

PLAY <-----> LEARN

SUSAN B. ANTHONY MIDDLE SCHOOL SITE AS A NEIGHBORHOOD PARK DESIGN

By

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A REPORT

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2012

ABSTRACT

Neighborhood parks can provide a place for children and teens to satisfy their curiosity and learn about nature. Without an open-space policy or regulation from the city, no park was proposed during the development of the neighborhood adjacent to Susan B. Anthony Middle School in Manhattan, Kansas. People have to cross Highway 113 (Sethchild Road) or Kimball Avenue to the closest parks: Marlatt and Cico. However, neither of them is within walking distance for children and teens in this neighborhood. As a result, families have to build private playgrounds in their own backyards. In addition, technological development makes children and teens prefer staying inside playing video games. Neither private playgrounds nor video games provide interaction with nature or social interaction around nature.

This project considers how the middle school site, which sits on approximately 40 acres, can be designed as a neighborhood park to allow children and teens to have close nature access and experiential learning opportunities. To better understand what users really need, in-

terviews with teachers and questionnaires for students determined their current and preferred future use of the school site. In addition, neighborhood children, who are not in the middle school, were interviewed about their play preferences. Observations of the school site usage during school time and after were recorded for design purposes. Six precedents were examined to compare and understand what works to connect children and young teens to nature.

After analyzing user needs and physical conditions of the site, a neighborhood park design for the site of Susan B. Anthony Middle School was proposed. The proposed design meets both students' experiential learning needs and the need of neighborhood children and young teens to connect to nature.

Because the 40-acre schoolyard is a nationally recommended size for middle schools, this joint-use schoolyard and park concept can be applied cross the country where needed.

TABLE OF CONTENTS

VI	List of Figures		
XIII	Acknowledgements		
XV	Dedication		
XVI	Foreword		
XIX	Preface		
	Introduction		
3	Dilemma		
9	Thesis		
11	Background		
19	Process		
21	Site Introduction		
	Precedent Studies		
39	Rationale for Selection		
41	Bluemont Elementary School		
47	William B. Travis Elementary School		
53	Martin Luther King Middle School		
59	Precedent Studies Summary		
			Design for Susan B. Anthony Middle School Site
		63	Potentials for the Site
		77	Joint-use for Play and Learn
		85	Design for Joint-use School Site
			Recommendations
		109	Liability Discussion
		110	Making it Happen
		111	Phasing
		113	Conclusions
		117	References
			Appendices
		125	A: Annotated Bibliography
		135	B: Additional Precedent Studies
		153	C: Selected Drawings from Survey Response
		155	D: Selected Process Diagrams and Drawings
		157	E: Glossary
		159	F: Sample of Kansas's Academic Standards

LIST OF FIGURES

Chapter One: Introduction

- 5 Figure 1.01 Focus Neighborhood Context Map (Author, 2012).
- 5 Figure 1.02 Route to Parks from Focus Neighborhood (Author, 2012).
- 6 Figure 1.03 Wide Intersection to Marlatt Park (Author, 2012).
- 6 Figure 1.04 Wide Intersection to Cico Park (Author, 2012).
- 6 Figure 1.05 Intersection at Kimball and Browning Avenue (Author, 2012).
- 6 Figure 1.06 Wide Seth Child Road (Author, 2012).
- 6 Figure 1.07 Busy Kimball Avenue (Author, 2012).
- 6 Figure 1.08 Marlatt Avenue without Sidewalk (Author, 2012).
- 7 Figure 1.09 Private Play equipment in the Focus Neighborhood (Author, 2012).
- 7 Figure 1.10 Private Play Equipment in the Focus Neighborhood (Author, 2012).
- 7 Figure 1.11 Private Play Equipment in the Focus Neighborhood (Author, 2012).
- 7 Figure 1.12 Private Play Equipment in the Focus Neighborhood (Author, 2012).
- 7 Figure 1.13. Children Play in the Drainage Channel (Author, 2012).
- 7 Figure 1.14 Private Play Equipment in the Focus Neighborhood (Author, 2012).
- 8 Figure 1.15 Household with Visible Play Equipment at Backyard (Author, 2012).
- 9 Figure 1.16 Thesis Diagram (Author, 2012).
- 12 Figure 1.17 Kolb Model. Diagram by Author, 2012. Adapted from Kolb 1984.
- 17 Figure 1.18 Literature Map (Author, 2012).
- 20 Figure 1.19 Process Diagram (Author, 2012).
- 23 Figure 1.20 Site Location and Context (Author, 2012).
- 24 Figure 1.21 Circulation Map (Author, 2012).
- 25 Figure 1.22 Drainage Map (Author, 2012).
- 26 Figure 1.23 Concrete Drainage Channel (Author, 2012).
- 26 Figure 1.24 Public Vacant Lot (Author, 2012).
- 26 Figure 1.25 Public Vacant Lot (Author, 2012).

- 26 Figure 1.26 Concrete Drainage Channels on Public Vacant Lot (Author, 2012).
- 26 Figure 1.27 Ephemeral Creek (Author, 2012).
- 26 Figure 1.28 Drainage Outlet on School Site (Author, 2012).
- 26 Figure 1.29 Drainage Outlet on School Site (Author, 2012).
- 26 Figure 1.30 Drainage Problem on School Site (Author, 2012).
- 27 Figure 1.31 1995 Proposed Usage of School Site (Shafer, Kline & Warren, P.A. 1995).
- 28 Figure 1.32 Actual Site Usage (Author, 2012).
- 29 Figure 1.33 Green House (Author, 2012).
- 29 Figure 1.34 Exercise Equipment (Author, 2012).
- 29 Figure 1.35 Small Garden (Author, 2012).
- 29 Figure 1.36 Soccer Field (Author, 2012).
- 29 Figure 1.37 Running Track (Author, 2012).
- 29 Figure 1.38 Tennis and Basketball Court (Author, 2012).
- 30 Figure 1.39 Site Elevation (Author, 2012).
- 31 Figure 1.40 Site Slope (Author, 2012).
- 32 Figure 1.41 Site Aspect (Author, 2012).
- 33 Figure 1.42 Surface Material Analysis (Author, 2012).
- 34 Figure 1.43 Site Circulation (Author, 2012).
- 36 Figure 1.44 Linear Trail through the Site (Author, 2012).
- 36 Figure 1.45 Walks around the School Building (Author, 2012).
- 36 Figure 1.46 Path Leading to the School Building from the Parking Lot (Author, 2012).
- 36 Figure 1.47 Sidewalk from the West Neighborhood Ends at the School Boundary (Author, 2012).
- 36 Figure 1.48 Steep Sloop of the School Site at the End of the Sidewalk from the Neighborhood at West (Author, 2012).

Chapter Two: Precedent Studies

- 40 Figure 2.01 Precedent Study Selection and Analysis Process Diagram (Author, 2012).
- 41 Figure 2.02 Bluemont Elementary School Plan (Google Earth Map, 2012).
- 42 Figure 2.03 Bluemont Elementary School Location Analysis. Adapted Map from City of Manhattan (Author, 2012).
- 44 Figure 2.04 Signage (Author, 2012).
- 44 Figure 2.05 Gate (Author, 2012).

LIST OF FIGURES (CONTINUED)

- 44 Figure 2.06 Play Equipment (Author, 2012).
- 44 Figure 2.07 Swing Set (Author, 2012).
- 44 Figure 2.08 Play Equipment (Author, 2012).
- 45 Figure 2.09 Site Element and Their Usages, Material Analysis (Author, 2012).
- 47 Figure 2.10 Travis Elementary School Plan (<https://traviselementary.ejoinme.org>, 2012.).
- 47 Figure 2.11 Enlarged Detail Plan (http://outdoors.traviselementary.org/?page_id=52, 2012).
- 48 Figure 2.12 Travis Elementary School Location Analysis. Adapted Map from City of Houston (Author, 2012).
- 50 Figure 2.13 Gardening (<http://outdoors.traviselementary.org/>, 2012).
- 50 Figure 2.14 Sundial (<http://outdoors.traviselementary.org/>, 2012).
- 50 Figure 2.15 Chessboard (<http://outdoors.traviselementary.org/>, 2012).
- 50 Figure 2.16 Outdoor Classroom (<http://outdoors.traviselementary.org/>, 2012).
- 50 Figure 2.17 Bird Sanctuary (<http://outdoors.traviselementary.org/>, 2012).
- 50 Figure 2.18 Butterfly Garden (<http://outdoors.traviselementary.org/>, 2012).
- 50 Figure 2.19 Garden House (<http://outdoors.traviselementary.org/>, 2012).
- 50 Figure 2.20 Spark Park (<http://outdoors.traviselementary.org/>, 2012).
- 51 Figure 2.21 Site Element and Their Usages, Material Analysis (Author, 2012).
- 53 Figure 2.22 Martin Luther King Middle School Site Plan (Google Earth Map, 2012).
- 53 Figure 2.23 Vegetable Garden (Google Earth Map, 2012).
- 54 Figure 2.24 Martin Luther King Middle School Location Analysis. Adapted from City of Berkeley and Albany, Ca (Author, 2012).
- 56 Figure 2.25 Edible Garden (Danks 2010, 84).
- 56 Figure 2.26 Vine Fence Art (Danks 2010, 230).
- 56 Figure 2.27 Signage (<http://www.edibleschoolyard.org/Berkeley/uploads/cardhike38.jpg>, 2012).
- 56 Figure 2.28 Fruit Tree (Danks 2010, 84).
- 56 Figure 2.29 Gazebo (Danks 2010, 210).
- 56 Figure 2.30 Amphitheater (Danks 2010, 198).
- 57 Figure 2.31 Site Element and Their Usages, Material Analysis (Author, 2012).

60 Figure 2.32 Precedent Studies Summary (Author, 2012).

Chapter Three: Design for Susan B. Anthony Middle School Site

- 65 Figure 3.01 Project Goal Illustration (Author, 2012).
- 67 Figure 3.02 Program Elements (Author, 2012).
- 68 Figure 3.03 Program Elements Goals (Author, 2012).
- 71 Figure 3.04 School Aerial Map (Google Earth Map, 2012).
- 73 Figure 3.05 Outdoor Gathering/ Performance Area Location Response Analysis. Adapted from Google Earth Map (Author, 2012).
- 74 Figure 3.06 Outdoor Eating Area Location Response Analysis. Adapted from Google Earth Map (Author, 2012).
- 74 Figure 3.07 Natural Outdoor Seating (<http://milwaukeeerotary.com/display.aspx?id=4954>, 2012).
- 74 Figure 3.08 Outdoor Seating Wall (<http://outdoors.traviselementary.org/>, 2012).
- 74 Figure 3.09 Picnic Table (<http://www.furnitureleisure.com/>, 2012).
- 76 Figure 3.10 Walking Route Response. Adapted from Google Earth Map (Author, 2012).
- 79 Figure 3.11 Vegetable Garden for School Use (Author, 2012).
- 79 Figure 3.12 Fossil Digging Sandbox for Children (Author, 2012).
- 79 Figure 3.13 Music Equipment for Shared Use (Author, 2012).
- 81 Figure 3.14 Design Concept Illustration (Author, 2012).
- 83 Figure 3.15 Program Elements with Design Framework and Considerations (Author, 2012).
- 84 Figure 3.16 Location Relationship (Author, 2012).
- 88 Figure 3.17 Master Plan (Author, 2012).
- 89 Figure 3.18 Detail Vignettes (Author, 2012).
- 91 Figure 3.19 Design Framework (Author, 2012).
- 91 Figure 3.20 Circulation (Author, 2012).
- 92 Figure 3.21 Material Analysis (Author, 2012).
- 92 Figure 3.22 Curricular Connections (Author, 2012).
- 93 Figure 3.23 Vegetable Garden Plan with Index Map (Author, 2012).
- 93 Figure 3.24 Existing Site Condition Picture (Author, 2012).
- 94 Figure 3.25 Proposed Vegetable Garden Perspective (Author, 2012).
- 95 Figure 3.26 Park Plan with Index Map (Author, 2012).
- 95 Figure 3.27 Existing Site Condition Picture (Author, 2012).

LIST OF FIGURES (CONTINUED)

- 96 Figure 3.28 Proposed Sandbox Play Area Perspective (Author, 2012).
- 97 Figure 3.29 Rain Garden Plan with Index Map (Author, 2012).
- 97 Figure 3.30 Existing Site Condition Picture (Author, 2012).
- 98 Figure 3.31 Proposed Rain garden Perspective (Author, 2012).
- 99 Figure 3.32 Index Map (Author, 2012).
- 99 Figure 3.33 Rain garden Section (Author, 2012).
- 100 Figure 3.34 Dry Season Rain Garden Detail (Author, 2012)
- 100 Figure 3.35 Rain Season Rain Garden Detail (Author, 2012).
- 101 Figure 3.36 Park Plan with Index Map (Author, 2012).
- 101 Figure 3.37 Existing Site Condition Picture (Author, 2012).
- 102 Figure 3.38 Proposed Turkey Sculpture Field Perspective (Author, 2012).
- 103 Figure 3.39 Amphitheater and Signage Location Plan with Index Map (Author, 2012).
- 103 Figure 3.40 Existing Site Condition Picture (Author, 2012).
- 104 Figure 3.41 Proposed Entry and Signage (Author, 2012).
- 105 Figure 3.42 Outdoor Eating Area Plan with Index Map (Author, 2012).
- 105 Figure 3.43 Existing Site Condition Picture (Author, 2012).
- 106 Figure 3.44 Proposed Outdoor Eating Area (Author, 2012).

Recommendations

- 111 Figure 4.01 Phasing Diagrams (Author, 2012).

Appendices

- 128 Figure 7.01 Lewinian Model. Diagram by Author, 2012. Adapted from Kolb 1984. 21.
- 128 Figure 7.02 Dewey Model. Diagram by Author, 2012. Adapted from Kolb 1984. 23.
- 128 Figure 7.03 Piaget Model. Diagram by Author, 2012. Adapted from Kolb 1984. 25.
- 128 Figure 7.04 Kolb Model. Diagram by Author, 2012. Adapted from Kolb 1984.
- 135 Figure 7.05 Roas Park Elementary School Master Plan (Danks 2010, 18).

