Neighborhood Park for Children as a Resilient Landscape:
In Terms of Its Physical Feature

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ABSTRACT

Due to the recent apartment development pattern in Dhaka city, the residential building sites are no longer providing open spaces for children's play areas. Scarcity of open places decreases children's outdoor activity, which causes them to suffer in terms of physical and mental health. This crisis can be mitigated by public open spaces like parks, plazas and playing fi elds. Therefore neighborhood parks as a resilient landscape can play an important role in children's social, physical and psychological wellbeing at a local and proximal scale. The success of a neighborhood park for children depends on their appearance into the park at a preferred scale. This paper is focusing on whether the physical features of the parks are affecting the children's utilization of the park and thus infl uencing the park as being resilient to its neighborhood. We studied two neighborhood parks which were designed to encourage neighborhood children to participate in outdoor activity. However, one is serving its function properly while the other one remains unutilized. First we tried to fi nd out whether the physical features of the parks are related to the usage by children. To gain this information i) the parks' design features were surveyed ii) interviews were conducted with the neighborhood children and their parents, iii) the factors behind the children's usage were compiled , iv) the relevant physical features were derived from the noted factors. These physical features of the parks under consideration were Access, Entry, Boundaries, Vegetation, Arrangement of Landscape Elements, and Internal Pathways. Secondly an analysis was made to show how the physical features are related to the park being resilient to its neighbourhood. For the analysis physical features of both parks were compared. The comparison reveals why one is acting as a resilient landscape for the wellbeing of neighborhood children and other fails to deliver its purpose.

Keywords: *physical features, resilient landscape, neighborhood park, children-outdoor-activity*

INTRODUCTION

A neighborhood park designed for children acts as a resilient landscape by providing different types of facilities for physical and mental health and contributing into their social well being. Thus the appearance of children in a park ensures its resiliency at a local and proximal scale since it indicates the amount that the park is being utilized. By analyzing the park's usage by children this paper tries to find out the relationship between physical features of the park and its resiliency.

This study considers the two neighborhood parks in Dhaka city. One is Sikkatuli Park located in a dense area of Old Dhaka and the other one is Dhanmondi 4no. Park located in a planned residential area of new Dhaka. It is observed that both of the parks were designed for outdoor activities for neighborhood children yet one is utilized properly while other one remains underutilized. Mapping and physical investigations were conducted in these two neighborhood parks. First we tried to find out the reasons for the children playing or not playing in the parks. We considered the children who live in proximity as our sample group. In both case studies the children as well as their parents were interviewed to find out their perceptions regarding children playing in their neighborhood park. We analyzed their answers and tried to identify whether the physical features, Access, Entry, Boundaries, Vegetation, Arrangement of Landscape Elements, Internal Pathways, were socially or psychologically influencing them regarding their utilizing the park. They are somewhat responsible for the utilization of the park either positively or negatively. Then the physical features of both of the parks were compared and analyzed to find how one park is more resilient to its neighborhood than other due to its physical features.

OBJECTIVES

i. Assess the existing conditions and provisions of the parks for social, physiological and psychological requirements of children's activities.

ii. Identify factors that are responsible for children using their neighborhood park, from both the children's and parents' perception.

iii. Identify the physical features that socially or psychologically influence them in using the park.

iv. Compare the physical features to see how one park in more resilient to its neighborhood than other.

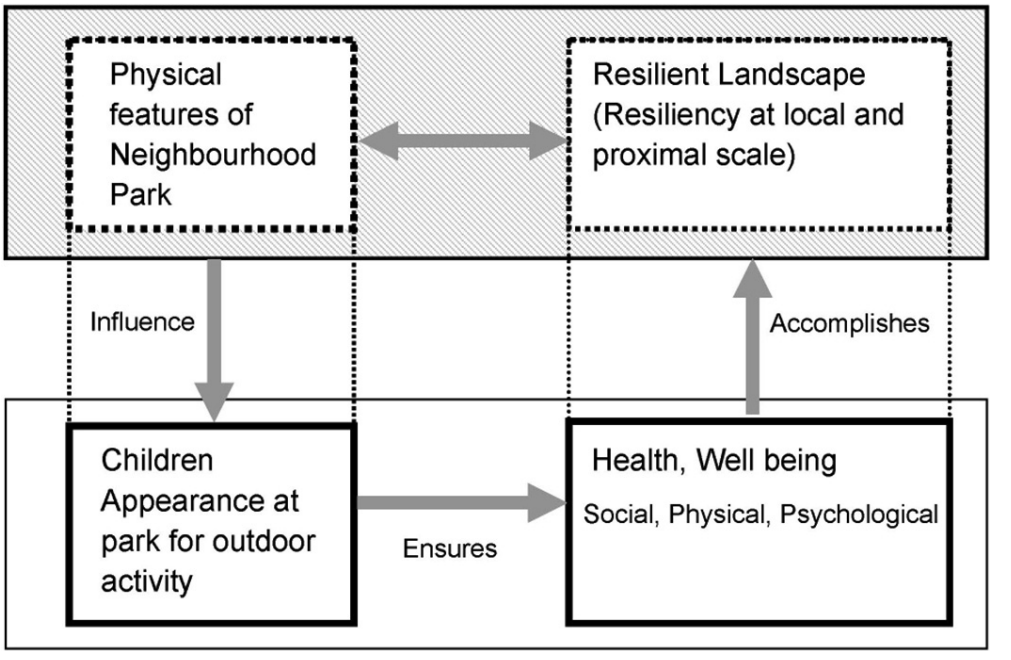


Figure 1:
conceptual frame-work

METHODOLOGICAL FRAMEORK

The study was conducted by a series of following tasks.

