. However, because Indians value jewellery so much, it might take a long time for a new idea like this to become popular [9].

## **2. LITERATURE REVIEW**

### *2.1 Jewellery Industry:*

Machado and Goswami's [10] research looked at how jewellery companies' messages about being environmentally friendly affect what people say about them and how loyal customers are, in Brazil. The study also looked at how much people care about sustainability and feel responsible for it, and how their values and beliefs affect their actions. We did a study where we asked 300 people in Brazil for their opinions. The study found that when companies include information about being environmentally friendly in their ads, it can affect how people behave when they buy things. Sustainability marketing messages get consumers to think about their responsibilities and encourage them to act sustainably. This research is the first to help jewellery brands sell their efforts to be more sustainable to their customers in a better way. These discoveries provide information about how luxury jewellery brands can sustainably market themselves.

Rocha *et al.* [11] discussed that It is crucial to continuously improve processes to function more efficiently in a competitive and dynamic market. This method is very important for making changes in business so that companies can get bigger and succeed globally. A jewellery company was the subject of this study, which aimed to enhance the management of production. The goal was to look at and make better the way things are managed and produced. The company utilized Lean Thinking and innovative software to discover methods of decreasing waste and enhancing customer satisfaction. By using these tools, people noticed big improvements in the process they were studying. This comprised improved management, skilled workers in the organization, and enhanced oversight of the entire production process.

Lin and Sai [12] discussed that ethics and sustainability have long been a focus of the fashion industry. It helps to change people's minds when they choose what to buy. The jewellery



industry needs to think about being fair and sustainable when it grows. Many reports and numbers show that young people care a lot about sustainability in industries. The jewellery industry is expected to be very committed to protecting the environment and following ethical rules. Despite the non-renewable nature and environmental concerns of mineral resources used in jewellery making, numerous organizations within the industry are striving to improve sustainability. This article looks at different jewellery brands and how they are doing in terms of being ethical and protecting the environment. It also looks at what the future might hold for the jewellery industry. Finally, it offers some ideas for how the industry can improve.

### *2.2 Current Status of the Jewellery Industry:*

Green and Sargent's [13] study is about the E.U Laws about how much nickel can be in jewellery and other items, and how it might affect the business. The medical reasons why they want to make a new law about something and what the new law is in the UK. The law about how products are described when they are sold, and what the law says about it, will be explained. Why people use nickel in gold plating is talked about. The authors looked at different options to replace the nickel underplate and meet the new nickel emission levels. The author will talk about the problems with each option and how we can solve them. The authors will talk about using nickel with gold plating and what could happen if we use something else instead.

W. Cho [14] described that the quick evolution of new technology in the contemporary era is transforming our methods in culture, industry, and art. It's making a lot of new changes in our everyday lives. Digital technology is amalgamating different art forms and altering society. 3D printing is a new kind of technology that is different from the usual way things are made. It lets people create cool and special-looking things differently. This research looks at how 3D printing is being used in the jewellery industry and how it is affecting the way jewellery is made and sold. Also, the study compares and analyzes different 3D printing technologies to see how they are used in making jewellery. Authors investigate their utilization in the design process, in the practical crafting of jewellery, and in the visualization of digital designs. This aims to solve the problems with modern jewellery and offer more ways to be creative.

Design rights were initially used by large corporations, but now they are being adopted by smaller businesses as well. A new approach to management has emerged in Korea. Chang and Choi's [15] research aims to assess the levels of knowledge among workers and students regarding the protection and management of designs. The goal is to use this knowledge to help the jewellery industry. Data analysis shows that the South Korean jewellery industry is struggling. So, the company needs a new plan to fix the problem. In contrast to other sectors, the Korean jewellery industry has traditionally been small and conservative. The jewellery industry needs new management strategies that use the right design because industrial design has a big influence on it. We asked 100 people questions and studied how their answers were related using math and special software. The results show that both current employees and college students agree on the importance of the company registering their design rights. After looking at the design rights of a jewellery company in Korea, it was found that the foreign company cared more about trademark rights, while the domestic company cared about both design and trademark rights.

### *2.3 Future of the Jewellery Industry:*

N. Kumar [16] described that Since the 1960s, the Indian gem and jewellery export industry has experienced continuous growth. In 2009-2010, gems and jewellery made up 16. 44% of all the things India sold to other countries. The industry gives jobs to about 3. 2 to 34 The gems and jewellery industry in India saw a growth rate of 16. 59% in exports from 1990-91 to 2009-10. The jewellery industry is having a lot of problems. It relies too much on importing materials, and fashion trends change a lot. There are also problems with the way jewellery is made and problems with the people who make it. The industry also has financial problems, and

it's hard to follow all the rules. This leads to a lot of people not having jobs. Despite the problems, the future of the Indian gems and jewellery industry looks good. Many people from around the world are choosing India as their preferred place to buy high-quality gems and jewellery.

Abisuga *et al.* [17] described that Making things is getting harder because we need more advanced technology, especially in the handmade goods industry. Fancy jewellery patterns are hard to make by hand, because of the high demand for jewellery around the world. New technology like 3D printers is making it easier for jewellery makers to create high-quality products in less time. This research looks at using 3D printing to make jewellery, instead of traditional methods. The study wants to look at how jewellery is made and how 3D printing is used to make it quickly. It studied how 'OneCent Africa' made jewellery using investment casting. The investment casting process involved making prototypes and using vacuum casting machines and a burnout oven to make jewellery from lost wax. The casting process was watched closely at different stages. This study helped us understand how different ways of making jewellery turn out, and showed how it could lead to new and better technology for jewellery companies in the future.

T. Ürkmez [18] described that the jewellery industry is very big and makes over \$148 billion every year. It's expected to keep growing at a rate of 5 to 6 percent each year, reaching \$250 billion by 2020. The jewellery industry makes things like rings, necklaces, and bracelets out of diamonds, gold, and silver. In the latest research, the focus is on how diamonds are used in the jewellery industry. This study aims to understand the diamond category better and grab the attention of researchers. Lots of people talk about diamond jewellery, but most people don't know much about diamonds or the history of jewellery. Studying the different periods that the industry went through helps us understand how love and romance are connected to marketing. The research wants to back up basic information about diamonds with some new numbers. Effective advertising plans are vital for the future of the jewellery business. Diamonds are fake goods that people like because they make them feel certain emotions and thoughts. Consumers are taught to think that diamonds are really important and that they need them. The next challenge is to deal with the problem of "blood diamonds" and expensive prices by using a branding strategy.

### 3. DISCUSSION

#### 3.1 Structure of the Industry:

India's G&J industry is not well-organized and is split into many small family-owned businesses, making up 96 percent of the industry. The industry's value chain begins with finding and digging up metals and goes all the way to selling jewellery in stores. India is not a big miner of valuable metals and stones, but it is really good at processing diamonds because it has a lot of skilled workers who don't cost a lot. The jewellery stores in the country are expected to change because people are starting to prefer branded jewellery, which is higher quality. India was one of the first countries to make pretty jewellery from rocks and metals. Even now, most of the jewellery made in India is made by hand. The majority of the jewellery business is run by families, making up almost 96 percent of the market. Currently, the country has a small but getting bigger organized part. Well-established companies like Tata, with its Tanishq brand, have been steadily growing and now have 4 percent of the market [19]. India was the first place to find, cut, and trade diamonds in the world. In India, people have been cutting and polishing diamonds and other valuable stones for a long time. They are very good at it and are well-known in both India and around the world for their talent and creativity. Today you can easily find all different kinds of diamonds in many sizes, qualities, and shapes. India has skilled workers and can process gemstones at a low cost. India's importance in the world's gems and jewellery industry is mainly because it is really good at cutting and shaping diamonds [20].

### 3.2 Jewellery Retail Sector:

The Indian market for gems and jewellery is mostly run by small businesses rather than large companies. In India, there are more than 2.5 million jewellery stores, and many of them are owned and operated by families. But now, more and more Indian people are realizing the importance of good quality and are starting to prefer branded jewellery. More jewellery stores are selling branded jewellery, making the jewellery market more organized. In addition, the government lets foreign investors own up to 51 percent of single-brand retail stores, which brings in companies from around the world as well as from India to join this industry. In the last few years, many people have started selling gems and jewellery in India because the market is doing really well. Reliance Retail wants to start selling jewellery in a strong way. It will open 400 to 500 jewellery stores all over the country. Damas Jewellery, a big jewellery store, started doing business in India in 2003 by partnering with Gitanjali Gems Ltd. It is one of the biggest stores that sells jewellery in the world. Swarovski makes and sells sparkly crystal items all over the world [21]. The Gitanjali Group has purchased 'Nakshatra', a high-quality jewellery brand owned by Diamond Trading Company (DTC). Vardhaman Developers in Mumbai wants to build four new jewellery malls in the city. Joy Alukkas, a company from Dubai, has just opened its biggest store in Chennai. Viswa and Devji Diamonds, an Indian group, and a top jewellery retailer in UAE, opened their first diamond store together. Gitanjali Gems Ltd opened a fancy jewellery mall in Gurgaon. Lots of famous brands have also started selling their products there. Gold Souk India wants to open 100 marketplaces in 100 months.

### 3.3. Pattern of Shoppers:

India's industry for making and selling gems and jewellery is one of the biggest in the world. It makes up 29% of all the jewellery that people buy around the world. The area has over 300,000 people who work with gems and jewellery. India sells a lot of gems and jewellery to other countries. This industry is very important for the Indian economy because it helps bring in a lot of money from other countries. Any high-end brand that wants to do well in the luxury market needs to know a lot about the people who buy luxury items. Luxury shoppers today know a lot about brands and are very sophisticated. They like to dress stylishly and know what they like. They pick things based on what they like, not just because of the brand. They also have a youthful, confident, and adventurous attitude, no matter how old they are. Today's parents and their kids dress the same, which shows their similar attitudes. Today's wealthy consumers want different things and have different expectations, views, influences, and traits compared to 30 years ago.

In the past, people were happy to buy from their favorite brands without looking at other options. But now, luxury fashion shoppers want to be different and not just follow the crowd. People buy things because they need them. They are things that people want because they think they can help with lots of different problems and make their lives better. Some of these needs are connected to how consumers see themselves, their personality, and the way they live. Expensive brands help people show off their personality and style to others. Consumers and strong brands have a special connection that begins in the consumer's mind and is shown by buying the brand's products. Customers trust and stick with luxury brands because they believe the brand will do what it says and go beyond what they expect. These expectations include meeting practical and meaningful desires.

### 3.4 The Consumer Purchase-Decision Process:

The way consumers make decisions to spend their available resources on consumption-related items is divided into the following aspects, presented in their hierarchy of influence:

- 1. What consumers buy:** People who like to buy expensive things also buy things that are not necessary but are enjoyable. They purchase a whole set of experiences, emotions, and who they are, along with the service and the brand's features.

**2. When consumers buy:** When people who like fancy things buy stuff, they like to buy fancy things whenever they can. Expensive things are not bought because they are easy to get. People always want them and they are a top choice for rich people.

**3. Why consumers buy:** People who buy luxury items don't just do it because they need them. These products are things we really want, not things we really need, so we always want to have them.

**4. Where consumers buy:** Luxury shoppers mostly buy their products in big fashion cities like Paris, London, and New York, where luxury fashion is important in people's lives.

**5. How consumers buy:** Most luxury shoppers like to go to real stores so they can see everything that's available and have a nice time in the fancy store. But luxury brands are trying to stop online shopping from becoming more popular.

**6. How often consumers buy:** Rich people buy luxury things as much as they can afford.

**7. How often consumers use the products:** People use luxury goods a lot because it shows their personality and lifestyle. The products are used a lot.

**8. How consumers evaluate the products:** The car is very fancy and expensive they think about how it will make them happy and sometimes how well it works. They also think about how important the product is in their life.

**9. How consumers dispose of the products:** Luxury items usually last a long time and are not thrown away often. But something interesting is happening in the luxury goods industry - they are now selling their "used" or "semi-used" products for a lot of money in order to buy new ones. Many people are starting to sell used items in different countries around the world. This does not make the products less valuable or their brands less important, as long as the product is in good condition.

**10. How consumers decide on future purchases:** That decision depends on the new collections and products released by the brands and the willingness of the consumer to buy them.

### *3.5 Principles of Retail Design:*

#### *3.5.1 Eye-catching Visual Merchandising:*

Do not underestimate the importance of the design of retail store windows. An eye-catching store display will grab the attention of customers. The first thing customers see when they look at a store is usually the window displays. These displays can make a big difference in whether a customer decides to go into the store or keep walking. Store windows are like the eyes of a shop. They need to share a story and make sure it comes to life in a real place. Finding new and creative ways to showcase the product is very important. This should get people's attention while sharing a message and telling a story.

#### *3.5.2 Slowing down the customers' journey in the store:*

Today's shoppers are very busy and like to shop quickly. It's important to make the shopping experience slower and encourage customers to take their time looking around the store, so they might find something they didn't know they wanted. Encouraging people to shop this way begins with how the store is set up and continues to make the shopping experience feel involved and real. The store layout decides where to put the products and how customers will move through the store. In retail store design, there are different layouts like grid, herringbone, loop, or free flow. The loop layout is good for guiding customers through the store. A big, attention-grabbing sign at the store entrance can make customers want to come inside if they like what they see. By asking customers to stop at the store entrance, retailers can make them go deeper into the store.

### *3.5.3 Marking the customer pathway around the store:*

Store owners will know where they want customers to go in their store. They will know which products to put in certain places and how they want customers to get to the cash register. Stores have to show shoppers the way. In stores, they put important things like eggs and milk in the back so you have to walk through the whole store to find them. This makes you more likely to buy other things. Big stores also do this. They put the kids' things on the highest floor so parents have to go through other parts of the store. This makes it more likely that they will buy more stuff. Some stores don't help customers find their way around the store very well. They end up walking up and down aisles without knowing where they are going. Instead, companies should guide customers along a path that makes them stay longer and boosts sales.

### *3.5.4 Steer customers to the right of the store:*

Studies on retail interior design have found that when customers enter a store, they usually turn to the right. Since most people in the world are right-handed, it makes sense. Most people are said to be stronger on their right side, usually use their right hand, and prefer the right side of a room or area. To take advantage of this, stores should put eye-catching signs and displays on the right side of the store. This will help customers move in a circle around the space in a way that works best for them. By using this method along with the steps outlined earlier, brands can improve their store and increase sales.

### *3.5.5 Bold, creative, and innovative store design:*

New York City has more and more people shopping online instead of in stores. Because of this, it's really important for stores to make their physical locations interesting and fun for customers. Paying attention to the physical experience that online shopping doesn't have is important for keeping stores busy.

The store can be smaller and have less stuff, but the customer's experience needs to be more exciting. When brands focus on designing the inside of their stores, they can be creative and catch the attention of customers in a different way. By using smart colors, eye-catching signs, and creative designs, stores can make a special place that makes people like the brand and want to keep coming back. Designing a nice place where customers feel connected to the brand turns them into strong supporters of the brand.

### *3.5.6 Aerate the store design and layout:*

Although creative interior design can fit a lot in a small space, retailers need to give their customers some room to move and feel comfortable. Busy and crowded stores might make it seem like the products are not very good. Instead, we need to have spaces in the store layout where customers can have room to think and move around more easily.

### *3.5.7 Make the most of any shop space:*

For companies wanting to sell in a new place or get more attention, it's usually better to set up a small temporary store or a pop-up store. Although there are rules, the store's design should still be good. The smaller stores that are only open for a short time need to have a really attention-grabbing design. The rules are still the same, but stores have to figure out how to change their products. People will want to have a good time in these places, so the design has to show that.

## **4. CONCLUSION**

The gem and jewellery industry in India is not well-organized and is divided into many parts. The majority of the market is dominated by small, family-operated jewellery stores. Many customers like these shops because regular jewellery stores raise their prices when the cost of materials goes up. This study explores the concept of a Western jewellery brand entering India which is already brimming with jewellery stores- and envisions a new strategy to attract



customers to their stores. To re-imagine luxury for the younger generation that they are targeting as well as sell an experience that has not been implemented by the local jewellery stores.

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## CHAPTER 8

### A STUDY ON ENHANCED LEARNING SYSTEM IN SCHOOL EDUCATION

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#### ABSTRACT:

A school is a learning environment where students can receive lessons from teachers and a structure for classrooms and other learning environments. Most classrooms are designed with the classic "stand-and-deliver, sit-and-listen" teaching in mind which ignores students' physiological, social, and emotional development. Inflexible planning that restricts movement makes it difficult for students, teachers, and the curriculum to interact which undermines the fundamental goal of the learning environment. Designing for quick reconfiguring among many modes from lecture to project work, discussion, and test-taking, and back again allows different kinds of learners to identify and make use of their unique learning preferences. The study concludes that the convergence of traditional educational methods and modern technologies is critical to a child's overall development. The goal of this capstone study is to establish the foundation for future design principles for learning environments.

#### KEYWORDS:

Classrooms, Environments, Learning System, School Education.

### 1. INTRODUCTION

The introduction of an improved learning system in schools has resulted in a radical change in how pupils interact with information and abilities. Enhancing the teaching and learning experience, educational institutions are progressively implementing improved learning systems in response to the changing nature of education and the incorporation of cutting-edge technologies. In contrast to conventional techniques, an enhanced learning system makes use of interactive platforms, state-of-the-art technologies, and customized methods to meet the various demands and learning preferences of students. The integration of digital tools and resources beyond traditional textbooks is a crucial feature of this inventive method. In addition to making learning livelier, multimedia information, interactive simulations, and virtual laboratories can help students grasp difficult topics on a deeper level [1].

Additionally, customized learning pathways are made possible by adaptive learning algorithms, letting students advance at their speed and obtain focused assistance as required. Another essential component of the enhanced learning method is collaboration. Collaborative projects, discussion boards, and virtual classrooms allow students to communicate with each other across distances and promote the sharing of different viewpoints. By doing this, students improve their communication skills and get ready for the collaborative nature of the modern workplace. Moreover, the built-in real-time feedback mechanisms in enhanced learning systems enable teachers to efficiently track students' progress. Instructors can pinpoint students' areas of strength and weakness with the use of data analytics and assessment tools which enables prompt interventions to meet each student's unique learning needs. This use of a data-driven strategy results in a more efficient and customized learning process [2].

As schools adopt new pedagogical approaches and harness the power of technology the enhanced learning system opens the door for students to have more effective, inclusive, and engaging educational experiences. It is a paradigm shift in education toward a more dynamic, interactive, and personalized learning environment.

#### *1.1. A brief overview of Education:*

The foundation of both individual and societal development is education, which gives people the skills they need to advance intellectually and helps them become well-rounded citizens. Fundamentally, education is a complex process that includes learning values, attitudes, skills, and knowledge. It takes place in a variety of environments from official ones like colleges and

universities to more casual ones like self-directed learning and neighborhood-based projects. Formal education usually progresses through several levels, including primary, secondary, and higher education, according to a set curriculum. It seeks to provide people with subject-specific information, critical thinking skills, and fundamental literacy and numeracy abilities. Higher education establishments also focus on particular fields, developing specialization and equipping students for careers [3].