- 136 Figure 7.06 Roas Park Elementary School Location Analysis. Adapted Map from City of Berkeley (Author, 2012).
- 138 Figure 7.07 (Human) Sandials (Danks 2010,126).
- 138 Figure 7.08 Rocks Function as Decoration, Seating, and Education Material (Danks 2010, 130).
- 138 Figure 7.09 Pond(Wildlife Habitat Observation) (Danks 2010,12).
- 138 Figure 7.10 Open-sided Gazebo as Outdoor Classroom (Danks 2010, 208).
- 138 Figure 7.11 Outdoor Painting (Danks 2010,179).
- 138 Figure 7.12 Sound Tubes (Danks 2010,193).
- 139 Figure 7.13 Site Element and Their Usages, Material Analysis (Author, 2012).
- 141 Figure 7.14 Enlarged Detail Plan (http://resilientcities.org/Resilient_Cities/GJP.html, 2012).
- 148 Figure 7.15 Brown Street Academy Location Analysis. Adapted Map from City of Milwaukee, WI (Author, 2012).
- 144 Figure 7.16 Natural Material Seating (www.resilientcities.org, 2012).
- 144 Figure 7.17 Natural Seating (<http://milwaukee Rotary.com/display.aspx?id=4954>, 2012).
- 144 Figure 7.18 Messy Materials (ftp://www.marc2.org/outgoing/2011_Built_Environment_and_the_Outdoors_Summit,2011).
- 144 Figure 7.19 Natural Art (http://www.resilientcities.org/Resilient_Cities/BROWN_STREET_ACADEMY.html, 2012).
- 145 Figure 7.20 Site Element and Their Usages, Material Analysis (Author, 2012).
- 147 Figure 7.21 Montessori Community School Site Plan (<http://www.naturalearning.org/content/montessori-community-school-durham-nc>, 2012).
- 148 Figure 7.22 Montessori Community School Location Analysis. Adapted Map from City of Durham and Chapin Hill, NC (Author, 2012).
- 150 Figure 7.23 Grass Maze (<http://www.naturalearning.org/content/montessori-community-school-durham-nc#>, 2012).
- 150 Figure 7.24 Grass Knolls (<http://www.naturalearning.org/content/montessori-community-school-durham-nc#>, 2012).
- 150 Figure 7.25 Rain Garden (http://www.naturalearning.org/sites/default/files/imagecache/sidebar_image/sidebar_imgs/, 2012).
- 150 Figure 7.26 Path through Plants (<http://www.naturalearning.org/content/montessori-community-school-durham-nc#>, 2012).
- 151 Figure 7.27 Site Element and Their Usages, Material Analysis (Author, 2012).
- 153 Figure 7.28 Selected Drawings from Susan B. Anthony Middle Students Survey Response (Survey Participants, 2012).
- 154 Figure 7.29 Selected Drawings by Neighborhood Children (Survey Participants, 2012).
- 155 Figure 7.30 Selected Process Drawings (Author, 2012).
- 156 Figure 7.31 Process Vignettes (Author, 2012).

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DEDICATION

*TO
MY HUSBAND
AND
PARENTS*

FOREWORD

The Landscape Architecture/Regional & Community Planning graduates of 2012 are the first class to participate in a collaborative studio process leading to completion of their individual master's reports. Seven of these graduates chose to work under the topic Landscapes of Learning. The interests of the group were broad: biophilia, access to nature for children, childhood development and special needs, ecological interpretation, participatory design, public play spaces, and landform as art. The common conversation centered around big questions: How can all children have access to nature for learning through play? What creates a rich, outdoor environment for all kinds of children and young adults?

A formative experience in my understanding of landscapes for learning occurred in 2008-2010, when I helped create a learning garden at a local elementary school. One hundred eighty people built the school garden over eighteen weekends. The garden was handmade. Raised planters were built by Boy Scouts and a kind dad with a miter saw. A talented landscape contractor helped build a 14-foot long limestone bench. The Parent-Teacher Organization's unofficial 'dad of the year' made it a family affair — his siblings, mother, father, and children all returned to the garden site for many weekends of work.

Sadly, the garden existed for just 153 days. The voting public passed a bond for school renovation and the elementary school received funds for a beautiful building expansion. The garden turned out to be too difficult to stage around during construction.

The learning garden had become a talisman to me. In it, I saw a kind of landscape I had never made in a professional firm.

The garden was decidedly humble and handcrafted, made of creamy Kansas limestone and native plants bought or donated and dug in a few at a time. The garden was 'quiet' aesthetically: native wildflowers and grasses, crushed stone paths, tree shade, planters with compost-rich soil. The garden was designed for diverse experiences: learning across the grades and curriculum, quiet time, and play. There was always a puddle somewhere, reflecting leaves and strands of switchgrass. During the fall it was completed, 4th graders would run to the side of the garden intern at recess to ask if they could help weed, or mulch, or rake. When the news sunk in that the garden was gone, I looked at its photographic ghost in satellite imagery. How could so many people want something, work so hard to make it happen, and yet it could not survive?

The humble learning garden had answered a creative drive for me. I had wanted to make social sculpture: to bring a socially-significant place to life beyond words and images. The garden's absence opened me to questions about landscapes of/by/for learning.

The 2012 Landscapes of Learning studio became a forum for these questions. Seven master of landscape architecture and master of regional and community planning students selected the studio as the crucible for their final year's projects. The graduate student researchers conceived of their bond as a colloquium, where each shared information freely to raise the expertise of all.

Though each student defined his or her own project, all projects engaged the community of Manhattan, Kansas (the setting for Kansas State University); and all projects questioned what

we as future landscape architects and planners assume about landscapes for children. In nine months' time, a diverse set of projects took shape to address a range of questions:

If we assume access to nature to be beneficial to children, are some children denied access due to socioeconomic status and its impact upon housing choice?

Jonathan Knight, Wichita, Kansas

In a neighborhood with no parks, can an oversized middle school property serve a joint use for school and neighbors?

Shuang Hao, Manhattan, Kansas / Suihua, China

How can an elementary school in a flood plain landscape meet diverse schoolyard needs while also interpreting the hydrologic cycle for children?

Laura Weatherholt, Tulsa, Oklahoma

How can a schoolyard be designed to be a therapeutic environment for all children, with an emphasis on benefiting those children with autism?

Chelsey King, St. Peters, Missouri

How can planners and landscape architects improve community participatory design methods for determining what children need and desire in a school landscape?

Kweku Addo-Atuah, Accra, Ghana

Contemporary schoolyards often lack creative expression. How can humanities research serve as evidence for the design of a functional schoolyard that is also a sculptural work of art?

Rebecca Melvin, Seattle, Washington

In the temperate Midwest United States, interiorscapes are seldom a feature of public schools. How should an interiorscape be designed to integrate the natural and built environment within an existing high school?

Sukaina Fakhraldeen, Kuwait

The reports address landscapes of learning at a range of scales: from city planning to interior scale. The projects also exhibit a great variety in conceptual approach: from personal and poetic design driven by humanities knowledge to participatory design process including nearly one hundred students. What is not evident in the list of questions is the interrelationship between projects. The individual report which follows will provide a point of reference. The individual researcher's goals will be made clear, but will also be linked to a collective annotated bibliography made by the studio. Some reports refer to the work of other students, as several projects were interdependent, but each report is original work, completed by the individual author.

As a whole, the 2012 Landscapes of Learning master's reports do not focus narrowly upon the most popular topics of the day: encouraging active play and control of childhood obesity. Instead, our holistic approach demonstrates creative and scholarly inquiry representing a breadth of themes in contemporary discourse about experiential learning environments for children.

Assistant Professor Mary Catherine (Katie) Kingery-Page
Major Professor to the Landscapes of Learning Students
April, 2012

PREFACE

When I was a child, my friends and I played around a pond near my home after school. The pond was important to us: we observed how tadpoles change into frogs; we caught dragonflies and butterflies to study the differences in their eyes; we identified which flower petals were most efficient for dying our nails; we made our own perfumes by mixing different plants. The pond was very important to my childhood. It was part of my life.

Several years ago, I lived with my 3-year old cousin in Davis, California. She asked more frequently than anything else, “Can we go out to play?” There were two play areas near where we lived. One was just around the corner; the other we could walk to within minutes. Even with only three pieces of play equipment in the nearest area, she enjoyed herself discussing how to take turns playing with other children. On the way to the other playground, she always smelled the flowers along the trail as we walked and told me her favorite.

I did not realize how lucky my little cousin and I were until I moved to Manhattan, Kansas. My husband and

I like to walk along the trail/sidewalk in our neighborhood, and I immediately noticed how much private play equipment was in the neighbors’ backyards. I hardly see my neighbor’s children outside because “they are playing video games.” Children have little open environment to interact with non-family members, and of course, they have not had the experiences I had as a child.

I began to ask if I could do anything to improve this situation. After talking to people around the city, I learned that no regulations require parks in new developments. Therefore, I am focusing on how to redesign an existing open space and make it work as a neighborhood park for children and teens. The 39.1-acre Susan B. Anthony Middle School site is a good choice. In addition, there is a small public vacant lot adjacent to the school site. Both are within walking distance of my own home. The 40-acre middle school site is of nationally recommended size for such schools. Therefore, I hope to create a design that can be applied wherever needed — to let children play in nature. They learn more than you think.



INTRODUCTION

DILEMMA

Nowadays, children and young teens do not connect with nature for the following reasons:

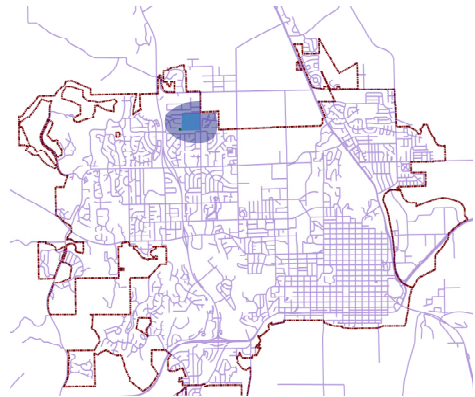
1) Limited access to nature: When building a new neighborhood, developers want to build as much housing as possible to make more profit. Therefore, without an open-space policy/regulation in the city, no neighborhood parks are included. No parks within a quarter of a mile (five-minute walking distance) radius (Perry 1929) were proposed during the development in the neighborhood adjacent to the Susan B. Anthony Middle School in Manhattan, Kansas (Figure 1.01). The closest parks are Marlatt and Cico parks; however, they are out of walking distance and require people to cross either Highway 113 or Kimball Avenue, both main highways (Figure 1.02-1.08). Therefore, people with young children often build playgrounds in their isolated backyards as shown in Figure 1.09 -1.15. Children can play in their backyards, most likely by themselves, but lack other natural environments, such as groves, meadows, and streams. Even though there is green lawn in the backyard, “green grass is not nature” (Louv 2011).

2) Technological developments allow children and young teens to focus on the technological world: computers, televisions, MP3 players, and the like. “Caught in an interior and electronically mediated world, they are losing touch with both the society of flesh-and-blood humans and the delicate natural world that supports our species” (Smith 2010, viii). They lose the opportunity to be close to nature and meet others during play, which is critical for socialization (Moore and Wong 1997).

Because the built backyard play equipment and video games do not foster diverse interaction with peers or with the natural environment, children and young teens fail to interact with and explore natural features (Louv 2005), primarily because they do not have easy access to a park near where they live. Children lose experiences with nature, and thus lose experiential learning opportunities. As American educational theorist, David Kolb, stated, “Learning arises as a product of the interaction between the person and his or her environment” (Kolb 1984, 5).

“Not too many years ago, a child’s experience was limited by how far he or she could ride a bicycle or by the physical boundaries that parents set. Today ... the real boundaries of a child’s life are set more by the number of available cable channels and videotapes, by the simulated reality of video games, by the number of megabytes of memory in the home computer. Now kids can go anywhere, as long as they stay inside the electronic bubble.”

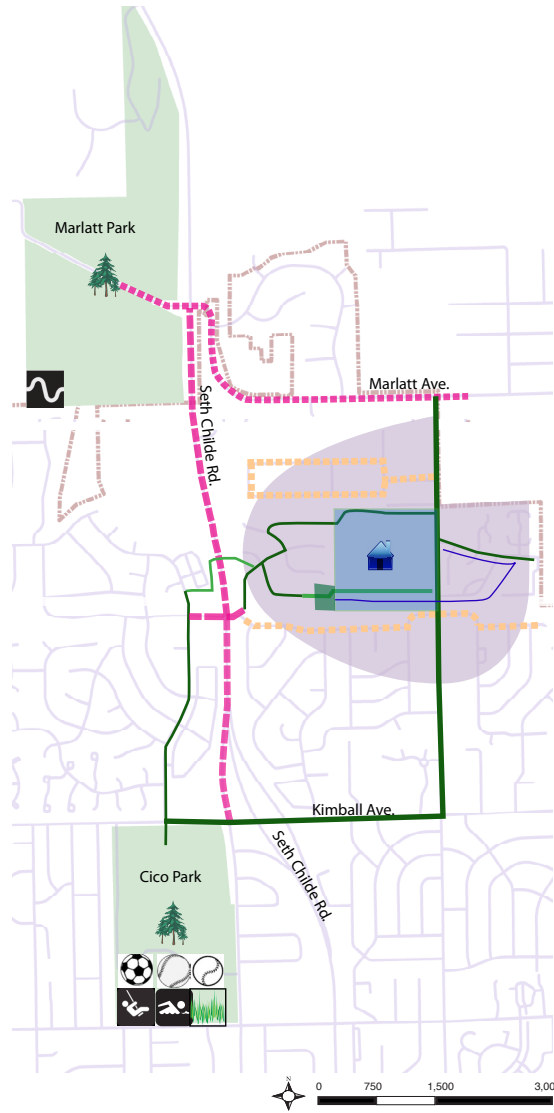
---Louv 1990. 117



Legend

- Focus Neighborhood
- Susan B. Anthony Middle School Site
- Public Vacant Lot
- City of Manhattan, Kansas Boundary
- Road Center Line

Not to Scale



Legend

- Highway with no Sidewalk
- Primary Road with Sidewalk
- Primary Road with no Sidewalk
- Secondary Road with Sidewalk
- Secondary Road with no Sidewalk
- Trail
- Seasonal Creek
- Focus Neighborhood
- School Site
- Public Vacant Lot
- Susan B. Anthony Middle School
- Park
- Open Space
- Swimming Pool
- Playground
- Trail
- Baseball Court
- Tennis Court
- Soccer Field
- Manhattan City Boundary
- Road Center Line
- Park

From Left to Right:

Figure 1.01 Focus Neighborhood Context Map (Author, 2012).

Figure 1.02 Route to Parks from Focus Neighborhood (Author, 2012).



From Top Left to Bottom Right:

Figure 1.03 Wide Intersection to Marlatt Park (Author, 2012).

Figure 1.04 Wide Intersection to Cico Park (Author, 2012).

Figure 1.05 Intersection at Kimball and Browning Avenue (Author, 2012).

Figure 1.06 Wide Seth Child Road (Author, 2012).

Figure 1.07 Busy Kimball Avenue (Author, 2012).

Figure 1.08 Marlatt Avenue without Sidewalk (Author, 2012).



From Top Left to Bottom Right:

Figure 1.09 Private Play equipment in the Focus Neighborhood (Author, 2012).

Figure 1.10 Private Play Equipment in the Focus Neighborhood (Author, 2012).

Figure 1.11 Private Play Equipment in the Focus Neighborhood (Author, 2012).

Figure 1.12 Private Play Equipment in the Focus Neighborhood (Author, 2012).

Figure 1.13. Children Play in the Drainage Channel (Author, 2012).

Figure 1.14 Private Play Equipment in the Focus Neighborhood (Author, 2012).