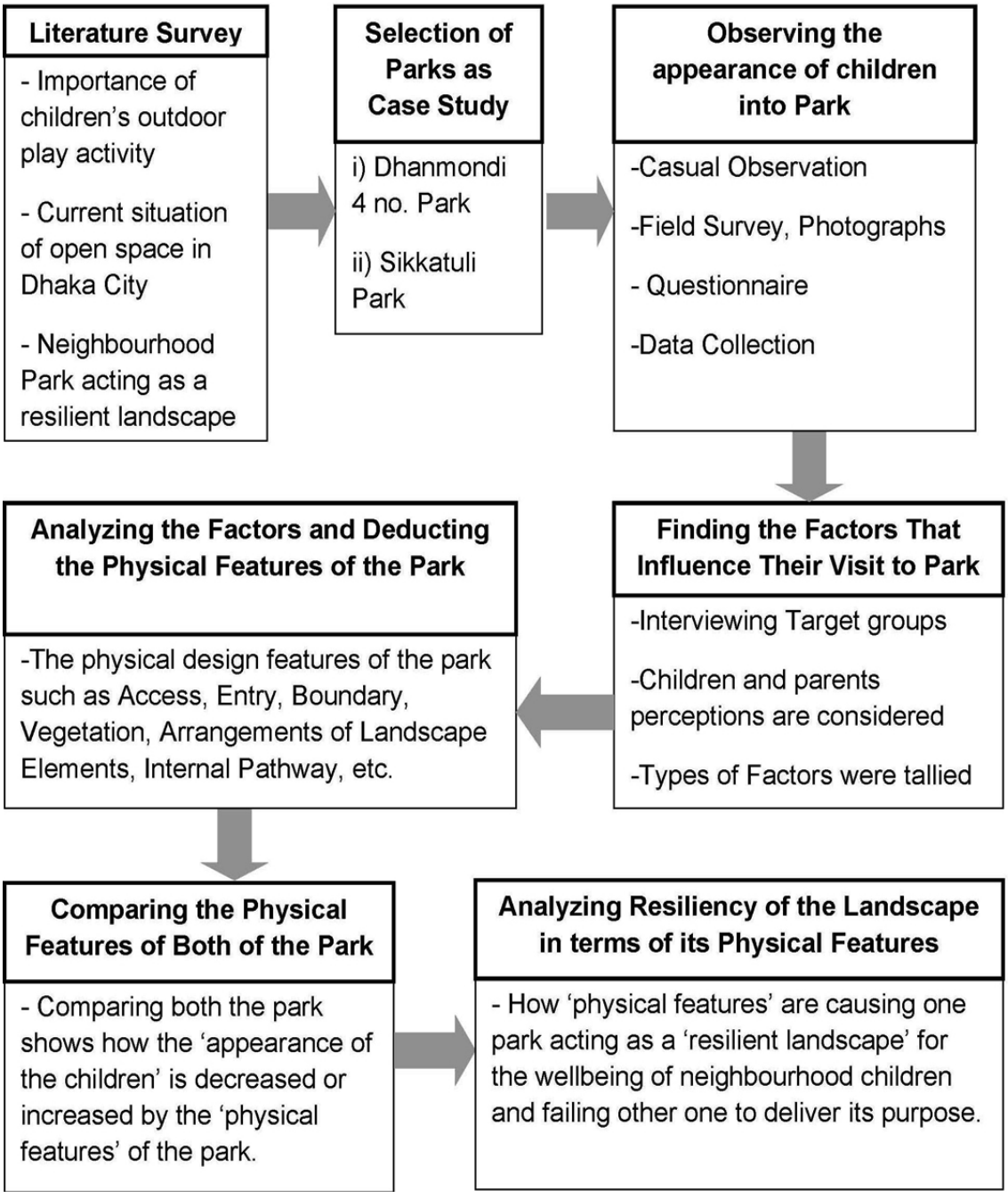


Figure 2:
methodological frame-work

REVIEW OF LITERATURE

Due to Dhaka's high growth of population there are increasingly greater shortages of open outdoor spaces. The rate of open and built area ratio decline as apartments and housing are growing in massive scale. Since there are no adequate outdoor playing spaces for children they spend their time watching TV, on computers and playing video games which results in suffering from obesity, mal physical growth, depression, mental disorder, social devaluation and absence of basic behavioral understanding. This scarcity of children's outdoor activity thrusts them into a risky future. Research by S.M.M Ahmed, (socio economic differences of childhood obesity among school children in the context of affluent society of Dhaka city) shows that; a large majority, 73.2% of children were in the obese category, 16.3% were overweight and 10.5% were healthy. Afroza Ahmed (Oct, 2010) made this statement in her research; Children from Dhaka city are deprived of outdoor play and recreational provisions which effects their overall physical and mental development.

In Dhaka city, there are different types of open spaces, which serve the local and neighborhood areas, such as play lots, playgrounds, playfields, parks, amusement parks and incidental open spaces, (Ahmed.A, 2010).

Importance of Children's Outdoor Play Activity

Play is considered a child's own natural expression to and of the world. It is important to understand the concepts and benefits of children's participation in play in terms of physical and social development (Ahmed A.2010).Over the last two decades the issue of children's play in relation to child development has been narrated by a number of researchers with varied backgrounds and experiences ranging from child development specialists, environmental psychologists, educationalists and planners to landscape architects (Hughes 1990; Barnett, 1990: Bartlett, 1999; Chawla, 2002a; Hart, 2002). Chawla (2001), an environmental psychologist, described how children's inventiveness and self -organizing intentions influence their own play setting in their own community (UNESCO, n.d.). Hart, a Professor of Environment and Psychology, defines children's play as fundamental to all domains of physical, intellectual, social, and emotional wellbeing of children (Hart, 2002).

Barnett (1999), a member of the Children's Environmental Research Group, New York, noted that through play, children learn communication with adults, develop community integrity, develop the sense of control over difficult circumstances and also learn to become active participants in the community.

Outdoor play is significant for children in early childhood because many of the developmental tasks that children must achieve—exploring, risk-taking, fine and gross motor development and the absorption of vast amounts of basic knowledge—can be most effectively learned through outdoor play. Play activities have proved to increase with the complexity of the environment and the opportunities for play (Frost and Strickland 1985, Wilkinson 1980).

Children's play also is more vigorous outdoors than indoors (Henninger 1980), and play forms take different group and gender constellations outdoors than indoors (Baranowsky et al. 1993; Kirkby 1984; Rivkin 1990). Options for choice, opportunities for play, and the possibility to construct and re-organize play settings are irreplaceable values in children's play environments (Lindholm 1995). Titman (1994) very clearly showed children's preferences for outdoor play environments.

Current Situation of Open Space in Dhaka

Dhaka was recognized in 1610. The rapid urbanization of Dhaka after independence in 1971 was exceptional. People from all over the war-devastated country started to come to Dhaka (Islam, 2003). The rapid rate of urbanization presented new design issues as children faced a lack of open space and became restricted to indoors by their parents. (Islam,2008).For example, density increases outdoor activity in developed nations, but it is regarded as a problem in most developing nations, where high built□form density means less available open space to play outdoors (Islam 2008).

Various socio-economic factors, such as crime, crowding and lack of public transport facilities have restricted the people living in Dhaka from using the existing outdoor recreation facilities (Biswas, 2002). In Dhaka city, public recreational facilities like playgrounds, parks, theatres, amusement parks for children are inadequate in number, not appropriately

located and do not serve people of all income levels (Siddiqui, 1990; Biswas, 2002; Kabir, 2004). The city is facing a serious deficiency of outdoor play and recreation facilities throughout Dhaka.

It can be assumed that the present condition of Dhaka city indicates that its community facilities are severely inadequate with respect to its total population. The Consequence of high population density is most apparent from the shortage of space in Dhaka. However, Article 31 of the CRC states, "*Parties recognize the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts."* In order to fulfill this right, children need places to play within their neighborhoods (Chawla, 2002).

Neighborhood Park Acting as a Resilient Landscape

Resilience, meant as the capability of an urban environment to absorb external shocks and to grant water, food and energy supply, should be applied to territorial restructuring policies to attain "sustainability" at a global scale, "health" at a local scale and "well-being" at a proximal one. Landscape, being dynamic, flexible and multiscalar, can act as the device capable to allow the territory to find continuous adjustments in front of variable dynamics (social, economic, environmental, etc.), and results in the interface among the three scales above, becoming an active agent for urban reclamation. (Verde, A., 2013) Urban development should include more than just great buildings. It should include parks and open spaces because both buildings and open spaces benefit from each other through the quality of each space. Furthermore, it provides benefits from the economic, social, communal, environmental and aesthetical aspects (Malek, Mariapan,Shari_, & Aziz, 2011).

Parks offer children with opportunities for play, and play is significant in the development of muscle strength and coordination, language, and cognitive abilities. Parks also build healthy communities by creating steady neighborhoods and strengthening community development. Therefore it helps children in developing their sense of community .Research shows that residents of neighborhoods with greenery in common spaces enjoy stronger social ties than those who live surrounded by barren concrete. So this is obvious that a park can play a vital role in making a neighborhood resilient through ensuring social, psychological and physiological wellbeing.

CASE STUDIES

Case study 01

This neighborhood park is surrounded by roads. This park offers facilities like sitting, children's sport zone for cricket or football and equipment for exercise. There are a number of trees around the periphery of the park.

Name of the park: Dhanmondi 4 no. Park

Official name of park: Dhanmondi Cricket Academy (DCA) ground

Authority (Organization): PWD

Area: 10,000 sft (929 sqm) approx.

Location: The park is located at the nodal point of Dhanmondi road no 03, road 04 and road no 05. At south-east corner there is a school called Tiny Tots. At south-west corner there is a gallery named Chitrok.

Entrance: There are two entrances to the park. One is at the middle of the longer eastern side which remains closed at all times and the other is at the shorter southern boundary.

Boundary: Enclosed boundary

User group: Student of the Dhanmondi Cricket Academy and football club members.

Children Activity: DCA offers classes for two groups of students. One group practice three days a week, the other group practices four days. The park also serves as a football playground at night. Sometime the authority leases the park for cricket tournaments to different companies. The rest of the time it is rented to different institutes for net practice on a monthly basis at fixed time slots. There are rare visits by the neighborhood children to the park.

