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Re-imagining Play spaces in urban environment to improve Children's Environmental Health

Sub theme: Goal 03 - Good Health and wellbeing.
Goal 11 - Sustainable cities & communities.
Goal 15 - Life on Land.

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Abstract

For any progressive society, a measure of its development is determinant through the health & vitality of its inhabitants, especially children. Children growing into healthy & fit adults are the true forbearers of dynamic & productive societies in future. **Children's Environmental health & play spaces** in this endeavor, play a vital role in their overall development & wellbeing. Spaces that children experience are generally based on the adult's logic of design configuration for them. These play spaces lack the scale, variety of play spaces & contact with natural elements. More focus is often given only to the safety of children, due to which artificial rubber floor surfaces & defined play equipment to play comes into the picture. By prioritizing **satisfaction levels of children & involving them in creation of natural play spaces in future** would become imperative. It is the time now to think holistically & envision a child's experience for developing their overall environmental health.

The research paper attempts to study urban environments through **evaluation of the existing children's spaces in neighborhoods**. Thakur Village is one such neighborhood which has been chosen as a research area, because of its space attributes, recreational spaces surrounded by urbanization. Therefore, the research shall help to obtain universal results. The methodology applied for the research is desk research, case studies, feedback forms, expectation mapping & observational surveys. The findings from the research paper would help to **formulate effective policies & developing framework in designing children friendly spaces** in context with design, material palette, safety, etc.

Keywords

Children's environmental health; play spaces; nature-rich childhood; sensitive; friendly; safety; design.

1. Introduction

1.1 Hypothesis

Children's spaces in urban environment today are **insensitive towards needs & satisfaction level of the children**. The childhood play spaces as seen during late 1980's or 1990's has undergone a sea of changes as compared to today's condition. The **scale of spaces, material palette & overall design** of such play spaces are unable to support the environmental health of the children effectively.

1.2 Introduction

In the process of development of the cities, acres of land annually are taken over by urban sprawl & infrastructure developments leaving, Children's spaces in urban environment often ignored as an agenda during the planning. Children spaces are often not prioritized & eventually **altering their mobility& freedom to play &socialize.** The Urban areas are currently facing **extinction of experience** caused mostly by lack of awareness & appreciation of natural surroundings leading them to become **insensitive adults** towards the environmental attributes & concerns. The common cause of this is loss of opportunities to be in contact with nature leading to changes in health & wellbeing, emotions, attitudes and behavior towards nature.

It is also important to understand the **Children play preferences** as per the age of children for its design & planning. The children from age **01 to 03 years**, children prefer to **play alone** through their own experimentation with objects found around them. From age **03 to 06 years**, children become more **imaginative, creative & love to have symbolic play**. From **06 to 09 years**, children become more **socially aware & prefer group play** with good physical & mental co-ordination, explorations and reasoning. From **09 to 12 years**, children prefer to **play in groups & teams** with more developed social bonds. Out of all the age groups, the age from 06 to 12 years (early & middle childhood period) is extremely crucial as it creates imprints & impressions about nature in the minds of children, which remains forever with them through adulthood.

Engaging children with nature is the need of an hour to **boost the immune system of children**, to provide more and more direct contact with natural surfaces (textures from nature), natural play formations (sand & rock, tree trunks, swings – at various heights, water bodies), spaces which promotes exploration & physical activities which shall help stimulate the whole body of the user.

2. Outline of the Study / Understanding the Paper

2.1 The Rationale

Due to urban conditions/sprawl children are exposed to an environment of car dependency, increased traffic & urban pollution daily. Current children's spaces provide poor quality spaces **devoid of natural elements** for children to play. They are **not spacious** enough to cater to the territorial expanse required for the variety of play, do not support the scale & proportion of children & are poorly maintained**. Fixed, standardized & unmovable play equipment's** dots the children play areas in almost all parts of the city. The general perception of play areas in fact is limited to play equipment's set & sand pits in our country. The above mentioned spaces do **not stimulate & support the children's natural preferences & choice of play.**

2.2 Aim

To formulate a **framework / guidelines for quality enhancement of Children's Spaces** in Urban Environments & determining the level of satisfaction of its users through proposing sensitive intervention strategies.

