

REHABILITATION OF DESTITUTE CHILDREN AND ROLE OF ARCHITECTURE: A CASE STUDY OF CHATTOGRAM, BANGLADESH

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Abstract: Destitution is one of the dominant subject matters in developing countries leading to varieties of concerns, a significant one being child poverty. At an early age, children of this category come across repeated exposure to unpleasant events which results in the degradation of their physical as well as psychological health. Several organizations remain engaged in the empowerment process by providing a range of facilities such as education, medical treatment, shelter, etc. to include them socially in urban settings. However, along with the provision of basic necessities, a guideline for productive rehabilitation space requires a thorough investigation of design features such as scale, proportion, texture, color, formal expressions, etc. of the built environment designed for them. Additionally, exploration of the children's indoor and outdoor activities, growth rate analysis concerning age groups and a thorough study to assess levels of trauma become a vital necessity. Through a questionnaire and field survey, the first phase of the analysis is conducted. The next phase includes the assessment of survey data to categorize children, their needs, and their activities. With an aim of re-integrating these children into society, the research strives to explore design approaches based on functional requirements to minimize the present disorder and assure a conducive rehabilitation environment.

Keywords: *Destitution, Design Strategies, Rehabilitation, Children-Friendly Environment, Child Psychology.*

1. Introduction

'Destitution' or 'extreme poverty' is a common and complex phenomenon. "Destitute children" are generally considered as children without or lacking the basic needs of life. Economist Partha Dasgupta defines it as an extreme form of ill-being or life-threatening commodity deprivation that fails to meet the basic minimum living standard or physiological needs (Dasgupta, 1993). According to World Data Lab Projections, more than half of the children of the world are poor. UNICEF states that an estimated 356 million children live in extreme poverty. Currently, various concerned development agencies such as UNICEF, UNDP, ILO, World Bank, etc. analyze and publish survey reports every year regarding the outcomes of development programs and policies ensuring children's safety, nutrition, poverty, health, education, vaccination, vocational training, anti-child labor, employment generation, etc. The following graph (Figure 1) shows 6 percent of poor adults, whereas children under the poverty line comprise 13 percent of the world population. About 228 million children in Africa residing in extreme poverty represent over three-quarters of the poor children in the world. Among Asian countries, particularly India, Bangladesh and Pakistan, millions of destitute children are exposed regularly to multiple vulnerabilities (Khan & Hesketh, 2010). As a series of events are linked with the poverty of these children, i.e., child labor, rape, forced prostitution, physical and psychiatric diseases, theft, attempt to suicide, etc. (Mohajan, 2014), rehabilitation of these children has become a significant issue in today's world.

Bangladesh is a densely populated country and the population living in extreme poverty up until now is more than 10 million (World Poverty Clock, 2020). About 40% of the country's population is children and according to a report shared by 'Bangladesh Sangbad Sangshtha (BSS)', 46% of these children suffer from multidimensional poverty. Bangladesh government controls development policies, like "Food for Education", "Birth Registration", "Vaccination", "Early Child Education", "Vocational Training", "Anti-Child Labor" programs, HIV programs, safe water, sanitation facilities, etc. to support "Convention of the Rights of Children (CRC)", with the help of international organizations as well as United Nations child agencies donation and projects. (Shakila, 2011). Statistics have revealed a notable success in ensuring child rights in the last two decades. Though the minimum standards and recommendations of rehabilitation formulated by the World Health Organization (WHO) have directed a guideline for engaging neglected

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children in society, the process requires thorough monitoring even after the basic necessities of the children have been met. The detailed exploration of the children during the rehabilitation phase along with the post-occupancy evaluation (POE) in the rehabilitation space becomes a prerequisite in such a situation.

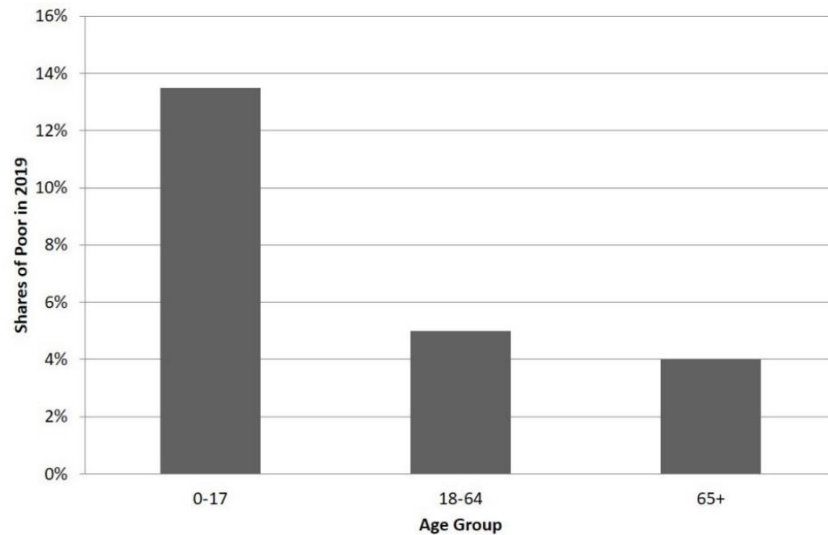


Figure 1, Percentage living under the poverty line as per age group. (Source: World Data Lab Projections)