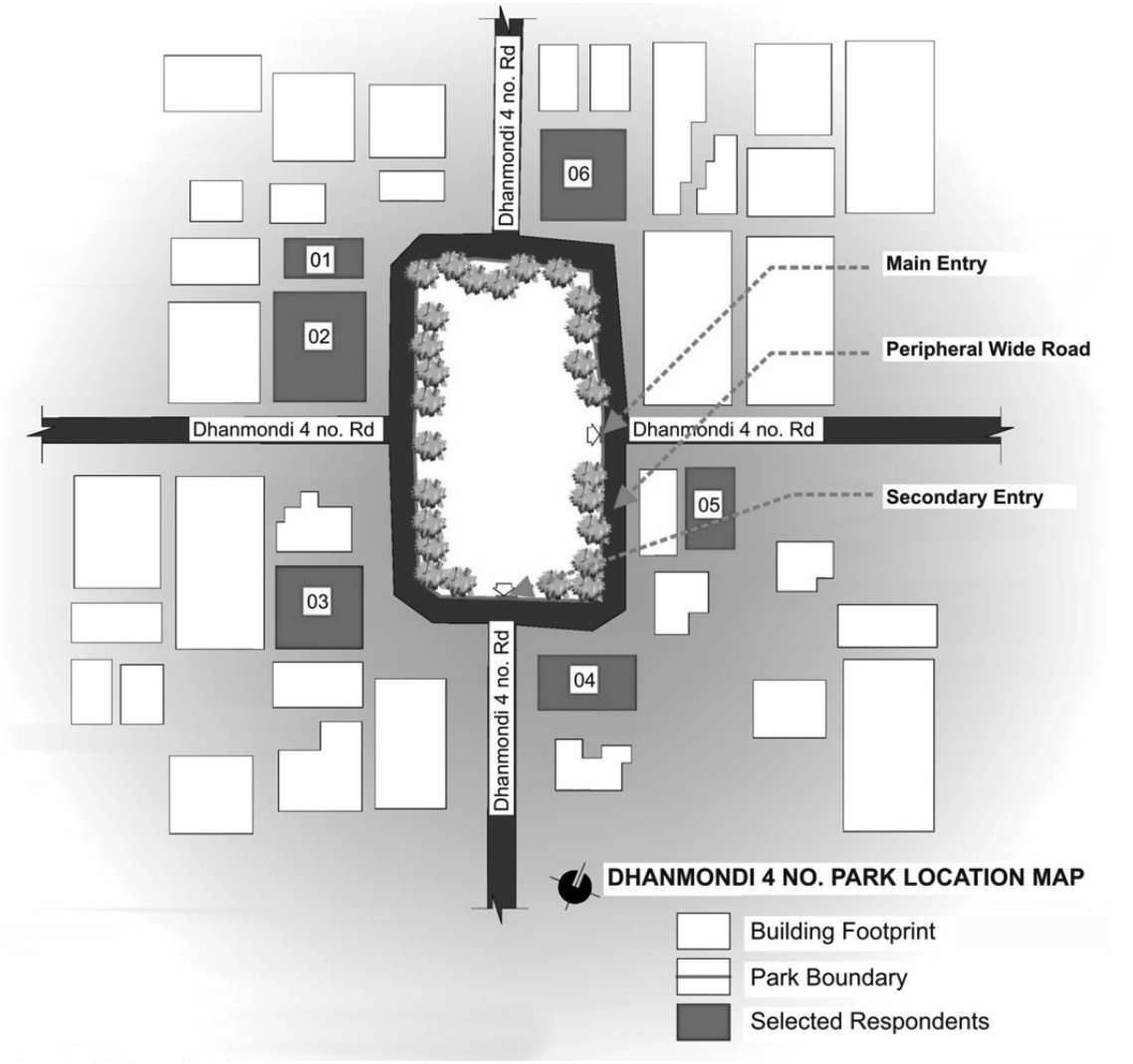


Figure 3:
Location Map of Dhanmondi 4no. Park

Case study 02:

It happens to be a neighborhood park, that appears like a small breathing space in a densely habited area. This park is multifaceted with roads on two sides and the other two sides are surrounded by neighborhood buildings. It's a corner plot and accessible through one main entrance. This park offers recreational facilities like sittings, shade and a children's play area. The landscape is comprised of a number of mature trees and bare soil. The park is open to all, regardless gender or age. But it is mostly used by the neighborhood children throughout the day.

Name of the Park:	Sikkatuli Park
Official Nameof park:	Shahid Khalek Shardar Park
Authority (Organization):	DCC- Dhaka City Corporation
Location (Descriptive):	Located near the junction of Sikkatuli and Kazi-Alauddin-Road. A second route also connects the Park to Aga-Sadek-Road.

Area:	15800 sq.ft (approximate) or 1468.4 sq. meters (approx)
Entrance:	Lofty entry gate.
Boundary:	Encloses and isolated the park from surroundings.
User Group:	People of all ages but mostly children
Children's Activity:	Physical exercise, children's playing field, sitting and relaxing.

STUDY METHOD

i. Field Survey

- A casual observation was conducted of both parks
- Users, Activities, Surroundings were observed.
- Characteristics of the physical features were studied.

ii. Sampling User Group

- Neighborhood children, boys from 7 to 12 years, as the user group were selected
- Respondent were selected around the proximity of the park (100 meter walking distance)
- Children of the Cognitive stage were selected, 7-12 years [The Cognitive stage which is concrete operational. In this stage development of conservation, mastery of concept of reversibility begins - Piaget's theory of cognitive development]
- Seven respondents were randomly selected for Case study 01 and six respondents were selected for Case study 02.

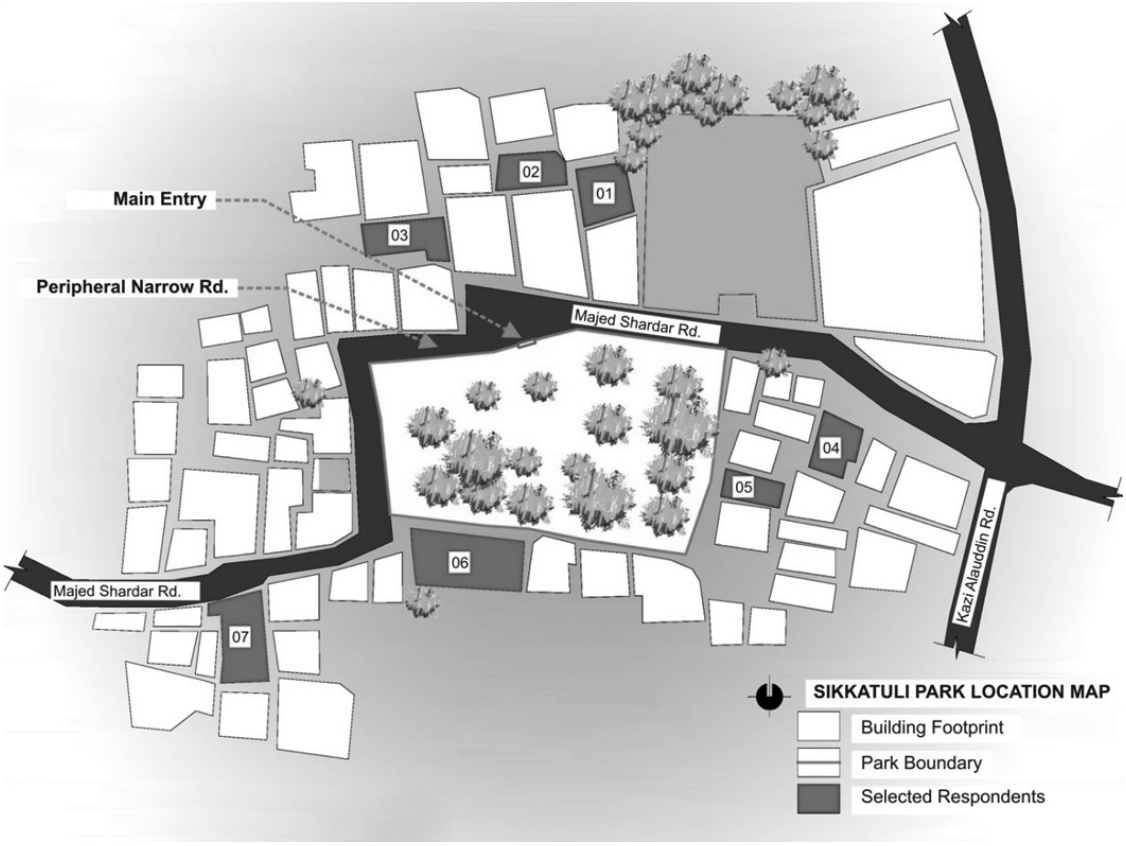


Figure 4:
Location Map of Sikkatuli. Park

iii. Interview

- Two sets of questions were prepared to interview the parents and children.
- Parents' perception:
  - Q1. Do you let your child/ children visit to the park?
  - Q2. Why do/ don't you let your child/ children visit to the park?
- Children's perception:
  - Q1. Do you go to the park?
  - Q2. Why do/ don't visit to the park?