Over time, educational approaches have changed to reflect both societal shifts and technology breakthroughs. Because they are more flexible and accessible than traditional classroom-based instruction, online and blended learning strategies have supplemented and in some cases completely supplanted it. The value of holistic development is also acknowledged by the educational system which places equal emphasis on academic success and the development of social skills, creativity, and emotional intelligence. Since education gives people the chance to grow both personally and professionally, it is an effective tool for fostering equality and social mobility. Additionally, it is vital in establishing civic duty, advancing lifelong learning, and molding cultural norms. Education continues to play a critical role in equipping people to negotiate the complexities of the modern world as cultures continue to change [4].

### *1.2. Education During the Vedic Period in India:*

An important period in ancient Indian history, the Vedic period (c. 1500–500 BCE) set the groundwork for many facets of Indian philosophy, education, and society. The Vedas, a collection of religious and philosophical writings were written during this period, and an organized educational system came into being. Memorization and recitation were key components of the oral education system used to deliver education throughout the Vedic era. The Rigveda, Samaveda, Yajurveda, and Atharvaveda are among the four Vedas that were remembered and passed down orally from generation to generation by a certain class of scholars called Brahmins. An important part of this educational process was the residential schooling system known as the Gurukula system. Under the Gurukula system, pupils lived in an ashram or hermitage with their teacher (guru) who was usually a young boy from the Brahmin, Kshatriya, or Vaishya castes. The guru taught a variety of subjects, including mathematics, astronomy, philosophy, and ethics, in addition to information about the Vedas. The goal of the all-encompassing education was to foster moral and intellectual growth [5].



**Figure 1: shows key points of Education during the Vedic Period in India [iepurdue.com].**

While the Vedas were the core of the curriculum, other significant writings such as the Vedangas and Upavedas were also included. While Upavedas dealt with a variety of specialized subjects including Ayurveda (medicine), Dhanurveda (archery), Gandharvaveda (music and performing arts), and Arthashastra (economics and politics), Vedangas were auxiliary sciences that assisted in the understanding and accurate recitation of the Vedas. Learning was highly personalized, and students had the flexibility to choose their areas of specialization based on their inclinations and aptitudes. The emphasis on oral transmission and memorization contributed to the preservation of knowledge, as written records were not prevalent during this period. Education during the Vedic period played a crucial role in shaping the cultural and intellectual foundations of ancient India. The Gurukula system fostered a strong teacher-student relationship and provided a holistic education that extended beyond academic knowledge, encompassing ethical values and life skills. The legacy of Vedic education continues to influence contemporary education systems in India [6].

### *1.3. Modern schools' education:*

The way that education is taught in schools today has changed significantly, reflecting both the evolving requirements of society and pedagogical and technological breakthroughs. Schools are organized establishments that offer children and teenagers formal instruction in the modern day. Typically, the curriculum covers a wide range of topics, including language arts, social studies, science, math, and physical education. The formalization and uniformity of education in modern schools is one of its main characteristics. Curriculum guidelines are set by educational boards and authorities to guarantee a basic level of instruction in all schools. This standardization makes it easier to evaluate pupils' development consistently and makes the transfer between institutions easier. These days, schools frequently use a wide variety of instructional strategies and technological tools to improve student learning. In addition to traditional teaching tools, interactive whiteboards, digital textbooks, and online resources help make classes more engaging and flexible for a variety of learning styles. In addition, to promote critical thinking, problem-solving abilities, and cooperation, schools are progressively incorporating project-based learning and collaborative activities [7].

Grade levels are typically a part of the organizational framework of modern schools, and they are each assigned to a certain age group. As they move through these stages students are primarily concerned with reaching their academic objectives. Exams, assessments, and grading schemes are frequently employed to appraise students' academic performance and offer feedback on their development. Modern schools understand the value of overall development in addition to academics. Sports, the arts, and cultural events are examples of extracurricular activities that are essential to school life. These activities help kids grow as individuals by fostering their abilities, encouraging social skills, and imparting virtues like self-control and cooperation. To meet the wide range of requirements of pupils specialized educators like counselors and special education teachers are frequently employed by schools. Intending to create inclusive environments that accommodate students with a range of skills, experiences, and learning styles, inclusion and diversity have emerged as fundamental concepts in contemporary education [8].

The facilitation and mentoring roles of instructors are also emphasized in modern education. It is believed that the teacher-student connection is a collaboration that motivates students to take an active role in their education.

Teachers need professional development opportunities to stay current with changing educational practices and technologies. Standardized curricula, the use of technology, an emphasis on holistic development, and an inclusive approach that meets the requirements of a wide range of students are characteristics of modern schooling. Together, these characteristics help students develop into well-rounded people with the knowledge and abilities needed to meet the challenges of the modern world [9].

#### *1.4. Principles of enhanced learning system in school education:*

##### *1.4.1. Personalization:*

The fundamentals of an improved learning system in education include a flexible and creative methodology intended to maximize students' educational experiences. The first and most important fundamental idea is personalization, which tries to adjust the learning process to each learner's unique requirements, preferences, and skills. This is made possible by adaptive learning technologies, which modify the pace and content according to the progress of the pupils resulting in a more successful and individualized learning process [10].

##### *1.4.2. Interactivity:*

Another essential concept is interaction, which emphasizes involvement and active engagement. A more dynamic and engaging learning environment is produced in the classroom by enhanced learning systems that make use of interactive tools, simulations, and multimedia resources. Practical experiences, not only grab students' attention but also encourage a deeper comprehension of subjects.

##### *1.4.3. Flexibility:*

A fundamental tenet of education is flexibility, which recognizes the wide range of student learning styles and rates. The requirement for flexibility in scheduling, content delivery, and evaluation techniques is acknowledged by contemporary educational institutions. This idea is consistent with the knowledge that every student is unique and can benefit from a variety of teaching methods.

##### *1.4.4. Collaboration:*

To help pupils develop a sense of community and teamwork collaboration is a fundamental concept. Students can collaborate, exchange ideas, and learn from one another through online discussion forums, collaborative projects, and virtual classrooms. In addition to improving social skills, collaboration helps students get ready for the collaborative nature of many professional contexts.

##### *1.4.5. Real-world relevance:*

A guiding concept known as "real-world relevance" makes sure that the knowledge and abilities imparted in schools have real-world applications. This idea highlights how crucial it is to get pupils ready for the obstacles they might face outside of the classroom and in their future employment.

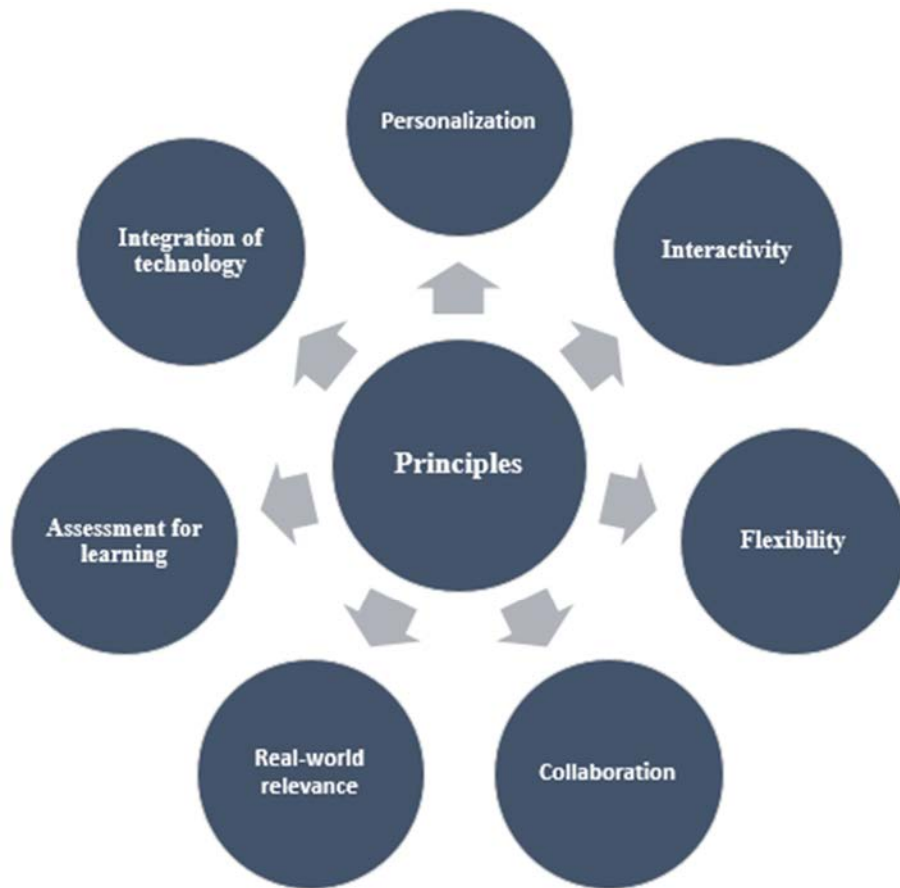
##### *1.4.6. Assessment for learning:*

The idea behind assessment for learning is to use evaluations as instruments for continuous improvement, as opposed to assessment of learning. Adaptive testing techniques, feedback loops, and formative assessments are used to track students' development and offer prompt interventions as necessary. With this method, the focus is shifted from evaluation to ongoing learning.

##### *1.4.7. Integration of technology:*

Technology integration is a cornerstone of an improved learning system. Artificial intelligence, augmented reality, and virtual reality are examples of contemporary educational technologies that are used to improve learning, open up new research opportunities, and get students ready for the digital age.





**Figure 2: shows the principles of enhanced learning systems in school education.**

Personalization, interaction, flexibility, collaboration, real-world relevance, evaluation for learning, and technological integration are the cornerstones of an improved learning system in education as shown in Figure 2. When taken as a whole these ideas help to create a dynamic, flexible, and welcoming learning environment that gives students the information and abilities they need to succeed in the twenty-first century.

#### *1.5. Defining the Conventional system of school education:*

The standard, established method of formal education that has been in use for many years is referred to as the "conventional system of school education." Within this framework, instruction is generally organized around actual classrooms, textbooks, and in-person interactions between instructors and students. The curriculum progresses through standardized disciplines like math, science, language arts, and social studies in a linear pattern that is frequently established by educational authorities. As the focal point of traditional education, the classroom operates on a set timetable, with pupils progressing through several topics during designated periods. The teacher assumes a pivotal function as the foremost information and guidance provider, dispensing lectures, assigning readings, and evaluating students' comprehension via tests and assignments. As the main means of knowledge dissemination, textbooks are an essential part of the traditional educational system. Facts and concepts are frequently needed by students, and exams usually gauge how well they can remember them. Standardized testing is emphasized as a means of assessing students' academic performance and contrasting it with predetermined standards [11].

A one-size-fits-all curriculum and consistent rate of material progression are hallmarks of the traditional system, which applies the same curriculum to all pupils in a given grade level. The

more general goals stated by educational authorities frequently take precedence over the interests and learning styles of individual students. Even if they exist, extracurricular activities are usually not as well incorporated into the main school program. Within the conventional system, academic accomplishment continues to be the primary focus, notwithstanding the possibility of possibilities for personal and social growth. The traditional system has been criticized for being strict and having little flexibility to accommodate different learning styles, even if it has been successful in offering an orderly and structured framework for education. As educational paradigms change, this conventional method is progressively changing as a result of increased awareness of the value of technological integration, personalized learning, and a wider focus on skills than memory. However, the traditional system is still firmly established in many educational establishments and serves as the foundation for many modern educational innovations [12].

#### *1.6. Adopting Active learning in classrooms:*

The implementation of active learning in the classroom signifies a paradigm change away from conventional, lecture-based teaching techniques and toward a more dynamic, student-centered approach to education. By involving them in activities that promote critical thinking, problem-solving, and teamwork, active learning puts students at the center of the learning process. Teachers operate as facilitators in active learning environments, leading students through interactive activities and conversations. Using cooperative activities like group projects and conversations is essential to implementing active learning. Students are encouraged to collaborate, exchange ideas, and create knowledge as a group through these activities. In addition to improving students' interpersonal skills, collaborative learning exposes them to a variety of viewpoints, which deepens their grasp of the subject. Active learning is frequently facilitated by the use of technology. Tools for interactive inquiry and engagement include instructional apps, online simulations, and interactive whiteboards. With the use of these tools, students can engage more dynamically with the material, enhancing and personalizing the learning process [13].

Discussions in the classroom are essential to the active learning environment. Discussions give students a forum to voice their opinions, pose questions, and refute theories rather than a one-way information flow from teacher to student. This fosters a more welcoming and interactive environment and motivates students to take charge of their education. Another characteristic of active learning is the inclusion of problem-solving exercises. Through the presentation of real-world challenges or case studies, instructors push their students to apply what they've learned to real-world scenarios. In addition to strengthening critical thinking abilities, this method highlights how applicable academic ideas are in real-world situations. A change in assessment practices is another aspect of active learning. Assessments might take the form of projects, presentations, and portfolios that demonstrate a student's application of knowledge and abilities in meaningful ways, as opposed to just standard tests. This method offers a more thorough and reliable assessment of a student's comprehension. All things considered, implementing active learning in the classroom makes learning a dynamic, student-centered process. Active learning produces an environment where students are actively engaged, motivated, and better prepared for the difficulties of the modern world by supporting collaboration, utilizing technology, facilitating discussions, encouraging problem-solving, and reinventing examinations [14].

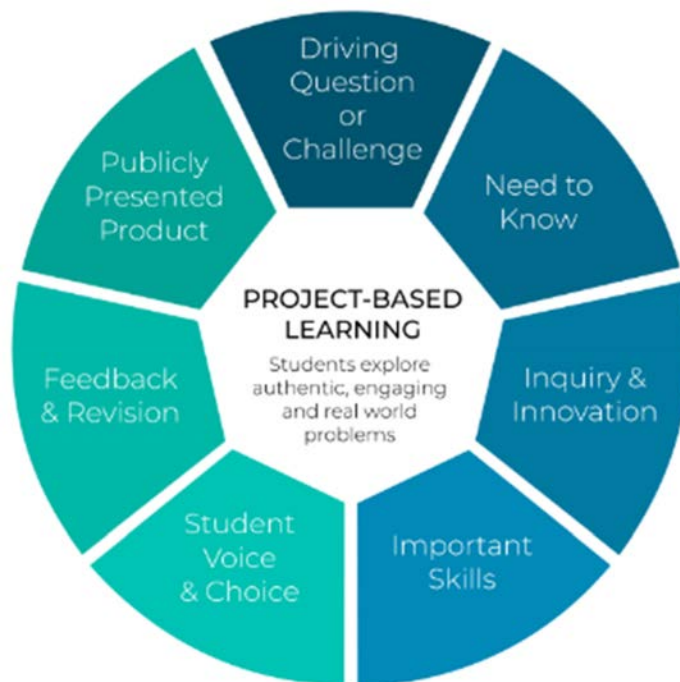
#### *1.7. Academic model: project-based learning:*

By immersing students in practical, real-world projects, Project-Based Learning (PBL) as shown in Figure 3 is a progressive academic methodology that departs from conventional classroom arrangements. Fundamentally, PBL moves the emphasis from passive information consumption to active participation and knowledge application. Under this model, students work together on projects that call for creativity, critical thinking, problem-solving, and

teamwork skills that are applicable in both everyday and professional contexts. An open-ended, real-world problem or topic that acts as the project's motivator usually starts the PBL process. After that, students, frequently in groups, delve deeper into the subject by carrying out research and using what they already know. This method fosters interest and a sense of ownership in addition to deepening their grasp of the material [15].

Integrating several topics is essential to PBL because it enables students to understand how information is connected. PBL encourages a comprehensive grasp of subjects, whether it is through a literature project combining quantitative analysis or a science experiment with historical ramifications. This multidisciplinary approach helps students to approach problems from a variety of perspectives and reflects the complexity of real-world challenges. Teachers take on the role of facilitators in PBL, helping students along the way and offering resources and support. The focus is on helping students develop intrinsic motivation as they work through real-world issues. Students practice teamwork and communication skills as they design, carry out, and present their projects collaboratively, mirroring the collaborative aspect of many professional settings.

Unlike traditional techniques, PBL assessment focuses on assessing both the process and the outcome. Criteria about research, critical thinking, creativity, teamwork, and presentation abilities are frequently seen on rubrics. This holistic method of evaluation offers a more complete picture of a student's skills and preparedness for real-world situations. In addition to improving academic knowledge, project-based learning fosters vital life skills like cooperation, communication, and problem-solving. PBL helps students apply their knowledge to real-world scenarios by involving them in relevant practical projects. This helps students gain a deeper comprehension of the material and become more equipped to deal with the challenges of today's complicated world [16].



**Figure 3: shows the project-based learning academic model [centriclearningacademy.com].**

#### *1.8. A vision for an integrated model and space in the learning system:*

The development of a flexible and adaptable learning environment that skillfully combines real and virtual spaces is necessary to envision an integrated model and space in the educational

system. This approach involves transforming conventional classrooms into collaborative hubs that are outfitted with state-of-the-art technology to enable interactive lessons and practical applications of knowledge. Innovation labs and collaborative workspaces are examples of adaptable, multipurpose facilities that enhance traditional learning environments by encouraging creativity and project-based learning. With an emphasis on interdisciplinary approaches, the curriculum goes beyond standard topics, and assessment techniques concentrate on thorough evaluations that involve projects and presentations. Personalized learning plans and adaptable tactics are given priority in this learner-centric model which guarantees inclusivity and accommodates a range of learning styles. To educate students for success in a constantly shifting global context the integrated learning system envisions an environment that not only prepares them intellectually but also fosters critical thinking, problem-solving abilities, and a feeling of social responsibility.

### *1.9. Understanding multiple ways of learning:*

Recognizing the many learning styles used in the classroom is essential to appreciating the varied requirements and preferences of the pupils. Because every person learns differently, instructors need to recognize this and provide accommodations for a variety of learning styles to guarantee that students understand and retain the material. Some students learn best in visual contexts, where they can make use of charts, graphs, and pictures; others learn best in aural environments, where they can listen to lectures or conversations). In addition, kinesthetic learners find that engaging experiences and hands-on activities help them better understand concepts. A thorough strategy includes using multimedia resources, encouraging class discussions, including real-world, experiential learning opportunities, and incorporating these different learning styles into lesson planning. By embracing a variety of teaching methods, educators can build inclusive learning environments that meet the unique needs and interests of their students, making learning more interesting and productive for all.