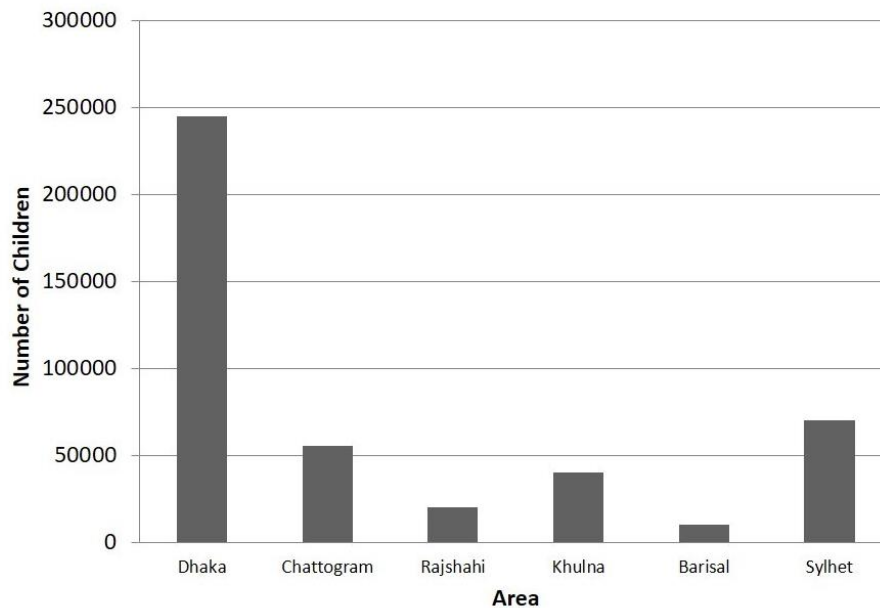


Figure 2, 'Estimation of the Size of Street Children and their Projection for Major Urban Areas of Bangladesh' commissioned to BIDS by ARISE. (Source: Survey Data, Evaluation Report, Aparajeyo Bangladesh, 2005).

2. Research Aim

The present study aims to

- Assess the effects of destitution on the children and categorize them according to age group, behavior, and traumatic experience.
- Interrogate how architecture and space design play a part in the rehabilitation process.
- Analyze design requirements for a conducive rehabilitation space based on the children's activities and health conditions.

3. Methodology

The methodological order of the study involves an analysis of the living conditions of the children based on both theoretical data and field survey, followed by organized planning of survey analysis and data interpretation. The literature review contains the study of newspaper and scholarly articles conducted during the survey process.



Figure 3, Type of Participants. (Source: Developed by the author).

The research follows the existing information and user interpretation for addressing the rationality of the study. The questionnaire survey is intended to target a specific group of people related directly or indirectly to the events surrounding destitute children. The areas of the survey are selected based on the population density of the children and their growing activities.

4. Literature Review

According to the published news in national newspapers from 2010 to 2020, the percentage of children exposed to physical torture is 60%, murder and suicidal cases observed is 14%, mental torture 11%, sexual harassment 10%, and 5% among others. The literature review aims to discuss the common rehabilitation environments and explore the prevalent methods associated with the rehabilitation of children. Though a well-defined, clear, and extensive form of literature regarding mental health and urban design is lacking (Gharib et al., 2017), few ideas and recommendations through implementations have been practiced for the rehabilitation of traumatic children in the last few decades. Among the rehabilitation approaches in the early stage, the use of green corridors has been a common practice for treatment. Green space reduces depression (Cohen-Cline et al., 2015) together with resulting in several positive effects on individuals in terms of their physical, spiritual, and emotional health (Ulrich 1981; Ulrich et al. 1991). An experiment conducted by researchers showed the color green to have the most influence in managing the anxiety levels of participants (Hettiarachchi & Perera, 2022). The presence of water on the other hand also has a positive impact on mental health (Miller et al., 2012; Nutsford et al., 2016). Two recent systematic reviews highlight the benefits of blue space in improving mental health, especially well-being (Britton et al. 2019). Articles explore how views of external landscape and private courtyards (Mazuch 2017), and biophilic design, or elements from the 'natural world', such as natural colors, organic forms and patterns (Leydecker 2017) contribute to patient outcomes.