DATA ANALYSIS

The analysis process was done in two phases. In Phase 01 we noted the physical features and in Phase 02 physical features of both of the parks were compared and analyzed.

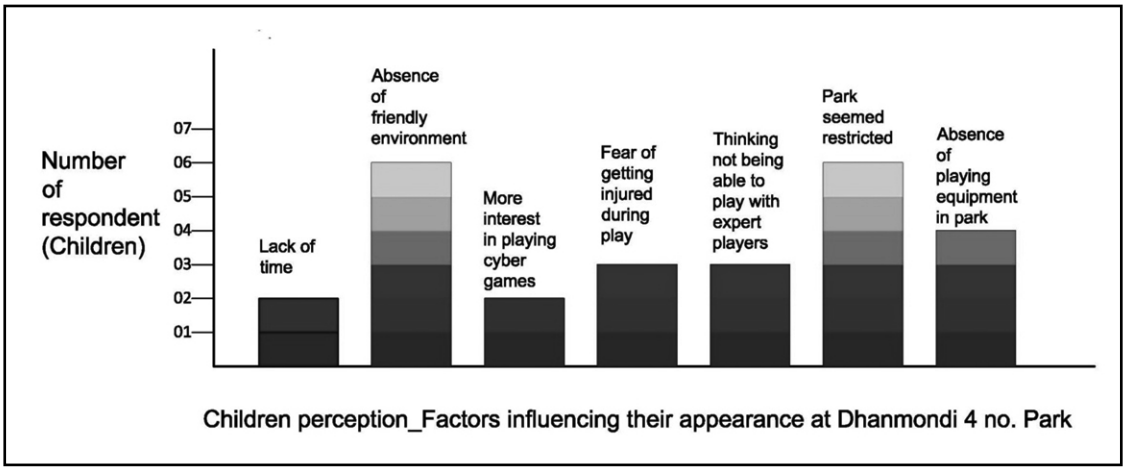


Figure 5:
Why don't you visit the Dhanmondi 4.no Park during your free time?

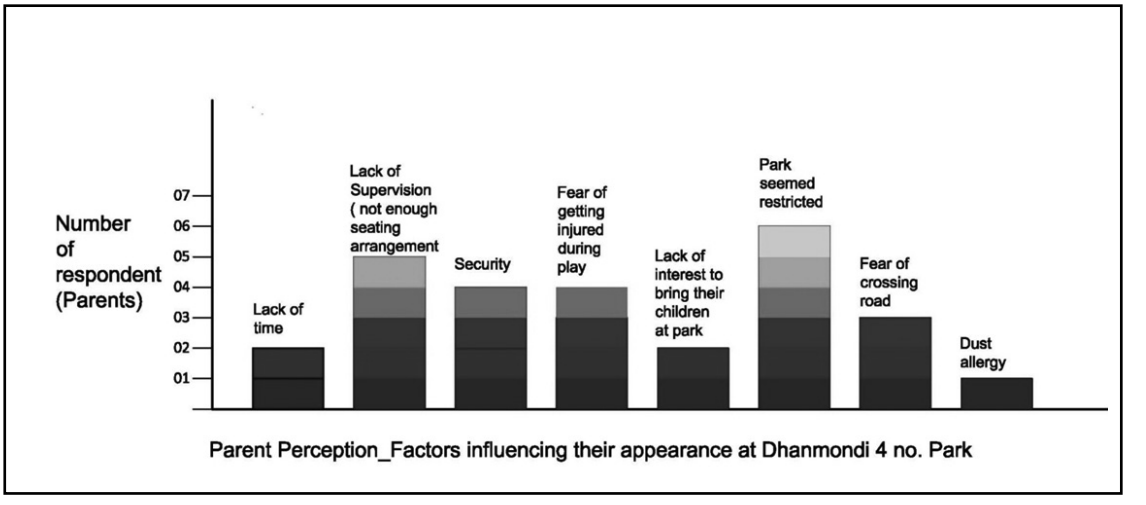


Figure 6:
Why don't you let your child/ children to visit the Dhanmondi 4.no Park during their free time?

Phase 01:
Obtaining 'Physical Features'

- Only those factors were selected that related to Physical Features
- There were other factors like lack of time, lack of interest etc. that were eliminated since they are not related to the physical feature of the park
- Access, Entry, Boundaries, Vegetation, Arrangement of Landscape Elements, Internal Pathways, were considered as physical features

Phase 02:
Comparing 'Physical Features' of both of the park and analyzing Resiliency of the Landscape

The Physical Features we obtain from Table 01 & 02 are i) Access, ii) Peripheral Road, iii) Entry, iv) Boundary, v) Vegetation vi) Internal Pathway, vii) Zoning, viii) Seating Arrangement & ix) Play Equipment. Then a comparison was done between the Physical Features of both of the parks with relevant diagrams. The comparison reveals how the

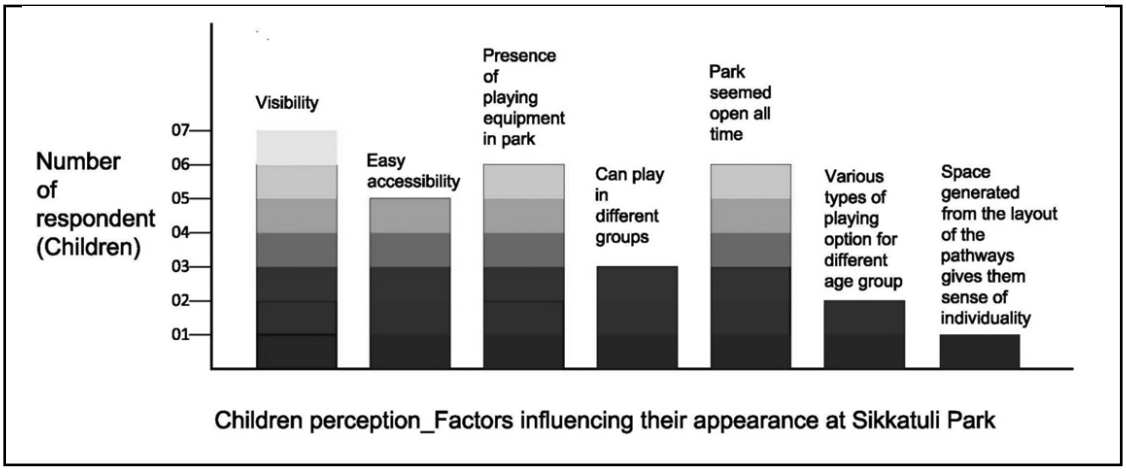


Figure 7:
Why do you visit the Sikkatuli Park during your free time?