2.3 Objectives

- To understand the **current condition of Children's spaces** in urban environments.
- To identify the factors (culture, regional, economies, livelihood, education, social status) **that influence formation of children's spaces.**
- To **evaluate the children's spaces** through feedback & expectation mapping based on children's **satisfaction level & engagement with the spaces.**
- To **formulate guidelines for sensitive intervention** for children's play spaces in future.

2.4 Scope

In this research, the scope of study is limited to Thakur Village, Kandivali a neighborhood, that comprises of recreational open spaces surrounded by urbanization of total area = 36.79acres out of total neighborhood area of 242 acres. The entire Thakur Village neighborhood was surveyed based on its current usage, type of users, character of spaces, condition of natural elements etc. to understand the overall scenario of the Children spaces in an urban setting. Out of the surveyed areas **03 children spaces within the residential area** are studied in detail as research objects. These sites have typical attributes which include social & economic segments of the society, which defines the routine lifestyle and daily activities of a typical neighborhood area in Mumbai.

For E.g.: - Tight open spaces as Gardens with multi-use activities like walking, running, celebration & recreation etc. surrounded by building clusters. Therefore, the research shall help to obtain universal results. The outcome of this study will *formulate the guidelines* for sensitive intervention of children's spaces in urban environments in future.

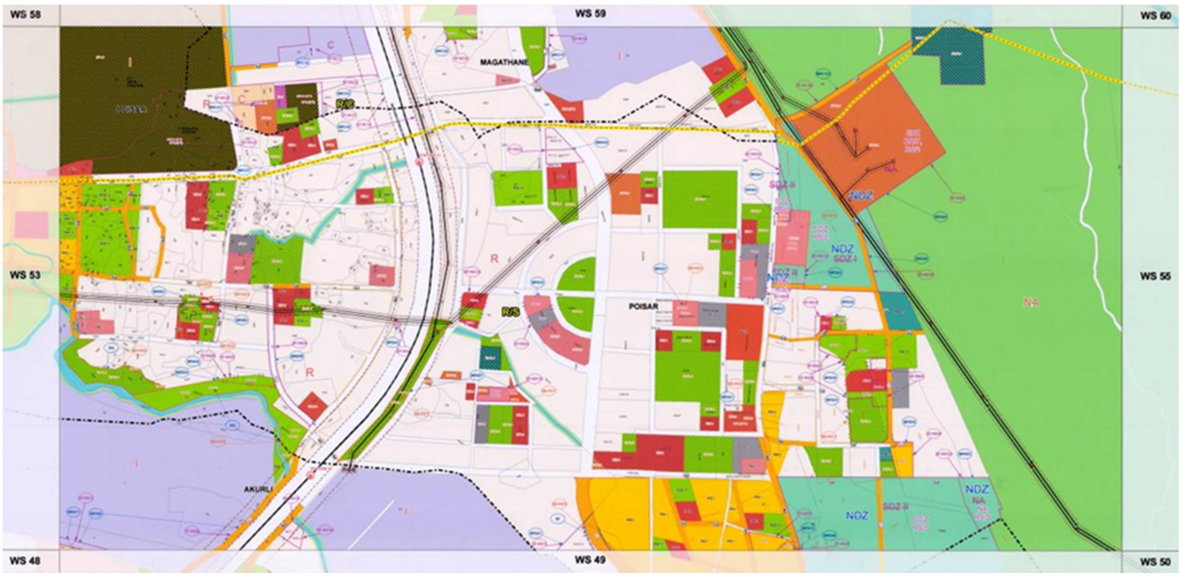


Figure 1: *Thakur village – DP2034 (Open spaces marked in green)*

Total site area = Thakur village = 242 acres Existing open spaces (includes parks & playgrounds = 36.79