The design of a building can influence social opportunities and interactions (Ahlquist et al. 2017; Docherty et al. 2006.) Spaces that encourage physical activity and development have shown tremendous success in dealing with trauma. For instance, a study shows physical activity improves the academic performance of children (Hillman, 2009). The activities must be allowed to be conducted in a well-ventilated environment. Natural lighting being a very significant factor in the design of education buildings will grow productivity, cultivate a suitable environment and at the same time decrease energy consumption that takes place owing to artificial lighting (Wijesundara & Gamaje, 2021). Psychologist Oshin Vartanian and his research team (2013) experimented to study brain activities in various spatial arrangements. This evidence-based research is accomplished through the measurement of brain activity through brain imaging machines. It is observed that the activities of the anterior singular cortex (part of the brain dealing with emotional development) increase while viewing circular, round, or curvy elements. Round and curved elements were accepted as more comfortable than rectilinear and sharp elements provided by the organizations alone are not proved to be sufficient to overcome the constant lack of motivation and solace present among many. That is why round couches and curved walk spaces create pleasure in human minds while straight paths and lines only created monotony. Another research conducted in 2006 at Harvard Medical School by Moshebar and collaborator Maital Neta has shown the same result by using a brain imaging machine. The study reveals that when a person passes through a pointy, sharp, or linear path, it automatically activates the amygdala (a part of the brain that stimulates a sense of fear). According to the study, sharp lines form a feeling of threat and increase fear, while curved surfaces are harmless. Hence, visual images and formal expressions have a significant effect on a child's mind.

5. Data Collection

The field and questionnaire survey have been carried out with a target of 350 children from the age group 3 to 15 and their families, around the common public spaces, shelter homes, and NGOs in Chattogram, Bangladesh. The data have been collected through one-to-one interviews, photographic surveys, recordings, walkthroughs, and direct

observation. The children with and without organizational support have been separately surveyed for conducting the study.

5.1 CHILDREN WITH NO ORGANIZATIONAL SUPPORT

About 38% of the total surveyed children live without any organizational support.

5.1.1. Field Survey

The field survey is mostly carried out in the Chattogram metropolitan city, initiated from the Battali Railway station which comprises the higher density of the target group, following public areas i.e. DC hill and CRB road to the hospitals, and mosques, temples, slums, and factories. A total area of 100 square kilometers has been taken as the survey area.

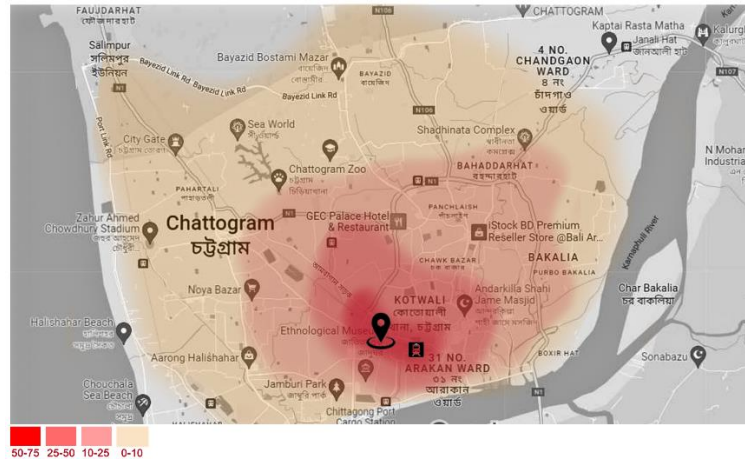


Figure 4, Population Density of Destitute Children in the survey area (children per sq. km) (Source: Developed by the author).

Above 40% of female children were observed to be engaged in prostitution during their study time. Of the total labor in the country, 12% of child labor has been confirmed of which about 41% of female children work as domestic workers. Amounting to 5% of the children deal with several disabilities and nearly 60% of children in the target group suffer from malnutrition. They typically find their comfortable living spots near public spaces such as mosques, shopping malls, hospitals, parks, etc.

The children are often observed sleeping on hard surfaces such as the concrete passenger seats of railway stations and footpaths. Mental and physical torture by policemen and local people drive them to frequently move from one place to another. The children unwarily become engaged in brutal and immoral activities in the streets e.g. throwing stones at street animals, destroying plants, teasing birds, etc. Unhygienic living arrangements in streets and slums result in contributing largely to deteriorating health conditions since early childhood. With few recreational facilities, small children invent play methods. From the age of 4 to 10, 85% of the children engage in common play activities. About 67% of the children aged above 10 pursue their recreation only by gossiping. Additionally, about 36% of children with their earned money watch films in the Cinema Halls for their entertainment. Survey analysis demonstrates only 14% of these children are admitted to schools and 40% of the admitted students drop out within 2 years. Among the drop-outs, 47% of the children are boys and 53% are girls. Many fall victim to depression at the age of 14.

Table 1: Professional Activities of Destitute Children, Survey, 2022.

Children Type	Professional Activities		
	Work Type	Location	Percentage
Type 1	Coolie/Tokai/Hawker	Railway Station	34%
Type 2	Begging/Flower-Newspaper-Food Seller	Streets and Local Parks	29%
Type 3	Domestic/Factory/Hotel Works	Houses	18%
Type 4	Transport Labour	Streets and Roads/Vehicle Terminals	8%
Type 5	Illegal activities (Drug trade/Child prostitution)	Unknown (rarely visible)	11%

5.1.2. Questionnaire Survey

Both open and close-ended questions used during the survey focus on occupation, schooling, family, health, food, and environmental conditions. Questions formats include 70% for “yes-no” and 30% for “multiple-choice” questions. Though most children comfortably answer questions associated with schooling, housing, and environmental

conditions, many often try to avoid or doubtfully answer questions regarding occupation, family, and health conditions. Few children outspokenly discuss their family and parental issues. Farida, an 8-year-old child shows scratches on her hand confirming the violence she faces at home. Farukh, a waiter at a roadside hotel lost his parents during early childhood. When asked about education, he expresses his loss of interest due to poverty and occupational pressure. Rajib, a “Tokai” by profession who is 13 years old, declares that he is not addicted while his parents disagree.