## **2. LITERATURE REVIEW**

Seble Tadesse et al. [17] discussed the impact of coronavirus on international education. Colleges, universities, and schools have been closed to prevent the spread of coronavirus. School closures create problems for parents, teachers, and children. Therefore, distance education provides a way to conduct the learning process. However, distance education is difficult in developing countries due to the lack of computers, internet access, and internet infrastructure. The purpose of this article is to examine how the COVID-19 pandemic affects education in developing countries. Therefore, the country developed a plan to leverage public education, free online education, and technical education. Schools are developing curricula during school closures and post-coronavirus teaching. When schools reopen, schools will have plans to stop teaching and readmit students. The private education system in developing countries has been affected by the coronavirus. Therefore, developing countries need to develop their virtual classrooms, and online and broadcast education systems.

Hani Morgan [18] explored that discover the challenges faced by educational institutions during the coronavirus outbreak As of March 25, 2020, the only way for teachers and students to exchange information is to stay away from education. The system was first used in traditional schools. It is characterized by a lack of planning processes and clear needs for the learning process for teachers and students. The laws that are supposed to guarantee good education have changed, but they are very broad and have many exceptions. This article provides an overview of online education. The conflict between students' expectations and the reality they face. Young people have the skills to use new media, but they do not have the necessary skills for distance education. They were not even taught how to study properly, let alone today's technology. The article also presents the results of the author's research on the ages of students in I-III, IV-VI, VIII-VIII, and three high schools, and describes the attitudes of young people

towards distance learning before and after use. Findings suggest that academic performance may be affected if students do not acquire the basic skills needed to study remotely.

Rian Jamhari et al. [19] explained the educational framework and the role of teachers in helping primary school students understand the meaning of behavior. This research was explained very well. Purposive sampling is a data collection method. Students of Bayt Tamyiz Private Primary School, Indramayu Regency are included in the course. In this study, observation, data analysis, and in-depth interviews were used as data collection tools. This research uses location and triangulation techniques to provide valid data. The results of the research show that education at Bayt Tamyiz Private Primary School is coordinated by the project of creating toys and designing and adapting them according to the school's goals. To make the student's academic behavior useful in daily life, the teacher's role in this section is to create a game plan based on the process of learning progress in and outside the classroom. To help teachers teach good behavior to their students during in-class and out-of-class learning, this study aims to provide an overview of the school's method studies and teachers' work.

Liliana Paschia et al. [20] mentioned the statement was made by the government using primary schools to provide proper education to the public. Thanks to primary schools, the community can receive education in a variety of subjects that can form the basis of Indonesia's future development in the country, thanks to six and nine years of formal national education. Since education is compulsory in Indonesia and the country is good enough the illiteracy rate has started to decrease. Therefore, a good education should touch every part of Indonesia and every Indonesian, marching to make Indonesia a leader in international education. This study used a quantitative research design focusing on the administration of a research instrument to 100 selected participants to obtain accurate and factual information. Therefore, using this method, research can continue to solve research questions. Researchers analyzed online and offline education of schools and different aspects during the epidemic to determine which ones may have an impact on Indonesia's education system in particular. By considering these factors, primary schools will be able to determine what is good and what can be reduced. The data used in this study will be processed using SPSS software. Therefore, by processing this data, changes affecting primary schools can be detected.

### 3. DISCUSSION

Since the introduction of improved learning systems into classrooms, the educational landscape has undergone a radical change. This study explores the many facets of this novel strategy, looking at its guiding principles, effects on student performance, and opportunities and problems it offers educational institutions and teachers. The enhanced learning system places a strong emphasis on customization, which is one of its main characteristics. More individualized techniques are replacing traditional, one-size-fits-all teaching strategies by taking into account each student's unique learning preferences, style, and speed. Teachers can tailor content delivery to each student, making learning more effective and individualized, thanks to adaptive learning technology and data-driven insights. An additional pillar of the improved learning system is interactive involvement and collaboration. Students can communicate and collaborate beyond geographical boundaries through virtual classes, online forums, and cooperative projects. The study looks at how these group projects help students develop their social skills and get ready for the collaborative demands of the modern workplace. In addition, technology integration is essential to the improved learning system. The article explores how digital tools such as educational apps, virtual reality, interactive whiteboards, and others are changing the conventional classroom setting.

The goal of the seamless integration of technology into education is to make it more dynamic, interesting, and in line with the skills that students will need to succeed in the digital age. Within the enhanced learning system, assessment techniques also experience a paradigm change. The transition from traditional tests to a more thorough assessment approach which



includes project-based evaluations, simulations of real-world situations, and ongoing feedback mechanisms is examined in this study. This change demonstrates a dedication to assessing both the retention of knowledge and the use of abilities in real-world situations. Although there are many benefits to the enhanced learning system, this research critically looks at the difficulties that teachers can encounter when putting it into practice. We look at topics like the digital divide, teacher readiness, and the necessity of continuous professional development. The study also explores issues of equality and how crucial it is to guarantee that all students, regardless of socioeconomic status, may make use of improved learning systems. This study offers a comprehensive analysis of the improved learning approach used in classroom instruction. Through an analysis of its guiding principles, implications, obstacles, and prospects, the study adds to the current conversation about how education is changing in the twenty-first century. The improved learning system is a viable strategy for creating a more welcoming, interesting, and productive learning environment for students as education continues to change.

#### 4. CONCLUSION

The implementation of the enhanced learning system in schools represents a paradigm change in the direction of a more flexible and customized learning environment. This system takes into account the various demands and learning styles of students by including tailored learning routes, interactive techniques, and state-of-the-art technologies. The focus on adaptability, teamwork, and connection to the real world encourages a comprehensive educational experience that goes beyond conventional classroom walls. Active engagement, flexibility, and the incorporation of interdisciplinary information are fundamental concepts that enable students to gain knowledge while simultaneously refining their critical thinking and problem-solving abilities and preparing them for the challenges of the contemporary world. The improved learning system is a beacon pointing the way toward a learner-centric approach that gives students the information, skills, and adaptability they need for success in the modern world. This method helps us anticipate the future of education. This paradigm change has the potential to produce well-rounded, involved, and progressive people who are prepared to make significant contributions to society.

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## CHAPTER 9

### ANBUKKUDIL: TRANSFORMING EMERGENCY SHELTERS FOR OPTIMAL POST-DISASTER RESILIENCE AND WELL-BEING

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#### ABSTRACT:

Natural disasters are unpredictable and devastating events that result from the Earth's natural processes. These catastrophic occurrences can take various forms, including earthquakes, hurricanes, floods, tornadoes, wildfires, and tsunamis, among others. In the aftermath of natural disasters, the immediate provision of shelter is critical for the well-being and resilience of affected populations. This paper introduces Anbukkudil, an innovative method of emergency shelter design that goes beyond traditional solutions. Anbukkudil aims to address the multifaceted needs of disaster survivors by incorporating principles of sustainability, community engagement, and psychological well-being into its design. Anbukkudil represents a paradigm shift in emergency shelter design, emphasizing not only physical safety but also the long-term psychological and social needs of disaster survivors. By fostering a holistic approach to post-disaster recovery, Anbukkudil strives to contribute to the creation of resilient communities capable of overcoming the challenges posed by natural disasters. The shelter design incorporates sustainable materials, energy-efficient technologies, and modular construction methods, ensuring rapid deployment and reduced environmental impact. Furthermore, Anbukkudil places a strong emphasis on community involvement, encouraging collaboration in the planning and implementation phases to foster a sense of ownership and empowerment among residents. Anbukkudil is not merely a physical shelter but a holistic approach to post-disaster recovery, aiming to break the cycle of vulnerability and dependence often associated with emergency housing. By redefining the concept of emergency shelters, Anbukkudil envisions a future where displaced communities not only endure the challenges of immediate crises but emerge stronger, more resilient, and better equipped to rebuild their lives in the aftermath of disasters.

#### KEYWORDS:

Anbukkudil, Emergency Shelter, Evacuation, Disaster, Flood.

#### 1. INTRODUCTION

Natural catastrophes not only take lives but also if people are left to deal with the aftermath, destroy any chance of survival. Through the induction of a degree of readiness inside damaged systems, this program aims to establish optimism in post-disaster life. The capstone particularly considers the space needs of the elderly, women, and children who are the most vulnerable parts of the community during flooding crises. Located in the Cuddalore district of Tamil Nadu, India's Thiyagavalli hamlet, the design intervention is a multifunctional emergency evacuation facility. The main goal is to change the public's impression of emergency shelters from being just big, empty community halls to being locations where people may congregate and socialize when their communities are most in need. The design prioritizes communal meeting spaces while maintaining individual privacy, all the while highlighting togetherness. Anbukkudil is a humble but ambitious attempt to develop a module that helps organizations and the community in times of need. When the area isn't used by evacuees, it can be used for other activities like responder training [1], [2]. With the appropriate modifications, this flexible module may be used in different evacuation centers across the country to meet unique contextual requirements. A natural catastrophe is a noteworthy occurrence brought on by the planet's natural processes that result in major environmental damage, human casualties, and property loss. Examples include volcanic eruptions, quakes, tsunamis, storms, firestorms, dust storms, hurricanes, tornadoes, floods, and other geologic processes. Numerous natural catastrophes have struck Earth during its 4.54 billion-year history, causing major extinction events that have severe consequences for the remaining species. Natural catastrophes are sometimes preceded by natural risks, such as living under the age of active fault lines. One such instance is the January 26, 2001, earthquake in Gujarat, when the natural hazard was located near active fault lines. Human activity may have an impact on some natural hazards, such as landslides caused by

mining, deforestation, and agricultural operations. Massive amounts of widespread devastation are often the outcome of natural catastrophes. For example, wildfires not only ruin animal habitats but also result in property damage and fatalities [3], [4].

An unplanned incident that harms society and has an impact on the environment and its people is referred to as a natural catastrophe. Earthquakes, cyclones, flooding, tsunamis, landslides, volcanic eruptions, and avalanches are a few examples of these disasters. A disaster's scale or severity may be determined by looking at how far it has spread spatially. Catastrophes are severe disturbances to a community's regular operations that exceed its ability to manage the resources at hand. Disasters are caused by a variety of elements that affect a community's exposure and susceptibility, as well as man-made, natural, and technological dangers. Furthermore, certain natural risks might be exacerbated by human activity. For example, mining, agriculture, and deforestation may all cause landslides. Natural catastrophes often leave behind vast amounts of devastation; wildfires, for example, not only destroy animal habitats but also inflict damage to buildings and claim lives [5], [6]. Figure 1 depicts a village in the flood-affected Morigaon district of Assam.



**Figure 1: Illustrates a village in the flood-affected Morigaon district of Assam [7].**

India is very vulnerable to many different types of natural disasters, including landslides, cyclones, floods, and droughts. The Indian subcontinent is more vulnerable to earthquakes than any other area in the world, with over 58.6% of its landmass vulnerable to them and over 12% to floods and river erosion. The nation is exposed to around 10% of the total world's tropical cyclones due to its vast coastline, which stretches 7516 km (5400 km along the mainland, 132 km in Lakshadweep, and 1900 km across the Andaman and Nicobar Islands). There is a high degree of flood vulnerability; about 40 mha of the 329 mha total geographical area is deemed flood-prone. Cyclone catastrophes are more common in states including Andhra Pradesh, Odisha, Tamil Nadu, and West Bengal, as well as in the Union Territory of Puducherry on the East Coast and Gujarat on the West Coast. About forty percent of the population lives 100 kilometers or less from the seashore. According to data research covering the years 1980–2000, 370 million people across the nation are exposed to cyclones on average each year, which causes significant property damage, infrastructure, livelihood losses, and disruptions to public services. Over the previous ten years (1996–2005), there has been an average yearly flood damage of Rs. 4745. This has been ascribed to several causes, including urbanization, fast population expansion, increasing commercial and developmental activity in flood plains, along the effects of global warming. Roads, bridges, farms, homes, cars, and other infrastructure are destroyed, leaving people without a place to live [8], [9]. The government responds by sending out police, firemen, and other emergency services to assist the impacted parties, resulting in

significant expenses for both the government and the people. Rebuilding communities and getting businesses back to normal takes time, usually many years. There are serious negative effects on the environment as well, as chemicals and other dangerous materials contaminate water sources. Aquatic habitats are negatively impacted by this pollution, which also introduces new insects that upset the natural equilibrium and kill animals. People and animals tragically die from one another, while many more are injured or abandoned. Essential services like power and water delivery are also affected, causing people to deal with serious difficulties and hardship. In addition, a wide range of illnesses and infections, such as diarrhea, dermatopathia, pneumonia, military fever, and plague, are brought on by floods [10], [11].

The present study is about transforming emergency shelters for optimal post-disaster resilience and well-being using Anbukudil. The rest of the paper organized in following section 1 provides This Capstone is an effort to better equip an existing emergency shelter for flood victims, and explore the notion of space as an aid for revival, adaptation, and prolonged use. Section 2 represented the literature review. The discussion is presented in section 3 to show the types of emergency shelters used in natural disasters. The summary of this study is presented in section 4.

## 2. LITERATURE REVIEW

S. R. Liou *et al.* [12] purpose of the research was to determine if anticipatory disaster stress, desire for disaster engagement, and disaster competence of Taiwanese nurses were predictively correlated. Data gathered from eight hospitals in southern Taiwan between August 2017 through December 2017 were examined using a cross-sectional approach. Ninety individuals who fulfilled the eligibility requirements had an 88.24% response rate by filling out and sending in questionnaires. The Disaster Nursing Competence Questionnaire, the Anticipatory Disaster Distress Questionnaire, along with the Motivation of Disaster Engagement Questionnaire were administered as part of the study. The results showed that disaster competence, desire for disaster involvement, and anticipatory disaster stress were positively correlated. Additionally, it was shown that an individual's desire for disaster participation was predicted by disaster competency and a propensity to assist in hospital disaster rescue operations. Through the development of effective disaster education programs and tactics, government and health care professionals will be able to better understand the elements that influence Taiwanese nurses' desire to participate in catastrophe events. This research provides invaluable insights into these issues.

A. Mustadi and S. E. Atmojo [13] using a SETS-based disaster learning framework, the study's objective was to evaluate students' disaster literacy by looking at their mitigation, adaptability, and responsibility profiles. Three schools in earthquake-prone areas were selected at random from among all the schools in the system. The study's chosen school is located in Bantul, Yogyakarta, Indonesia, in an earthquake-prone location. Utilizing observational methods and tools, such as observation sheets that highlight primary school kids' adaptability, mitigation, and accountability, was part of the data gathering process. The method of data analysis used was descriptive percentage analysis. The results showed that after taking part in the extensive SETS-based disaster learning program, students had an average mitigation knowledge level of 92.01, which is classified as extremely high. Furthermore, accountability skills scored 84.04, classified as high, and adaption skills earned 85.20, falling into the high range.

J. Lee *et al.* [14] using datasets and case studies, research investigates the major health effects of natural catastrophes on a worldwide scale. It points out weaknesses in the indicator structure of the Sustainable Development Goals (SDGs) for tracking health effects and makes suggestions to fix them. The study includes 38 case studies published between 2008 and 2018 as well as data on natural disasters. Measures of correlation (Risk Ratio, Odds Ratio, and Incidence Rate Ratio) are extracted from the case studies as part of quantitative analysis. The findings draw attention to the SDGs' weaknesses, especially its failure to include indicators for



mental health risk factors, multifactorial diseases, and water-borne illnesses diseases that are critical to comprehending the health effects of natural disasters like floods and droughts. The study highlights how the little attention paid to suicide as a mental health symptom ignores the serious implications of anxiety disorders or in those who have experienced a tragedy. The research promotes the integration of health issues in national, local, and individual resilience-building activities. It suggests, in its conclusion, that further study on disaster risk reduction (DRR) initiatives and the use of the Sendai Framework may help develop a complete understanding of health resilience that takes into account the many needs of those who are at risk during disasters.

T. Le Roux and D. Van Niekerk [15] present investigation was exploratory in nature and qualitative in nature, made use of information obtained from the catastrophe debrief, a community-created Facebook page, and theme analysis of qualitative in-depth interviews. The findings show that, in order to effectively coordinate rescue and relief activities, it is necessary to disseminate crisis information every 30 to 60 seconds. Overlooked factors in disaster management policies and procedures were the difficulties experienced by disaster management teams in carrying out this significant responsibility and the undervalued role that the self-organizing community played in promoting communication. The activities of the disaster management team and the relationships with stakeholders were negatively impacted by this lack of acknowledgment. Although the study focused on a particular tragedy, examining several disaster situations may improve knowledge in future studies. It emphasizes the community's ability to assist with communication management during emergencies, a capability that is currently underrepresented in disaster management procedures, policies, or systems of management.

In the above study reveal that shortcomings in the SDGs, particularly in addressing mental health risk factors, multifactorial diseases, and water-borne illnesses crucial in understanding the health impacts of disasters like floods and droughts. In this study, the author discusses rapid response organization and classification of emergency shelters.

### 3. DISCUSSION

A comprehensive and interdisciplinary strategy, disaster management aims to reduce the harm that natural and man-made catastrophes do to people, property, and the environment. It includes a variety of actions, such as mitigation, recovery, reaction, and readiness. Creating plans, practicing, and making sure that people, organizations, and communities are equipped to handle any emergencies are all parts of preparation. The first phase of a catastrophe response entails taking urgent action to preserve lives and provide for necessities. While mitigation tries to lessen the likelihood and severity of future catastrophes via strategies including better infrastructure, land-use planning, and public awareness, recovery focuses on rebuilding and rehabilitating devastated regions. Collaboration between governmental and non-governmental groups, communities, and the corporate sector is necessary for effective disaster management. Utilizing data and technology for risk assessment, early warning systems, and effective coordination is also part of it. Developing resilient communities that can endure and recover from a range of hazards while guaranteeing a prompt and well-coordinated response to protect lives and livelihoods is the aim of disaster management. A catastrophe is defined as a widespread disturbance that occurs over short or long periods and is caused by either natural forces or human activity. Such disasters may give rise to major problems that are beyond the ability of the affected civilization to handle, whether they be of a human, material, economic, or environmental kind. Based on statistical data, the whole country of India is susceptible to thirty different kinds of calamities. These occurrences might have long-lasting effects on productivity and macroeconomic performance, endangering the capacity for human, social, and economic growth. Figure 2 depicts the phases of an organization.



**Figure 2: Illustrates the phases of an organization.**

### 3.1. Phases of a Disaster:

The lifesaving phase, sometimes referred to as the fast relief phase, begins as soon as a catastrophe occurs and lasts for around one week. NGOs provide essentials to survivors during this era. After the initial shock and confusion have passed, survivors focus on healing from the trauma and enter the early recovery period. Assistance is given to help in their recovery, beginning with an evaluation of their basic requirements and continuing for a month or two after the catastrophe. The second part, rehabilitation, helps survivors start again by providing them with different support systems and livelihood evaluations. This stage, which lasts for at least a year after the accident, starts after the recovery stage. Figure 3 depicts the phases of disaster management.