Figure 2: *Thakur Village Neighborhood area (total area =242 acres, Open spaces (marked in green) = 36.79 acres) (Image resource – By Author)*

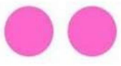
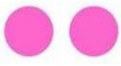
Name of the space	Bhoomi valley Park	Valley of flowers Joggers Park	Mahalakshmi Udyan	Dr.Babasaheb Ambedkar Udyan
Site photo				
Area	7409 sq.mts	4217 sq.mts	3793 sq.mts	2791 sq.mts
Users & usage	Children, youths, adults & senior citizens. Poor to middle class category. Up to 50-150 people visits daily. Mixed males & females. catchment area up to = up to 2kms. Used morning & evening	Children, youths & adults, senior citizens . Middle class to upper middle class category. Up to 50-150 people visits daily. Mixed males & females. catchment area up to = 2kms. Used in morning & evening	Children, youths & adults. Poor to middle class category. Up to 50-150 people visits daily. Mostly males & catchment area up to =2kms. Used in morning & evening	Children, youths, adults & senior citizens. Middle class category. Up to 200 people visits daily. Mixed males & females. catchment area up to =2 to 5kms. Used whole day
Current condition	Fairly maintained	Maintained	Maintained	Maintained
Character of park	1. Visual = chaotic 2. Experiential = partial enclosures perceived while walking, bit confusing 3. Spatial = Semi-open at some areas, mostly open 4. Scale = Small	1. Visual = pleasant 2. Experiential =Shady cool place, linear space promoting walking, safe 3. Spatial = Open at entrance, Enclosed at other parts 4. Scale = Intimate	1. Visual = dull & boring 2. Experiential = Short patches of material change. 3. Spatial = Semi-open 4. Scale = Intimate	1. Visual = pleasent 2. Experiential = Open to sky, sunny place material change perceived. 3. Spatial = Mostly open, semi permeable at some parts. 4. Scale = Large
Activities	Morning time used for walking mostly, Children play near mini stepped area. Evening time children playing on play equipment's.	Sparsely used in morning, with few adults practicing dance in shaded areas, walking etc. Children play near play areas, running around, evening walks by adults.	Morning walks & seating areas occupied by adults, evening children use play space & grassed areas.	Running, jogging & exercise in morning, playing with cycles in open areas. Evening walks, using gym equipment's by adults, passive recreation in shaded area by senior citizens.
Landscape elements	Paved walkways, hedges & manicured plants, bamboo plantation, couple of large trees, steps to sit, covered area.	Paved walkways, water body (currently dry), grassed patch, maintained vegetation, one banyan tree offering shade.	Paved walkway, bamboo plant clumps, grassed patch, soiled patch, play apparatus.	Paved walkways, hedges & manicured lawn, soil court, benches, outdoor gym, trees at edges for shade.
Concerns	Proximity to slums has led to many unmaintained surfaces such as walkways, play apparatus.	Too many elements tried to fit into a small area. Nature interface could be enhanced.	Space designated for children falling short. Nature interface is sparse.	Accessibility of park is unknown to many. Nature interface is sparse.
Health & well being value				
Ecological value				
Economical value				
Social / Community value				
Aesthetical value				

Figure 3: *Thakur Village Neighborhood area – Observational survey of existing open spaces & its value w.r.t child friendly spaces. (Image resource – By Author)*