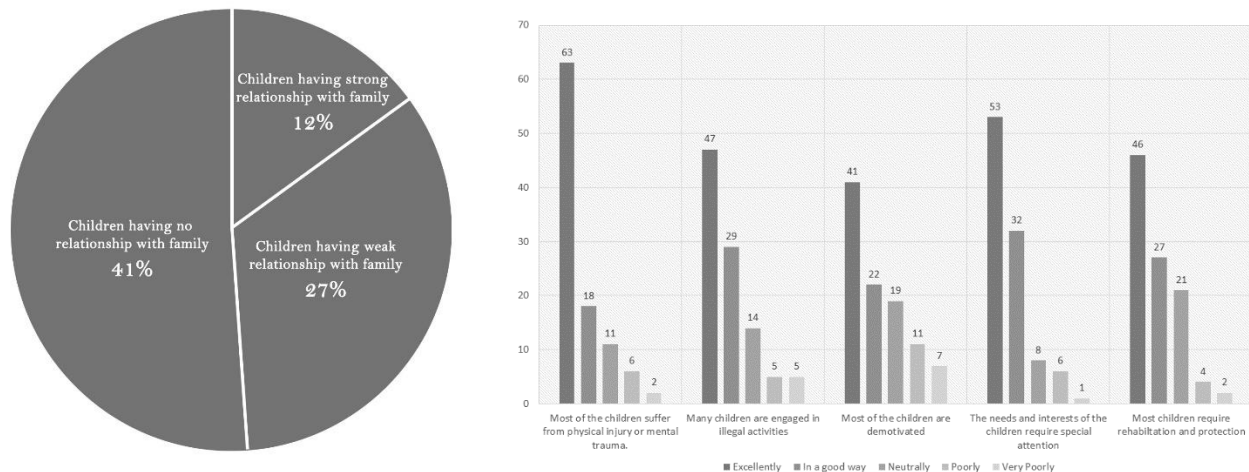


Figure 5, a: Relationship with Family, b: Perception of the requirement of rehabilitation by the participants. (Source: Developed by the author).

The open-ended questions have been formulated based on experiences and events. Mostafa, a 9-year-old boy expresses his fear of policemen. His incident with the local police where he has been beaten cruelly while begging in the middle of the street during a traffic jam compelled him to leave the street and join illegal activities. Local policemen agree on the engagement of the children in theft and crimes. Domestic worker Munia is not often paid but is beaten by her owner. She desires to join a school someday and get a decent job to earn for her family. Rokhsna Khatun, the mother of 12-year-old Hasib, living in the slum area near Battali railways station shows deep concern about her son's involvement in criminal activities.

5.2. CHILDREN WITH ORGANIZATIONAL SUPPORT

About 62% of the total surveyed children do not have organizational support.

5.2.1. Field Survey

The child rights organization Aparajeyo-Bangladesh, Upalabdh and SOS Village in Chattogram city are surveyed to analyze children's performances and activities. The organizations succeeded in systematizing several facilities including schooling, vocational training, health care, recreational engagements, cultural curriculums, extracurricular activities, etc. for the street children. However, the interior space with linear columns and partition walls defining sleeping, dining, recreational, and training zones typify imposed adult-made spaces.



Figure 6, Common interior and exterior conditions of the rehabilitation centers. (Source: Survey).

The adult-made setting especially fails to amuse teenagers. Simple prohibition often encourages their behavior as demotivated, misunderstood, and neglected. Scheming of the zones, both interior and exterior based on an adult's perception of scale and function somewhat fail to encourage children's performances positively. The interior architecture with little natural light and a hard flat surface expresses the ineffectiveness of design aims. Along with the active participation of 30% of children, the centers also observe adaptation difficulty of these children which ultimately disturbs performance and weakens creativity, potentiality, and intellectual capacity. Few children start

losing motivation after 3-6 months and attempt to or become effective in running away. Engagement in criminal or unethical activities and various forms of addiction may result again due to this. Hence, the environment becomes insensitive to the circumstances of the children. Survey data reveals a clear picture of rehabilitation space with a lack of architectural guidelines and standard design requirements in this particular situation.

5.2.2. Questionnaire Survey

The conditions of children with organizational support differ in many cases. As deficiency necessities are fairly met here, the children attempt to accept the moderately stable condition for a certain period. However, the questionnaire response displays that a percentage of children attempt to flee from the shelter homes after 2-4 weeks. According to NGO workers and officials, a good number of children are observed to deal with depression, dyslexia, and post-traumatic stress disorder subsequently. Therefore, human affection and basic necessities provided by organizations alone cannot treat the lack of motivation present among many.