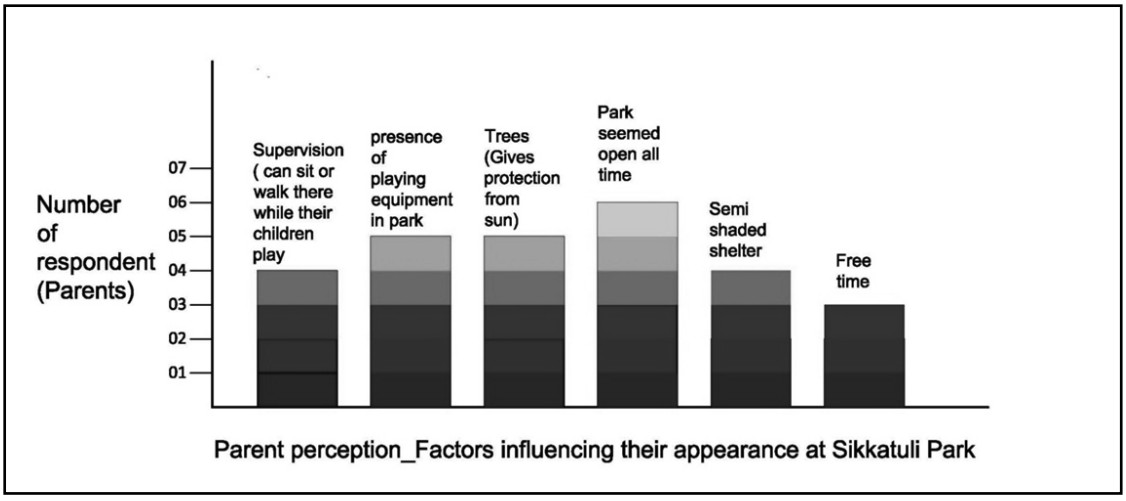


Figure 8:
Why do you let your child/ children to visit the Sikkatuli Park during their free time?

utilization by children is decreased or increased by the physical features of the park. One park is able to serve the health and wellbeing of neighborhood children quite well, while other park remains underutilized. These physical features are causing one park to act as a resilient landscape for the wellbeing of neighborhood children while the other park fails to achieve its purpose.

DHANMONDI 4 NO. PARK			
	'Factors' behind no appearance of children	number of respondents	relevant 'Physical Features'
Children's Perception	Park seemed restricted	7	Entry, Boundary
	Absence of playing equipment in park	4	Landscaping- play equipment
	Fear of getting injured during play	3	Zoning Option
	Thinking not being able to play with expert players	3	Zoning Option
Parent's Perception	Park seemed restricted	6	Entry, Boundary
	Lack of Supervision	4	Landscaping- seating arrangement
	Fear of getting injured during play	4	Zoning Option
	Fear of crossing the road	3	Access, Peripheral roads

Figure 9:
Table 01_Obtaining Physical Features of Dhanmondi 4 no. Park

SIKKATULI PARK			
	'Factors' behind children's appearance	number of respondents	relevant 'Physical Features'
Children's Perception	Visibility	7	Entry, Boundary
	Presence of playing equipment in park	6	Landscaping- play equipment
	Park seemed open all time	6	Boundary
	Easy accessibility	5	Access, Peripheral roads
	Can play in different groups	3	Zoning Option
	Various types of playing option	2	Zoning Option, Landscaping- play equipment
	layout generated from pathways gives sense of individuality	1	Landscaping- Internal Path way
Parent's Perception	Park seemed open all time	6	Entry, Boundary
	Trees (Gives protection from sun)	5	Landscaping- Shading from sun
	presence of playing equipment in park	5	Landscaping- play equipment
	Supervision	4	Landscaping- seating arrangement
	Semi shaded shelter	4	Landscaping- Shading from sun

Figure 10:
Table 02_Obtaining Physical Features of Sikkatuli Park

A. Comparison in terms of Access, Peripheral Road, Entry

i) Dhanmondi 4 No. Park

- The park is located and planned in such a manner that children from the surrounding neighborhood (Zone A) have to cross a busy or semi busy road.
- This is a concern for parents in letting their children visit the park alone.
- The entry currently used is located at the side of busy road.
- The entry is difficult to notice.

ii) Sikkatuli Park

- The park is located at a corner and its peripheral roads are semi busy due to road width and absence of connecting road.
- It is more accessible to the children of Zone B as they do not have to cross the main road to come to the park
- The interviews show that respondents from zone A do not mind crossing the road to come to the park as the road is easy to cross.