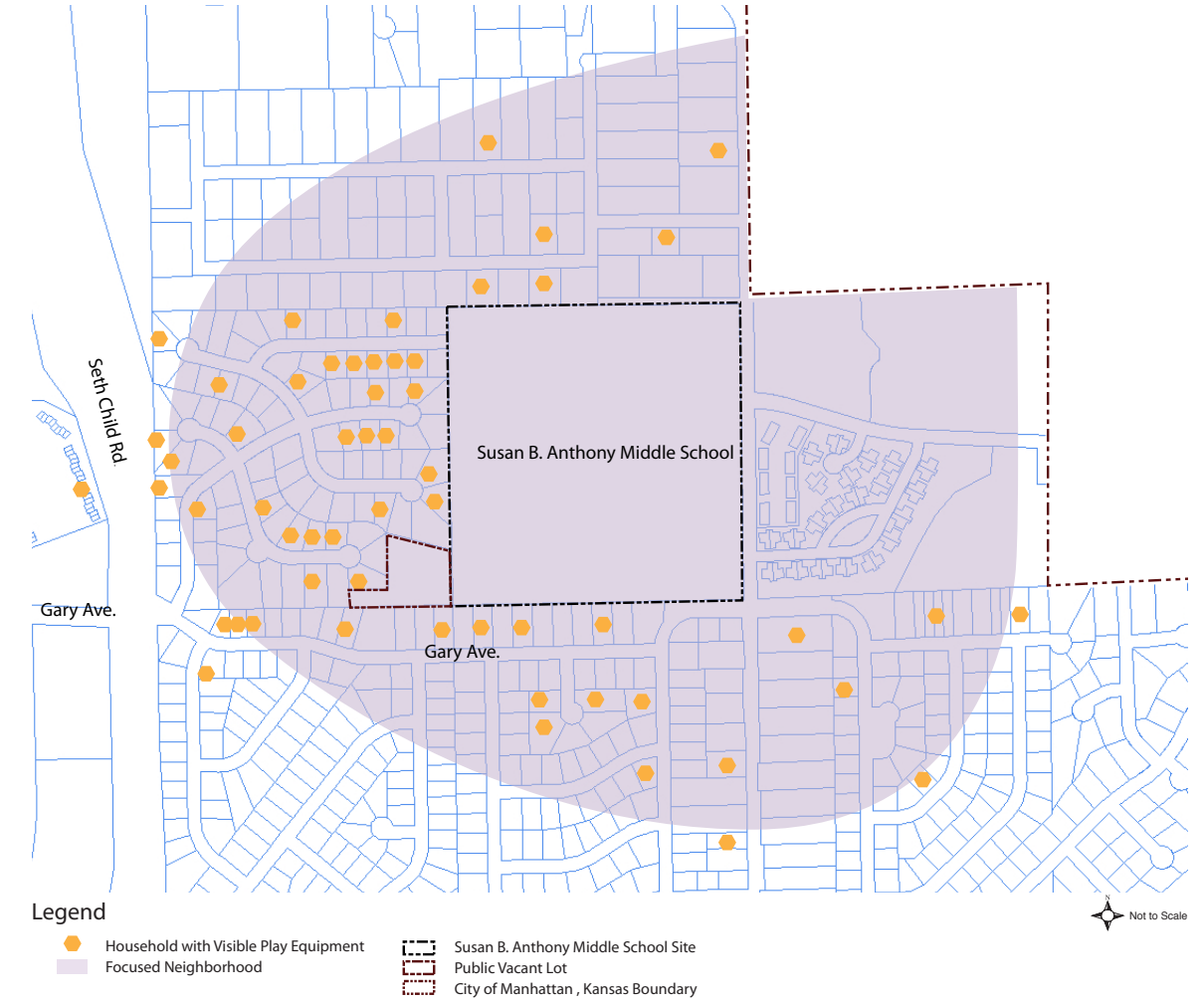
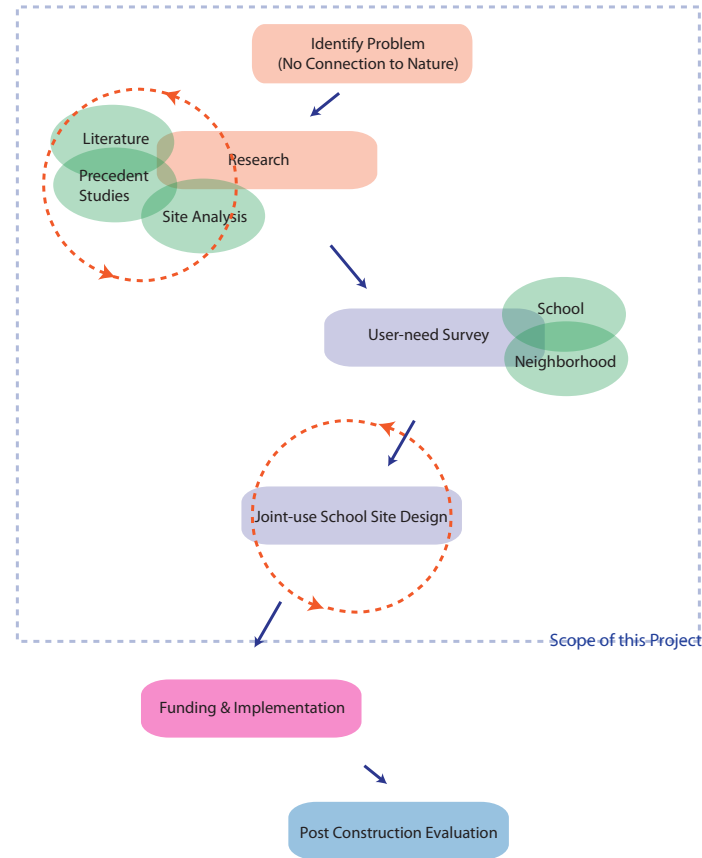


Figure 1.15 Household with Visible Play Equipment at Backyard (Author, 2012).

THESIS

A community's public neighborhood park can increase children and young teens' exploration of nature in a way substantially different from the typical, private backyard. The experience and learning gained by using a neighborhood park can affect children and young teens' psychology and emotion. A neighborhood park can also increase children and young teens' social skills and behavior through experiential learning. Because Susan B. Anthony Middle School (referred to as the School hereafter) is adjacent to the neighborhood, what if this 39.1-acre school site were designed to be a neighborhood park while meeting the school's needs? After analyzing precedent studies and responses from the future users, a joint-use school site design was proposed. This joint-use design will give the school students and neighborhood children close access to nature, opportunities for experiential learning, and environment for social interaction. It also addresses the shortage of out-door playing/learning areas in Susan Anthony Middle School and its surrounding neighborhood.

The recommended middle school size is 40 acres nationally. Therefore, this "school site designed as a neighborhood park" concept can be applied nationally where needed.



"Neighborhood parks emerged as important places where children can escape from the restrictions of home, meet up with peers, have fun, enjoy nature, and learn about themselves and the world around them ---especially the natural world."

---Moore, and Marcus 2008. 171

Left: Figure 1.16 Thesis Diagram (Author, 2012).

BACKGROUND

Introduction

Twenty years ago, children had no Internet, and only a few channels on TV; however, they had easy access to nature and spent most of their time outdoors. They had more natural fun (Louv 2005). Our society has changed significantly, focusing on and emphasizing technology more; as a result, connections to nature have faded. Safety concerns have pushed parents to keep children from easy contact with nature (Rissotto 2006). Technology and lifestyle shifts have created children and teens with less and less interaction with nature, who now interact with nature through television and computer (Verboom et al. 2011). Moreover, parks have become optional amenities, not a necessity of urban (and rural) infrastructure (Kaplan & Kaplan, 1989). Such decreased interaction with nature costs children and teens experiential learning opportunities. A survey done by Jana Verboom et al. revealed that young people have little understanding of nature and biodiversity (Verboom et al., 2011). As Richard Louv said in his “Last Child in the Woods: Saving our Children from Nature-Deficit Disorder”, decreased access to nature and “nature-deficit disorder” harm children and our society (Louv 2005).

“Every day, our relationship with nature, or the lack of it, influences our lives. This has always been true. But in the twenty-first century, our survival-or-thrival(sic) will require a transformative framework for that relationship, a reunion of humans with the rest of nature” (Louv 2011. 3). Therefore, landscape design should provide children an opportunity to learn about nature and, in turn, learn from their experience in it. It heals their minds, affects their physical and emotional health, and also inspires learning and creativity. Without a connection to nature, children tend to suffer from obesity, attention deficit disorder, and depression. Direct exposure to nature is fundamental for healthy childhood development and for the physical and emotional health of children (Louv 2005).

Nature and experiential learning is important for children and teens

What is experiential learning?

David Kolb noted, “learning is the process whereby knowledge is created through the transformation of experience” (Kolb 1984. 38); “experiential’ emphasized the central role that experience plays in the learning process” (Kolb 1984. 20). Based on three other models, Kolb defined the experiential learning cycle using four elements:

concrete experience (or “Do”), reflective observation (or “Observe”), abstract conceptualization (or “Think”), and active experimentation (or “Plan”). As shown in Figure 1.16, concrete experience is the basis of reflective observation, which leads to abstract conceptualization. New implications for action from abstract conceptualization can be immediately tested in the active experimentation stage, which leads to concrete experience as new experiences are created (Kolb 1984).

Learning is best conceived as a process, not an outcome; learning is a continuous process grounded in experience; learning is a holistic process of adaptation to the world; learning involves transactions between the person and the environment; and learning is the process of creating knowledge (Kolb 1984). Therefore, experiential learning is the process of learning from interacting and experiencing.

Why is experiential learning valuable?

Experiential learning affects children and teens’ ability to learn; children with outdoor education opportunities performed better academically (Taylor, et al. 2006). Experiential learning opportunities give young people a reason to invest in learning, because young people pay attention to what they see in the field. They have more desire to learn and learn even more through interaction with nature (Smith 2010). “The natural environment is particularly attractive, inspiring and satisfying to children because natural environment supremely meets their play needs and desires. Play is the primary mechanism through which children engage, interact and connect with the natural world” (Maudsley 2008. 12). Green spaces help children be more creative in their play and improve their health. Children with natural settings near their homes showed less psychological distress than peers who do not have nature nearby (Taylor, et al. 2006).

Outdoor education programs with hands-on nature activities, green space in neighborhoods, play settings, and schools all give children places to have experiential learning (Taylor, et al. 2006). The place- and community-based education as one experiential learning method is important to both schools and students. Place- and community-based education as “inclusion of both the human and more-than-human, something we believe is essential if educators are to help students grapple with the messy and cross-disciplinary nature of human kind’s current dilemmas” (Smith 2010, 22) bridges the gap be-

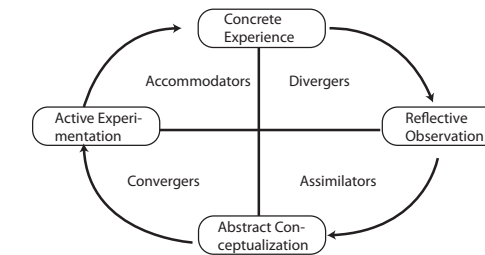


Figure 1.17 Kolb Model. Diagram by Author, 2012. Adapted from Kolb 1984.

tween schools and local environment.

What role do parks play?

Parks play a significant role in experiential learning. Parks improve both physical and mental health of children (Garvin 2011). Recreational places, exercise facilities, and playgrounds should be included in public parks to make people healthier. Parks are also good for social health: they welcome people of different classes, races, and incomes (Garvin 2011). Parks also benefit the environment by providing habitat and better air and water quality (Garvin 2011). Parks give children the opportunity to interact with nature, motivating them to discover and learn about nature. Parks give children a sense of place and give them social interaction opportunities. Parks give children informal learning opportunities through play and interaction with others (American Planning Association 2012). Their social skills will shift from individual striving to mutuality and cooperation; they will want to become stewards and preserve the community; and they develop the capacity for solving local problems (Smith 2010). Parks close the educational achievement gap in communities (American Planning Association 2012).

Through interaction with nature, children not only use their senses but also learn to describe what they sense. Hands-on experience with nature also improves science and math skills. Children learn through interacting with nature both in school and out. The skills they learn ben-

efit their whole-life learning (Moore, Wong 1997). Children should be encouraged to learn from nature, and childhood memories of interacting with nature could influence adulthood activities. Moreover, children today will be the policy makers in the future; therefore, their childhood connections will influence later decisions (Maudsley 2008).

Design for experiential learning

Experiential schoolyard

As societal expectations change, schools have changed to meet those expectations. Four periods describe the development of education (Akinsanmi, 2011):

- 1) Classical antiquity (800BC-AD600): School was not formal; parents had demands, and their social expectations influenced learning goals.
- 2) Middle Ages (500AD-1600AD): Government had more influence on school systems.
- 3) Modern Era (1600 AD-1900 AD): More private schools emerged because of societal needs and influences.
- 4) Post-Modern Era (1900-present): Schools changed their physical learning environments (building layout, facilities, teaching methods, and philosophies) to meet social expectations resulting from the industrial revolution.

Schoolyards are the primary environment for experiential learning that happens outside of classroom in schools

by providing students with green areas that serve as an opportunity to interact with nature and learn about the local environment. Place-based learning and the opportunity to see wildlife are very important in schoolyard designs (Dank 2010). To create optimal learning environments, school designers need to design with change in mind (Akinsanmi 2011). Change encourages children to assert their environmental rights; adults must help children reconnect to nature in post-industrial life. Both adults and children are involved in this reconnection (Moore,Wong 1997). Therefore, educators and school designers should collaborate to build a better learning environment. This collaboration could strongly influence the learning process because the design will focus on experiential learning (Hebert and Meek 1992). School designers, in designing the physical learning environment, should keep societal expectations and emerging learning theories in mind and consider a school's future use. Only with change in mind can designers produce a timeless design, with a context including the "community history, heritage, values, identity, physical site, locally available materials and construction techniques" (Akinsanmi 2011).

Therefore, carefully designed ecological schoolyards will allow classes to meet outside and thus enrich traditional lessons in every discipline with hands-on learning resources and living systems. Students can observe and interact with nature every day (Danks 2010). School sites can be designed as places to learn about nature

during and after school. School sites can be designed to integrate with neighborhood parks, and neighborhood parks can be designed to offer natural experience. Space can be designed to attract different age groups (Moore, Marcus 2008). "Schoolyards are conveniently located for use as outdoor classrooms and often function as public meeting places or parks after hours. These educational and social spaces provide good venues for the discussion and practice of ecological design concepts in which the wider community can observe and interact" (Danks 2010. 5).

Neighborhood parks

Neighborhood spaces include such features as streets, playgrounds, parks, churchyards, storefronts, yards, outdoor cafes, and paths (Hester 1975). Over the years, users have come to expect more of the neighborhood spaces such as social needs. Social factors are also very important in planning neighborhood space. All of these elements combine to produce a design with (Hester 1975):

- 1) The interaction processes continuum, from cooperation to completion;
- 2) The specific spatial concepts of the competition process, territoriality, and dominance;
- 3) Symbolic ownership;
- 4) Interaction variations for groups based on regional, ethnic, class, and lifecycle-stage differences;
- 5) Activity variations for groups based on regional,

ethnic, class, and life-cycles-stage differences;

5) Usable space;

6) Comfortable space.

As one important element of neighborhood space, parks are significant in people's lives. The history of American parks has four major periods since the mid-nineteenth century (Marcus, et al. 1990):

1) The pleasure ground, which focused on large trees, spacious lawns, naturalistic water features, typically outside industrialized cities where workers could relax on Sundays;

2) The reform park, which appeared around 1900 and attempted to enhance the health of children and families of workers. Therefore, playgrounds are characteristic of this period;

3) The recreation facility, which started around 1930. With automobile use and suburban development, physical exercise became the emphasis;

4) The open-space system period began in 1965, combining separate land areas like mini parks and urban plazas into a system. Today's neighborhood parks may have characteristics of all four periods.