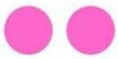
Name of the space	Oberoi Park view housing society	Evershine Millennium Paradise Phase 5	Evershine Millennium Phase 5 Neptune	Gundecha – Valley of flowers cluster (3 no.s)
Site photo				
Area	8041 sq.mts	3689 sq.mts	1163 sq.mts	4840 sq.mts
Users & usage	Children (aged 5yrs to 15yrs) , youths, adults & senior citizens. Upper middle class category. Up to 50-80 people visits daily. Mixed males & females. Used morning & evening.	Children (aged 5yrs to 15yrs), youths & adults, senior citizens . Middle class to upper middle class category. Up to 50-60 people visits daily. Mixed males & females. Used in morning & evenings.	Children (aged 5yrs to 15yrs) , youths & adults. Poor to middle class category. Up to 25-50 people visits daily. Both male & female. Used in morning & evenings	Children (aged 5 yrs. to 15 yrs.), youths, adults & senior citizens. Middle class category. Up to 200 people visits daily. Mixed males & females. Used whole day.
Current condition	Maintained	Less Maintained, but needs attention	Maintained	Fairly Maintained, but needs attention.
Character of park	1. Visual = Pleasant 2. Experiential = Attractive & playful. 3. Spatial = Semi-open, permeable & open in some parts 4. Scale = Intimate	1. Visual = Dull & ignored 2. Experiential = Bleak 3. Spatial = Mostly open, semi-open in some parts. 4. Scale = Large	1. Visual = Pleasant 2. Experiential = Gentle but cluttered 3. Spatial = Semi-open & permeable 4. Scale = Intimate	1. Visual = Pleasant 2. Experiential = Shaded , quiet 3. Spatial = Enclosed & semi-open. 4. Scale = Intimate
Activities	Largely occupied at play apparatus, evening walks, seating & relaxing, club- gym used by residents, senior citizens seating on benches, indoor activities like carom & chess, running, net practice by children.	Less usage in evening, passive recreation by senior citizens, play areas less occupied. Evening walks.	Largely used in evenings at open ground & play apparatus. Evening walks, running & jogging, playing on driveway.	Play areas occupied by children, playing bicycle on driveway, evening walks, seating & relaxing.
Landscape elements	Paved pathway, play apparatus & rubber flooring, swimming pool, clubhouse, grassed patches, trees, shrubs, ornamental shrubs, netted play court, benches.	Ornamental palms, ashoka trees, covered seating areas, benches, shrubs, play apparatus, grassed patches.	Hedges, ornamental palms, seating areas, grassed patches, shrubs, benches, play apparatus, small soil court, tensile covered seats.	Hedges, ornamental palms, potted plants, grassed patches, paved courts, play apparatus, swimming pool, club house, seat outs, mini amphitheater, edge plantations near compound wall.
Concerns	Podium landscape completely detached from surroundings , large ornamental vegetation, high dependency on play apparatus.	Open spaces surrounded by cars driveway, width of play spaces not appropriate, less nature contact.	Large ornamental vegetation, less nature contact, play apparatus dependency.	Use of non-native species, children play largely dependent on play apparatus, nature interaction not seen.
Health & well being value				
Ecological value				
Economical value				
Social / Community value				
Aesthetical value				

Figure 4: *Thakur Village Neighborhood area – Observational survey of existing open spaces & its value w.r.t child friendly spaces. (Image resource – By Author)*

The above observational survey summarizes the current condition of open spaces in Thakur Village neighborhood wherein emphasis is seen in beautifying the open spaces to increase its economic value & aesthetical appearance rather than working on ecological value & contributing to health factors for the children & other users. Such typical approach to design of open spaces is common in Mumbai city altogether, where the open spaces are limited & landlocked with residential built spaces. Spaces dedicated to children's needs is rarely seen, rather the spaces are standardized to fit all user groups commonly.

3. Methodology

- Understanding the Urban Childhood through Case study.
- The methodology of research adapted is through random sampling method.
- People of all ages, background shall be interviewed, interrogated through physical connect, google forms.
- Mapping of tracking of types of natural and artificial surfaces of Spaces that were & are used for Children Play areas

3.1 Case study (Megurizaka pond renovation, Japan)

This Case Study is similar to the issues pointed out in this research, a play area, for children which emphasizes ***ecological education in an urban setting***.

Before the urbanization took over all possible areas, the children had freedom to venture all areas like wild lands and they were open for playing freely without any boundaries, limitations, and playing obligations. This Important child's play experience of ***self-learning and recognizing raw nature*** (fields, ground, streams, etc.) was adopted in the primary and secondary school education policy in Japan 2002.