**Figure 3: Illustrates the phases of disaster management.**

### 3.2. Rapid Response Organization:

As a recognized non-profit, Rapid Response is committed to helping underprivileged communities in both crisis and non-crisis situations by providing disaster response and preparation services. The company is dedicated to providing those impacted by natural

catastrophes with immediate aid as well as efficient and long-lasting support. Their services include a wide variety of vital tasks, such as providing food, hygiene supplies, medical attention, and education, in addition to rescue and medical support. Furthermore, Rapid Response prioritizes rehabilitation initiatives, with a particular emphasis on livelihoods. The group works closely with communities that are at risk, offering them training to improve their emergency response and lessen the effects of natural catastrophes [16]–[18].

### 3.3. *Emergency Shelters:*

While providing emergency shelter support is not only a technical matter, Oxfam's WASH engineers usually assume a pivotal role in guaranteeing that emergency shelter requirements are taken into account from the outset of evaluations. It is anticipated that Oxfam engineers would lead the search for appropriate remedies if evaluations show that emergency shelter criteria are not being satisfied. When WASH initiatives need direct shelter Non-Food Item (NFI) deliveries, Oxfam engineers are expected to provide technical requirements and start requisition procedures with logistical staff. Typically, PHP, ESFL, or specialist distribution teams are in charge of beneficiary identification and shelter NFI distribution. In keeping with previous Oxfam projects, all Oxfam personnel are still accountable for keeping an eye on how these supplies are used and how actions are having an effect. Oxfam's engineers will advocate for quality standards in the procurement of housing NFI materials for partner-led distributions. In certain cases, Oxfam's engineers could be assigned to provide technical supervision to guarantee that recipients use these goods appropriately. In Oxfam's partner-based humanitarian projects, capacity-building strategies are preferred above direct project supervision. Emergency Shelter Project Coordinators and specialist NFI distribution workers may be required in large-scale crises. Early identification of requirements for Shelter NFI distribution teams is stressed to avoid program implementation delays brought on by recruiting difficulties. Oxfam, a proactive participant in the IASC Emergency Shelter Cluster, is dedicated to realizing the objective of a timely and well-coordinated humanitarian response, satisfying all of the impacted communities' immediate housing requirements. It is not required for Oxfam to attend the Emergency Shelter Cluster conference, but it is required to notify emergency shelter distribution arrangements to the local Shelter Cluster's Information Management subgroup.

### 3.4. *Types of Emergency Shelter:*

If people are displaced for a long period, it could be necessary to provide more supplies or technical assistance so that they might improve or refine their emergency shelters. Before upgrading projects start, evaluations that include the opinions of beneficiaries, landowners, local government, camp administration, and the shelter cluster should be carried out. While prioritizing vulnerable persons for shelter renovation is consistent with the objectives of humanitarian programs, it may also give rise to tensions within communities and engender animosity among those who are receiving aid. It is in the best position for local partners to provide advice on reducing these risks. The several types of emergency shelter are classified as:

#### 3.3.1. *Tents:*

When people and families are suddenly uprooted from their homes, tents provide a quick and adaptable temporary refuge. Because of their fast assembly design, these shelters enable an immediate reaction in the event of a catastrophe. These tents act as a barrier against the weather, shielding inhabitants from inclement weather since they are usually constructed of sturdy, weather-resistant materials.

In addition to offering a simple and temporary place to live, the use of tents in emergency shelter operations makes it easier to set up well-organized and easily accessible shelter locations. To meet the many requirements of displaced people, these locations often provide water sources, sanitary facilities, and common areas. Tents provide a practical and speedy

answer for the first stages of disaster response, but it's important to understand that they are just short-term fixes. Figure 4 depicts the view of tents to protect people which affect from disaster.



**Figure 4: Illustrates the view of tents to protect people which affect from disaster [19].**

#### *3.3.2. Transition Shelter:*

Giving people and families who have been uprooted a more respectable and safe place to live is the main objective of transitional shelters. These buildings often address the requirement for more comfortable and private living spaces by including upgraded amenities such as appropriate flooring, insulation, and ventilation. To ensure that the design and layout are in line with local preferences and customs, transitional shelter programs also take into account the cultural and social components of the impacted communities. Moreover, transitional shelter programs engage and include the community, enabling displaced people to actively participate in the planning and development stages. This enhances the feeling of ownership while also making the shelter interventions more successful and long-lasting overall. Transitional shelters, as its name implies, are meant to serve as a stopgap before more long-term housing options, giving communities the space and time they need to start over after a disaster.

#### *3.3.3. Evacuation Halls:*

Evacuation halls are essential emergency shelters, particularly when there are impending dangers like natural disasters or other major catastrophes that force populations to evacuate. Evacuation halls are usually huge, multifunctional facilities built to swiftly house a large number of evacuees, unlike regular tents or transitional shelters. These buildings are positioned to provide those in need of refuge during crises with a central, readily accessible location. Evacuation halls are ideal for short-term stays during evacuation situations since they provide basic amenities including sleeping rooms, basic sanitary facilities, and sometimes even medical treatment. To guarantee that these buildings can adjust to different demand levels and emergency scenarios, their design places a strong emphasis on utility and scalability.

#### *3.3.4. Evacuation Shelters:*

The process of quickly moving people to a safe refuge away from the direct danger or effects of a catastrophe is known as evacuation. This process usually occurs in a few hours to weeks, requiring emergency protocols to be put in place to protect lives and minimize damage. Particularly in metropolitan regions hit by catastrophes, emergency evacuation shelters are often set up in already-existing facilities such as community centers, town halls, gyms, hotels,

warehouses, schools, industries, and unfinished constructions. Although these temporary shelters provide refugees with a roof and enclosure, issues with privacy and living circumstances develop. Even if they are utilized as shelters, public areas like community halls and schools don't provide the private space that people need, particularly the elderly, women, and children who are disproportionately impacted by catastrophes. The demands of this marginalized group in society are not being met to the same extent as the resources available to them. Even though their stay was short, this time is critical for healing since survivors are still processing profound trauma. Sadly, instead of helping them heal, the present circumstances make their problems worse.

#### 4. CONCLUSION

When it comes to emergency shelters, Anbukkudil is a shining example of creativity and optimism, especially in flood-prone locations like the Thiyaavalli hamlet in the Cuddalore district of Tamil Nadu, India. This capstone project goes above and beyond by concentrating on fostering a social and friendly atmosphere for evacuees in the aftermath of the crisis. The multipurpose emergency evacuation center raises the bar for disaster response since it was created with careful attention to the community's most vulnerable groups, including women, children, and the elderly. Anbukkudil transforms emergency shelters from being just functional buildings into a place where people may gather, find comfort, and begin the process of rebuilding their lives following natural disasters. The focus on group gathering areas while preserving personal space shows consideration for the mental and emotional health of those who have to evacuate. Anbukkudil's adaptability as a module enables it to be tailored to various evacuation centers around the nation, meeting a range of contextual needs. Additionally, adding responder training during non-evacuation times adds another level of usefulness and strengthens the community's overall preparation for disasters. Anbukkudil serves as an example of not merely providing temporary shelter but also encouraging resilience, unity, and a feeling of normality in hardship as India continues to struggle with several natural catastrophes. This capstone project serves as a reminder of the value of holistic disaster management, which takes into account the impacted people's mental and emotional health in addition to their physical safety. Essentially, Anbukkudil is a modest but aspirational first step toward developing a more humane and efficient response to natural catastrophes, laying the groundwork for further initiatives to redefine emergency shelters to maximize resilience and well-being in the wake of a disaster.

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## CHAPTER 10

### INNOVATIONS AND TRENDS IN ACADEMIC LIBRARIES: A COMPREHENSIVE REVIEW

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#### ABSTRACT:

A library is a place where the general public can access a carefully chosen collection of books, journals, and other material resources for study and educational purposes. It acts as the focal point for the exchange of knowledge and the enhancement of cultural diversity within a community. Their function is called into question by new technologies and attempts to control the spiraling maintenance expenses due to financial constraints. This raises concerns about the value of books in the digital era and even raises bigger issues regarding the relevance and goal of these institutions. The library's primary function for today's students is to provide a physical and symbolic representation of a place that values and supports scholarship. Students still seek out library areas to finish their work, even if they aren't looking for books. In India, libraries have lost their original meaning and have devolved into run-down reading rooms and their importance is dwindling with time. Libraries nowadays should be viewed as places that promote reading, learning, and social interactions rather than merely as repositories of books. The goal of this capstone project is to create a stimulating collaborative atmosphere in libraries that encourages reading, learning, and socializing.

#### KEYWORDS:

Academic libraries, Ancient India, Manuscripts, Technologies

### 1. INTRODUCTION

An important component of academic endeavors, the academic library has had a remarkable transformation characterized by ongoing innovation and trend adaption. The goal of the study is to distill the core of the revolutionary shifts that have occurred in these important centers of education by examining this dynamic landscape. Academic libraries have welcomed innovations like digital repositories, collaborative learning spaces, and virtual services in an era characterized by rapid technology breakthroughs and shifting patterns of information consumption. Incorporating state-of-the-art technology such as data analytics and artificial intelligence has further elevated academic libraries to the forefront of research administration and knowledge sharing. This study explores the many facets of these developments, looking at how they affect user experience, information access, and the general function of academic libraries in promoting a culture of learning and intellectual inquiry. This study aims to provide a thorough understanding of the changing nature of academic libraries by identifying and analyzing current trends. This will provide educators, librarians, and other stakeholders interested in the future of higher education with insightful information [1][2].

#### 1.1. History of libraries:

Libraries have a long history, having been influenced by many ancient societies, including the Mesopotamians, Egyptians, Greeks, and Romans. One of the most famous examples is the Library of Alexandria, which dates back to the third century BCE and is well-known for both its enormous scroll collection and its function as a hub for academics and thinkers. Manuscripts were copied and kept by monastic and cathedral libraries during the Middle Ages, which helped spread knowledge throughout Europe. Private libraries became more popular among the wealthy during the Renaissance. Public libraries were founded in the 19th century to give all citizens free access to books. The printing press changed information access in the 15th and 16th centuries. Libraries adopted technological innovations in the 20th century, switching from card catalogs to digital databases. Libraries are still important centers for community involvement, research, and teaching today because they are using technology and adjusting to the shifting requirements of the public for information. The Periodical and General Reading

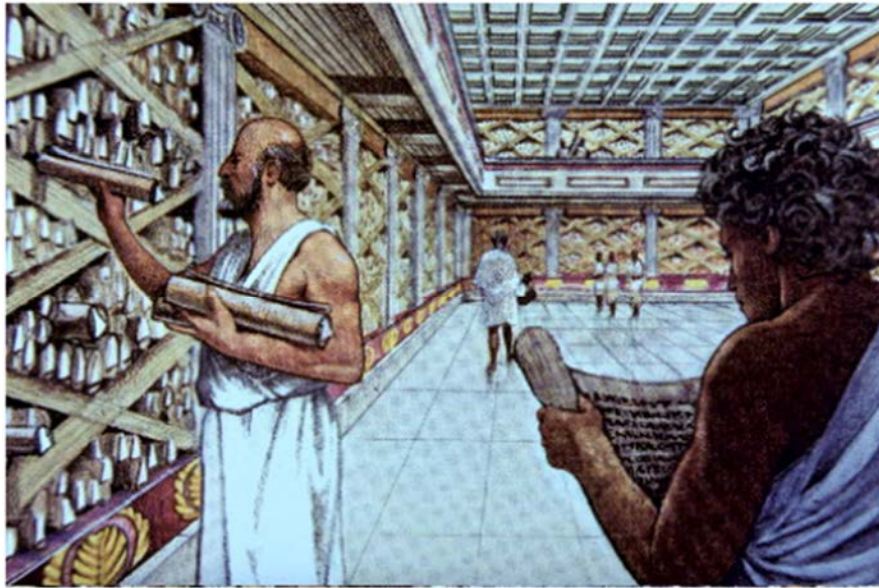
Room of the Copper Queen Library is depicted in Figure 1 with its cozy sitting configurations and plenty of natural light. A wide range of publications and journals are displayed in the well-organized periodical area, which fosters a concentrated reading and study atmosphere. The library's dedication to offering a modern and inviting location for readers and learners is reflected in the blending of modern design elements with a warm ambiance [3][4].



**Figure 1: shows the periodical and general reading room of the Copper Queen Library [shraboise.com].**

### *1.2. Academic libraries in ancient India:*

Renowned academic libraries that were essential to the spread and preservation of knowledge were a feature of ancient India's intellectual environment. The universities of Nalanda and Taxila, which flourished from the 5th to the 12th century CE, are notable examples of learning institutions with robust library systems. These libraries served as archives for a wide range of manuscripts and treatises on subjects like astronomy, physics, philosophy, medicine, and literature. Particularly, the Nalanda Library drew researchers from all over the world and was said to contain nine million manuscripts. The large collection of writings was meticulously arranged and cataloged by learned monks and professors who oversaw the operation of these libraries. Scholarly conversations and debates were held in the libraries, which functioned as intellectual centers for students, instructors, and guest lecturers. Ancient Indian academic libraries represented a dedication to knowledge preservation and the development of a thriving intellectual community, and they served as more than just places to store scrolls and manuscripts. An amazing chapter in the history of academic libraries in ancient India comes to an end with the downfall of these establishments, which is frequently attributed to invasions and changes in political dynamics. However, their legacy still serves as a reminder of the high regard that ancient Indian civilizations had for learning and intellectual endeavors. Figure 2 presents a visual comparison of classical Greek archives, the Library of Alexandria, and academic libraries in ancient India. It highlights the various architectural styles and cultural subtleties of these prestigious information institutions. The rich historical fabric of intellectual endeavors is revealed, highlighting the global importance of libraries as hubs of learning throughout history. This comparative perspective highlights the shared dedication to preserving and distributing knowledge throughout antiquity and encourages reflection on the intellectual legacy and cultural interchange that crossed geographic boundaries [5][6].



**Figure 2: shows the Academic libraries in ancient India [earlyworldhistory.blogspot.com].**

### *1.3. Academic Libraries in Medieval India:*

The large collection of writings was meticulously arranged and cataloged by learned monks and professors who oversaw the operation of these libraries. Scholarly conversations and debates were held in the libraries, which functioned as intellectual centers for students, instructors, and guest lecturers. Ancient Indian academic libraries represented a dedication to knowledge preservation and the development of a thriving intellectual community, and they served as more than just places to store scrolls and manuscripts. An amazing chapter in the history of academic libraries in ancient India comes to an end with the downfall of these establishments, which is frequently attributed to invasions and changes in political dynamics. However, their legacy still serves as a reminder of the high regard that ancient Indian civilizations had for learning and intellectual endeavors. Even though they weren't quite like the academic libraries of today, the libraries of medieval India played a significant role in forming the intellectual and educational landscape by creating a setting that encouraged the exchange of ideas and the development of a wide range of academic disciplines [7].

### *1.4. Academic Libraries in Modern India:*

Academic libraries in contemporary India have developed into vibrant, high-tech hubs that serve the many needs of scholars, teachers, and students. The rise of digital technology and the expansion of higher education institutions have caused academic libraries to change and become more able to house a diverse range of resources in different formats. Large print and electronic material collections, including books, journals, e-books, databases, and multimedia resources, are now kept at these libraries. Retrieving information has become easier thanks to the incorporation of contemporary technologies like digital repositories, online catalogs, and electronic database access. Multimedia centers, research areas, and collaborative learning spaces have evolved into essential elements that support lively and dynamic learning settings. In today's Indian university libraries, librarians have a variety of responsibilities, including helping patrons find information sources and supporting their research projects. The importance of information literacy has increased, and libraries are actively involved in teaching skills linked to critically analyzing sources of information. Furthermore, a lot of Indian academic libraries have embraced open access efforts, which help to democratize information and provide wider access to intellectual materials. Essentially, contemporary academic libraries



in India are vibrant centers that support a culture of study, creativity, and lifelong learning by utilizing current resources and technologies while also upholding traditional scholarly ideals. They remain essential cornerstones of the educational system, evolving to meet the changing demands of the 21st-century academic community. Figure 3 shows the Academic libraries in modern India [8][9].



**Figure 3: shows the Academic libraries in modern India [theprint.in].**

#### *1.5. Establishment of libraries in India:*

India has a long history of library construction that dates back to ancient times and reflects the country's enduring dedication to information and education. Early learning hubs with well-stocked libraries, like Takshashila and Nalanda, functioned as intellectual cradles. A significant factor in the growth of libraries was royal support during the Mauryan and Gupta periods (about the fourth and sixth centuries CE). Manuscript and text collections were housed at institutions established by emperors such as Ashoka. Throughout the Middle Ages, libraries flourished in the shape of monastic establishments, where scribes painstakingly recorded old writings. During the Mughal era, libraries were established in large cities and other cultural hubs. The imperial libraries of Delhi, Agra, and Fatehpur Sikri served as magnificent examples of architecture devoted to knowledge preservation. Following its independence, India has witnessed an increase in the number of specialized, public, and academic libraries. Founded in 1948, the National Library in Kolkata is proof of India's dedication to maintaining its literary legacy. Furthermore, technological developments have impacted library modernization, with online catalogs and digital repositories becoming essential to information access. India's long-standing commitment to promoting a culture of learning and intellectual inquiry is shown in the development of libraries, which remains a focal point for educational institutions, cultural groups, and government projects [10][11].

#### *1.6. Academic libraries then vs now:*

From historical periods to the present, academic libraries have undergone a transformation that has been characterized by changes in educational paradigms, technological improvements, and user expectations. Academic libraries used to be frequently identified by tangible collections of printed materials, including books, manuscripts, and magazines. Scholars and students moved through aisles of soaring bookshelves, participating in a hands-on investigation of knowledge. As the custodians of knowledge, librarians oversaw card catalogs and helped patrons navigate the vast print holdings. Modern academic libraries, on the other hand, enable a paradigm shift away from conventional print-centric models thanks to their seamless integration of digital technologies. Users can now access information more easily and remotely



thanks to the internet, electronic databases, and digital repositories. Libraries today offer scholarly databases, multimedia content, e-books, online catalogs, and multimedia resources, demonstrating a broad and varied approach to knowledge distribution. In addition, modern academic libraries have evolved into vibrant learning environments. The quiet atmosphere of the past has been replaced with collaborative study spaces, technology-equipped zones, and interactive learning commons. Information specialists, like librarians, now help users navigate the complicated digital world. The emphasis now is on actively increasing information literacy, digital fluency, and critical thinking abilities rather than just storing knowledge. While supporting study and research is still at the core of academic libraries, the evolution of library spaces and the move from physical to digital media show how dynamically these spaces are responding to the changing requirements of the academic community in the twenty-first century [12][13].

### *1.7. Libraries and learning in academics:*

Libraries play a crucial role in academic settings by acting as vibrant centers that support and improve the educational process. Libraries serve a variety of purposes in the academic setting, including knowledge repositories, research endeavor support, and provision of necessary resources for scholarly inquiry. These establishments are lively places intended to stimulate learning through a variety of channels, not just repositories of books. To guarantee that scholars and students have access to a wide range of resources, academic libraries carefully select and compile vast collections of books, periodicals, and digital materials. Libraries are sanctuaries for focused study, group inquiry, and meditative learning, both in their physical and digital locations. Contemporary academic libraries include access to electronic databases, e-books, multimedia content, and other digital resources in addition to traditional print materials, in line with the technological demands of contemporary education.