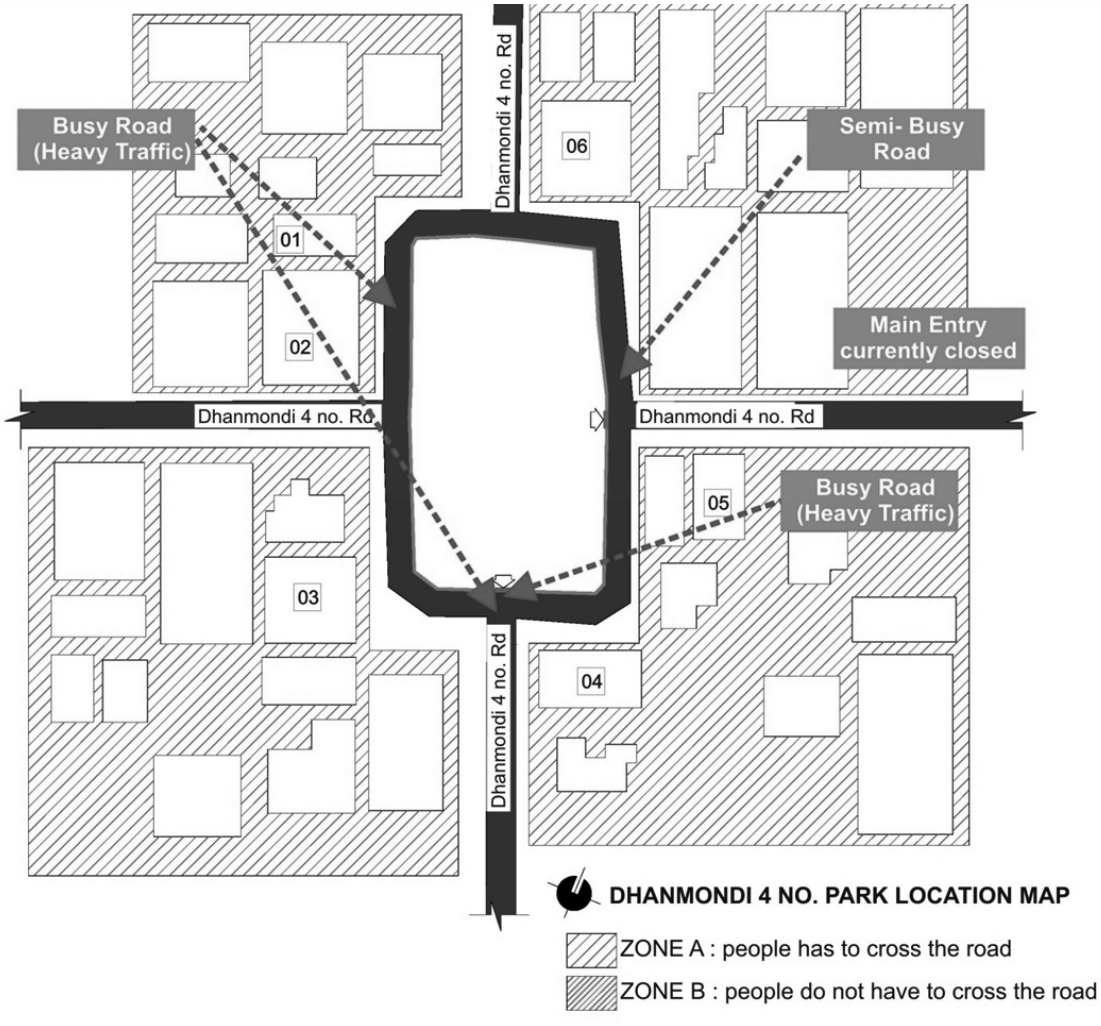


Figure 11:
Analyzing access, peripheral road, entry for Dhanmondi 4 no. Park

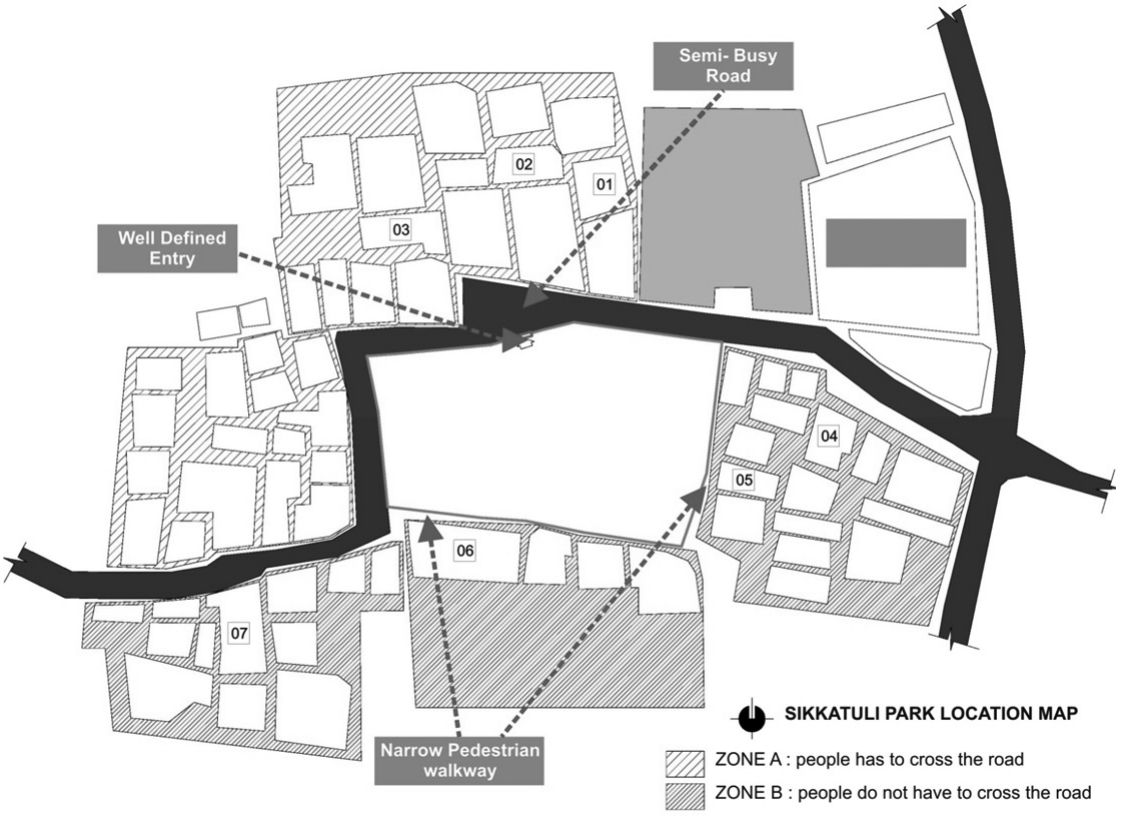


Figure 12:
Analyzing access, peripheral road, entry for Sikkatuli Park

A. Resiliency in terms of Access, Peripheral Road, Entry

From the comparative analysis of both parks in terms of access, peripheral roads and entries it shows that the peripheral road type (road width, traffic volume) and well defined entries make parks more inviting to its neighborhood children. It encourages them to visit the park and engage in play activities which help to develop their physical strength, coordination, communication and cognitive abilities, thus ensuring physical well being. The spatial placement of a neighborhood park has a significant impact on its being more resilient to the neighborhood.

B. Comparison in terms of Boundary & Vegetation

i) Dhanmondi 4 No. Park

- The boundary is high and fenced with creepers growing on the grill, restricting the view from the neighborhood and peripheral roads.
- The trees are located along the periphery, which also block the view and a huge area in the middle remains open to sun.

ii) Sikkatuli Park

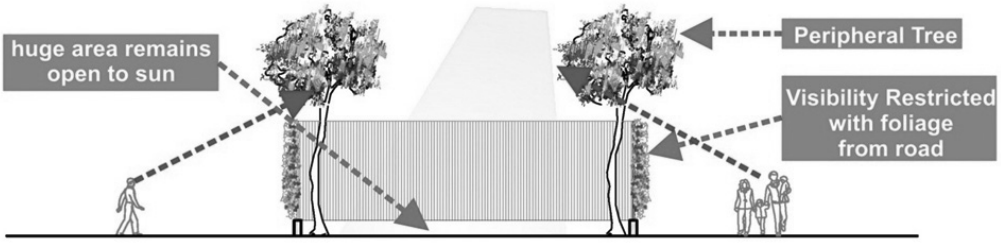
- The boundary is of low height and free from any vegetative surface that thus allowing a clear view through the park
- The trees are planted away from boundary which also provides an uninterrupted view
- The trees are situated in a scattered way that provide shade in almost every part of the park

B. Resiliency in terms of Boundary & Vegetation

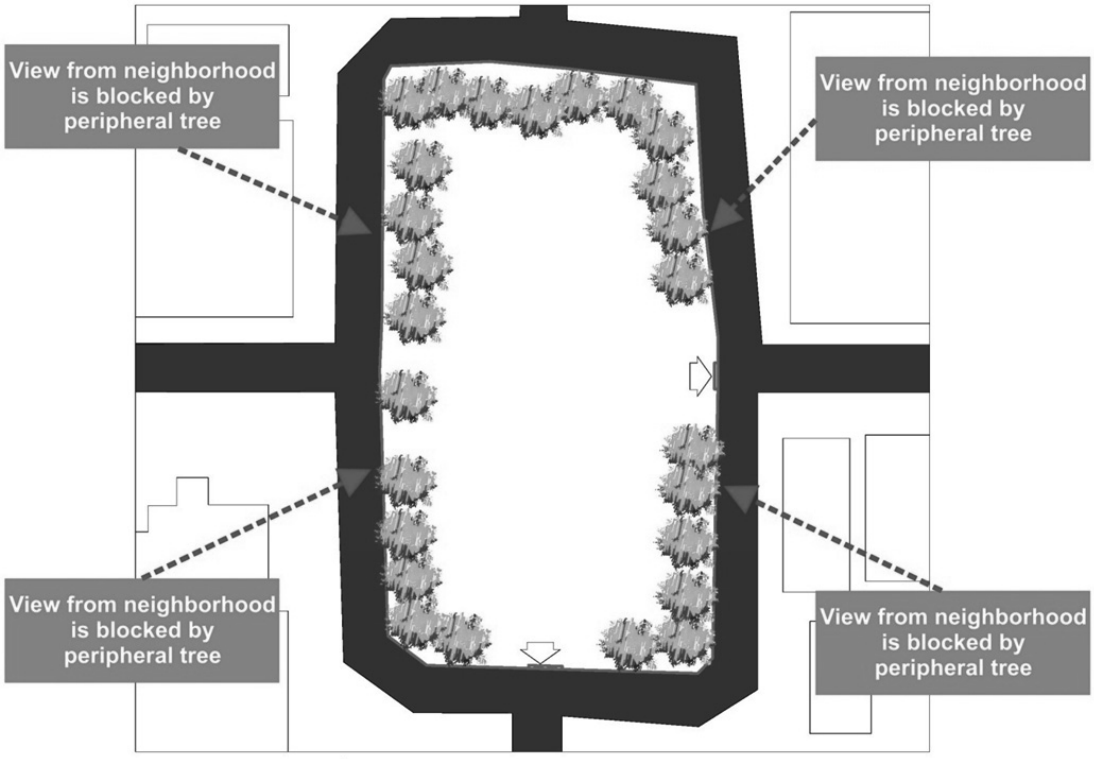
The comparative analysis shows that boundary wall configurations such as a low height, visible fencing elements connect the park to the roads

and surrounding neighborhood. The type and position of vegetation can also control visibility and enhance the attractiveness to its user. Whereas, high boundary walls with low visibility makes the park an isolate island that seems inaccessible. It weakens the social ties and remains unutilized by the neighborhood. When a park becomes more visible to its surroundings, it becomes more connected to the neighborhood. Thus it develops a sense of community within the neighborhood which helps to maintain social wellbeing.