Planning for Landscape for this project was primarily focused on having various ***functions overlapped*** onto each other along with providing play opportunities for the children. ***Multiple uses in a single zone or multiple zones connected to each other*** like grass, leaves, sand, soil, water, pebbles, rocks, etc., ***without any distinct lines*** was carefully managed in this project. Such multi-functional areas are a need of an hour for space constraint cities like Mumbai. Also it aids in allowing children to ***experience play along with natural layers of environment***, as similarly found in suburban or rural context. This project best highlights the ***environmental education through play opportunities*** for the children, which could be the approach to design spaces in Indian context as well.

Figure 5: *Space showing children exploring the natural surfaces. Photo: Keitaro Ito*

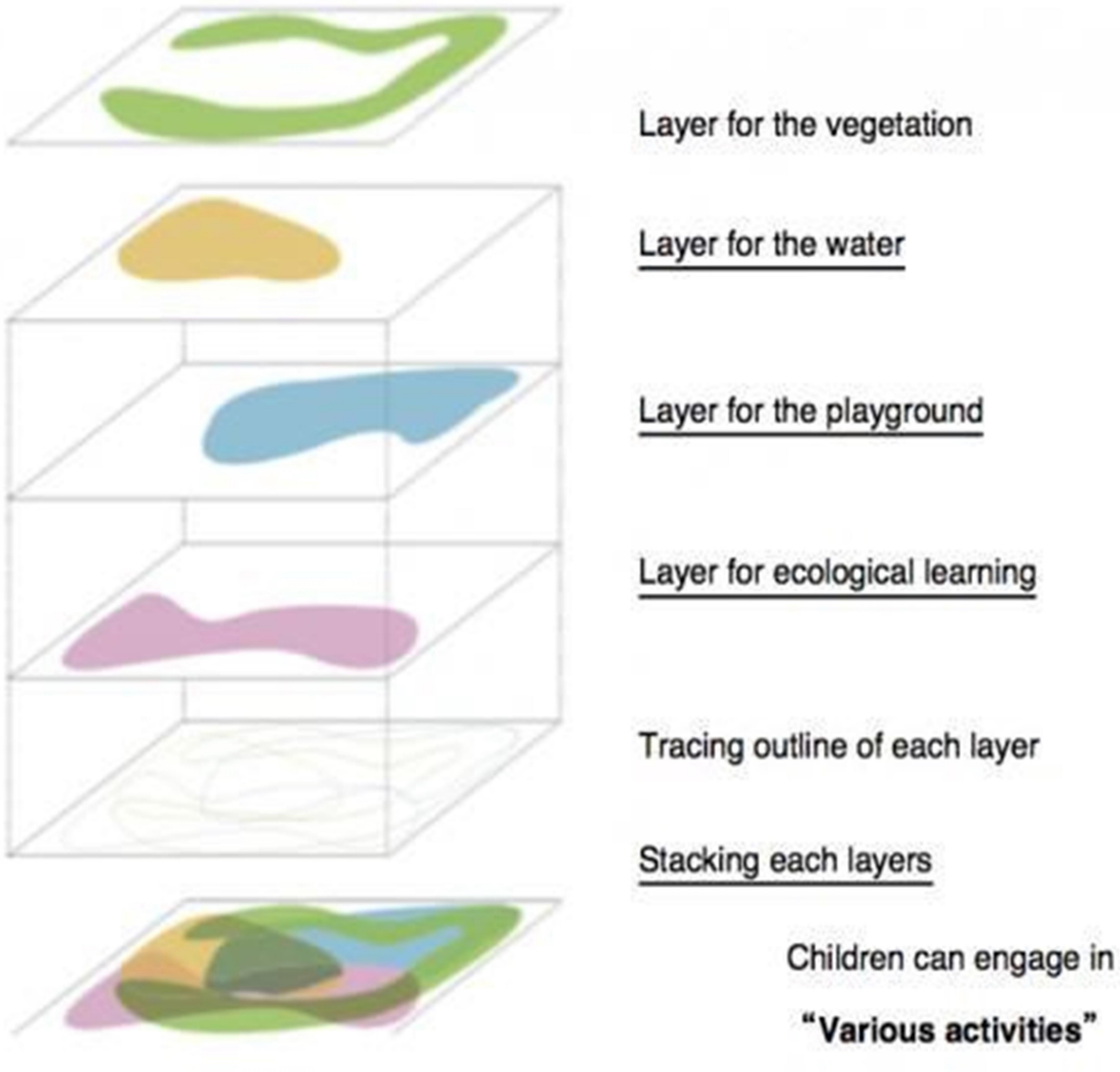


Figure 6*: Multi-Functional Landscape Planning. Credit: Ito et al. 2003, 2010*

- **Key Learning's from the Case study:**
  1. Overlapping Layer – creating multi-functional areas for children & adults.
  2. Various Play affordances to children along with also becoming an apt adaptation for attracting the fauna, may be various kinds of birds, insects, small mammals, native species possibly.
  3. Acting as good water recharge point, thus providing environmental benefits.

3.2 Random Sampling Method:

The feedback forms were circulated among the children & parents of the sites chosen for research. The questions were kept easy, simple & user friendly to answer. The tentative age group of children chosen to answer was 06 to 15-year-old (middle childhood age).