Originally serving as guardians of printed materials, librarians now specialize in information and teaching. In addition to imparting vital skills like information literacy, research techniques, and critical thinking, they help users navigate the immense sea of information. Thus, academic libraries play a major role in helping students develop their capacity to interact critically and morally with information. In addition, libraries frequently hold lectures, workshops, and cultural gatherings that promote a feeling of belonging and intellectual curiosity. Academic libraries serve as accelerators for lifelong learning by fostering an atmosphere that values inquiry and teamwork. Libraries in academic contexts are, at their core, transformative venues that enhance learning, empower individuals, and support researchers' and students' overall academic achievement [14].

## **2. LITERATURE REVIEW**

Amira Abouelela [15] discussed that university and college libraries are considered examples of academic libraries. An important technology that transforms the school library from a book collection into a place for research and communication is interior design. While academic libraries in schools benefit greatly from innovation and internal work, the main limitation of this study is the importance of academic libraries and their role in supporting and facilitating research by faculty and students in universities. Starting from the role of interior design in school library design, the researcher explored the problems of the interior design of the school library of the Faculty of Education.

For users to effectively use the internal library, innovation needs to improve functionality, and aesthetics and improve the internal environment. The project aims to enhance learning in the internal library to create new ideas and originality. Descriptive research methods were used to describe and evaluate the current interior design of the academic library of the Faculty of Education at King Faisal University and to collect current information regarding the library and design issues. A voting system is given to beneficiaries so that they can express their views on the current structure of the library and use it to inform library design that should be used

appropriately. Later, according to the plan, the voting tool was restarted to understand the views of the beneficiaries and to provide a suitable research environment for teachers and female students.

Harold Goss [16] explored that conducting effective assessments to measure student learning outcomes (SLOs) is difficult and challenging for all professionals working in higher education. University debates have focused on student learning outcomes as they relate to issues such as retention, skills, and ongoing development. To meet the growing need for academic departments, especially academic libraries to engage in these discussions it is important to understand how to measure student learning. This article examines current research on measuring student learning outcomes in academic and higher education libraries. The goal is to use both to provide a starting point for academic librarians who wish to initiate an SLO assessment in their academic libraries.

Marta Bladek [17] explained that colleges and universities have increased health and services in response to the increase in the frequency and severity of mental disorders among college students over the past decade. Academic librarians are now university supporters of student health, not just health care. The library created a happiness program based on its mission to improve student learning and overall learning because research shows happiness impacts learning. This article provides a comprehensive review of health measures used by academic libraries provides information on student health and a description of the institutional response to the situation describes programs for each library, service, and collection. It then offers a critique of these differences and offers suggestions for effectively measuring health care. The article ends with a quick review of COVID-19 health measures in libraries.

A Tella et al. [18] proposed that librarians' perceptions of the level of knowledge and preparedness of Nigerian academic librarians in integrating artificial intelligence (AI) into library operations and services are presented. The six regions of Nigeria resulted in six libraries. Data were collected through an open-ended survey sent to participants. Thematic analysis was used to analyze the collected data. The results show that academic librarians in Nigeria are aware of the integration of artificial intelligence (AI) technology and how these technologies are currently adopted and used by many academic libraries around the world. The results also show that librarians are not consistent in their views on whether academic librarians are ready to incorporate AI into daily work and services. According to librarians, the results show that the integration of information into the library and services will improve the library by reducing human error caused by poor work. Due to these problems, academic libraries in Nigeria will face problems such as lack of funding, lack of expertise, low electricity usage, low budget for purchasing technology training, and training staff responsible for maintenance. The report makes several recommendations including the need for adequate funding so that libraries can purchase intellectual property and other ICT infrastructure and hire librarians with appropriate training to use the technology.

J Huang et al. [19] investigated that the COVID-19 pandemic has created additional barriers to literacy instruction, research findings show. Academic libraries around the world are currently exploring ways to respond to the global pandemic. There is little research on how academic libraries should support literacy education during a pandemic. This study uses small online classes, lectures, and other online teaching methods to teach information literacy and uses 42 university libraries in China as examples of content analysis. The study shows that information literacy during the pandemic; it revealed that it has many aspects, such as responding quickly to requests for information, advising users of reliable information, creating and collecting new information about COVID-19, and combating false and misleading information. Although libraries can quickly respond to users' needs in the new environment, they still face some problems such as inadequate planning, delays in updating and resources. Based on diffusion, this study recommends that libraries take the following measures to improve information

literacy, increase the number of online courses linked across platforms, develop online and offline teaching models, seek instructional opportunities, and increase instructional content based on changing information needs and protect against misinformation.

PK Behera et al. [20] discussed that this article reviews information on collection development, facilities planning, information services, and future technologies relevant to academic libraries. The analysis of the data was analyzed by content analysis. The items selected for review may have implications for the future development of academic libraries. According to the analysis of relevant studies, the academic library has evolved into a hybrid model that combines modern materials with information centers of daily experience. The library of the future should be a well-organized information and art center that thinks within society. Challenges ahead include improving products and services and developing effective library staff. In this context, this study creates a new concept and identifies future possibilities for academic libraries.

### 3. DISCUSSION

The demands of users have changed, educational perspectives have shifted, and technology improvements have all contributed to a significant transformation of academic libraries in recent years. This study explores the complex environment of developments and patterns seen in academic libraries, looking at how these establishments have changed to adapt to the needs of the digital era. One particularly notable indicator of innovation in academic libraries is the incorporation of state-of-the-art technologies. Artificial intelligence, cloud computing, and digital archives have changed the way that information is shared, accessed, and kept. Libraries today house enormous digital collections in addition to traditional books, giving consumers remote access to an abundance of information. In addition, the usage of AI-powered technologies improves resource management, personalizes user experiences, and strengthens search capabilities.

Collaborative learning environments are yet another important development. Academic libraries nowadays are dynamic spaces that encourage interaction and collaboration rather than being quiet havens for solitary study. Libraries have become community centers that support peer learning, group projects, and interdisciplinary partnerships. Examples of these centers include interactive study pods and technologically advanced group rooms. This change recognizes that education is increasingly seen as a social and dynamic activity. The rise of information literacy and digital fluency programs is also examined in this research. Librarians now serve as educators, helping users navigate the complexity of the digital information environment, rather than only as curators. Academic libraries play a leading role in advancing information literacy by instructing researchers and students on how to access databases, critically assess sources, and ethically use information. This focus on information literacy is consistent with the overarching objective of equipping people to be astute consumers and active participants in the knowledge ecosystem.

The report also explores university libraries' function as community centers. Events, workshops, and cultural programs that go beyond conventional academic endeavors are held at libraries. Libraries support a holistic educational experience by creating a feeling of community that encourages social engagement, cultural awareness, and intellectual advancement.

The report also discusses the difficulties that come with these developments. In the constantly changing world of academic libraries, issues including the digital divide, privacy issues, and the requirement for ongoing staff training are important factors that need to be taken into account. Academic Libraries Innovations and Trends navigate the dynamic changes that have transformed these institutions.

The study offers a thorough overview of how academic libraries continue to adapt and grow in the twenty-first century by looking at the integration of technology, the change in learning

environments, the emphasis on information literacy, and the evolving role of libraries as community centers. Policymakers and other stakeholders interested in the future of higher education need to know about this investigation just as much as librarians and educators need.

#### 4. CONCLUSION

Examining Innovations and Trends in Academic Libraries highlights how these organizations are changing quickly to meet the benefits and difficulties of the digital age. The study sheds light on the significant influence of emerging technologies, the conversion of library areas into cooperative gathering places, and the critical function of librarians in fostering information literacy. Academic libraries enhance the educational experience by promoting a culture of cooperation and continuous learning, while also improving resource accessibility through innovation. Libraries are positioned as essential components of contemporary academia by their integration of technology and dedication to community participation. The patterns noted in this research highlight the durability and adaptability of academic libraries as the landscape changes, guaranteeing their ongoing importance in the dynamic field of higher education. In addition to educating educators and librarians, this investigation sparks a larger discussion about the crucial role libraries will play in influencing education and knowledge sharing in the future.

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## CHAPTER 11

### MUMBAI'S URBAN BIRDLIFE: A SYMPHONY OF CONSERVATION, AND COEXISTENCE

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#### ABSTRACT:

Mumbai, a bustling metropolis on the western coast of India, is not only a financial and cultural hub but also home to a diverse and thriving urban bird community. This study explores the unique dynamics of Mumbai's urban birdlife, focusing on the intricate interplay between conservation efforts and the coexistence of avian species within the city's complex urban landscape. It highlights the crucial role of conservation initiatives led by governmental bodies, non-governmental organizations, and local communities in preserving and enhancing the avian habitat. The symphony of Mumbai's urban birdlife unfolds as various species demonstrate remarkable resilience and adaptability, forging unexpected alliances with the city's human inhabitants. The study documents instances of coexistence, where birds navigate the urban sprawl, utilizing green spaces, rooftops, and even man-made structures for nesting and foraging. It finds that conservation efforts play a pivotal role in Mumbai's urban landscape, with various initiatives aimed at safeguarding bird habitats and mitigating human-wildlife conflicts. The study evaluates the effectiveness of these conservation strategies, shedding light on successful interventions and identifying areas that require further attention. The social dimensions of human-bird interactions in Mumbai, exploring community attitudes towards urban birdlife and the potential for fostering a sense of coexistence. Understanding the perceptions of residents and their role in bird conservation is crucial for developing sustainable and inclusive urban planning strategies. The importance of viewing Mumbai's urban birdlife as a symphony of conservation and coexistence, where the harmony between human activities and avian habitats is essential for the well-being of both. Future endeavors should focus on developing and implementing concrete policies that prioritize the preservation of green spaces, the creation of bird habitats, and the establishment of ecological corridors within the city.

#### KEYWORDS:

Bird, Conservation, Environment, Species, Urban.

### 1. INTRODUCTION

Depending totally on the observer's temperament, the perspective of bird watching may vary greatly, being seen as a superstition, tradition, art, science, joy, pastime, or even boredom. The people in and around Mumbai are becoming more and more interested in birds, thus bird watching is no longer seen as a pointless or childish passion. Rather, it has developed into an enthralling pastime that immerses the viewer in a compelling world of color, melody, elegance, and energy.

Observing birds may provide access to amazing locations, a break from routine, and a reason to spend time outside.

Many fans find that it opens up new directions for their research and study, which may lead to jobs in science, art, writing, and photography, or it can help them plan specialized nature and birding vacations.

Some of the most significant contributions to Indian bird watching have come from amateurs via their field observations and publications.

Validating field data is essential since the correctness of the underlying data determines how reliable such contributions will be. Even with the availability of excellent optical tools, and field guides, including sound recordings, field experience is still the greatest way to develop the talent of bird identification. Unfortunately, the widespread use of sophisticated digital equipment has resulted in a dependence only on photographic evidence to preserve records, which has markedly decreased the habit of taking notes and therefore led to a deterioration in field identification abilities [1], [2]. Figure 1 depicts the Oriental dwarf kingfisher which is found in the monsoon season.



**Figure 1: Illustrates the Oriental dwarf kingfisher which is found in the monsoon season [3].**

Even while a thorough still picture of a bird is a priceless teaching tool, it may be difficult to identify or validate records based just on images if there are no field notes that describe features such as size, shape, activity, voice, and the distinctive "jazz" sound. Thankfully, most birds in Delhi are readily recognized, however, certain groups provide more difficulties, such as raptors. Feather mold, abrasion, or fading, individual, sexual, or age-related differences, and other factors add to the difficulty of recognizing these birds. The evaluation of "jazz," which is a unique blend of characteristics and behavior unique to a species, is a very effective indication that can't be replaced. Birdwatchers, who are often ardent environmentalists, commit their time to a range of conservation initiatives, lobbying, and environmental education. As a result of their increased awareness, education, and social consciousness, birdwatchers are becoming a more powerful force in environmental advocacy. Since we like watching, taking pictures of, and eating these birds, we have to protect their habitats to ensure their well-being. Many people see birds every day, whether they are in parks, gardens, streets, or rural areas. We generally take for granted the wonderful birdlife in our local environs, but devoted ornithologists can travel to particular areas to watch uncommon birds like estuaries, reservoirs that hold water, and wetlands. Many bird species have successfully adapted to city life, and even in metropolitan areas, trees, gardens, and parks are not far away. This has us thinking about the causes underlying the urbanization of these species [4], [5].

One intriguing and essential component of the urban environment in Mumbai is the presence of birds. Mumbai has a diversified bird population despite its fast urbanization, crowded population, and scarcity of natural places. Numerous bird species, from ordinary sparrows and pigeons to more exotic ones like parakeets and mynas, may be seen dotting the city's skyline. The many parks, gardens, and coastal regions that provide these birds with vital habitats are among the major factors contributing to their variety. Within the city borders, the vast Sanjay Gandhi National Park serves as a major green lung and a haven for a variety of animals. It's interesting to see how many birds in Mumbai have evolved to live in an urban setting, demonstrating their adaptability and capacity to live alongside people. For example, pigeons are now a common sight, often flourishing in the cracks and crevices of the metropolis. Crows, on the other hand, are very adaptive and are often seen scrounging for food in busy markets. During certain seasons, Mumbai's coastal regions draw migratory birds, bringing a dynamic aspect to the city's birdlife [6], [7]. The cohabitation of people and birds in Mumbai is not without difficulties, however. Bird habitats are threatened by rising pollution levels and fast urbanization, which has an impact on the nesting places and food supplies for birds. These difficulties are exacerbated by the disappearance of green areas brought about by infrastructural

development. To lessen these risks and guarantee that birds will always be present in the city, conservation initiatives and public awareness campaigns are essential. Mumbai's birdlife not only contributes to the ecological balance of the city but also serves as a reminder of the intimate relationship between urban spaces along the natural world, demonstrating the importance of establishing harmonious environments for both humans and wildlife. The city's residents frequently find comfort and joy in engaging in conversation with these feathered inhabitants [8], [9].

The present study is about Mumbai's urban birdlife a symphony of conservation, and coexistence. The rest of the paper is structured in the following section 1 describing Bird watching has gained popularity as a recreational activity, with various groups and initiatives dedicated to promoting the appreciation and conservation of Mumbai's avian diversity. Section 2 represented the literature review in the context of insights regarding the relationships between humans and animals in urban areas via internet bird sightings. The discussion is presented in section 3 to show the classification of bird species found in Mumbai. The conclusion is presented in section 4.

## 2. LITERATURE REVIEW

F. R. Adler *et al.* [10] examined estimated population trends for about nine thousand bird species and contrasted them with those reported by Birdlife International. The rate of agreement between bird and BirdLife trends was calculated as part of our analysis, taking into account several parameters such latitudinal affiliation, threat status, number of bird checklists, and the impact of birdlife trend, bird trend, and BirdLife trend derivation on the rate of agreement. In order to compare the observed rates of concordance with those predicted only by chance, we also used a randomization strategy. The results show that the rate of agreement was marginally better than chance, with notable improvements seen for species of Least Concern in temperate regions with greater checklist numbers and species recognized as growing by BirdLife or the bird community. Our study suggests, however, that the present bird data could not be reliable enough to track the populations of most bird species worldwide, especially in emerging nations where regular surveys are essential. It is advised that local residents become more involved in community science projects like bird watching in order to improve our monitoring capacities. Furthermore, evaluating the precision of BirdLife trends and the processes used to derive them is essential, particularly for species for which differences in trends between BirdLife and bird data exist.

S. Villar [11] analysis of the main wetland on Playa Penino revealed high concentrations of organic chemicals. Because it lives in burrows near the wetland, the caviomorph rodent *Ctenomys pearsoni*, sometimes referred to as tuco, was used as an indicator species for bio monitoring. The micronucleus test and comet assay were used to evaluate the genetic impact. Significant relationships have been found between genetic damage and chemical and microbiological characteristics, indicating that sewage-derived macronutrients may play a role in genetic damage. The biodiversity of the surrounding ecosystem depends on the execution of immediate conservation measures, which include, among other things, sewage treatment, cesspool management, and regulating settlement activities in the surrounding region.

M. D. Correll *et al.* [12] using a variety of grassland specialization indicators (GSIs), the relationship between the specialization of bird species in grassland settings and the changes in their populations. The data sources used to create these indices included a regional dataset on birds, which used a spatially stratified sampling technique for bird surveys conducted in North America's Northern Great Plains, as well as geospatial data from BirdLife International and CEC North American Land Cover Survey that showed the ranges of various species. Across all specialization indicators, our results showed a negative correlation between species population movements and the level of habitat specialization. Moreover, we discovered evidence in favor of the theory that population patterns during the breeding season are partly

explained by specialization to grassland throughout the wintering season. This emphasizes how crucial it is to take habitat protection into account throughout a species' whole yearly cycle in order to slow or stop population decrease. Importantly, this is the first research to use quantitative techniques; it confirms the vulnerable state of North American grassland specialist songbirds and shows several ways to measure habitat specialization in different datasets.

The above study revealed a consistent negative correlation between population trends and habitat specialization across all indicators. Additionally, evidence was found supporting the idea that wintering season specialization to grasslands partially explains population patterns during the breeding season. In this study, the author discusses different types of bird species and conservation program for Mumbai to aware for people.

### 3. DISCUSSION

Mumbai's museum was founded in 1914 and was opened to the public in 1921. At the moment, it is run by a board of trustees. Acknowledged as a Museum of National Significance, it receives funding from the Central Government for advancement and instructional programs. The museum features a wide range of sculptures and decorative arts in addition to a sizable collection of miniature paintings from different eras and schools. It is notable for housing the vast Chinese collection, especially in pottery, and the Tata Museum of Western paintings, which includes pieces by ancient masters up to the nineteenth century. Founded in 1883, the Bombay Natural History Society eventually merged its natural history collection with this museum in 1923, becoming the foundation of the Vastu Sangrahalaya's Natural History Division. This area has received praise from all around India for its superb scientific standards and presentation. The museum's art and archaeology galleries have been steadily changing their presenting approach in recent years, moving away from the past and toward the cutting edge of Indian accomplishment. Given that the magnificent structure has architectural elements that were thought acceptable for museums in the late 19th and early 20th centuries, this admirable endeavor is especially notable [13], [14].

#### 3.1. Types of Bird Species:

Natural ecosystems in the countryside have been displaced during the last century due to the rapid rise of big cities and the suburban regions that surround them. Many of the bird species that formerly inhabited these areas have already disappeared, but a handful have managed to adapt to urban conditions and are doing well there. The most common bird species in urban areas are the pigeon, starling, and sparrow. These three very adaptive birds never miss an opportunity to grab food sources and good nesting locations.