Park design considers several design recommendations: let users have more contact with nature with natural settings using variable planting. Natural aesthetics and

the surrounding context should be considered as well. Different geographic locations have different needs in parks. Moreover, design should consider different age groups that have different needs. In addition, the social interaction that parks can influence should also be considered (Marcus, et al. 1990).

Participatory Design

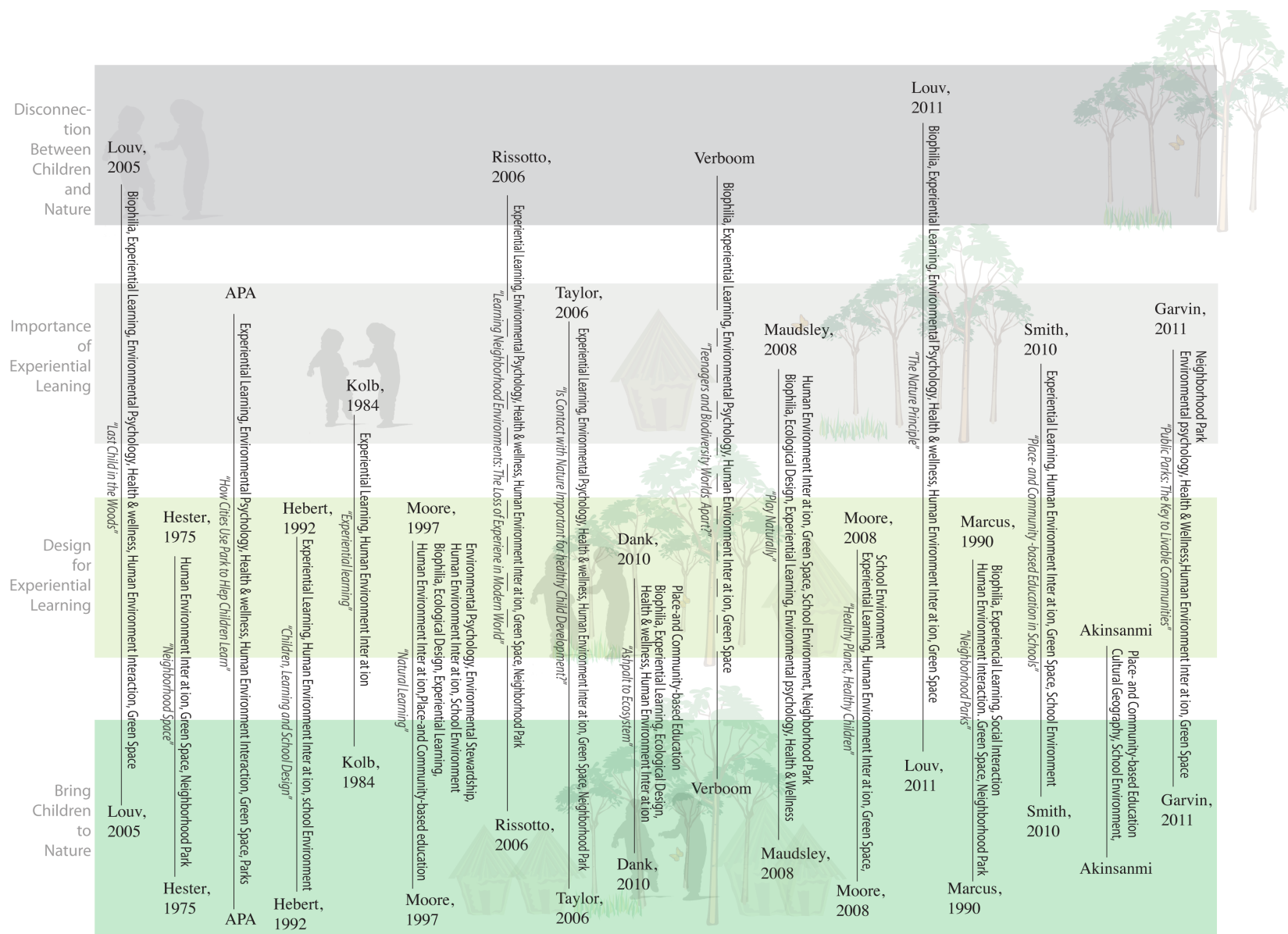
Children should participate in the planning process with landscape architects, city planners, and parents to achieve a better experiential learning design (Hebert, Meek 1992). Hands on from the beginning of the process, children can learn more about plants and wildlife and create a sense of place by themselves. Once involved, they become stewards and want to learn, recording what they see and what they do. This helps a child develop through moving and imagining, but children also learn how to work together in the process, enhancing their social abilities (Moore, Wong 1997). Designing and redesigning neighborhood parks will involve people in the neighborhood itself, and social needs will be emphasized (Marcus, et al. 1990).

Conclusion

Children are not connected to nature because of technology and because city planning often ignores children's needs. This disconnection affects children and teens in several ways: physical and mental health, social

skills, and even academic performance. Childhood development affects people throughout their lives.

Experiential learning is important in children's development. Therefore, designing an experiential learning environment should incorporate local resources to create an inviting play place for children (Maudsley 2008). Schoolyards provide children close access to nature. Neighborhood parks also provide children close connections to nature and peers. Most importantly, policy can encourage such designs, because "access to nature can be guided by design policy in childcare centers, schools, residential neighborhoods, and community facilities such as parks, museums, zoos, and botanical gardens" (Moore and Marcus. 154). Parks could be part of the framework of city development (Garvin 2011).



"Tell me and I'll forget;
 Show me and I may remember;
 Involve me and I'll understand."
 --- Chinese Proverb

Left: Figure 1.18 Literature Map (Author, 2012).

PROCESS

This report began with personal observations about a neighborhood without nearby parks. Children did not have easy access to nature. A literature review and precedent studies were then done to help define the dilemma and thesis.

The research also helped define this project's design concept: play and learn. Children and teens need experiential learning opportunities through play in nature. Site conditions were then analyzed to reinforce the design concept. Combined with site analysis and concept considerations, potential programs were proposed.

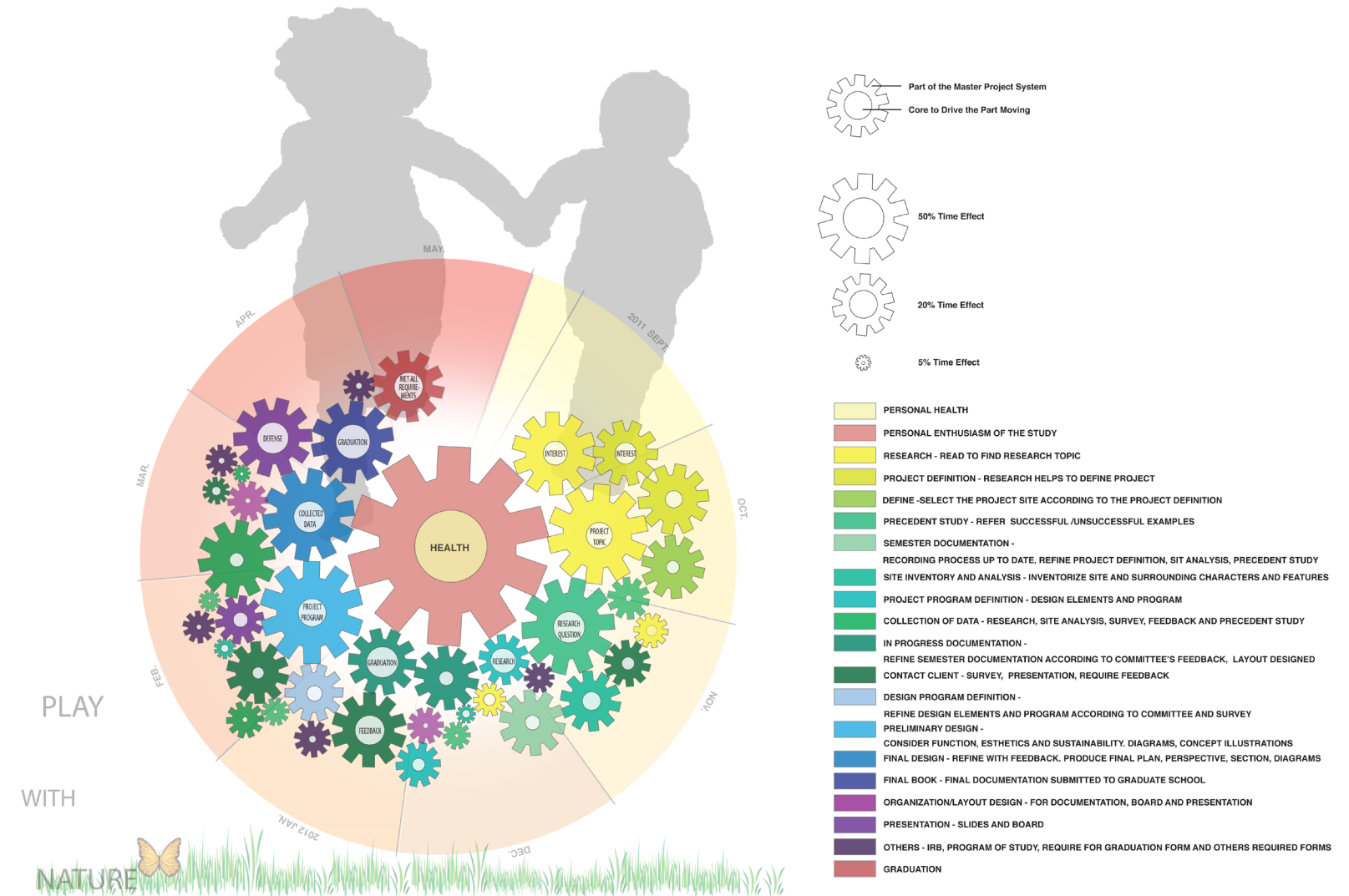
The project involved students, teachers, and neighborhood children in the design process. Surveys collected information about potential users' needs and requirements and reshaped the design programs. One survey was done with students, and another one was done for neighborhood children. Their feedback reinforced this project's design programs.

Conceptual design was proposed with due consideration for design objectives, user feedback, and site conditions. Illustrations and concepts were presented to professors, students, and neighborhood children. Feedback from professionals and potential users helped in creating the final design.

To better illustrate the design concept and potential changes to the school site, several design illustrations are included in this report. Design suggestions are also included in this report. These suggestions came from other cities where successful designs had been implemented. How to change the school site is also discussed.

Because this is an academic report, several deadlines had to be met. Future research recommendations are listed at the end of this report. The final report with designs and suggestions was presented to the public.

Figure 1.18 shows the diagram of the process.



Right: Figure 1.19 Process Diagram (Author, 2012).



*Existing Site Condition
(Author, 2012).*



SITE INTRODUCTION

SITE BOUNDARY, HISTORY AND CONTEXT

This project will focus on the Susan B. Anthony Middle School site and a public vacant lot adjacent to it.

The school site is at 2501 Browning Avenue, Manhattan, Kansas. Single-family residential housing lies to the north, west, and south of the design site. East of the school are some apartment buildings, Via Christi Village, and Stonevalley Elder Community. Northeast of the school is Kansas State Agronomy Farm, which is not in the city limits of Manhattan. Single Family Residential housings are located on southeast of the site.

The school site was part of Kansas Statue University's turkey farm before USD 383 bought the land. The general contractor, McPherson Construction, with architects Hollis & Miller, suggested the local school district buy the approximate 40 acres of land for Susan Anthony Middle School (Personal communication, Dr. Robert Seymour, associate superintendent USD 383).

The school opened during August 1996 on 39.1 acres. It houses 7th and 8th grades.

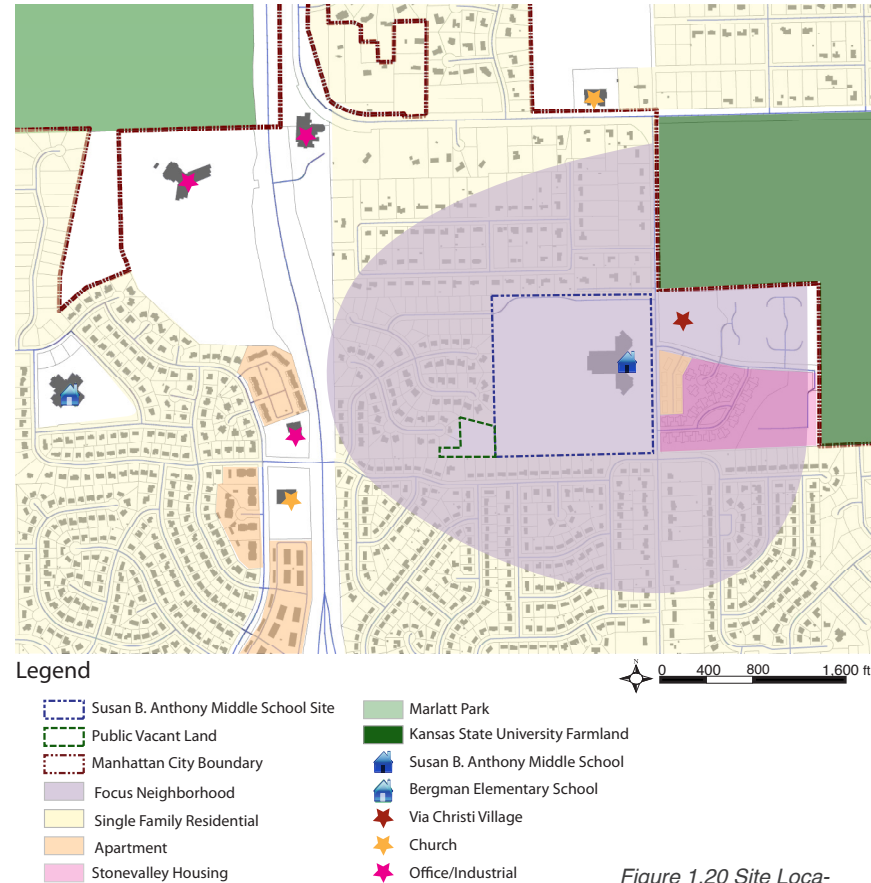


Figure 1.20 Site Location and Context (Author, 2012).

CIRCULATION AROUND THE SITE

The roads approaching the site have sidewalks. A part of the city's linear park goes through the site. Some roads in this focus neighborhood do not have sidewalks. However, all roads approaching to the school have sidewalks or connect to the linear trail. This provides more convenience and safer circulation to the site for local residents, especially children.



Figure 1.21 Circulation Map (Author, 2012).