Trees along periphery block the view and a huge area in the middle remains open to sun which deprives the children from shade during play breaks. Thus the position of vegetation also helps to maintain physical wellbeing. Plants positioned in a scattered way provide shade and increase the comfort of the children while they become exhausted after playing.

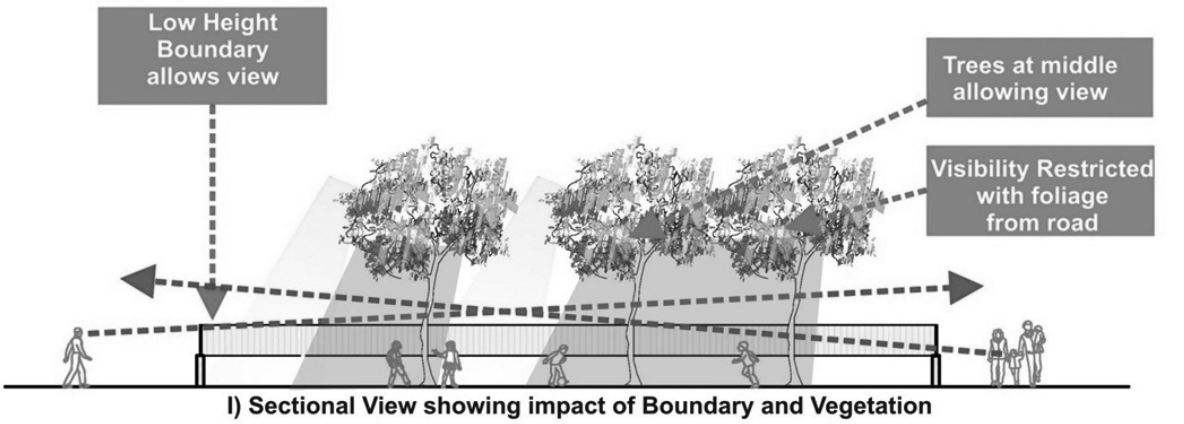


I) Sectional View showing impact of Boundary and Vegetation



DHANMONDI 4 NO. PARK LOCATION MAP

Figure 13:
Analyzing Boundary & Vegetation for Dhanmondi 4 no. Park



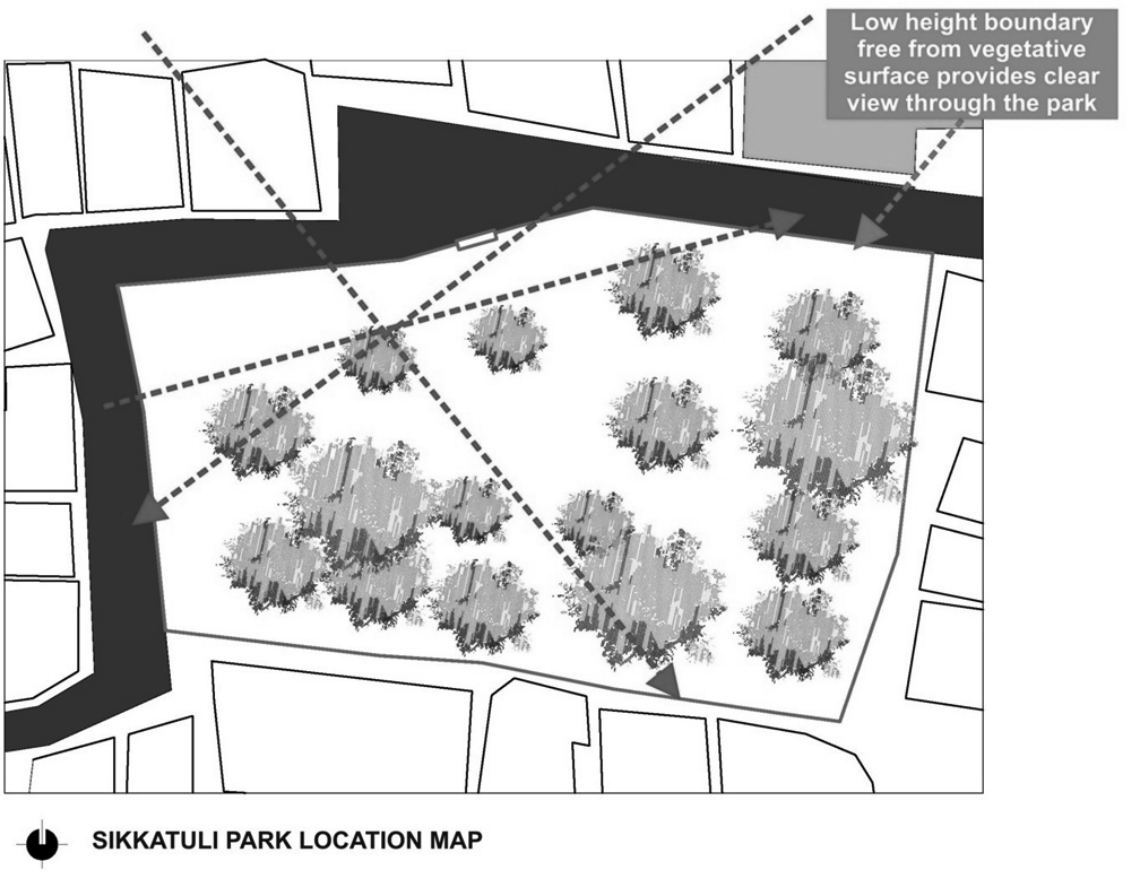


Figure 14:
Analyzing Boundary & Vegetation for Sikkatuli Park

C. Comparison in terms of Internal Pathway, Zoning, Seating Arrangement, Play Equipment

i) Dhanmondi 4 No. Park

- There is no internal path way in the park which creates only one defined zone for children to play.
- Small numbers of seating benches are placed at a distance.
- Absence of any play equipment for children

ii) Sikkatuli Park

- The layout of internal pathway and arrangement of seating provide multiple defined zones
- Different groups of children can play at any one time.
- Provisions of various types of playing equipment attract children of different age groups
- Different types of seating is available
- Circular seating areas are designed under trees that provide shade