##### 3.1.1. Starling: *Sturnus vulgaris*

Starlings are very gregarious birds; they often form enormous flocks and travel in their thousands to appropriate roosting locations. When these birds roost in large numbers in forested locations during certain seasons, their droppings may get soaked on the trees, which may cause harm or even death. Urban settings provide roosts that are often one or two degrees warmer than those in rural areas throughout the winter months. This little temperature variation may be crucial to the birds' survival on chilly nights, which explains why multitudes of starlings prefer cities as their nocturnal home. The accumulated droppings from such big roosting populations over many weeks might pose major health dangers, therefore humans have issues as a result of this choice. It has taken a lot of effort to find a reliable way to keep these roosting birds away, including shooting them with fire weapons.

##### 3.1.2. House Sparrow: *Passer domesticus*

The house sparrow, which may be found in every town and city, first came to live in cities when transportation was provided by horses. Back then, sparrows nested close to the many stables in the city and fed on grain that had spilled into the streets. The urban house sparrow

population has declined due to the internal combustion engine's dominance in our transportation infrastructure. Though it's one of the most recognizable birds in Britain, it's not as common as wrens, blackbirds, or chaffinches.

### 3.1.3. Town or Feral Pigeon: *Columba livia*

The ubiquitous urban pigeons we see every day are descended from the wild Rock dove, which is often found along beaches. On the other hand, city pigeons are different from their tamed cousins that fled from dovecotes in the middle Ages. Although city pigeons and rock doves both like to nest on cliffs, the latter have become used to using the ledges and parapets of urban structures in a way that is similar to how they do on their native cliffs. These settlements allow the pigeons a prolonged mating season because they provide an abundance of food, artificial illumination, and a somewhat warmer climate.

### 3.1.4. Song Birds: Song Thrush

Urban pigeons, house sparrows, and starlings are gregarious birds that have adapted well to living things like food and shelter. In actuality, human influence has a major role in their capacity to flourish in vast numbers. Many other kinds of birds also live in our cities, using locations such as parks, gardens, and empty lots. Although these birds were formerly found in hedgerows or forests, a growing number of them are now forced to seek safety in urban areas due to the loss of their natural habitats. 'Songbirds', including robins, thrushes, and blackbirds, are among them. They are characterized by their territorial behavior, in which each couple needs a specific territory with enough food for both themselves and their young. These birds eat worms, snails, caterpillars, and various other manifests, hence a varied plant variety is necessary for their health. These birds' melodious song in urban settings is a sign of a healthy natural equilibrium there. Particularly gardens can provide the diverse habitat that these birds need [15], [16]. Figure 1 depicts the view of Purple Rumped Sunbird.



**Figure 1: Illustrates the view of Purple Rumped Sunbird [17].**

### 3.1.5. House martin

Small and migratory, the house martin (*Delichon urbicum*) is a member of the Hirundinidae family of swallows. The house martin is distinguished by its sleek blue-black plumage, and white underparts, along with a characteristic forked tail. It is well-known for both its unique look and habits. These birds are known for their amazing aerial agility, as they are often seen darting and swooping throughout the air. The distinctive nesting behaviors of house martins are well-known. They attach their cup-shaped nests made of mud pellets to the outside walls of cliffs, structures, and bridges. The birds show remarkable site fidelity and return to the same nesting area every year, and the nests are usually found in colonies. These birds migrate,



spending the summers in northern Asia and Europe before making the lengthy trek to sub-Saharan Africa for the winter. With their large, gaping beaks, house martins capture flying insects in midair for their primary diet. Regrettably, house martins are threatened by factors including habitat loss, altered agricultural practices, along climate change, much like many other species. To guarantee the survival of these amazing birds and their ongoing contribution to the ecological biodiversity of the areas they live in, conservation activities are crucial.

#### 3.1.6. *Golden Oriole:*

Often seen sitting on the top branches, the Golden Oriole is easily recognized by its distinctive black and yellow markings, as shown in this picture. Its beak stands out for having a vivid crimson color. I saw this bird during an observation with a youngster, which is harder to identify due to its mottled yellowish-green look. They eat just insects and fruits. If you see a bright flash of yellow in the trees near your house, it's most likely the golden oriole. Because the bird prefers higher branches, it is challenging to get a nice shot from under the tree. The bird must choose the correct branch for the shot to be successful. Luckily, you can get plenty of pictures of golden orioles since they stay still for a long time. The attached photo, which was shot with a considerable zoom from a seventh-floor window, may not be very clear, but we plan to take a better photo and update this one later. Figure 2 depicts the view of the Golden Oriole which found sitting on the upper branches



**Figure 2: Illustrates the view of the Golden Oriole which is found sitting on the upper branches [17].**

#### 3.1.7. *White-throated Kingfisher:*

Semi-urban settings are often home to the tree kingfisher, the White-throated Kingfisher. It consumes a carnivorous diet that includes fish, crabs, rodents, tiny reptiles, and even birds. When bird watching near the Bhandup pumping station, bird lovers may see the photographic bird, which was taken in Vikhroli. It may be seen atop a wire or tree by a watchful eye. The adult White-throated Kingfisher has a bright blue back, wings, and tail. Its head, shoulders, flanks, and lower abdomen are all chestnut in color, while its breast and neck are white. Its legs and vivid crimson beak are among its striking characteristics. Some call it the White-breasted Kingfisher, which is a common species of kingfisher. This bird often lingers for lengthy periods on a noticeable limb, providing plenty of opportunity to take striking pictures.



**Figure 3: Illustrates the view of the White-throated Kingfisher which is quite common in semi-urban areas [17].**

### 3.2. *City blackbirds are Different:*

Urban and rural blackbirds differ greatly in many behavioral aspects; their song is just one. Compared to their rural counterparts, urban blackbirds, for instance, have a propensity to travel south less regularly. They can even have many clutches in a single year, with their eggs hatching around three weeks early. They usually reside nearer to other blackbirds in urban areas, and these birds seem to benefit from living in cities in some interesting ways. Remarkably, studies done in 2008 by Jesko Partecke showed that urban blackbirds had fewer parasite episodes than their rural counterparts. Moreover, urban-dwelling blackbirds have increased stress tolerance; they react to stressful circumstances by releasing glucocorticoids, which are stress hormones, and exhibiting an acute stress reaction, much as people do. Nonetheless, Partecke's interest led her to investigate whether blackbirds in rural and urban areas use different coping mechanisms to deal with stress. He gathered nestlings from Munich and the surrounding regions and raised them in controlled settings with his team to conduct an investigation. When subjected to acute stress, juvenile city blackbirds responded much cooler than their rural counterparts, even in environments with equivalent circumstances. Interestingly, it was discovered that the hormone levels of the two groups were comparable under non-stressful settings. The fascinating ways that urban and rural blackbirds respond differently to stress are shown by this study.

#### 3.2.1. *Conservation Program in Mumbai:*

Mumbai, a heavily developed and inhabited region, has several environmental issues that need conservation initiatives. Threats to biodiversity, the disappearance of natural spaces, and contamination of the air and water are common causes for worry. Consult your local government, environmental group, or municipal authority for the most current and accurate information about conservation efforts in Mumbai. Usually, these groups provide details on current programs, activities, and methods for the public to participate in conservation efforts. Conservation programs in Mumbai may cover a range of initiatives, such as:

#### 3.2.2. *Mangrove Conservation:*

There are sizable mangrove habitats in Mumbai, which provide crucial ecological functions. These mangrove habitats are often the subject of conservation projects. There are sizable

mangrove habitats in Mumbai, especially along the western shore and Thane Creek. In addition to serving as a natural barrier against storm surges and coastal erosion, mangroves also serve as a breeding habitat for a variety of marine animals. Both governmental and non-governmental groups have launched several conservation programs in recognition of their ecological significance.

### 3.2.3. *Waste Management:*

Solid waste management must be addressed in cities like Mumbai. Programs to reduce environmental effects might include recycling, trash minimization, and appropriate disposal techniques. Mumbai's waste management system encourages the 'reduce, reuse, and recycle' philosophy by separating garbage into biodegradable and non-biodegradable categories at the point of origin. Nevertheless, there are obstacles in the way of implementing waste segregation procedures, and more public involvement and knowledge are required. Although they greatly aid in recycling efforts, the city has also seen the rise of informal rubbish pickers, whose status and working conditions are also a source of worry.

### 3.2.4. *Air Quality Improvement:*

Initiatives to improve air quality in Bombay may include encouraging greener forms of transportation, cutting down on industrial emissions, and planting trees. To lessen the dependency on private automobiles, Mumbai has launched several public transportation efforts, such as the development of metro systems, the enlargement of the suburban railway network, and the promotion of cycling. The city has also embraced tree planting campaigns and green areas to improve natural air filtration. Stricter laws and on-site dust management techniques have also been used to regulate and minimize construction dust, a major source of airborne particulate matter.

### 3.2.5. *Biodiversity Conservation:*

Conservation initiatives may include efforts to preserve and restore the natural habitats of the region's plants and animals. This might include keeping parks and natural areas maintained as well as establishing green corridors. Local government bodies and environmental groups in Mumbai have launched campaigns to raise awareness of the value of biodiversity and the need for its preservation. Programs that emphasize animal protection, habitat restoration, and tree planting include the community in a major way. Green corridors are another component of urban design methods that are intended to provide a connection between fragmented ecosystems and facilitate animal mobility inside cities.

### 3.2.6. *Water Conservation:*

Water conservation becomes more and more important as cities become denser. Rainwater harvesting, water-efficient techniques, and pollution prevention for water bodies are a few examples of programs. Campaigns to raise public awareness are essential for encouraging water conservation, supporting leak repair, and discouraging wasteful behavior. To reduce losses during distribution, the MCGM has also made investments in the upkeep and repair of the water infrastructure. Enhancing regional water resources is a result of initiatives to restore and preserve the city's lakes and ponds. Mumbai's municipal officials have enforced strict policies to stop illicit activity and encroachment around water bodies, protecting them from pollution and deterioration. Furthermore, to lessen the burden on freshwater resources, wastewater treatment facilities have been built to recover and reuse water for non-potable uses.

## 4. CONCLUSION

The birds that live in Mumbai, a busy metropolis, have not only adapted to urban life, but have blended in with the dynamic fabric of the city. This investigation of the urban birdlife of Mumbai demonstrates the dynamic interaction between the city's avian inhabitants and the problems brought about by growing urbanization. From the commonplace house sparrows and

pigeons to the graceful White-throated Kingfisher and the captivating Golden Oriole, we traveled across a variety of species and saw firsthand how resilient and adaptable these animals are to changes in their surroundings. Mumbai is a complicated city where people and birds coexist, with the delicate balance being threatened by rapid urban growth, increasing pollution levels, and habitat loss. But the city's birdwatchers, who often double as passionate environmentalists, are becoming a powerful force in conservation efforts. Mumbai's conservation initiatives, which range from garbage management to mangrove preservation, demonstrate a comprehensive strategy for preserving the natural environments vital to the city's abundant wildlife. It's clear that people's views on bird watching have changed from being a recreational activity to a serious hobby linked to environmental awareness. Residents of Mumbai, who were hitherto passive spectators, are now actively involved in maintaining the welfare of the avian population. We are reminded of the complex interaction between urban settings and the natural world as we appreciate the city's birds as a symphony. The urban birdlife is a moving reminder of our shared obligation to protect these peaceful habitats for animals and people alike, as well as a monument to adaptation. Mumbai's birdwatchers are important players in this symphony of conservation and cohabitation, acting as both observers and protectors of the biological balance of the city. The necessity for ongoing awareness-raising, education, and coordinated efforts to conserve biodiversity becomes more and clearer as we go forward. Mumbai's urban birdlife, with its varied tunes and colorful feathers, calls us to embrace a future where cohabitation is a reality rather than just an idea, resonating with the songs of a city attuned to the natural world.

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## CHAPTER 12

### EXPLORING THE MULTIFACETED NATURE OF DANCE: FROM HISTORICAL ROOTS TO CONTEMPORARY SIGNIFICANCE

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#### ABSTRACT:

Dance, a multifaceted form of expression and cultural heritage, has evolved throughout history, serving various purposes such as storytelling, healing, and self-expression. This study delves into the historical roots of dance, emphasizing its continued significance in contemporary society. Focusing on ballet and contemporary dance, the research explores their complementary and contrasting features, acknowledging the foundational role of ballet in dance training. The benefits derived from ballet training extend beyond technical skills, influencing body awareness, coordination, and musicality, and enhancing performance in other dance forms. The study also reviews existing literature on dance education, styles, and the evolution of dance, providing insights into the global impact of dance on creativity, identity, and societal dynamics. Additionally, case studies highlight the intricate relationship between dance and space, offering a glimpse into how movement interacts within spatial parameters. Finally, personal accounts from dancers underscore the transformative power of dance as a means of self-discovery, healing, and a source of escapism. This study aims to comprehensively explore the multifaceted nature of dance, tracing its historical roots, understanding its contemporary significance, and examining its impact on individuals and societies. The research focuses on the symbiotic relationship between ballet and contemporary dance, emphasizing the foundational role of ballet in dance training and its extended benefits beyond technical proficiency. Additionally, the study reviews existing literature on dance education, styles, and the evolution of dance, providing insights into the global influence of dance on creativity, identity, and societal dynamics.

#### KEYWORDS:

Dance, Ballet, Contemporary Dance, Cultural Heritage, Self-Expression, Storytelling, Healing, Space, Transformation.

### 1. INTRODUCTION

Dancing is more than simply a kind of amusement or art. In reality, it's a way for people to express themselves and achieve their full potential. It's also an opportunity to escape, find solace, find exhilaration, and open up new ideas and feelings, emotions, tranquillity, meditation, freedom to be oneself, and sometimes the capacity to reveal one's true self are all benefits of this practice. Like other professions, it has its highs and lows, but unlike other occupations, it is not regarded with the same respect by those outside of the dance community. The audience only experiences brief bursts of visual and aural stimulation when watching someone perform; all these special intrinsic traits are lost in translation. It is disastrous that everything already addressed cannot be fully conveyed, but sometimes, if they are fortunate, the dancers may also arouse some form of feeling in the audience [1], [2].

Dance served as a means for self-expression, storytelling, healing, and traditional festivals. Since dancing by itself cannot leave distinctly recognizable archeological objects that are still in existence today, People explored for evidence using different clues found in writing, paintings, stone carvings, and other similar artifacts. Dance is still used for comparable objectives today, although its styles and forms have changed throughout time, its essence has remained constant [3], [4]. They first looked at Kathak, Bharatnatyam, Ballet, Contemporary, and Modern dance genres. Afterward, they focused only on Ballet and Contemporary. Although ballet and contemporary dance styles are complementary and opposing, they believed that to fully comprehend my primary modern dance style, they would need to comprehend the sources of its inspiration. Since they had training in both of these genres, they were able to better understand the variations in the movement and background of the respective.

Dance has been an integral part of human expression and culture throughout history, serving various purposes such as folk celebrations, ceremonies, healing rituals, storytelling, and self-

expression. The significance of dance in these contexts is evident, even though direct archaeological evidence may be scarce. Instead, researchers have turned to other sources, such as written records, stone carvings, paintings, and similar artifacts, to trace the historical roots and evolution of dance. In contemporary times, the multifaceted nature of dance endures, with people continuing to utilize it for similar purposes. While the styles and forms of dance have expanded and evolved, the fundamental essence remains unchanged. Modern society still values dance as a means of celebration, self-expression, and cultural preservation [5], [6].

Ballet has a long history steeped in European traditions and is known for its classical and organized movements, which are often characterized by elegance and accuracy. However, because of its fluidity and flexibility of expression, contemporary dance incorporates components from a wider variety of sources, including daily motions and other dance styles. The objective was to get a comprehensive understanding of dance by fully engaging with both ballet and contemporary styles. They were able to study the subtle differences between each style and the dynamic interaction between innovation and tradition in the dance industry thanks to this dual approach [7], [8]. The vast array of dance forms, such as Kathak, Bharatnatyam, Ballet, Contemporary, and Modern. They recognized the complementing and contrasting features of ballet and contemporary dance and consequently focused on both styles after doing a lot of research. Even though they decided to focus mostly on contemporary dance.

Ballet is hard to define since the term is more based on the dance's past than on technical terms. It started as a court dance in the fifteenth century, first appearing in Italy and then spreading to France. Ballet began to spread across the French courts as a result of the nobility getting married. dance gradually grew away from its court roots, and by the 17th century, professional dance schools were established in several Western European capitals, most notably Paris, where ballet was first performed on stage as opposed to in a court. Ballet's association with storytelling originated in France, where it coexisted alongside music for a considerable time. The concept of a ballet that conveyed a tale eventually won out as the two art forms eventually drifted apart and were performed separately rather than simultaneously.

In the 19th century, ballet made its way to Russia, where beloved pieces like "The Nutcracker," "Sleeping Beauty," and "Swan Lake" originated. The development of ballet technique and the subsequent rise to prominence of very talented ballerinas are other notable contributions made by the Russians. Russians made up the majority of the 20th century's significant ballet contributors. The American ballet industry was changed by a Russian immigrant called George Balanchine. His creation of neoclassical ballet significantly improved ballet technique and choreography. Ballet serves as the foundation for your dance, in my opinion, much like the first few bricks put. Using the principles of ballet can help you improve even if it's not the dance form you want to pursue. The entire technique, body awareness, form, coordination, quality of movement, and musicality. They can speak from experience when they say that, despite my initial thoughts at seven years old ballet was a difficult and uninteresting style of dancing.

The advantages they have gained from it have continued to shine throughout my years of developing as a dancer and have given me an advantage and a stronger hold on other dance forms that take inspiration from ballet, like contemporary and modern dance. Ballet's holistic advantages have provided us with a more focused awareness of the body. The focus on coordination has helped me integrate different dance aspects more seamlessly, which has improved the overall quality of my movement. The musicality that ballet instilled in me has also had a long-lasting effect, improving their capacity for rhythmic expression and subtle musical interpretation. Furthermore, the benefits of ballet carry over into other dance styles that are influenced by it, such as modern and contemporary dance. The solid ballet training has given me a clear edge while negotiating the intricacies of various dance forms. Ballet has given me a strong base of technical skills and core concepts upon which I may develop and explore

the distinctive qualities of each dance genre. In response to the strict limitations of ballet technique, performers created contemporary dance in the 1950s. Any contemporary dancer who asks to define this dancing style precisely is certain to be stumped with the foundation and methods from ballet, jazz, and contemporary dance, you aim to invent moves while pushing the boundaries of your body in this limitless kind of dance. The opulence of the settings and costumes is not important. Instead of being taught to maintain a rigid, vertically expanded core throughout a dance, students at classical ballet schools aim for fluidity and consistency in their movements. Conversely, contemporary dancers explore with their core. It gives you the flexibility to express yourself whatever you choose, whether that's by letting your body move in an unusual way to bring individual beauty to each shot or by pouring your raw feelings onto the stage in a more tangible manner. Although ballet was first viewed with mistrust, its long-term advantages and benefits have reinforced its position as an essential component of my dancer's growth.