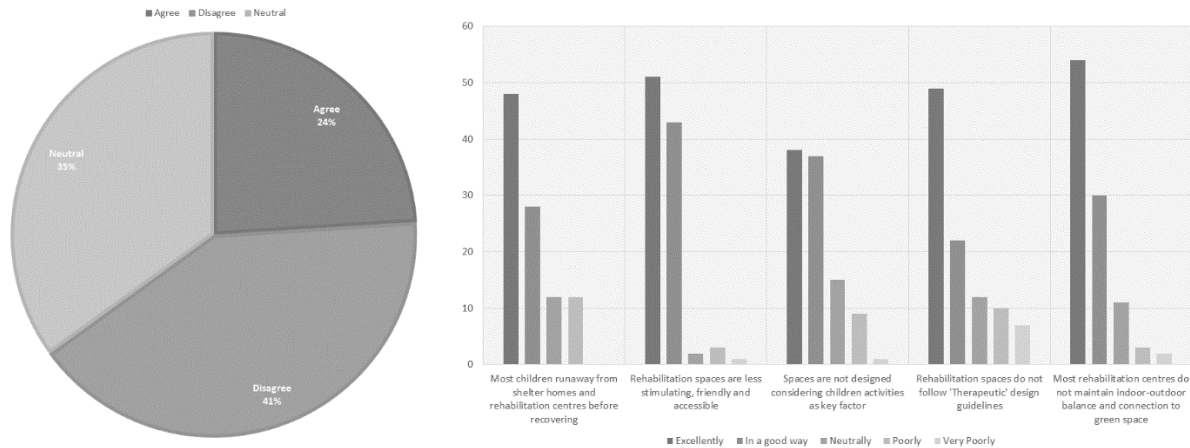


Figure 7, a: Perception on active participation by children, b: Value of architectural requirements in the process of rehabilitation by participants.

6. Data Analysis

Survey shows being culturally rootless, destitute children survive several situations of fragility. The destitute children are not characterized as vulnerable for 'homelessness' alone, they are looked on as unsolicited by common people. Some of these underprivileged children live with families with no money, some run away from the torture of their stepmother/stepfather, some are abandoned by the family and the rest are orphaned. They are often assaulted by owners, policemen, and workers and reside in urban areas than in rural for better income opportunities.

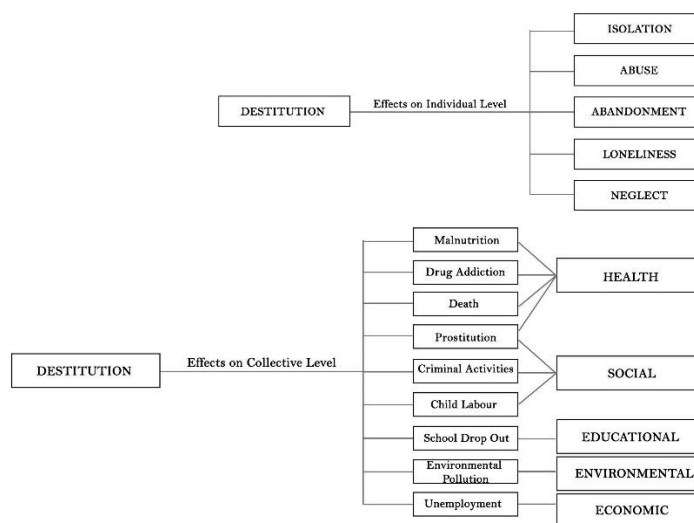


Figure 8, Effects of Destitution on Individual and Collective levels (Source: Developed by the author).

The very circumstance often results in several unexpected and objectionable behavior of them as adults in the community. The common facilities provided for them (i.e. accommodation, education, recreation, etc.) rarely aim to take into consideration the spatial experience besides acknowledging creativity, potentiality, and intellectual capacity. The existing shelter homes, training centers schools, and other institutions designed for them commonly follow the design standards of regular institutions. The comparison of regular children and destitute children based

on their relationship with the social environment points toward the imprecise idea of the designed living arrangement of these supposed 'socially impure' children.

6.1. CATEGORIZATION OF CHILDREN

Children are categorized based on trauma, behavioral analysis, and age group to design their activities and functional requirements.

6.1.1. Trauma Analysis

The three phases of traumatic conditions should decide the design and therapeutic requirements of the course. They are –

- Grief Process
- Post-traumatic phase
- Acceptance phase

6.1.2. Behavioral Analysis

The regular behavioral responses of privileged children varying from 'close to the earth' to 'emotional', from 'shy' to 'interactive', are regulated by some fixed examples of practices. A healthy relationship with nature and living beings, protection from danger, recreational opportunities in a child-friendly environment, etc. fulfill children's development needs. The destitute children with no such opportunities follow paths resulting in the undesirable transformation of behavioral responses. Some deal with sociopathy, aggression, and paranoia, while some become untrustworthy, rebellious, and arrogant. A rehabilitation center act as a medium of activity moderation. The design strategies must assure the recovery of damaged senses and restore belief through enriching spatial experience.