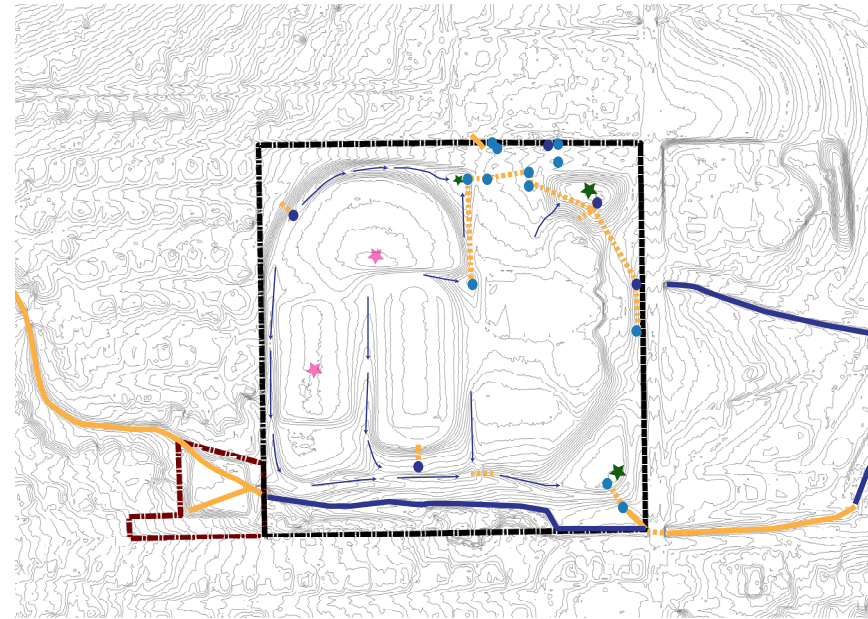
DRAINAGE MAP

A long, open concrete channel transfers stormwater and neighborhood irrigation water through the public vacant lot into the creek, which runs along the south edge of the school site. There is another concrete channel that connects an underground pipe from the southwest neighborhood (Figure 1.23 -1.27).

A drainage inlet collects water and transfers it into the creek through a concrete channel at the southeast corner of the school site.

Three drainage outlets open at the low elevations on the school site, and cause standing water/wet spots (Figure 1.28 - 1.30).

With 10-year rainfall intensity (2.25 inches/hour), the school site and vacant lot will have approximate 36 cubic feet/second storm water runoff.



Legend

- | | |
|------------------------------------|-------------------|
| --- Susan B. Anthony Middle School | ★ High Point |
| - - - Public Vacant Lot | ★ Low Point |
| — Concrete Drainage Channel | ● Drainage Inlet |
| ⋯ Underground Pipe | ● Drainage Outlet |
| — Seasonal Creek | |
| → Drainage Direction | |

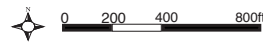


Figure 1.22 Drainage Map (Author, 2012).



From Top Left to Bottom Right:

Figure 1.23 Concrete Drainage Channel (Author, 2012).



Figure 1.24 Public Vacant Lot (Author, 2012).

Figure 1.25 Public Vacant Lot (Author, 2012).

Figure 1.26 Concrete Drainage Channels on Public Vacant Lot (Author, 2012).



Figure 1.27 Ephemeral Creek (Author, 2012).

Figure 1.28 Drainage Outlet on School Site (Author, 2012).

Figure 1.29 Drainage Outlet on School Site (Author, 2012).

Figure 1.30 Drainage Problem on School Site (Author, 2012).



1995 PROPOSED USAGE OF THE SCHOOL SITE

Sports offered:

- Football: 8th grade
- Volleyball: 7th & 8th grade
- Wrestling: 7th & 8th grade
- Basketball: 8th grade
- Track: 7th and 8th grade

Shafer, Kline, & Warren, P.A. created the initial design in 1995. Two baseball fields were proposed for the northwest part of the site. One full soccer field was proposed for the west side and a football field for the center of the site. A telescope area was designed for the southwest corner. The site grading therefore reflected these initial proposed uses.

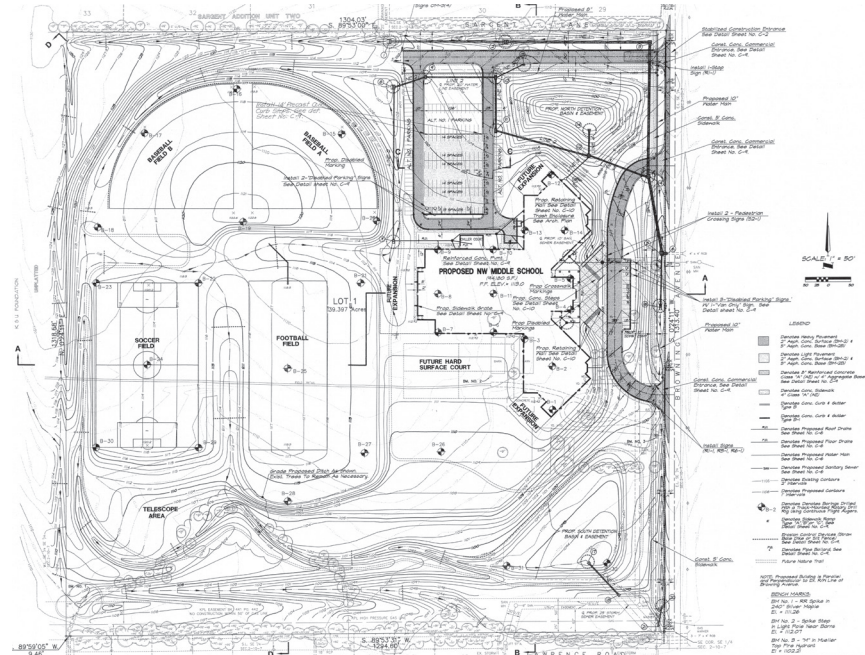


Figure 1.31 1995 Proposed Usage of School Site (Shafer, Kline & Warren, P.A. 1995).

ACTUAL SCHOOL SITE USAGE

The greenhouses have two rooms with a daylight roof and are used for some classes as well as storage rooms as shown in Figure 1.33.

Students and neighborhood residents use the exercise equipment installed by Mercy Regional Hospital; however, the equipment requires some maintenance. Figure 1.34 shows the existing conditions.

Special-need students take care of the small garden from spring to fall. The garden not only gives them an activity but also allows them to interact with other students (Figure 1.35).

The fields along the west boundary are rented out to the community as soccer fields. They are used most often during summer evenings (Figure 1.36).

Physical education classes use the track, basketball and tennis courts, and football field every day (Figure 1.37 -1.38).

No softball fields have been developed due to no need by the school.



Figure 1.32 Actual Site Usage (Author, 2012).



From Top Left to Bottom Right:

Figure 1.33 Green House (Author, 2012).

Figure 1.34 Exercise Equipment (Author, 2012).

Figure 1.35 Small Garden (Author, 2012).

Figure 1.36 Soccer Field (Author, 2012).

Figure 1.37 Running Track (Author, 2012).

Figure 1.38 Tennis and Basketball Court (Author, 2012).



Legend
 - - - Susan B. Anthony Middle School Site
 - - - Public Vacant Lot

Figure 1.39 Site Elevation (Author, 2012).

ELEVATION

The site has unique geographic characteristics. The topography results from the 1995 site design. The elevation changes dramatically in some locations, with steep slopes. Some low-elevation areas collect storm-water runoff.

SLOPE ANALYSIS

This diagram shows the slope analysis and reveals barriers to universal access even with a ramp condition because some places' slopes are more than 8.3%. The dark green is within a 5% slope, which is universally accessible. However, some very steep slopes (> 25%), mainly around the boundaries on both the school site and the public vacant lot, are less accessible.

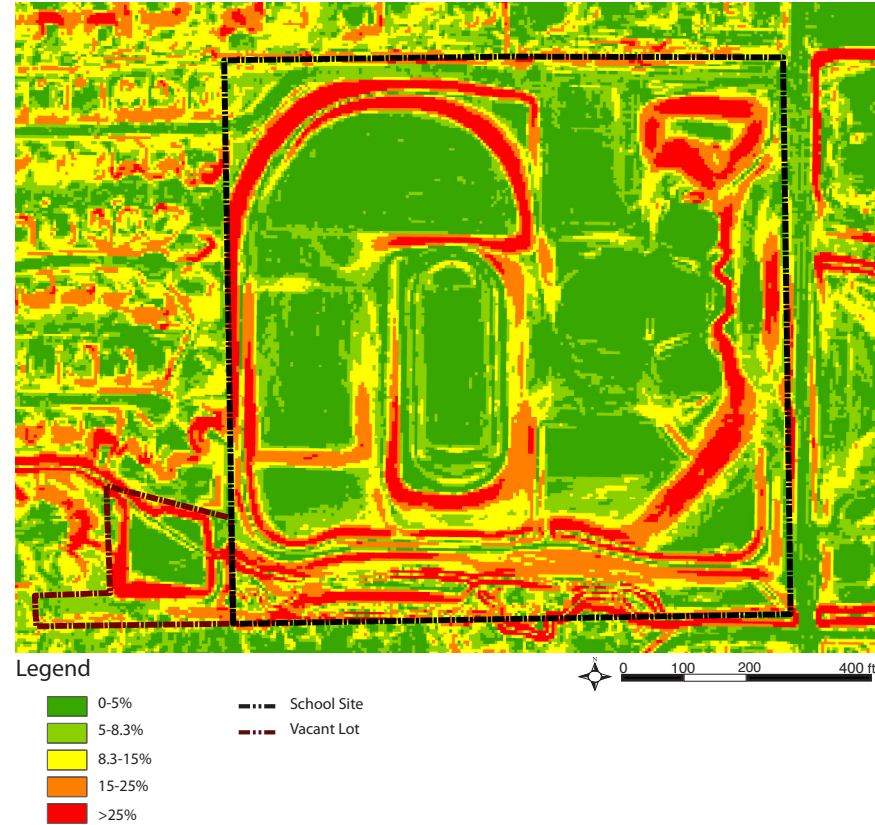


Figure 1.40 Site Slope
(Author, 2012).

ASPECT ANALYSIS

Because of the varied topography, several slope aspects exist on site. These aspects affect plant growth, and therefore, the design should use elevation, slope and aspect as they affect program elements and locations.

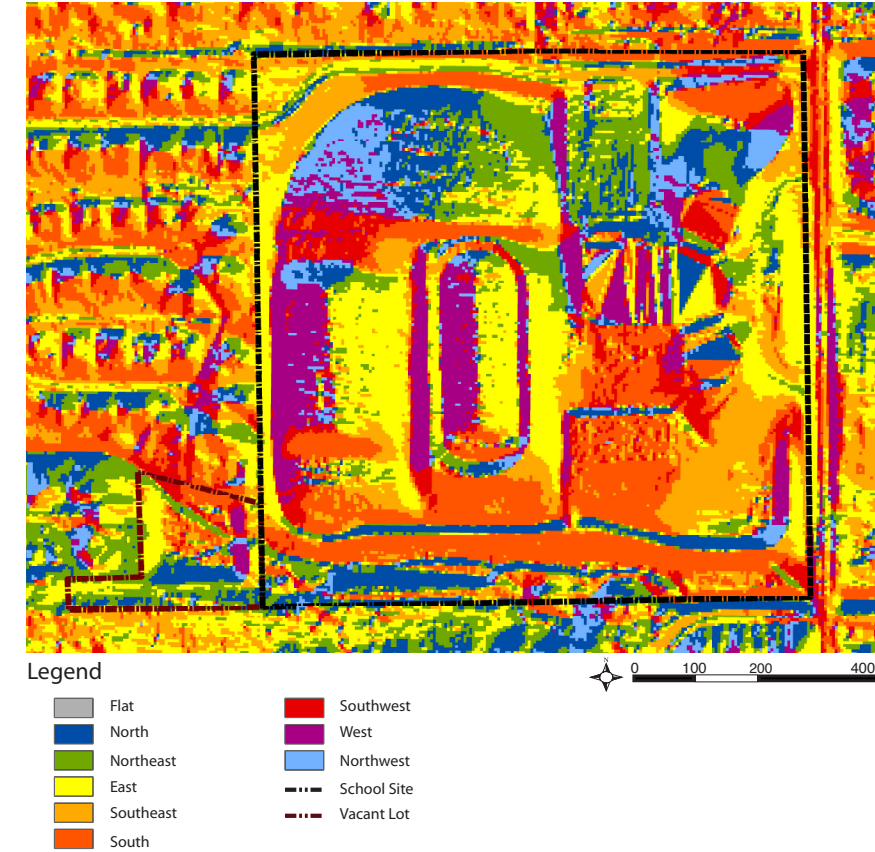


Figure 1.41 Site Aspect
(Author, 2012).

SURFACE MATERIAL

- Grass/weeds coverage is 68.09%.
- Impervious surface coverage is 25.28%.
- Tree and shrub coverage is 6.63%.

Most of the site is an open field. In both the school and public vacant lot, weeds cover most of the site. Turf is rare.

On site impervious surfaces include the school building itself, roads, sidewalk, a trail, tennis/basketball courts, and concrete channels.

Trees and shrubs cover the smallest area on site. On the south side along the ephemeral creek, some tree canopies are present. Other trees and shrubs lie close to the school building itself.

The special-need students' garden has few plants and is under-utilized.

Mowing the site in the spring and summer is the primary maintenance. Mowing is done about once a week. Each mowing takes about 20 hours for one maintenance crew member with a rider mower (Personal communication with Hung Wguyen, the superintendent of the school).

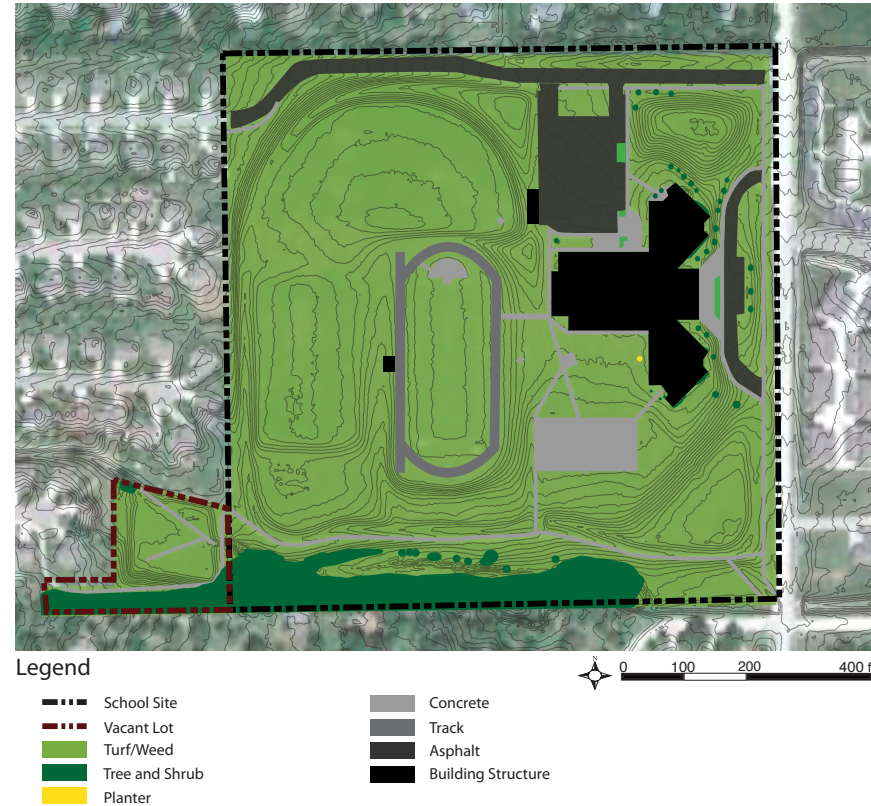


Figure 1.42 Surface Material Analysis (Author, 2012).