## 2. LITERATURE REVIEW

Young Overby *et al.*[9] discussed the Dance Explained: A Novice's Overview of Education Research. The connection between the wave functions of two particles in a harmonic oscillator potential is illustrated through the use of coordinates for their relative position and center of mass.

These brackets can be utilized to demonstrate that all the values in the nuclear shell theory interaction matrix can be derived using Talmi integrals. Mathematical formulas are employed to determine the transformation brackets. Neveu Kringelbach *et al.*[10] discussed the Dancing Across Africa and the Globe: Embracing Creativity and Identity in a Globalized Society. This special issue commences with a focus on the investigation of African dance by anthropologists as early as the 1920s. We also present seven articles about different topics related to dance, such as how it has changed over time, the effects of colonization, how it is shown in media, what is considered right and wrong, and the portrayal of African identities in Europe. In this unique edition, we believe that examining dance and music reveals how individuals in Africa and the African diaspora employ creativity to navigate challenges, generate innovative art, and ponder ethical dilemmas while adapting to new lifestyles.

Apostol *et al.*[11] discussed the evolution of stage dance: fundamental concepts and unique characteristics. The study discusses the evolution of dance styles and techniques, incorporating various concepts and approaches. In this way, we look at different theories: biological, psychological, social, and communication theories, as well as cultural, philosophical, and artistic influences. It should be noted that different styles of dance, the art of performing, and various forms of choreography have all played a role in shaping and improving the way people dance. Today, dance continues to evolve, mostly influenced by postmodernism.

Aristidou *et al.*[12] discussed the Virtual Dancing Anthropology. Traditional dances depict the cross-cultural exchange of music, attire, and dance styles among various societies. Each dance tells a story and has a special meaning. However, dances can be found in many different countries because people have taken them with them and shared them from one generation to the next. Studying how dances are connected between nearby countries helps us see how they have changed over time. It also helps us understand how different cultures are similar. In this project, we show a way to study how people move when they dance. We use this method to organize information about dance in a meaningful way, creating the first digital record of dance traditions. Break dance moves are initially separated into small time intervals referred to as motion and style words, and are later organized based on their attributes to form arrangements.

Israili *et al.*[13] discussed the benefits of tango dancing for healing are examined in the review. The focus of this review is on the increasing popularity of Tango as an enjoyable dance form, as well as the evidence supporting its potential to assist individuals with illnesses like Parkinson's disease. The review gives important information to researchers and doctors to help

them create personalized therapy using tango dancing to make patients feel better physically and emotionally and improve their quality of life. Tango is a type of dance that started in Argentina and Uruguay in the 1880s. It is danced with a partner and music. The

Argentinian tango is a widely loved dance, enjoyed by people all over the globe.

Wyon *et al.*[14] discussed the Examining the visual representation of ballet and contemporary dance movements captured on video footage. Studying videos can aid in preparing for sports and reveal the distinct physical requirements of seemingly similar sports and positions. The goal of this study was to compare how well classical ballet and contemporary dance are performed. They examined 93 dance presentations to assess the effort put forth by the dancers, the amount of physical activity involved, and the specific talents demonstrated.

48 of the dances were ballet and 45 were contemporary. The study found that there were big differences between the two types of dance in how hard they are for exercise and how they involve moving in different directions. - Some specific dance skills were better performed by girls, showing differences in their abilities.

Fuller *et al.*[15] discussed the survey was conducted to gather insights from both artists and health professionals on exercise practices in ballet and contemporary dance training. This research aimed to explore the perspectives of dancers and healthcare professionals on their training regimens. Experienced dance teachers and doctors were asked to join a survey about how much training dancers do and how it affects their health. The survey was made using information from past studies on soccer. It included questions with multiple-choice, Likert scale, and open-ended answers. Answers to yes or no questions were shown as a percentage with a range of confidence of 95%. Two people looked at the written answers and studied the themes. There were six artists and 18 health workers in the group.

Angioi *et al.*[16] discussed the physical activity and motion in contemporary dance: An extensive examination. Yet, the majority of research bases their findings mostly on data from ballet. Examining the physical prowess and body composition of contemporary dancers at various ability levels was the aim of this research. The research also examined if doing additional workouts enhances a dancer's performance beyond their normal dance instruction. To locate papers regarding the critical components of fitness for professional and student dancers, we searched three databases. Contemporary dancers exhibit superior breathing and stamina compared to ballet dancers. However, students who study contemporary dance are just as fit as those who study ballet, and their bodies are also very similar in composition. Only two research projects have looked at how doing extra exercise can improve dancing. More research is needed to make sure the initial data is correct. Increasing the amount of fitness training appears to improve the performance of dance students.

### 3. DISCUSSION

Dance and space work together harmoniously because movement takes place inside predetermined spatial parameters. Dancers use dimensions, levels, and paths to dynamically interact and modify space to communicate thoughts and feelings. Space influences the choreographer's creative choices by acting as a canvas for choreographic experimentation. The way the dancers are arranged about one another also adds to the composition as a whole. Space, whether large or small, influences a dance's aesthetic and storyline and creates a special conversation between the artist and their environment. Dancing essentially transforms into an enthralling fusion of movement and spatial dynamics, fusing the physical with the surrounding space.

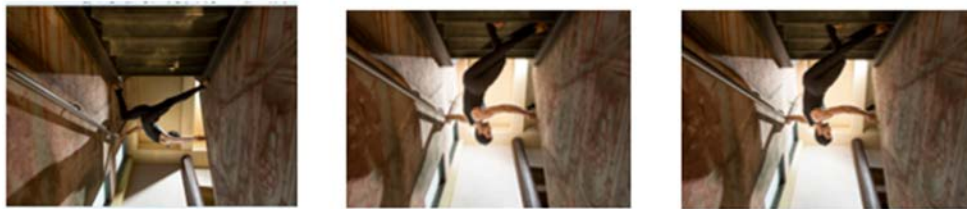
#### *a. Relationship between Dance & Space:*

The dancer's study of his movements is greatly influenced by his surroundings. By gathering ideas, the dancer's subconscious mind constructs the foundation for their actions from the items

in the present moment, such as the lighting, furniture, and overall atmosphere of the space. One's body demonstrates their limitations and pushes them to new heights. A dancer's expertise is pushing these boundaries and focusing on the extremes. One thing that may help with this process and provide opportunities for creativity and innovation is a dynamic environment.



**Figure 1: Illustrate the connection between space and dance in the dining room.**



**Figure 2: Illustrate the connection between space and dance in Staircase.**

### *3.2 case studies in dance (lick and lather):*

A total of 14 busts, crafted from chocolate and soap, were sculpted by Janine Antoni and shown at the New Museum Show in New York City. They were portrayed in these sculptures just as she was. The method of reasoning behind this used these materials to illustrate the process of the materials withering away, such as the chocolate being licked and bitten into and the soap being scrubbed away, to depict the ongoing love-hate relationship that people have with their physical appearance as well as how humans deal with the idea of mortality. Janine Antoni's work is very compelling because of her inventive use of materials and her investigation of the complicated connection people have with their physical bodies and death. The 14 painstakingly made soap and chocolate busts are potent allegories for the duality of self-perception. The choice of creating identical duplicates of herself gives the artwork an autobiographical quality that allows viewers to establish a more intimate connection with the creator. The use of soap and chocolate as materials gives the story more dimension. Sensual and decadent, chocolate symbolizes the fleeting aspect of physical beauty. A fleeting pleasure connected to youth and beauty is symbolized by the process of biting and licking the chocolate busts.



**Figure 3: illustrate the Lick and Lather, Artist -Janine Antoni.**



### 3.4 Case studies in dance (garden narcissus):

Philip Johnson's Glass House estate has 1,300 floating steel spheres that were put by Yayoi Kusama in a body of water. The water's current forms what happened to the installation. Each sphere was about the size of a crystal ball used by fortune tellers. The observer is forced to spend some time engaging in "self reflection" by facing their conceit and ego as they look into it since they see several versions of themselves seeking out. Yayoi Kusama's enthralling artwork Narcissus Garden, with its fascinating display of 1,300 floating steel spheres, adorns Philip Johnson's Glass House estate. The artwork comes to life as the soft flowing water creates a beautiful dance between the spheres.



**Figure 4: illustrate the Narcissus Garden, Artist -Yayoi Kusama.**

### 3.5 Delving Into the Mind of a Dancer:

There is a lot of acceptance and encouragement in the dancing community. I believe that I can relate to every dancer I speak with on an unconscious level and that I can fully comprehend their conversations because they possess comparable notions and concepts. Despite talking to dancers who specialize in various dance forms, their love for their craft never wavered. Upon discussing dance, the expressions of choreographers, dance instructors, students, and interns alike brightened up. I sent out a series of questions to different members of the dance community, and some of their answers jumped out to me. It seems like they were all describing dancing as a way to enter another planet via a gateway. This one sentence opened their eyes to a plethora of possibilities, and they knew it would be the first of many thoughts to sprout. By asking a straightforward inquiry, they were able to go further into their thoughts and get them to consider this assertion in a more focused way. A simple inquiry sparked a plethora of insightful answers.

#### 3.5.1: an overview of minds wide open (sayali phadke dancer):

She danced for the first time in my Kathak courses when I was five years old. For some reason, I was terrified of the dark when I was a kid. I stood in the middle of the stage for our class's first performance. She had done an excellent amount of practicing. They kept track of every step. However, the moment the stage lights went out just before a performance started is what bothered me. It brought up recollections of my fear. Just as she was ready to pass out from full freeze, the music began to play, and I instantly began to dance as if nothing had occurred. Overall, dance taught me the need to rise above circumstances when they arise and the need to chase away any negative thoughts. In addition, when I was four years old, she was in a very horrific accident when a car ran over my left foot, breaking the last three toes. To get over the feeling that she "cannot do what other kids can," my parents forced me to enroll in Kathak courses. As you are aware, Kathak is a kind of dance where quick turns and constant pirouettes are key elements. Dance taught me to take it step by step and place my feet on the ground first

to prevent falling, even though I was unable to spin on my toes due to the injury. That idea, in my opinion, also holds in life. Dancing transports me to another universe as, as soon as she begins, she is reminded of all the arguments she had to have because "the show must go on."

### 3.5.2: Overview of minds wide open (Sumeet Nagdev dancer):

The physical and mental faculties are the only aspects of your soul and life that you are in charge of. You will see that nothing else is within your reach if you look attentively. That it enables us to retreat into my world. He believes that everyone needs to be able to escape, and I believe that I'm still trying since he felt the need to do so most of the time and still do now. We all need to escape from time to time. They enter their imagined domain when they do this and are fully present in your body, mind, and spirit. We're all looking for it He can discover methods to decompress by dancing. Dancing has real therapeutic benefits. The deep capacity to retreat into one's world is associated with the realization that the body and mind are the only entities that are subject to control. As said, escapism is an important part of the human experience and an essential coping technique. Expressed as a constant need, the wish to escape refers to the ongoing search for comfort and reflection. Having a holistic relationship with one's body, mind, and soul is a transforming experience that results in the development of a personal creative world. This search for a place where one may be who they are speaks to a universal need. It turns into a haven for reflection, imagination, and self-improvement. Dance becomes apparent as a means of self-healing. One may clear their head by fully engrossing oneself in the rhythmic motions and expressiveness of dancing. Dancing provides an outlet for healing and rebirth, a kind of catharsis that goes beyond the material world.

### 3.6 Down a Walkable Memory Lane:

Dancing is a fascinating experience that goes beyond just moving physically. It turns into an expression of who you are on the inside, a way to communicate your feelings, and a way to reach the core of life. The soul's rhythm seems to be in tune with the rhythmic cadence of the moving body, fostering a harmonious union of the material and spiritual selves. When dancing, the outside world disappears and the dancer experiences heightened awareness. Sentiments are expressed via the body, and every action articulates sentiments that may be hard to put into words. This in-depth exploration of oneself promotes introspection and self-discovery by providing a greater knowledge of one's emotions.



**Figure 6: illustrates the feel alive and fully consciousness said by: Neeraj Lohani (DANCER).**

When faced with an unforeseen difficulty or setback, dance's transformational ability is most apparent. There could have been a sudden sense of unease in the air as the lights went out on stage just before the performance. The performer may have felt vulnerable and anxious during that brief period of darkness due to a tangible tension. But when the music started to construct its rhythmic fabric, something remarkable occurred. The dancer went through a significant transformation when she encountered the unplanned outage. The music seemed to be a guiding force that helped them overcome the immobility brought on by the abrupt darkness. The

melodies and rhythms turned like a lighthouse, kindling a creative and resilient flame within. The dancer's smooth shift from a frozen condition to an instinctual, unrestrained movement demonstrated the transformational power of dance.



**Figure 7: Illustrates the lights blacked out on stage just before a performance began, I froze but when the music started playing said: Neeraj Lohani & Zara Eisa (DANCER).**

#### 4. CONCLUSION

This study provides a comprehensive exploration of dance as a rich and dynamic form of expression deeply rooted in human history. From its historical significance to the contemporary relevance of ballet and contemporary dance, the research highlights the diverse roles that dance plays in society. The foundational importance of ballet in shaping dance training is acknowledged, emphasizing its holistic impact on a dancer's skills and abilities. Literature reviews on dance education, evolution, and global perspectives contribute to a deeper understanding of dance's cultural and societal influences. Case studies illustrating the interplay between dance and space further enrich the narrative, revealing how movement transforms within specific spatial contexts. Personal accounts from dancers underscore the transformative and therapeutic aspects of dance, reinforcing its role as a powerful means of self-discovery and expression. Overall, this study celebrates the enduring and multifaceted nature of dance, recognizing its profound impact on individuals and societies across time. The exploration of interdisciplinary collaborations, delving into the intersection of dance with fields such as technology, psychology, and neuroscience. As digital platforms continue to shape our world, the impact of online spaces on dance education, performance dissemination, and audience engagement warrants further investigation. Additionally, a focus on cultural diversity within dance, including in-depth studies on specific dance forms from various cultures, promises a richer understanding of the global tapestry woven by this art.

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## CHAPTER 13

### ROLE OF EDUCATING TO MANAGE CONSTRUCTION AND DEMOLITION WASTE

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#### ABSTRACT:

Construction is a multifaceted industry that encompasses the planning, design, and execution of various projects aimed at creating or modifying structures. These projects range from residential buildings and commercial spaces to infrastructure developments such as roads, bridges, and utilities. The construction industry, while contributing significantly to economic growth, generates substantial amounts of waste, posing environmental, economic, and social challenges. The study highlights the opportunities within this sector. It sheds light on advancements in waste reduction technologies, sustainable building practices, and circular economy principles that can be employed to minimize C&D waste generation. Collaborative efforts among stakeholders, including government bodies, contractors, and the public, are crucial for successful waste management. The challenges in C&D waste management include inadequate waste segregation practices, limited recycling infrastructure, and the potential for environmental pollution. Additionally, the lack of stringent regulations and awareness exacerbates the problem. This study, discusses the economic potential of C&D waste recycling, exploring how the reuse of materials and the development of secondary markets can create new business opportunities. Moreover, the integration of digital technologies and data analytics in waste management processes is presented as a promising avenue for optimizing resource utilization and enhancing efficiency. It finds that innovative reuse and repurposing of C&D waste materials can contribute to the development of eco-friendly building materials, creating a closed-loop system that minimizes environmental impact. By embracing sustainable practices, leveraging technology, and fostering collaboration, the construction industry can contribute to a more resilient and environmentally conscious built environment.

#### KEYWORDS:

Construction, Demolition Waste, Garbage, Industry, Landfill.

### 1. INTRODUCTION

Historically, one of the biggest and oldest unorganized industries, the building industry has contributed significantly to employment. Before India's independence, the country's construction efforts were mostly directed at residential and religious buildings, employing customary techniques for both individual and communal buildings. But as the population expanded and the need for infrastructure rose, the sector had to change to keep up with the expectations. Large-scale projects like malls, skyscrapers, and metro tracks need the use of contemporary tools and methods to maximize productivity and uphold standards for building quality. After agriculture, the construction industry is now the second-largest in the nation. It contributes significantly to the GDP of the nation and creates jobs for a sizable labor force. A key component of the nation's infrastructure and industrial development is construction, which is constantly expanding as a result of causes including urbanization, industrialization, economic expansion, and the general public's desire for a higher standard of living.

The construction business encompasses a wide range of projects related to urban infrastructure, such as roads, ports, trains, airports, power systems, irrigation, agricultural systems, and telecommunications, in addition to hospitals, schools, townships, offices, and residences. With backward and forward links, the building industry creates substantial employment and propels development in other sectors, accounting for 40–50% of the National Plan expenditure and 20% of GDP. Encouraging this essential activity is essential to the economy's general health. The construction industry has grown significantly in the last several years, meeting India's housing, transportation, and infrastructure demands and serving as the cornerstone for the country's development [1],[2]. Construction operations have been driven by the government's focus on infrastructure, and to satisfy the nation's expanding needs, the industry has expanded into the fields of engineering, design, building materials, and equipment. The Real Estate



Regulation & Development Act (RERA) and the Goods and Services Tax (GST) that were introduced in 2017 forced the sector to embrace more process-driven methods and increased transparency. RERA seeks to control the industry and establish discipline to counteract developer unfulfilled promises along with project delays. In the meantime, the goal of GST is to level the playing field for developers and homebuyers by rationalizing the tax system and bringing consistency to costs [3], [4]. Figure 1 depicts the view of the construction site.



**Figure 1: Illustrates the view of the construction site [5].**

The construction sector in India employs the greatest percentage of the labor force and receives the highest levels of investment from the public and private sectors. But as the business expands and becomes more complicated, workers need to keep learning the skills and knowledge needed to operate complex gear and equipment. A large percentage of the workforce is still untrained in the construction industry as a result of the lack of effective training and skills development initiatives. There is now a labor shortage that affects 50% to 60% of the total number of workers needed for each project, which puts achieving project deadlines in danger. Construction businesses are using precast technology as an alternative to human labor to mitigate the issue of labor shortages. In comparison to traditional techniques, this approach saves a great deal of time by manufacturing the bulk of building components in factories and then transporting them to the construction site. For example, conventional bricks are replaced by precast beams, slabs, and columns. There are larger worries about the environmental effect of the construction sector, even if some businesses like Larsen & Toubro, which has created a nationwide network of Construction Skills Training Institutes are taking a proactive approach to tackling labor force challenges [6], [7]. The "built environment" is seen to be one of the most ecologically harmful human endeavors, and construction methods significantly add to environmental risks. This is shown by the large-scale exploitation of natural resources, the substantial pollution of urban air, the emissions of CO<sub>2</sub>, and the wasteful use of water. The environmental effect of the building materials sector is further amplified by the use of harmful chemicals, which are often manufactured in an unsustainable manner. The transportation of resources from far regions raises expenses and degrades air quality. According to the USGBC, 40% of all raw materials used worldwide are utilized in construction, which increases the environmental impact of the industry's extraction and use of these commodities. Inadequate planning and organization lead to material waste on building sites, another problem facing the business. When materials' quality is neglected, they become inappropriate for use in building, which wastes a lot of resources. As a result of abandoned items ending up in landfills or being illegally dumped around cities, waste has a negative influence on the environment, the economy, and social elements of society [8], [9].