6.1.3. Age group and Growth Analysis

According to the child educators of Aparajeyo Bangladesh, during the preschool age, i.e from age 3+ to 5+ the relationship of a child with the surroundings results in influencing emotional, physical, social, cognitive, aesthetic as well as intellectual development. From the age of 6+ to 7+, rapid physical and psychological growth occurs. An alteration in the growth rate generally arises after this certain period. The children of age 8+ to 10+ utilize the specific period to adjust to the development process. The growth after this certain period remains uncertain and is measured through analysis of the activities and behavior of a child. Children of age groups 11 to 15 with the most sensitive behavior need special attention as the series of pubertal changes may help or hinder physical and mental health. The process occurs for both regular and destitute children. Growth is greatly hampered as destitute children come across various forms of torture, diseases, and deficiencies.

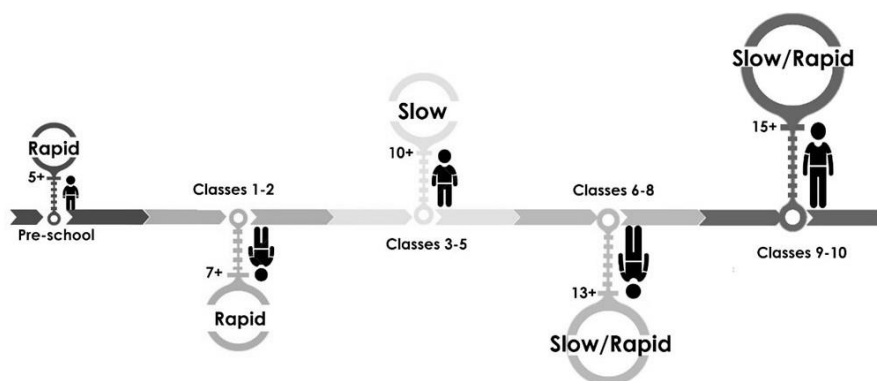


Figure 9, Growth Analysis of Children (Source: Developed by the author)

6.2. NEEDS AND NECESSITIES

An understanding of needs is attained through the distinction between regular and destitute children by analyzing Maslow's Expanded Hierarchy of Needs. Human needs influence human behavior and the higher the level of the needs, the closer an individual is to personal growth and fulfillment. The physiological, safety, love, and affection needs of every privileged child are met to a notable extent habitually after birth. Hence, their first attempt roughly begins towards attaining esteem needs. Brain images revealed that the 'Hippocampus', a region of the brain associated with memory, learning, and stress responses grows 10 percent larger in volume among well-nurtured children (Luby et al., 2012). From the beginning of the adult phase, a number of these individuals achieve or target to achieve growth needs after the fulfillment of deficiency needs. This direct leap to the third step of 'esteem needs' is a benefit for regular children, whereas destitute ones remain fixed within the phases of deficiency needs. The severely poor ones endure homelessness for a long period accompanied by severe malnutrition. They drink contaminated water, eat unhygienic foods, and often practice open defecation. About 22% die before the age of 5 years, while others strive to attain physiological needs throughout their entire childhood (Survey Data: Aparajeyo Bangladesh). The second category of children by legal or illegal help reaches physiological support, nonetheless, most of them are commonly subjected to prostitution, child labor, drug trade, etc. Besides many become infected with skin diseases, respiratory infections, abdominal disorders, impaired vision, sexually transmitted diseases, earaches, etc.

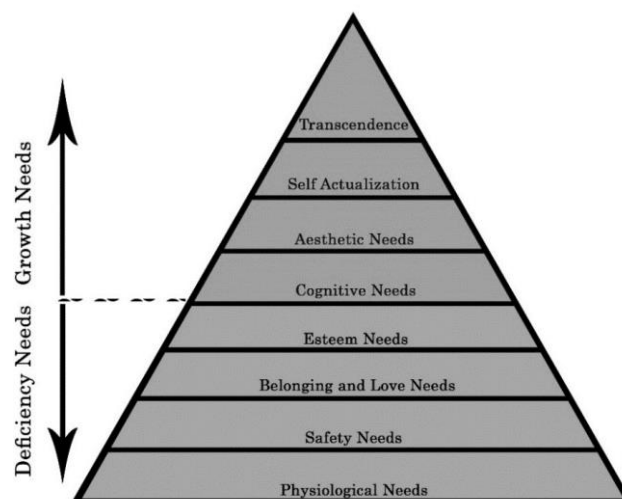


Figure 10, Maslow's Eight-Stage Expanded Hierarchy of Needs.

They attempt to achieve safety needs by various means and fail miserably. Very few of these children who prosper to reach the third stage of the hierarchy with the help of an individual or an organization, rarely have the opportunity to look above this very stage. The groups move around the deficiency needs and never receive the opportunity to satisfy or in many cases identify their growth needs. The current method of motivating through teaching, training, and discussion may positively impact regular children's behavior, but the process has a minor effect on rehabilitating destitute children. At this point, the paper discusses how experiences of spaces, assurance of a space's reliability, and interaction with a friendly and trusted environment positively contribute to reconnecting children with the hierarchy all over again in addition to rediscovering emotional and intellectual values.