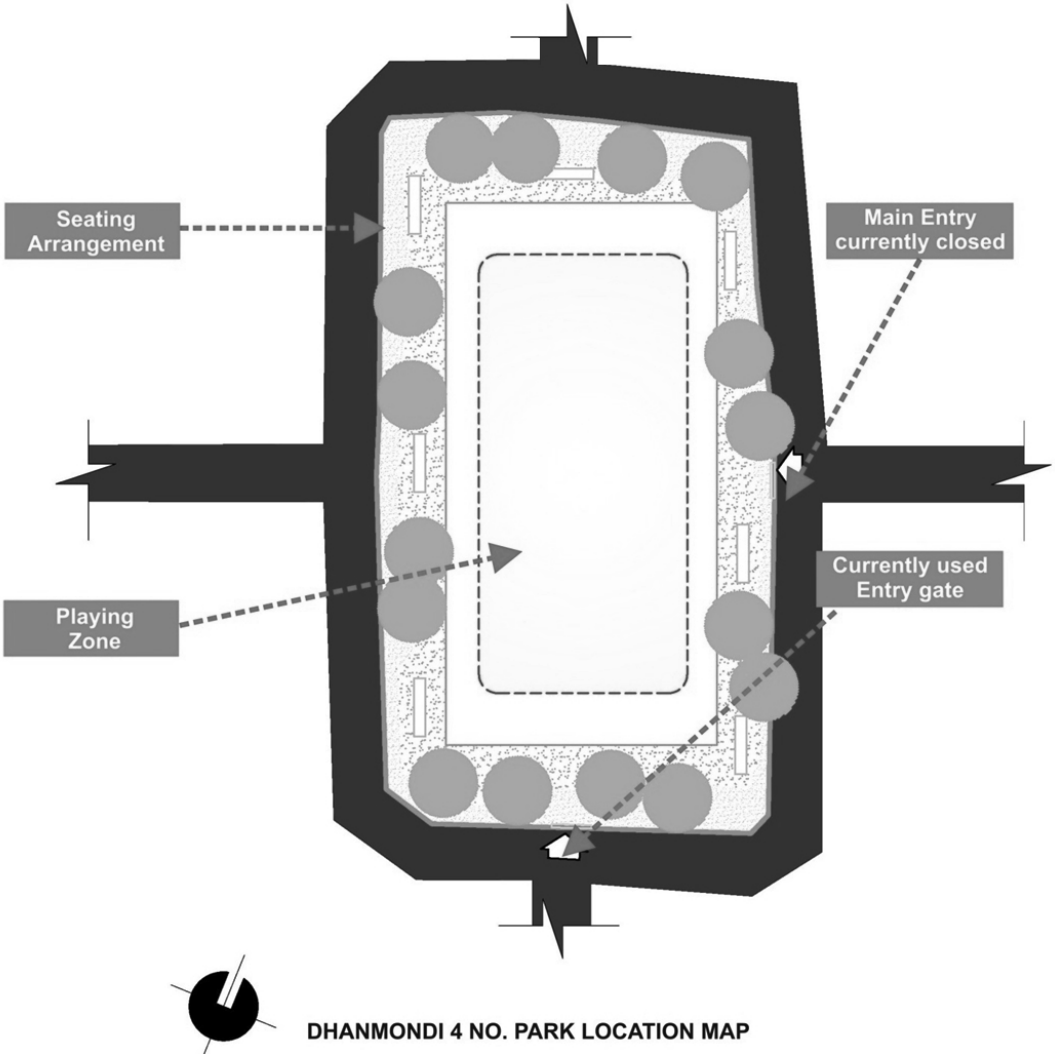


Figure 15:
Analyzing Internal Pathway, Zoning, Seating Arrangement, Play Equipment for Dhanmondi 4 no. Park

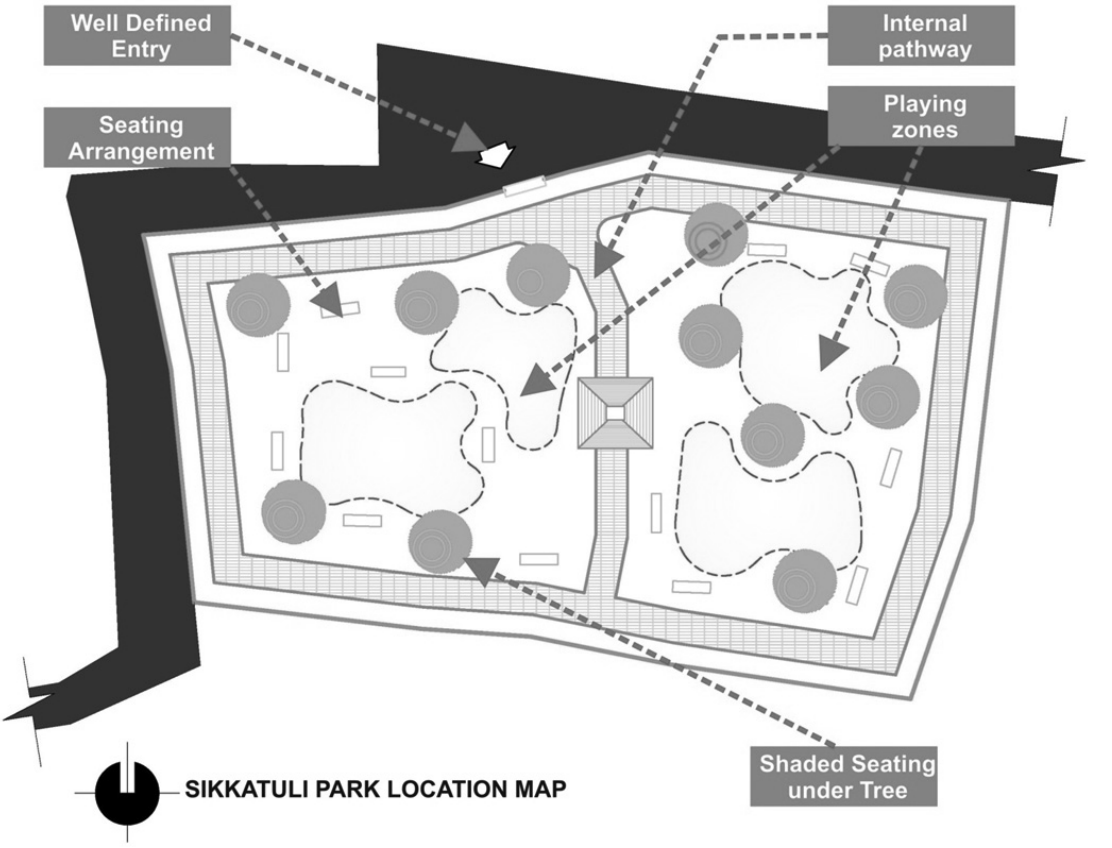


Figure 16:
Analyzing Internal Pathway, Zoning, Seating Arrangement, Play Equipment for Sikkatuli Park

C. Resiliency in terms of Internal Pathway, Zoning, Seating Arrangement, Play Equipment

The comparative analysis shows that internal pathway and zoning in a park is more preferable for children. Zones created from an internal pathway layout provide the opportunity for different groups to play at the same time. Since the children can play without interruption and disturbance from other groups it makes them feel less insecure. Presence of various types of play equipment invites children of different age groups and increases the attractiveness of the park. The opportunity of separate, defined play zones and various playing equipment encourage physical activities which helps to control problems like obesity, mal physical growth, depression, mental disorder. This ensures physical and psychological well being of the children.

The number, location and arrangement of seating help increase communication between the user groups. The provision of sitting arrangement also encourages parents to bring their children to the park, since they can supervise their children's play. A well designed neighborhood park brings the children together where they can interact and learn social behavior. Thus it ensures social well being and works against social devaluation.

The accomplishment of social, physical and psychological well being makes the park more resilient to its neighborhood.

CONCLUSION

The research indicates why children are often drawn to Sikkatuli park while Dhanmondi 4no. Park seems uninviting. The comparison shows the positive characteristics of the physical features of a park that may encourage the neighborhood children as well as their parents to visit. The appearance and active participation of children in a neighborhood park enhances its resiliency in terms of social, psychological and physical wellbeing. The aim of this study was to explore whether the physical features of the park influence children regarding their visits to park. The study shows that there are some particular physical features which make children as well as their parents, decide to visit a park.

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APPENDIX

RESPONDENT : CHILDREN (7-12 yr boys)
NAME OF THE PARK: .....
LOCATION: .....

INTERVIEW

SI NO	NAME OF THE RESPONDENT	AGE	DO YOU VISIT THE PARK DURING YOUR FREE TIME? YES ✓	DO YOU VISIT THE PARK DURING YOUR FREE TIME? NO ✗	WHY DO/ DON'T YOU VISIT THE PARK DURING YOUR FREE TIME?
01					1..... 2..... 3.....
02					1..... 2..... 3.....
03					1..... 2..... 3.....

Figure 17:
Questionnaire Format for Children

RESPONDENT : PARENTS
NAME OF THE PARK: .....
LOCATION: .....

INTERVIEW

SI NO	NAME OF THE RESPONDENT	OCCUPATION	DO YOU LET YOUR CHILD/ CHILDREN VISIT THE PARK DURING THEIR FREE TIME? YES ✓	DO YOU LET YOUR CHILD/ CHILDREN VISIT THE PARK DURING THEIR FREE TIME? NO ✗	WHY DO/ DON'T YOU LET YOUR CHILD/ CHILDREN VISIT THE PARK DURING THEIR FREE TIME?
01					1..... 2..... 3.....
02					1..... 2..... 3.....
03					1..... 2..... 3.....

Figure 18:
Questionnaire Format for Parents