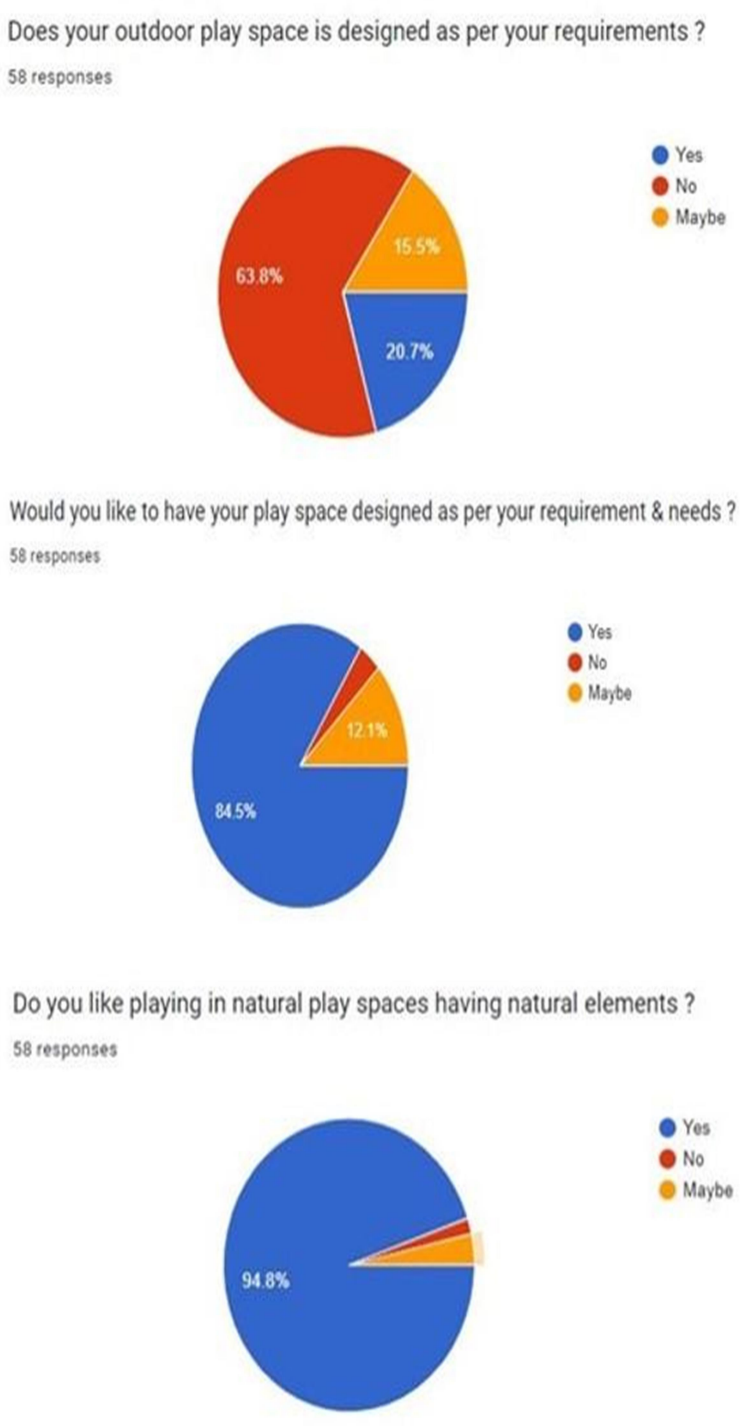


Figure 7: *Feedback analysis – to gather children's perception*

3.3 Interviews & expectation mapping:

The on-site interviews with users (children) were based on **simple one liner quiz format** to get spontaneous answers. The answers were recorded on site in the form of association diagrams.

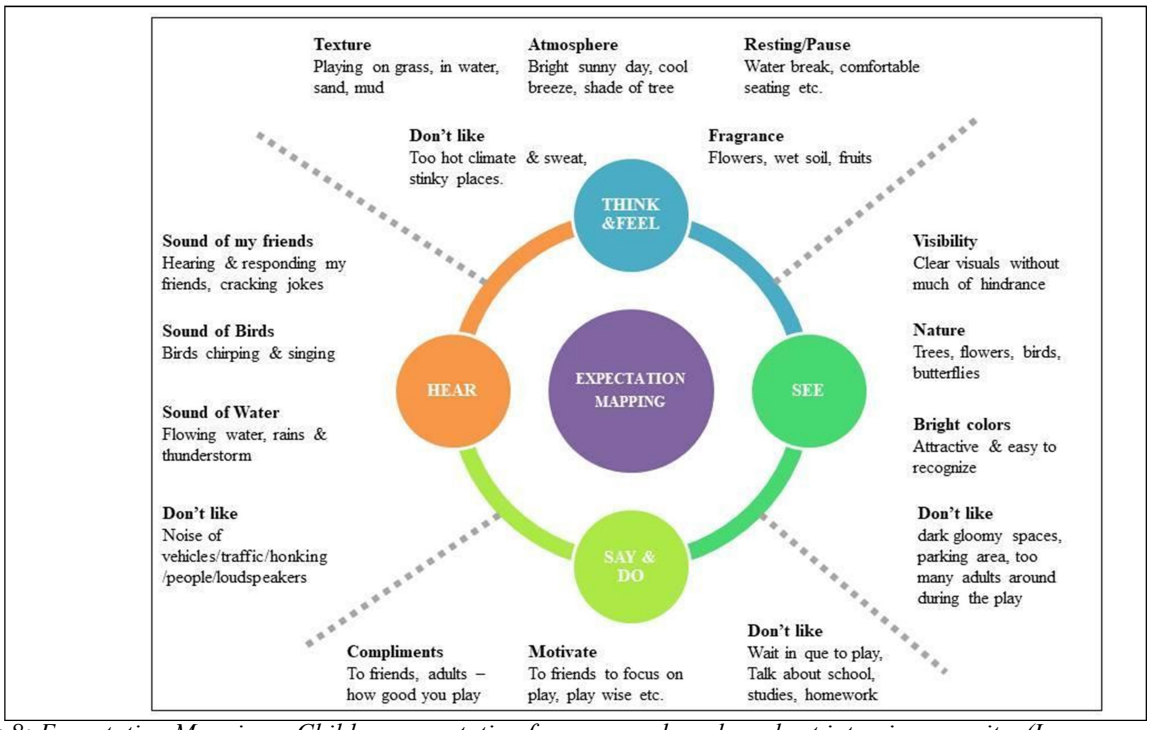


Figure 8: *Expectation Mapping – Children expectation from spaces based on short interviews on site. (Image resource – By Author)*

3.4 Observational Survey:

The Observational survey was done, purely to **understand the *look & feel of children's spaces*** in the selected sites and also to gather preliminary information related to *children's activities & play patterns* during peak play hour in the evening.