ON-SITE CIRCULATION

Vehicular

The school site has a one-way vehicular circulation on the east side, in front of the school building. Vehicles from Browning Avenue enter at the north entry and exit at the south. This vehicular circulation is mainly for drop-off, school buses, and visitor parking. The circulation at the parking lot at the north side is two-way, and service vehicles use this parking lot.

Pedestrian

Primary pedestrian circulation includes the sidewalk along the Pecanwood Drive to the north of the site, and Browning Avenue along the east edge. Another pedestrian path is a trail along the south edge of the school site. All three give pedestrians a safe environment to walk to the school site from the surrounding neighborhood. The primary pedestrian paths into the school building are sidewalks from the trail at the south edge and a sidewalk branching out from the parking lot. Sidewalks around the building are functional and provide links to the track, tennis court, and other entries to the school building (Figure 1.44 -1.46). However, there is no sidewalk leading to the west side of the school site where the field lies.



Figure 1.43 Site Circulation (Author, 2012).

ON-SITE CIRCULATION (CONTINUED)

Secondary pedestrian circulation is mainly for safety. The secondary sidewalk provides circulation from the emergency exits.

Informal Pedestrian

A sidewalk leads from the west neighborhood and ends at the edge of the school site. Students living to the west of the school use it for informal pedestrian circulation. However, if the sidewalk was laid with no design considerations, the slope is more than 25% at the entry to the school site. Therefore, students have to climb up from the school site to the sidewalk in the neighborhood. Erosion has begun to be a problem at this informal entry/exit to the school site as shown in Figure 1.47-1.48. No formal path exists on the school site from this point to the school building.



From Top Left to Bottom Right:
Figure 1.44 Linear Trail through the Site (Author, 2012).

Figure 1.45 Walks around the School Building (Author, 2012).

Figure 1.46 Path Leading to the School Building from the Parking Lot (Author, 2012).

Figure 1.47 Sidewalk from the West Neighborhood Ends at the School Boundary (Author, 2012).

Figure 1.48 Steep Slope of the School Site at the End of the Sidewalk from the Neighborhood at West (Author, 2012).



PRECEDENT STUDIES

RATIONALE FOR SELECTION

Research determined in selecting precedent studies. Several questions were considered when selecting precedent studies:

1) Is this school's landscape a learning environment?

- If so, what makes it a learning environment? That is, does it possess natural environment that fosters experiential learning?
- Who is the audience?
- What features work as educational tools and what do they teach?
- How does the audience respond? (Responses were identified from user publications or posts.)

2) Is this school used as a neighborhood park as well?

- If so, how is it used as a neighborhood park?
- What features are offered to the public?
- What do the users think about using the park?
- Do they use the park or not? (Again, answers came from user publications, posts, and personal interviews.)

Finally, the precedent study and this project's site were compared. Comparisons included school type, school population, school location, and school physical size.

After answering each question, each precedent study was identified as either a landscape of learning environment or a neighborhood park, if not both. Working features of each precedent study were examined and categorized based on social, learning, or play, as well as their use by students at school or by the public. Materials for each feature were also identified as either natural or man-made.

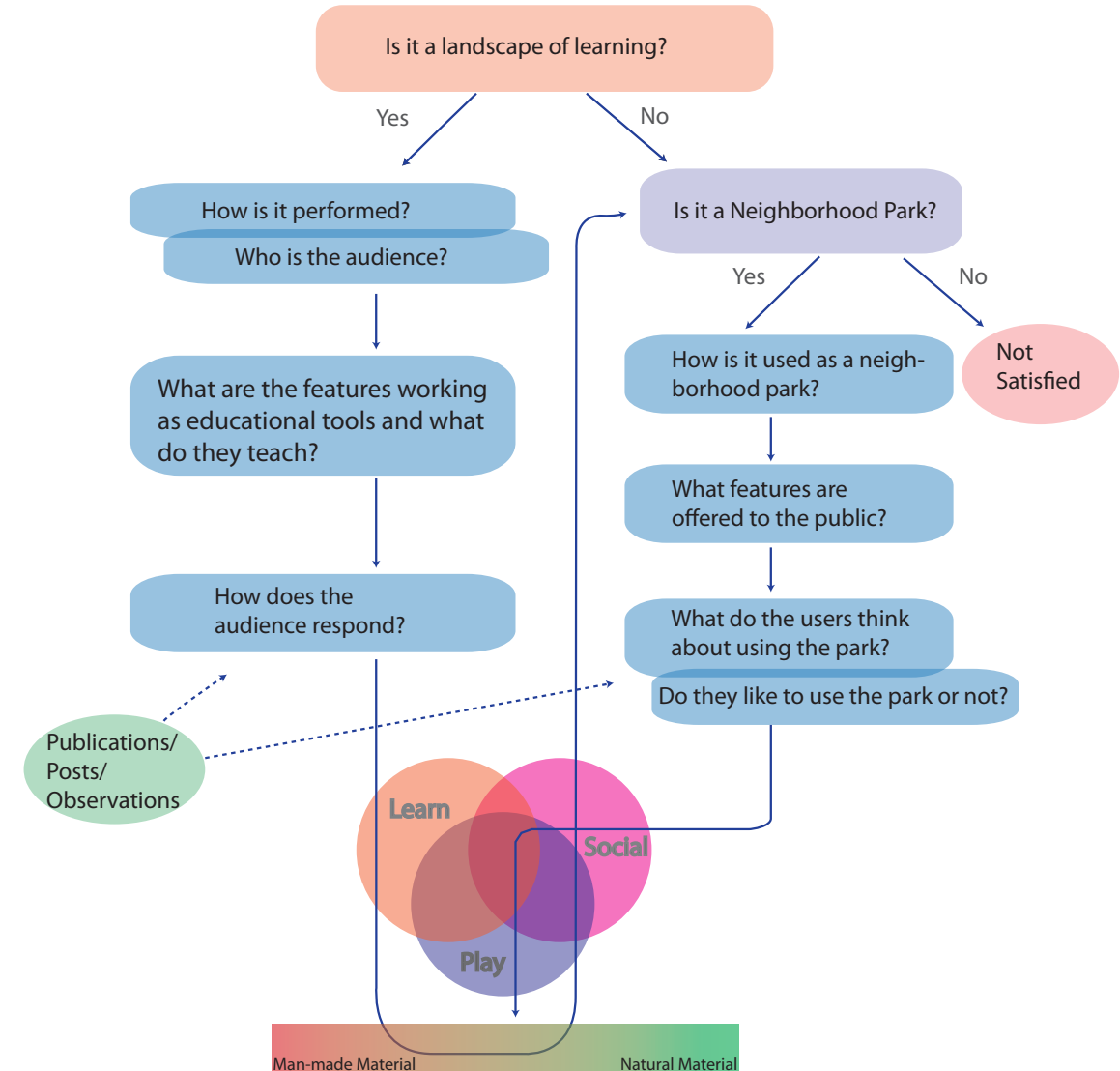


Figure 2.01 Precedent Study Selection and Analysis Process Diagram (Author, 2012).

BLUEMONT ELEMENTARY SCHOOL

Location: Manhattan, Kansas

Grades: K -6

Even though it is not officially labeled as such, Bluemont Elementary School is a neighborhood park in Manhattan, Kansas. The whole school site is about 3.5 acres. Because it is surrounded by streets, the site is fenced for safety. The playground has three pieces of updated play equipment and two swing sets. An asphalt field serves as a basketball court. A big open field lies along the south side of the site. During school hours, children and their teachers use the site mainly at recess. After school hours, children of various ages from the neighborhood come to play in the schoolyard.

The school site is maintained by USD 383 District.

Category

- Neighborhood Park

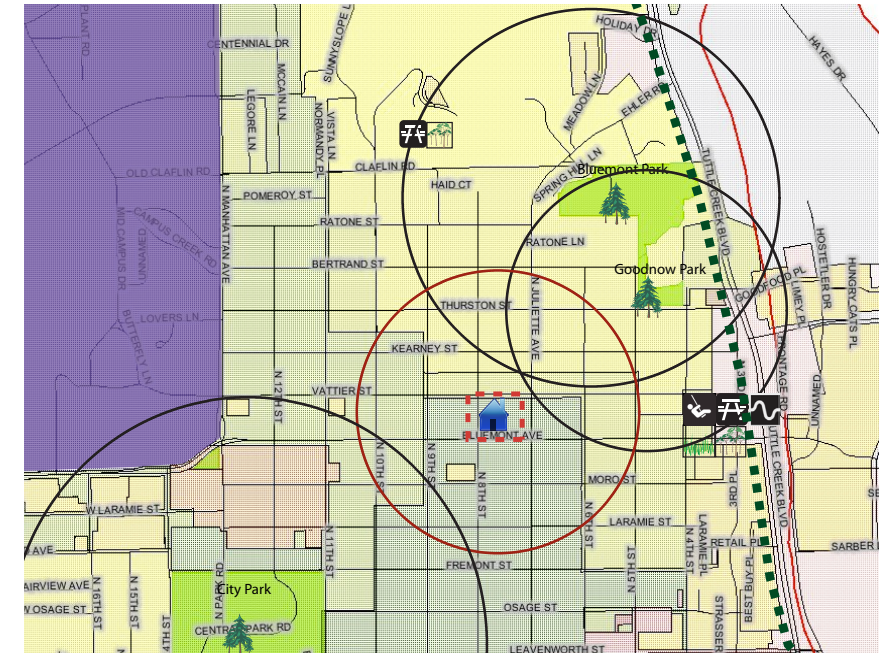


Legend

1. Playground
2. Basketball Court
3. Field

Not to Scale

Figure 2.02 Bluemont Elementary School Plan (Google Earth Map, 2012).



Legend

- | | | |
|------------------------------|----------------------|-------------------------|
| Bluemont Elementary School | Playground | Commercial |
| 0.25 Mile Radius to the Edge | Swimming Pool | Residential |
| Softball Court | Trail | Industrial |
| Baseball Court | Picnic Table | Park |
| Tennis Court | Natural Area | Kansas State University |
| Basketball Court | Open Space | Manhattan City Boundary |
| Soccer Field | School Site Boundary | Primary Road |

Location Analysis

The school is bounded by Bluemont Ave, 8th Street, Vattier Street, and Juliette Ave, approximately 0.5 mile east of the Kansas State University campus. The school is in a residential neighborhood.

The community has three parks; however, there are still some neighborhoods lie between the parks, which are beyond a 0.25-mile walking radius. The school is located in such neighborhoods, Used as a neighborhood park, it can serve the children in neighborhoods that are not within walking distance of the other parks.

Figure 2.03 Bluemont Elementary School Location Analysis. Adapted from City of Manhattan (Author, 2012).

Features

Playground

The playground is attractive to children of various ages. Swing and slides are the most often used and can increase children's social ability while they play through interaction with other children from the neighborhood.

Open Gate

With the open access gate, people can access the playground easily.

Signage

Signage indicates the schoolyard serves as a public park.



From Top Left to Bottom Right:

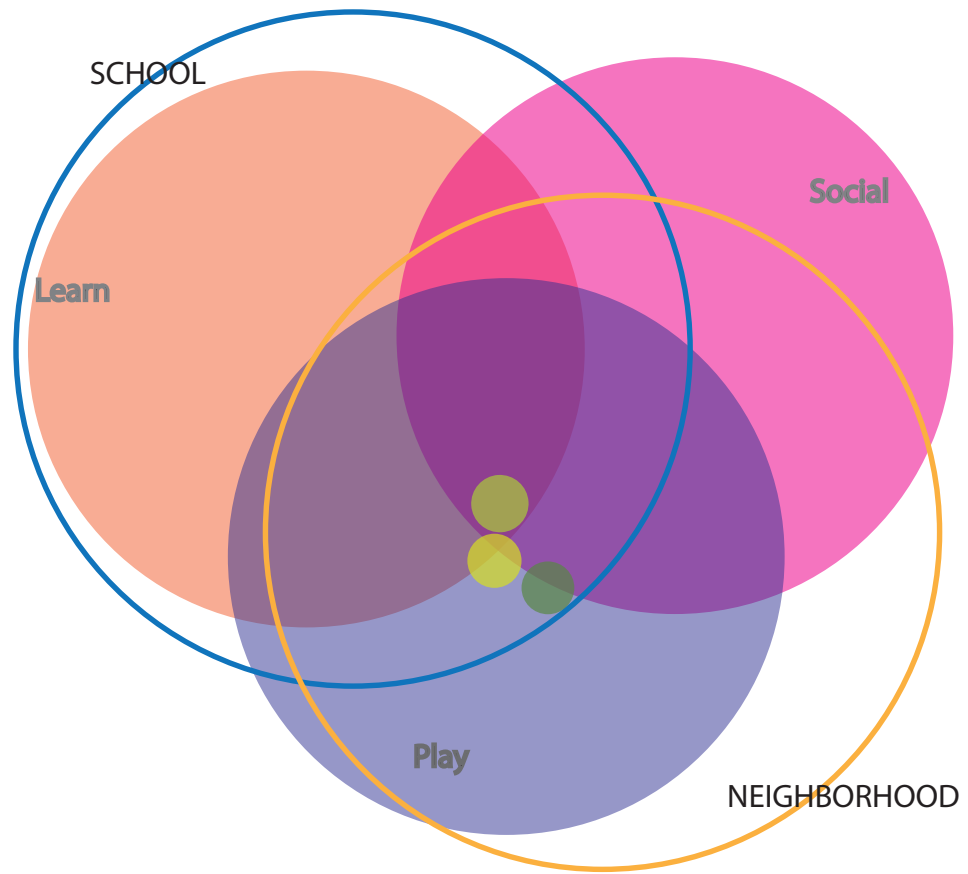
Figure 2.04 Signage (Author, 2012).

Figure 2.05 Gate (Author, 2012).

Figure 2.06 Play Equipment (Author, 2012).

Figure 2.07 Swing Set (Author, 2012).

Figure 2.08 Play Equipment (Author, 2012).



- Legend
- Play Equipment
 - Basketball Court
 - Field



Man-made Material

Natural Material

Figure 2.09 Site Element and Their Usages, Material Analysis (Author, 2012).

Concept Analysis

How is it a neighborhood park?

The school's site is open to the public. With the playground and basketball court in the yard, people from the neighborhood use the site after school hours while students use them during school time. Even though play equipment is limited, the site is recognized as a neighborhood park by both neighborhood people and city officials.

Who is the user?

Students in the Bluemont Elementary School use the site as well as people of various ages from the neighborhood.