The present study is about challenges and opportunities in managing construction and demolition waste. The rest of the paper is organized into the following section 1 describes how Construction plays an important role in the socio-economic progress of the country. Due to the increase in the standard of living, change in consumption habits as well as an increase in the overall population, the demand for residential and commercial projects is on the rise. Section 2 provides the literature review in the context. The discussion is presented in section 3 to show the current pace of construction, demolition, and refurbishment activities, India faces a severe problem of construction and demolition waste (C&D Waste). The summary of the study is presented in section 4.

## 2. LITERATURE REVIEW

S. Gassó Domingo *et al.* [10] study was designed to identify the key variables that affect the building and demolition industries' adoption of the Circular Economy. To understand the fundamental tactics that make up all-encompassing circular methods, a detailed literature analysis was conducted. A theoretical framework for applying Circular Economy principles tailored especially for the building and demolition industry is the paper's principal contribution. Fourteen solutions covering the five phases of the construction and demolition lifecycle are included in the framework, with a focus on efficient waste management and recycling recovered materials into secondary building materials.

S. Jain *et al.* [11] purpose of that research is to evaluate Indian builders' opinions toward recycling construction and demolition trash. To investigate builders' behavioral intentions regarding recycling construction and demolition waste, an analytical framework incorporating the theory of planned conduct, and awareness of the environment was developed. The research used partial least squares-based modeling of structural equations to analyze empirical data from 260 answers from various builders in the building business across two major Indian cities. The findings demonstrate that human motives (perceived advantages, perceived costs, mental state, and perceived behavioral control), regulatory constraints, and environmental awareness are the main factors influencing the propensity toward recycling construction and demolition debris. The findings of this study have broad significance for academic researchers, industry experts, regulatory agencies, legislators, and waste management and recycling specialists in the building and demolition sectors.

G. Tavakoli Mehrjardi *et al.* [12] main aims of this investigation were to evaluate the mechanical and physical properties of CDW to explore its possible use as sub-base materials in road building. After choosing and crushing pertinent material from disposal locations, important physical tests such as soil grading, Atterberg limits, modified compacting, California Bearing Ratio, and direct shear tests were carried out. The purpose of these tests was to compare the results with the requirements for road building. To assess the effect of geocell reinforcements on the capacity for bearing CDW materials, several cyclic plate load experiments were conducted. The results showed that most standard criteria for the materials' appropriateness as sub-base for road building were satisfied by the mechanical and physical characteristics of the CDW materials under examination. The circular bearing capacity of CDW backfills indicated 20–40% less than that of standard materials, according to the findings of plate load testing. Nevertheless, the addition of geocell reinforcement improved the CDW cycle response, bringing it nearer to the response of the natural aggregate (NA), and also raised the bearing capacity ratio for all CDW materials considerably, exceeding one.

H. T. Nghiem *et al.* [13] study conducted a comprehensive analysis of several factors in the production and management of construction and demolition waste (also known as CDW) in Vietnam. First, a thorough grasp of CDW management in Vietnam was explained, emphasizing the perspectives of demolition contractors' crucial players in this field. Their viewpoints provided insightful information on the state of affairs, customs, and beliefs around CDW recycling. Second, considering their predominant presence in the waste stream, the article

focuses on crushed concrete crushed brick (CC-CB), and steel in particular, as well as the generation rates of various material types from the demolition sites of building constructions in Hanoi, Vietnam. To accomplish these goals, regular contact was kept with a crucial partner, a reputable demolition contractor in Hanoi, who helped arrange interviews with other contractors and supplied details about the structures that were being demolished.

The above study shows that the mechanical and physical characteristics of the CDW materials met most standard criteria for suitability as road construction sub-base materials. Although the circular bearing capacity of CDW backfills was 20–40% lower than that of standard materials based on plate load testing. In this study, the author discusses sources of waste with the process of waste collection and disposal.

### 3. DISCUSSION

Materials from the building, demolition, restoration, or repair of any physical structure produced by humans, including homes and businesses, are referred to as construction and demolition waste (C&D) waste. India now produces between 165 and 170 million tons of garbage a year, according to the Union Ministry of Urban Development. Construction and demolition (C&D) trash is generated throughout the building, preservation, and disposal stages. It includes debris from demolitions, restorations, new construction, and maintenance of flyovers, bridges, roadways, and other infrastructure. This leads to the creation of a composite waste stream that contains a variety of elements, including soil, bricks, concrete, steel, wood, and debris from different construction operations as well as a mixture of materials used for site clearing. Each new construction project in modern India produces 40–60 kilograms of C&D trash per square meter; this estimate only accounts for new buildings. As to the Technology Information, Prediction, and Assessment Council (TIFAC), on the other hand, waste generated during the demolition and renovation/repair of older buildings is much larger, equivalent to 300–500 kg of garbage per square meter. This number shows that 10 times as much rubbish is produced during demolition than during building. A significant amount of C&D trash is illegally dumped in open spaces and water bodies as a result of high waste volumes and an inadequate management system. A portion of it is also illegally used to construct real estate in marshy regions around cities. A tiny percentage of the garbage that is legally disposed of gets recycled or reused, with the majority being placed in landfills [14], [15].

#### 3.1. *Challenges of C&D Waste in India*

In India, processing only accounts for 5 percent of total garbage created. One obvious and worrisome result of this massive amount of material waste is the pervasive unlawful dumping activity. Unauthorized garbage disposal onto land, or "illegal dumping," has become commonplace for large-scale C&D operations. As debris builds up in roadside areas, it clogs traffic. Residential C&D garbage is often dumped in adjacent waste storage yards and municipal bins or containers, creating a build-up of heavy municipal waste and reducing its usefulness for energy recovery and composting. Illegal dumping contributes to social, economic, and environmental concerns and has far-reaching effects on world health. The main problem is that there aren't any officially designated permanent locations for the disposal of C&D waste. As a consequence, much of the garbage is disposed of in open spaces, which pollutes the air and takes up potential land. Municipal Corporations have not taken sufficient action in response to the issues posed by C&D waste, which has made the situation worse. Because there are no clear regulations for producers, builders, contractors, and homeowners, there is a dearth of knowledge about the repercussions of building up construction and demolition debris, which causes the incidence of unlawful disposal to rise quickly [16], [17].

#### 3.2. *Sources of Waste:*

C&D Wastes also known as construction and demolition wastes, are usually disposed of together but come from different processes and have different properties regarding quantity,

content, and recovery potential. When opposed to demolition waste, building debris from new structures is often less polluted, less mixed, and has a better possibility for recovery. As such, its share of the total amount of C&D waste is often rather small. On the other hand, demolition waste, which makes up the majority of C&D trash, is more likely to be mixed and polluted, which makes recovery more difficult. Several variables, such as population growth, local or regional planning, the status of the building sector, and landfill costs, affect the amount of construction and demolition waste generated. The amount of construction trash produced is directly related to the pace of new buildings, which is correlated with the nation's economic growth. Waste composition variety is further influenced by regional differences in the sorts of materials utilized in buildings. For example, the predominant building material in certain areas is brick, but the bulk of trash produced in others is concrete. Differentiating C&D waste according to the activity and kind of waste generated shows different compositions. Various kinds of garbage are produced by excavation work, creating public infrastructure, demolishing old buildings, and building homes, businesses, schools, and hospitals, among other things. For instance, concrete and steel are usually used in the building or destruction of flyovers and bridges. On the other hand, residential building construction or destruction produces a mixture of materials such as concrete, steel, wood, tiles, paints, plastics, and other elements [18]–[20].

### 3.3. *Constituents of Architectural and Interior Waste:*

Architectural waste is the term for materials used to form a building's main exterior structure. These materials are mostly made of concrete and reinforced concrete, which has metal inserted in it to increase its tensile strength. Brick is another important part of architectural waste as it is used to build both interior and exterior walls. As a result of material advances, a variety of brick varieties are used; each has a unique composition that offers benefits to the building. But since bricks are usually cemented with cement mortar, brick trash after demolition includes both bricks and mortar. However, garbage that is gathered from within a room, including internal walls, false ceilings, floors, furniture, and furnishings, is referred to as interior trash. These materials differ according to the kind of building, the fashions of the time, and the readily available materials. Carpeting, wood, metal, glass, gypsum, cloth, and ceramic or stone tiles are the most common types of interior trash. Local economies recycle around 40% of interior trash, made possible by the joineries and repairing systems already in place. These substances fall into two general categories: inert substances and non-inert substances. Both soft and hard inert materials, such as boulders and shattered concrete, may be considered inert materials. Examples of soft inert materials include soil, earth, and slurry. Non-inert materials include garbage made of plastic, metal, and wood. This classification establishes the purity of the material and whether or not composites may be separated for easier recycling and reuse in the future.

### 3.4. *Process of Waste Collection & Disposal:*

Currently, garbage produced on building sites is collected and loaded onto trucks without any kind of separation. These materials come from a variety of projects, including building, destruction, and renovation. There isn't a formal system in place for disposal, therefore an unofficial order has developed instead. After collection, the garbage is sent to a nearby market where sellers separate the different elements. Reclaimed materials including wood, glass, metal, cloth, etc. are sold for less money. To save landfill fees, the residual unsegregated debris is often disposed of in open spaces, with contractors covering the associated transportation costs. Rag pickers scavenge things left on open lands to find valuable objects to sell in the local economy. Furthermore, slum inhabitants use a large amount of the debris to build illegal houses for their families. When waste disposal in one industry is not planned for, it harms the economy as a whole and leads to a cycle of illicit activity and disorganized industries. Because these illicit industries are not officially recorded, it is difficult to forecast their effects, which puts the nation in peril.



### 3.5. *Barriers to a Legal Disposal of Waste:*

The main cause of garbage dumped illegally is the absence of legally approved disposal options. The popularity of unauthorized disposal is mostly due to the time-saving advantages and rising expenses. Legislative actions cannot keep up with the increasing amount of garbage being produced, which poses many difficulties for the nation as a whole.

#### 3.5.1. *Unorganised Disposal Regulations:*

The availability of funding for trash management is still changing as India continues its developmental path, which has resulted in a substantial discrepancy between the cash allotted and necessary for waste management. Because of their limited capacity for monitoring, municipal governments find it difficult to keep an eye on compliance with trash disposal laws and regulations.

#### 3.5.2. *Lack of Designated Areas:*

The city's landfills act as open disposal sites for a variety of waste materials, such as E-waste, liquid trash, and organic garbage, with no designated area set aside for the disposal of C&D waste. This combination makes the waste more hazardous, which has negative environmental implications. Furthermore, there are serious health risks associated with these regions for those who live nearby.

#### 3.5.3. *Avoidance of Transportation & Disposal Fee:*

It is a widespread practice to dispose of rubbish illegally to avoid paying for transportation to landfills outside of the city, which is further away. The contractor has to dispose of C&D waste in compliance with applicable laws. However, neither a policy nor an incentive is in place to supervise this disposal procedure, nor is there any way to promote compliance with these rules.

#### 3.5.4. *Shortage of Storage:*

Storage systems that enable segregation are essential for effective waste management. Regretfully, due to a lack of space, the city is forced to dispose of all garbage together, which contaminates things meant for disposal. As a result, there are far fewer chances for recycling or reuse.

#### 3.5.5. *Technological Barriers:*

The majority of our waste segregation equipment is antiquated and unable to handle the garbage produced today. As a consequence, recycling becomes a labor-intensive process, raising the cost of recycled goods relative to those created from virgin resources.

#### 3.5.6. *Lack of Formal Recycling Markets:*

Nowadays, most recycling takes place in the informal economy of the local community, where resources are recovered from mixed debris that is discarded all around the city. The lack of any established markets for recycling garbage makes it difficult to keep an eye on both the advantages and disadvantages. Only with the formation of established markets that handle bigger volumes of garbage with significant expenditures can a radical shift be accomplished.

### 3.6. *Landfill Exhaustion:*

India's landfills are steadily running out of space, which is bad for the ecology. Waste is being dumped throughout cities in open spaces, landfills, and aquatic bodies due to the sluggish advancement of laws and regulations. Every one of these procedures has potential risks. Except for its sheer bulk taking up a large amount of city area, C&D garbage has little negative consequences on its own. However, when combined with other forms of waste, it may have hazardous waste issues. The payment of landfill fees plays a major role in the disposal of non-segregated garbage, often in violation of laws and regulations. Summertime brings with it greater temperatures, which hasten the organic stuff in the waste's breakdown and raise



methane emissions. Spontaneous combustion is possible in landfill environments with sufficient pressure and oxygen ingress. Notably, a fire that broke out at the Bandhwari waste treatment plant in 2013 destroyed the whole structure. Municipalities in Gurugram and Faridabad ignore the possible long-term effects and yet dump over 1,000 tons of untreated waste at the location every day.

### 3.7. *Rise of Informal Sectors:*

Optimizing material usage becomes a top goal as the demand for infrastructure rises and the pressure that population development is placing on natural resources. While it is technically and financially feasible to collect, sort, reuse, and recycle certain construction waste materials, a significant part often ends in the form of dead weight in landfills or, if illegally disposed of, throughout the city. Globally, it has been difficult for the public and commercial sectors to put policies in place that support the extensive recycling of construction and demolition waste. Unlike the official sectors, the informal sector in India has been able to effectively establish enterprises centered on the collection, trading, and recycling of trash. Small companies and independent contractors with little financial resources and no legal recognition make up this unofficial sector. These unofficial sectors handle a large amount of the C&D garbage in the nation. Waste that hasn't been separated is brought to a central market, where a variety of waste material specialists gather it and distribute it to other markets across the city, reaching a wider audience. The gathered garbage is either sold to customers for goods like fabric, doors, windows, furniture, and metal framings, or it is sold as is, with just modest renovations and repairs. Waste that is damaged or recyclable breaks down into smaller pieces that may be used in the production of less expensive materials or goods. These materials are often dumped illegally, which leads them into unofficial markets. Alongside internal materials, external elements including brick, concrete, iron, and pipes are also unlawfully disposed of. Nevertheless, official manufacturing facilities gather them for recycling, using them as a supply of raw materials and cutting expenses associated with production overall. Larger industrial facilities are usually able to afford the sophisticated technology needed for the recycling process, which smaller informal economies are unable to rescue.

### 3.8. *Existing economies for recycling waste:*

Trash recycling is made easier by established economies that have developed in response to the increasing need for environmentally friendly trash disposal. In many places, the informal sector has become a major participant in garbage recycling, while formal sectors throughout the globe struggle with large-scale waste recycling. These informal economies are vital to the management and recycling of C&D waste since they are often made up of small enterprises and independent contractors with few capital inputs and legal recognition.

#### 3.8.1. *Concrete:*

Many businesses now use brick and concrete as aggregates to create affordable cement products, using sustainable techniques. About 60% of the materials used to make bricks and concrete are recycled by manufacturing companies. One such facility is the Infrastructure Leasing & Financial Services (IFSL) facility, which uses science to turn 2000 tons of construction and demolition (C&D) trash per day (TPD) into aggregates. After that, these aggregates are used to make concrete bricks, hollowed bricks, pavement blocks, kerb stones, ready-mix concrete, and manufactured sand. This creative method lessens the need for new sand and stones while also reducing production-related pollution. Over 16 lakh recycled concrete blocks were produced by the IFSL factory, which helped with the development of the new Supreme Court annex. With machinery specifically designed to handle waste from brick and concrete, the factory can recover an amazing 95% of the incoming C&D trash. Furthermore, garbage is processed using recycled sewage water, which reduces the effect on the environment. The use of wet-processing technology lowers pollution from dust and noise

even further. In a similar vein, several establishments throughout multiple cities embrace comparable concrete recycling methods, advancing sustainability within the building sector.

### 3.8.2. *Wood:*

Wood is used for a variety of components, including flooring, furniture, and dividers. Most wood is efficiently recycled by neighborhood informal economies, which collect, sort, and cut it into pieces that are cheaper for customers and builders to purchase. This recycled wood is put to use in several ways, such as refinished furniture or parts for doors, windows, and partitions. Before being offered at a lower price, wooden furniture is repaired and re-polished. Furniture that has been damaged is recycled by cutting it into pieces that are marketed as doors, table tops, lintels, partitions, and other parts. Smaller pieces of wood may be used as furniture joinery or packed and sold to generate fuel, especially for the city's bakeries. Since wood is so widely available and has historical importance, repurposed wood has found many uses throughout time. As a result, those involved in the recycling process benefit greatly from the increased value attached to recycling wood waste.

### 3.8.3. *Glass:*

Just 45% of India's glass produced is recycled, underscoring the need for better waste glass procurement and management. When it comes to recycling, glass recycling is particularly easy compared to other materials. It is a practical method of protecting priceless natural resources and easing the burden on landfill space. In the glass recycling process, items or materials that are broken or unsuitable are converted into new products or secondary ones. Glass is usually discovered in non-resaleable bits, therefore collecting and sorting glass according to composition becomes essential. After sorting, the glass is sold locally to support local businesses. The leftover glass is then melted, crushed into cullets, and remolded into appropriate glass items. In addition, broken glass which is often mixed with stone is used in Terrazzo flooring in addition to white concrete or resin. Recycling reduces trash while also promoting environmentally friendly practices and sustainable resource management.

## 4. CONCLUSION

There are several obstacles in India's C&D waste management system, but there are also chances for innovation and sustainable building practices. The creation of C&D waste has significantly increased due to the growing need for infrastructure as well as the quickening pace of urbanization and population rise. Nevertheless, the current techniques of disposal are insufficient, which results in threats to public health, the environment, and unlawful dumping. The problems this research found include disorganized disposal laws, a lack of approved locations, evading transportation and disposal costs, a lack of storage, technical obstacles, and landfill fatigue. These difficulties add to the concerning situation that, in a nation that generates between 165 and 170 million tons of trash yearly, barely 5% of the entire C&D waste gets treated. Even with these difficulties, there is still plenty of room for development. The emergence of informal sectors in the recycling of garbage is significant because it highlights the possibility of effective management via independent contractors and small businesses. Well-established markets for recycling certain materials like glass, wood, and concrete showcase efficient approaches that lessen the environmental impact of construction and demolition waste. To create a comprehensive waste management system that is in line with sustainable standards, the government, municipalities, and industry partners must work together. Reducing the environmental effect of the building and demolition industry may be accomplished in large part by implementing the circular economy's ideas, which emphasize the efficient recycling and reuse of resources. A multifaceted strategy encompassing legislative, infrastructure, and behavioral issues is necessary for the proper management of construction and demolition waste in India. The nation's building and demolition sector may have a cleaner, more ecologically sensitive future by adopting sustainable techniques and taking inspiration from successful recycling models.

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