6.3. ACTIVITY

It has been a challenge to encourage both regular and destitute children in routine activities through instructions. Daily tasks associated with hygiene practices including brushing, bathing, washing, and cleaning, etc. often require encouragement. Hence, both group and individual activities ranging from recreational to educational, vocational to extra-curricular, etc. should be guided through a reassuring design experience.

6.4. ENVIRONMENTAL EXPERIENCES

The environment is often identified as the 'third teacher' in pedagogy. Children are natural learners and are capable enough of adjusting to the major changes in the surrounding environment. It works partially as a disadvantage for the destitute children as they spend a significant period adjusting to the learning associated with urban dead roads and the external brutal world. Destitute children face brutal forms of human manipulation from the early phases of life. Besides, incidences related to dropouts, conventional teaching methods of schools and mental images of stagnant building typology stand as obstacles to quality education.

From the dull man-made approach to the traditional 'bench-table-board' relationship, from long sitting hours in a four-walled setting to a rigid theoretical syllabus, the complete experience of the age-old system contributes to the declination of the learning. The rooms with four corners and one center with a long dull corridor, the facades of a building, the surrounding ambiance, and the elements of the interior affect the children's confidence, decrease social interaction, and degrade creativity and cognitive development. Fear and a sense of isolation from other kids develop stress and anxiety among the children.

7. Design Recommendations

Once children become separated from their mothers, a symbiosis between the self and several aspects of their surroundings begins to flourish. The delicate handling of the metamorphosis phase feeds different areas of growth of the children. The psycho-sensory experiences of color, light, scale, proportion, texture, formal expression, volume, sound, temperature, smell, etc. from the early stage decide the development of the skills of music, mathematics, linguistics, vision, social interaction, self-knowledge, emotion, and logical thinking. The balance in this early yet critical period is intrinsic to achieving growth needs as an individual. The interruption in the balance dismantles multiple mechanisms associated with both physical and emotional experiences. As a result, a direct experience of the spatial arrangements has a make-or-break effect on a child's intellect and development. The restless, reckless, or depressing nature of most children is intrinsically a disadvantage in the process of quality education, accompanied by the unstable social environment which intensifies the difficulty of the situation to an even greater degree. The arrangement of different activities, designed spaces, and the surrounding elements play a significant role in influencing emotional and intellectual development. The common zones and programs including accommodation, recreation, education, and different training areas need transition spaces to adjust the mood in reference to the

activity. Besides vocational training, the survey reveals that ethical, religious, or spiritual guidance encourages a positive attitude among these children.

7.1. EDUCATION AND SCHOOLING

As the approach to the built form and the built form itself construct the first impression in a child's mind, a dramatic and welcoming entry delivers an appealing experience. Entry and approach projecting recreational areas and playfields attract children straightaway. Besides, interesting facade treatments with large and small colorful openings, window boxes with hanging plants, etc. improve the sensory experience of the children. The wowing expression of a child reflects the sense of and symbolizes an intense commitment subsequently developed within. A multi-sensorial built form provides multisensorial involvement. The tangible, audible, visual, odorous, etc. experiences of children grow aesthetic interest and shape cognitive development. Furniture designed with ladders and rope swings, corner shelves with toys and coloring books, etc. cancel outside distraction. Introducing fun activities inside the classroom for children rather than just delivering factual information enhances creativity. Differently shaped windows, domed roofs, arched doorways, etc. with fluidity in the circulation spaces give a picture of invisible restriction. The in-between spaces as corridors and waiting areas are the platforms of social dealings and relations. Informal seating arrangements, plantation areas, and colorful decorations create a vibrant platform for the children. Besides, pockets of spaces promoting games, reading, playing, etc. keep children busy and discourage bullying. The varied height, width, and shape of the long continuous corridor break the monotony and provide a sense of direction, pause, or engagement in the spirited environment. Structural details play an important role in interior areas. Connectivity of the classroom to outdoor spaces is obligatory as the natural environment silently teaches what the artificial environment often fails to do.

7.2. ACCOMMODATION

Generally, colors for example blue, purple, etc. help reduce stress and enhance calmness. Female children possessing greater aesthetic awareness than male ones are normally attracted to the cooler version of the warm color pink'. Bedtime stories painted on the walls with nature's symbols e.g. flowers; trees, birds, etc. raise the sense of comfort. As adventure is a vital need, double-decker beds, tree/animal-fashioned furniture, matt flooring with grass texture, etc. enrich the quality of the indoor experience. A group of more than 20 children may result in communication trouble, distraction, misbehavior, and misunderstanding. Hence, design should permit clustered arrangements based on age groups. Adequate ventilation and daylight, circular clustered arrangements of the furniture, bright colored walls, sparkling lights, etc. positively influence social behavior. Different floor levels and steps creating informal seating spaces bring out the outspoken nature and allow open communication among the children. Various textured spaces help the children to define functional areas of dining activities and services. Training on hygiene practices is a challenging process. For children, motivation and restoration of faith through storytelling have been an age-old exercise. For instance, the 'Meena cartoon' has been a popular television show encouraging children's hygiene practices, education, etc. since 1993. Wall painting and decorations around the bedrooms, kitchens, and bathrooms with colorful stories promise to motivate self-care and hygiene maintenance. Through experiences like gardening and animal care, empathy development among the children must be ensured.