Comparison to Susan B. Anthony Middle School Site

	This Site	Project Site
Elementary School		Middle School
267 Students		464 Students
About 3.5 Acre		39.1 Acre

WILLIAM B. TRAVIS ELEMENTARY SCHOOL

Location: Houston, Texas

Grades: PreK -5

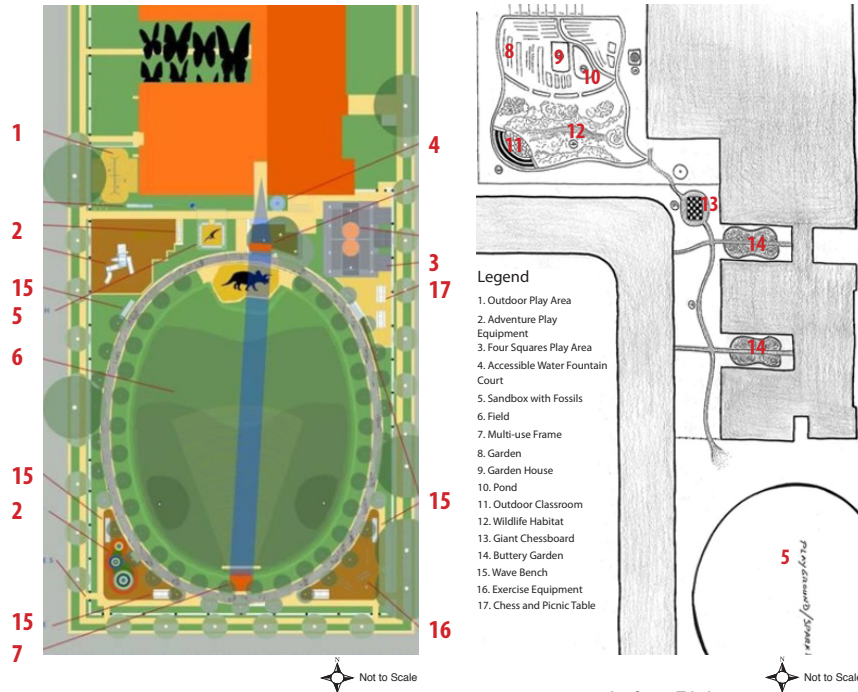
William B. Travis Elementary School is managed and maintained by Houston Independent School District (HISD).

The school focuses on the Whole Child approach – child-centered learning to educate and engage children in an outdoor environment. The school believes that learning and playing outside is essential to support this approach. The school provides a creative environment for children with opportunities to explore, outdoor education programs at recess, and on-site gardening to teach children about healthy lifestyles.

The school includes the Margaret Blackstone Garden, which is the oldest public school garden in Texas, and nationally recognized Spark Park, which is used as a public park.

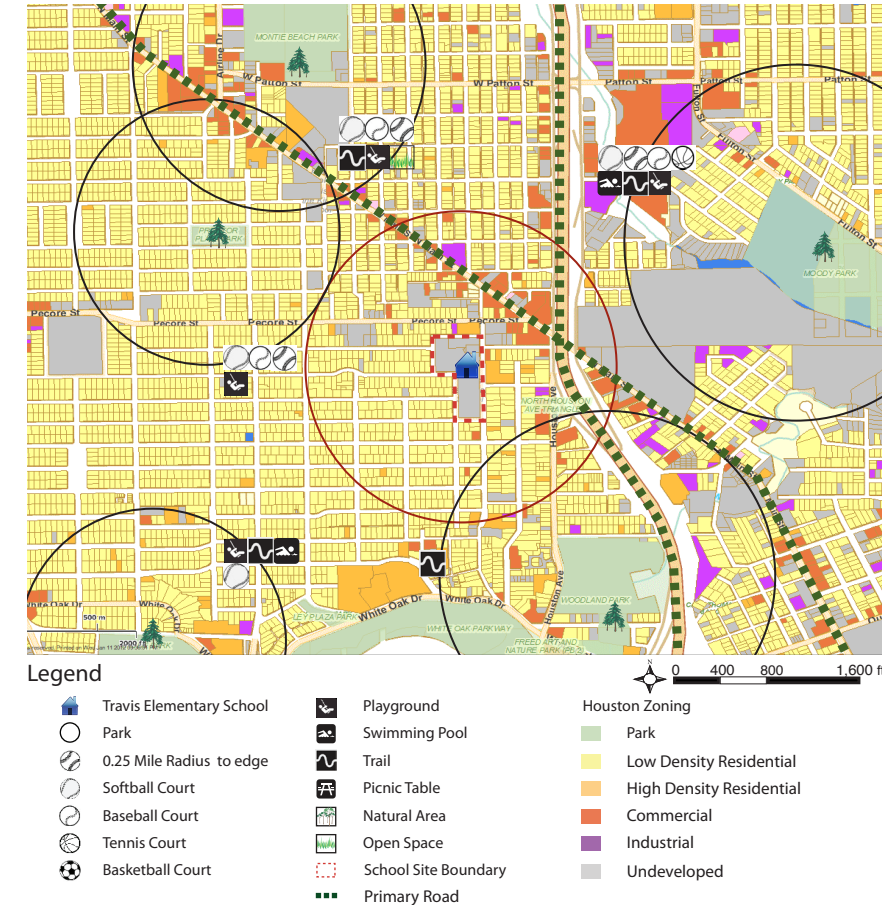
Category

- Landscape of Learning
- Neighborhood Park



Left to Right:
Figure 2.10 Travis Elementary School Plan (<https://traviselementary.ejoinme.org>, 2012).

Figure 2.11 Enlarged Detail Plan (http://outdoors.traviselementary.org/?page_id=52, 2012).



Location Analysis

The school is bounded by Quinn Street, Beauchamp Street, Highland Street, and Redan Street. It is in a mainly residential neighborhood.

This community has several parks, but the residents around the school are beyond a 0.25 mile walking radius to any of these parks. In addition, a highway and a busy street limit pedestrian access to the parks.

The school can be found in the middle with parks too far away to serve as neighborhood parks. As a neighborhood park, it serves the children in the neighborhood.

Figure 2.12 Travis Elementary School Location Analysis. Adapted Map from City of Houston (Author, 2012).

Features

Gardening

The garden provides valuable hands-on learning in science year round. This hands-on experience fosters students' interest in science and nature.

The Travis Analemmatic Sundial

As in the Rosa Park area, children use their own shadows to measure time. This offers a fun way for students to understand time and season changes.

Giant Chessboard

Chess can be used to teach about quadrants, coordinates, lines, and angles; it encourages thinking strategically, weighing options, and foreseeing consequences—all through play.

Kindergarten Outdoor Learning Centers

The amphitheater gives a place to promote intellectual connections and social interaction.

Travis Pond

With underwater video cameras, a pond ecosystem shows the audience real time pictures for education purposes.

Bird Sanctuary

An attractive place for students, here, they learn birds' names and types through live observation.

Butterfly Gardens

The butterfly garden enhances math and science learning. Students use this garden to study butterfly biology, plant biology, and ecosystems.

The Travis Garden House

Made of repurposed materials, this houses a weather station, ozone monitor, and other teaching equipment. Live data can be used in the classroom for science education particularly.

Spark Park(The Dinosaur Park)

With a unique dinosaur bone sculpture, the school park is also a city park. When school is not in session, the park provides both residential recreation and a place for civic events. Civic activities include Fall Carnival, Lights in the Heights Christmas Nighttime Festival, and the Woodland Heights Association Spring Home Tour.



From Top Left to Bottom Right:

Figure 2.13 Gardening (<http://outdoors.traviselementary.org/>, 2012).

Figure 2.14 Sundial (<http://outdoors.traviselementary.org/>, 2012).

Figure 2.15 Chessboard (<http://outdoors.traviselementary.org/>, 2012).

Figure 2.16 Outdoor Classroom (<http://outdoors.traviselementary.org/>, 2012).

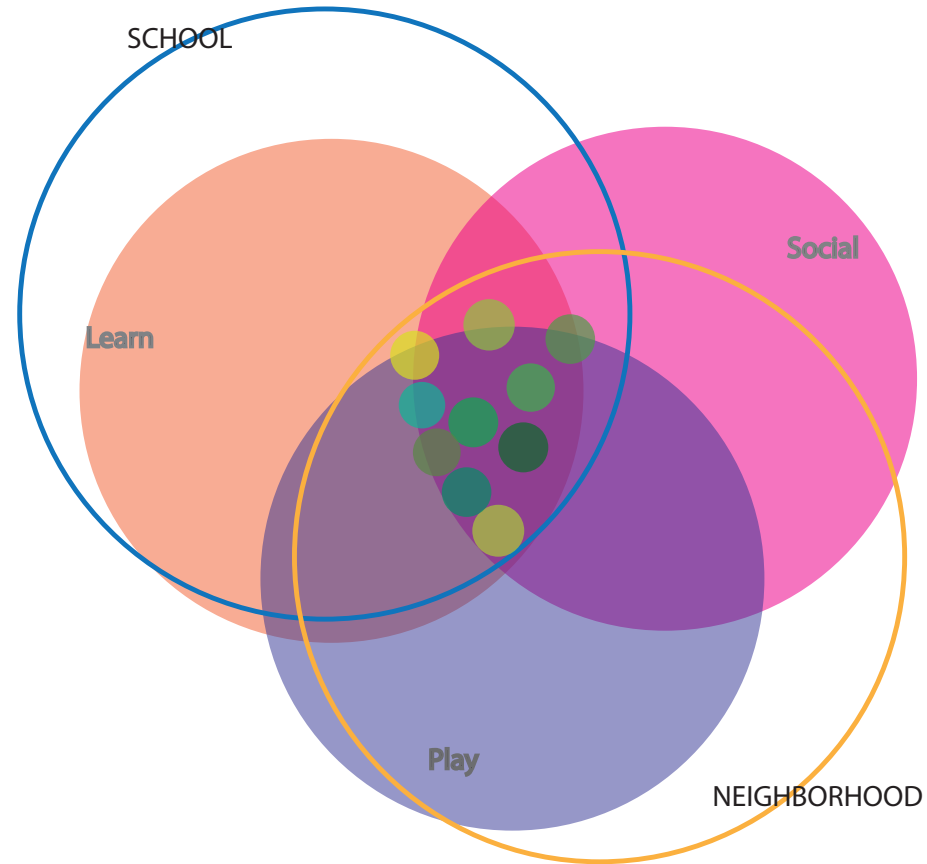
Figure 2.17 Bird Sanctuary (<http://outdoors.traviselementary.org/>, 2012).

Figure 2.18 Butterfly Garden (<http://outdoors.traviselementary.org/>, 2012).

Figure 2.19 Garden House (<http://outdoors.traviselementary.org/>, 2012).

Figure 2.20 Spark Park (<http://outdoors.traviselementary.org/>, 2012).





Legend

- M. Blackstone Gardens
- Urban Wildlife Habitat
- Kolsterman Outdoor Classroom
- Garden House
- Bird Sanctuary
- Travis Pond
- Butterfly Gardens
- Travis Analematic Sundial
- Travis Outdoor Chess
- Travis Spark Park



Man-made Material

Natural Material

Figure 2.21 Site Element and Their Usages, Material Analysis (Author, 2012).

Concept Analysis

How is it a learning landscape/environment? Does the concept effectively support learning?

Various components, like gardens, wildlife habitat, analemmatic sundial, outdoor chess, and a playground with fossils, provide a perfect environment for hands-on educational experiences. Such an environment also provides the opportunity for direct teaching and learning.

With the data collected and recorded, the school landscape not only provides an outdoor learning experience, but also provides a chance to use outdoor data inside the classroom.

Who is the audience?

Students (PreK-5 Grade) in the school benefit from the school park, as do people of various ages in the neighborhood.

How is it a neighborhood park?

The learning environment and the uniquely characterized playground are perfect for neighbors, especially young children. The outdoor amphitheater provides a

place for socializing and a gathering place for any activities within the neighborhood.

Who is the user?

Students in the Travis Elementary School use the park for education and play, but people of various ages from the neighborhood also benefit.

Comparison to Susan B. Anthony Middle School Site

This Site	Project Site
Elementary School	Middle School
722 Students	464 Students

MARTIN LUTHER KING MIDDLE SCHOOL

Location: Berkeley, California

Grades: 6-8

King School Park was built with Measure Y funds after voters passed a bond measure in 1974 to fund additional park development to meet the recreational needs of Berkeley's citizens. The park opened to the public in 1979. The school is managed and maintained by the Berkeley Unified School District (BUSD). A joint-use agreement between the City of Berkeley and the BUSD means the school offers public access to its play areas, tennis courts, running track, gym, and basketball courts when school is not in session; for the tot play area, the park offers daytime access as well.

The school emphasizes its Edible Schoolyard program (ESY), which turned a disused parking lot into a vegetable garden. This program teaches students about nutrition, community, and stewardship.

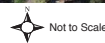
Category

- Schoolyard
- Landscape of Learning
- Neighborhood Park



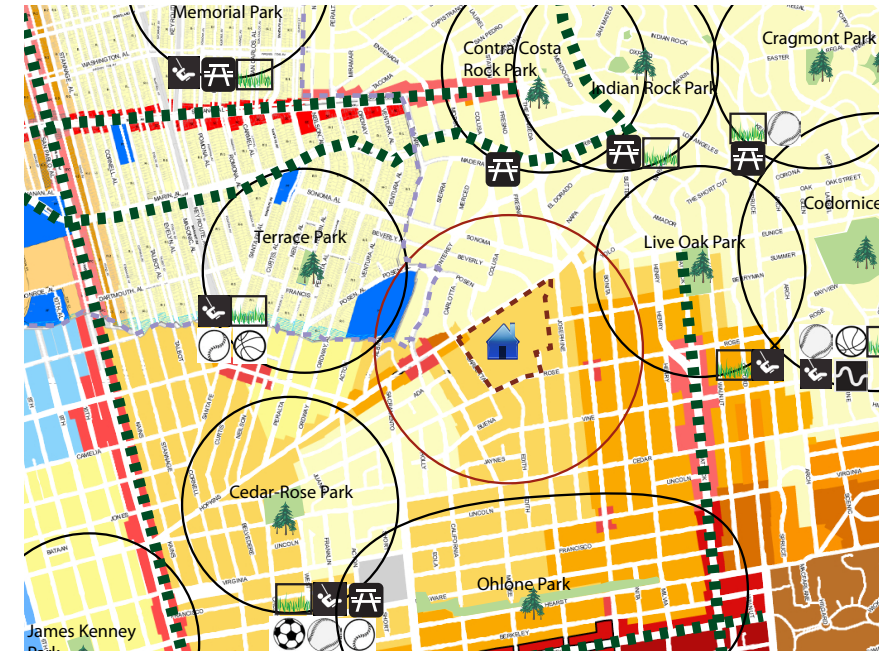
Legend

1. Edible Garden
2. Gazebo
3. Amphitheater
4. Ball Play Court
5. Field
6. Track
7. Tennis Court



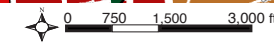
Left to Right:
Figure 2.22 Martin Luther King Middle School Site Plan (Google Earth Map, 2012).

Figure 2.23 Vegetable Garden (Google Earth Map, 2012).



Legend

- | | | | | |
|----------------------------------|--------------------------|--------------|------------------|-----------------------|
| Martin Luther King Middle School | 0.25 Mile Radius to Edge | Playground | Swimming Pool | Residential |
| Softball Court | Baseball Court | Tennis Court | Basketball Court | Commercial |
| Soccer Field | Primary Road | Trail | Picnic Table | Manufacturing |
| School Site Boundary | City Boundary | Natural Area | Open Space | Mixed Use-Residential |
| | | Park | Unclassified | Public Facility |



Location Analysis

The school site is bounded by Hopkins Street, Grant Street, Rose Street, and Gariotta Avenue. It lies on the border of the cities of Berkeley and Albany, California. The school is surrounded by residential housing. The community has several parks, but some of the area lies outside a 0.25-mile walking radius to any of these parks. The school as a park can serve these residents' needs.