Figure 9: *Observational survey - Quality of Children's spaces in urban environment – pictures from Thakur Village neighborhood residential area, Mumbai*

4. Conclusion

- The Feedback form analysis gauges that children currently **are *accommodating play as per the space conditions available.*** But they wish to have their own space where they could play with freedom & mobility as per their needs & requirements. Running & Cycling are the most preferred activities, but the ***space availability is restricted* to parking areas, corners of the plot & building niches.**
- The **Expectation mapping helps to gauge the *children's expectation*** *from their spaces* based on their *feelings & associations*. It highlights psychology of children to form a connection with anything they come across. This

very curious & associative nature of the child shall respond positively to nature & other forms of life, which shall help to formulate the guidelines for children's spaces in future.

- Observational survey ***highlights the use of typical Kit-Fence-Carpet playgrounds with limited connection*** *with nature* & hence justifies the need for sensitive planning in future based on *children's needs, perception & expectations from their spaces.*

5. Guidelines /Policies

- Children's play should be looked upon as **one of the** ***fundamental ways of participating in community life*** & thereby feeling connected to the community.
- Children's spaces should offer ***them chances for social interaction, make friends, experience disagreements, learn tolerance, value the differences & respect others.***
- Children's spaces should provide opportunities & experiences to ***help them to understand their own self and similar age groups through individual & group play types.***
- Children's spaces should help **encounter** ***natural elements & surface materials of their surroundings, various natural phenomenon's, circle of life, changing environment with seasons.*** The Play materials has a significant role in developing that direct nature contact to the children. For example, the moldable materials help the child to manipulate it & play with it. Surfaces which offers digging the ground, helps them understand the life beneath the ground surface. Loose surfaces such as fallen leaves, twigs of trees etc. offers them to gather, collect & creatively arrange them as form of the play.
- Children's spaces should have an environment which ***helps children to decide what they would want to play.*** Designing spaces which naturally help children to *afford play options based on age & satisfaction* instead of designing particular play spaces.
- Children's spaces should promote equal opportunities for ***solitary play*** (play alone), ***onlookers play*** (observing others) and ***parallel play*** (play side by side, but without actual interaction), ***associative play*** (play together but different goals) & *co-operative play* (coordinated, common goal play).
- Children's spaces which are ***transient type*** that is which can be changed or modified or adapted in natural setting by children offer more innovation & explorations. **Daily connect with nature in children spaces** produces regular source of joy, can help combat obesity, boredom, loneliness and also aid in fostering relation with nature.
- ***Proximity & accessibility*** **to natural setting plays- capes** then becomes a necessity. Direct contact with nature provides real stimulus & sensory exposure as opposed to virtual media. Sense of discovery, fascination & emotional connect with nature develops only through direct contact with nature.
- ***Inputs from the experts*** *working with children* from various allied fields such as child psychologists, child development specialists, educators, parents etc. could be taken into consideration for enhancing the quality of children's spaces.
- The further **research required for children's spaces should be** ***evidence based & user centered,*** hence providing suitable environment as a sensitive intervention for Children's spaces is required.

Figure 10: *Natural Surface materials for children play spaces (Image resource – By Author)*

6. Recommendations & Scope for further research.

- Outdoor spaces with **playful interaction opportunities with nature** could be effectively planned through careful observation & design where **children & families spend time daily**.
- Designing Play spaces as per the **child phycology & satisfaction levels**. Also looking into various ways in which **Children associate themselves with nature & its varied elements.**
- Identification of **city pockets** where children could get **easy access & opportunities of play** with natural environment.

- Various **pool of experts** in the field of designing natural spaces such as Landscape architects & horticulturist etc. along with child phycologists, urban planners, educators, social activists along with community could help gain **holistic perspective** & aid in designing child-friendly play spaces.

7. References

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