7.3. RECREATIONAL FACILITIES

Zenobia Barlow in her article "Confluence of Streams" states "Children are born with a sense of wonder and an affinity for nature. Properly cultivated, these values can mature into ecological literacy, and eventually into sustainable patterns of living." Children are fond of discovering places and elements. Tunnels and caves inspire them to invent plays like hiding and seek, treasure hunting, etc. The adventurous experiences stored in the memories result in a constructive behavioral response. Group and cooperative play grow friendships among children. The selection of play structures should emphasize group activities. Seesaw is an ideal example as it discourages individual play. Owing to their restless nature, an endless running pathway may play a role in guaranteeing their physical growth and requirements. The construction of objects out of scrap materials requires coordination, inventiveness, cooperation and patience. Innovative use of materials by target-group participation not only creates possibilities for creative play but encourages group work as well. (Brink, B. 1997, UNESCO).

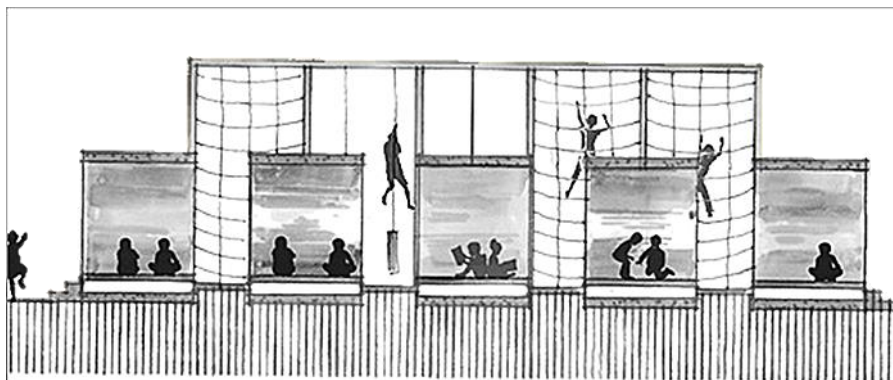


Figure 11, A play structure made of recycled materials (Section of a play space developed by Author)

Trees, sand, dust, water, etc. not being adult-manipulated objects, help children grow an affinity for nature. Building shapes with mud, playing with water bubbles, decorating spaces with flowers, etc. strengthen the relationship with natural landscape elements and develop creative skills. Besides, tree climbing, hanging on the ropes, and jumping up and down on various levels improve the motor and self-defense abilities of the children. Structural design elements such as tensile-shaded platforms and colorful climbing structures increase their sense of wonder. In such cases, the reuse of local and recycled materials e.g. rope, bamboo frames, and punctured tires uphold cost-effectiveness. A portable play structure that can be assembled, disassembled, and reassembled encourages the problem-solving abilities of the children. Recreational spaces in the interior spaces of a built structure must ensure adequate lighting. Bright and primary-colored walls, low-height windows, wall punch as seating, level variations, and organic circulation spaces have been observed to draw children's attention immediately.

7.4. HEALTH AND HEALING

Each wall, floor, and ceiling take an active part in healing. Healing gardens (or therapeutic, restorative, or rehabilitative gardens) are nature-oriented spaces that possess rehabilitative potential (Söderback et al., 2004; Cooper Marcus, 2007). Soft color, fresh air, contented textures, and a noise-controlled environment assist in stress reduction. Theme-based rooms with wall paintings of a forest, mountain, or sea, ceilings with images of birds or stars, etc. positively influence the mental health of a child (Verschoren et al, 2013). Research of cognitive neuroscience is conducted using functional magnetic resonance imaging (fMRI) to observe how build-integrated vegetation affects human brains. Many studies show the integration of the natural environment into urban planning solutions to promote psychological restoration and recovery from stress and fatigue (Joel, 2014). Some researchers have also concluded visual images of nature reduce fear, anxiety, stress, and pain (Brown, 2013). Architectural features and natural environments should therefore be united to create a healing environment for children.

8. Conclusion

The rehabilitation of destitute children in Bangladesh through the application of architectural design is still a process at an early stage. As per the data analysis, efficiency in rehabilitation is possible through imagination-stimulating activities in the spaces for young children and motivating activities for teenagers. The shortcomings indicated in the designs of the adult-made spaces during the survey are difficult to reduce without children's opinions. Participation in the design will allow children to easily adapt to the created environment. Considering the traumatic conditions studied during data analysis, it is crucial to assess and reassess the productivity of the occupants as well as analyze their behavioral responses in different functional environments occasionally. The survey result shows that the damaging effect on children due to the external environment can suitably be minimized or balanced with the design of a healing environment i.e, a sensibly designed health unit. This research presents the groundwork for preparing the guidelines for designing such an environment and evaluating the prepared design standards for the recovery of these children. The study thus attempts to promote memorable spaces for these children to regain faith, rediscover childhood, and chase desires and dreams anew.

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