Figure 2.24 Martin Luther King Middle School Location Analysis. Adapted from City of Berkeley and Albany, Ca (Author, 2012).

Features

Edible Garden

The edible garden gives students opportunities to plant, maintain, and harvest what they want. This experiential education enriched the school's curriculum, helping teach children about science, art, and sustainable farming. Children learn by doing remains one of the principles of the edible garden.

Art

School art need not be fixed or expensive; it can be ephemeral. Fences made of bamboo and thin, flexible branches tied with twine define the edge of the garden for a few seasons before starting to decompose.

Signage

Signage is a direct and easy method to teach students plant names and their applications. Students can use all senses to learn about the plants by following the reminder on the signage. Questions on the signage also pique students' curiosity.

Fruit Tree

Fruit trees produce delicious fruit and also can be used as teaching materials on seasonal changes and fruit production. The fruits can also be used in cooking classes.

Students see a variety of fruiting trees: citrus, fig, hazelnut, loquat, mulberry, olive, pear, persimmon, plum, and quince. Fruiting vines and brambles include blackberries, cape gooseberries, chayote, currants, grapes, kiwis, and raspberries.

"Ramada" (Gazebo)

This gazebo has an open ceiling and open walls. However, it is covered with vine crops, including kiwis and squash. They not only provide a comfortable sense of enclosure and dappled light, but also function as educational materials.

Amphitheater

An amphitheater provides an outdoor classroom as well as a place for social interaction. Outdoor seating invites outdoor learning and performances.



From Top Left to Bottom Right:

Figure 2.25 Edible Garden (Danks 2010, 84).

Figure 2.26 Vine Fence Art (Danks 2010, 230).

Figure 2.27 Signage (<http://www.edibleschoolyard.org/Berkeley/uploads/cardhike38.jpg>, 2012).

Figure 2.28 Fruit Tree (Danks 2010, 84).

Figure 2.29 Gazebo (Danks 2010, 210).

Figure 2.30 Amphitheater (Danks 2010, 198).

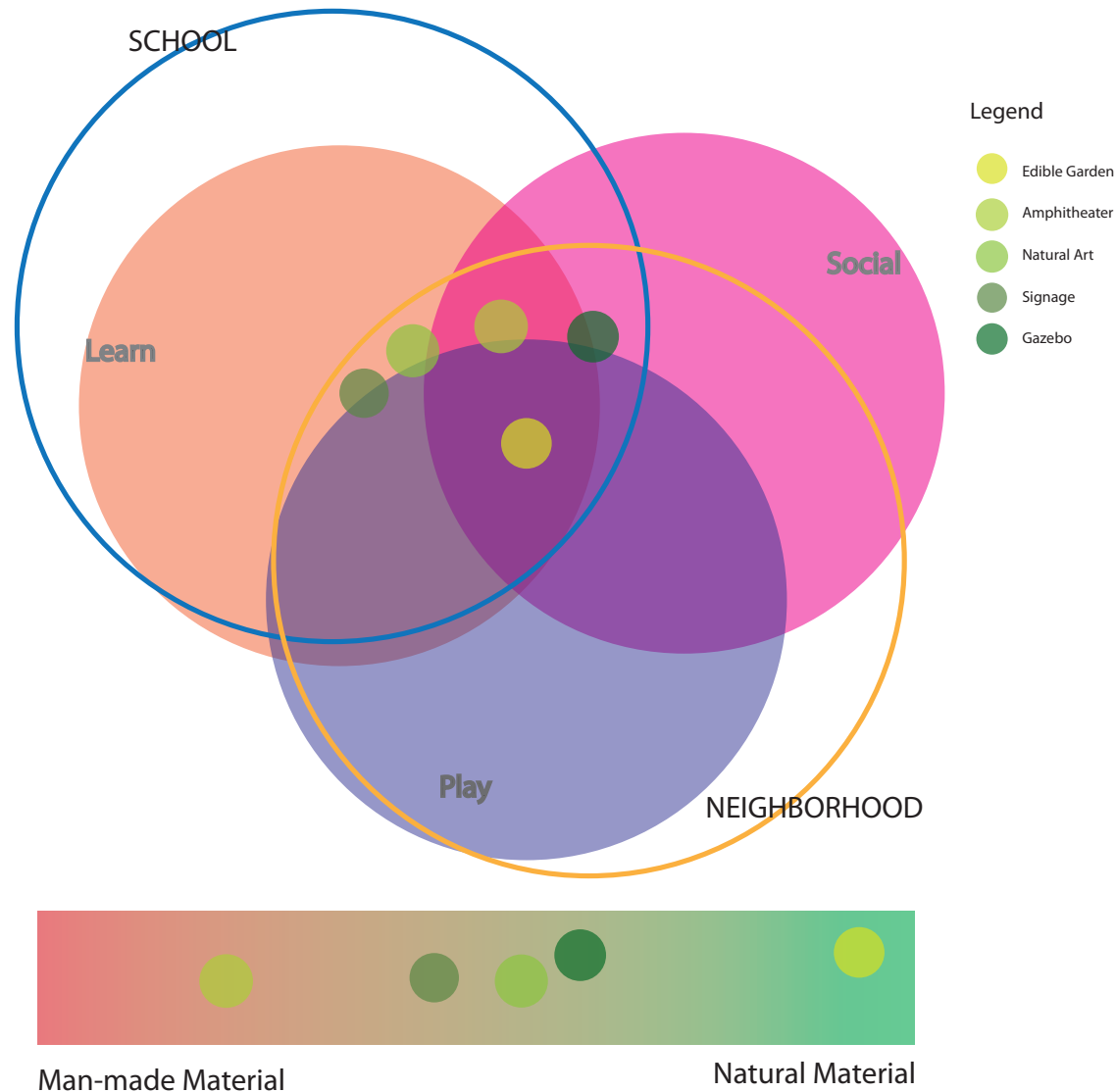


Figure 2.31 Site Element and Their Usages, Material Analysis (Author, 2012).

Concept Analysis

How is it a learning landscape/environment? Does the concept effectively support learning?

The school uses the edible garden for several classes including gardening, cooking, and nutrition. As part of the curriculum, the garden also helps teach students how the plants (their lunch and snacks) grow and what conditions the plants require. Science classes held in the garden provide direct and hands-on experience. Students learn by observing plants change and gardening. Therefore, the whole process from planting to harvest and preparing food teaches students about stewardship of land. The kitchen also provides a place to teach and socialize.

Who is the audience?

Students (grades 6-8) in the school participate, and the people from the neighborhood who visit the school.

How is it a neighborhood park?

The school offers public access to its play areas, tennis courts, running track, gym, and basketball courts when school is not in session and allows daytime access to its tot play area.

Who is the user?

Students in the Martin Luther King Middle School use the park as well as people of various ages from the neighborhood.

Comparison to Susan B. Anthony Middle School Site

This Site	Project Site
Middle School	Middle School
1.47 Acre School Park size	39.1 Acre Total School Size
Weather in California is more suitable for growing gardens	Kansas has hot summer and harsh winter weather
897 Students	464 Students

PRECEDENT STUDIES SUMMARY

These six precedent studies are either a landscape of learning or a neighborhood park, if not both. Because five of them are fully built and one is partial built, there are some post occupancy evaluations published. Articles or papers show users enjoyed using the school sites in different ways.

Play equipment attracts young children, therefore the open access to the play equipment after school hours is necessary as a neighborhood park. Ball fields are shared use.

As landscape of learning, the most common design element is outdoor classrooms, which give students a place for sitting and having lectures out of normal indoor classrooms. Outdoor classrooms also give students a close access to natural learning materials. In addition, outdoor classrooms provide a social place for both the students and the neighborhood people.

The most popular hands-on activity place is vegetable garden, where students can learn by experiencing. Other elements, which can teach through an experiential learning way, were popular, such as natural art and natural planting. Therefore, hands-on activities and natural

site elements enhance the users' listen, vision, smell, touch and taste senses.

Among these six precedent studies, three school locations do not have any park within 0.25-mile walking radius. One of the six is a part of the big park system in development. Only the rest two have small parks within their 0.25-mile walking radius. However, one of these two is not open to public because it is a private school site.

For city of Berkeley, California and Austin, Texas, there are joint-use programs which make the school site as neighborhood park successful.

Right: Figure 2.32 Precedent Studies Summary (Author, 2012).

School Name	LOCATION ANALYSIS		CATEGORY		FEATURES													
	Physical Location	Park Within 0.25 Mile Radius	Landscape of Learning	Neighborhood Park	Ball Court / Field	Sundail	Wildlife Observation	Native Planting	Garden (Green House)	Pond (Water Equipment)	Natural Material Play	Weather Observation	Art Classroom	Outdoor Classroom	Amphitheater	Creative Game (Chess, etc.)	Music	Playground
Bluemont Elementary School	Manhattan, Kansas	No		✓	✓													✓
Travis Elementary School	Houston, Texas	No	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓
Martin Luther King Middle School	Berkeley, California	No	✓	✓	✓				✓			✓	✓					✓
Rosa Parks Elementary School	Berkeley, California	Yes. A park with picnic tables, open field and a small playground	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Brown Street Academy	Milwaukee, Wisconsin	Yes. A park is in development	✓	✓	✓				✓	✓		✓	✓					✓
Montessori Community School	Durham, North Carolina	Yes. A park with picnic tables, open field and a small playground	✓		✓			✓				✓	✓	✓				✓



**DESIGN FOR SUSAN B. ANTHONY
MIDDLE SCHOOL SITE**



*Craft Airplane Flying on the
School Site (Author, 2012).*



POTENTIALS FOR THE SITE

PROJECT GOAL/OBJECTIVE

This project will incorporate the school's unique landform with other designed elements to make it a place to play and learn. While meeting the school's current needs, the site will be designed as an attractive and inviting place for both neighborhood children and students from Susan Anthony Middle School. More diverse natural elements such as native plants, trees, rocks, etc. will enhance the currently bare-looking school site. Together with landform changes, these will give the children and students a chance to experience and explore nature. Some other play elements such as outdoor painting, and amphitheater will let users play and meet others. Site history will also be expressed through design. The finished project will increase neighborhood children and students' curiosity about nature and let them learn during experiencing. It will also help increase their social interactions. The design and methodology of this project will be available to others as an example of joint-use neighborhood parks' importance to the city.

Figure 3.01 Project Goal Illustration (Author, 2012).



PROGRAM ELEMENTS

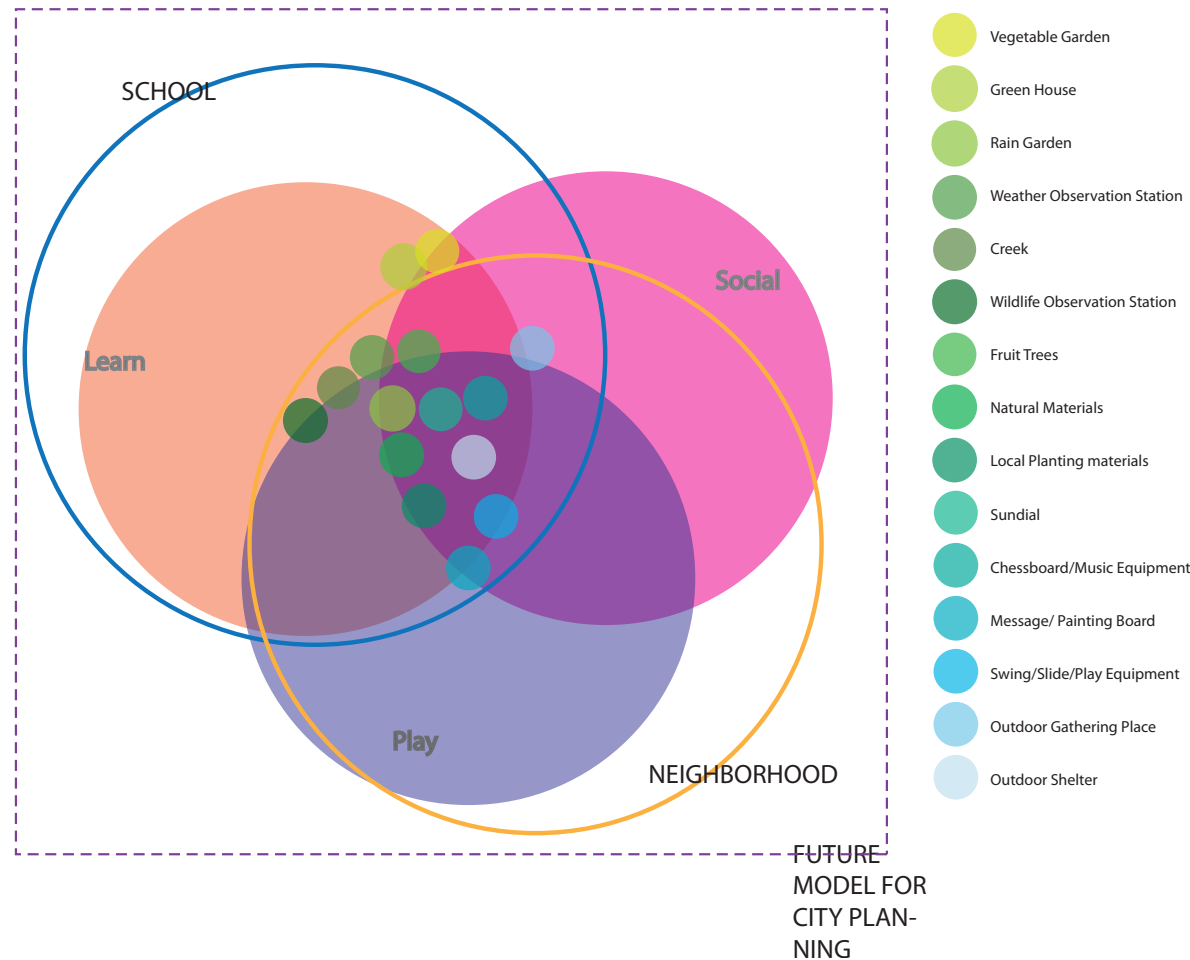


Figure 3.02 Program Elements (Author, 2012).

Right: Figure 3.03 Program Elements Goals (Author, 2012).

	Elements	Objectives
NATURE	Vegetable Garden	Experiential learning about plants growth, seasonal changes and other science topics. Currently, school uses it to make social connections between special-need students and others. Can help nutrition class
	Green House	Provides plants growth year round (not just summer--time when students are out of school)
	Rain Garden	Used to teaches stormwater runoff, ecology and native plants. Can also be used as wildlife (butterfly, birds...) observation place. Art class can use it as materials as well
	Weather Observation Station	Used to teaches local climates, data can be recorded to help science classes
	Creek	Existing creek can be improved to be an education place for ecology, climate, and wildlife. Currently, school uses it for science class
	Wildlife Observation Station	Can incorporate other elements to study butterfly, birds and insects, etc. Can also help some classes
	Fruit Trees	Teaches local plants and seasonal changes. Can also provide shades; used for several classes like art and nutrition.
	Natural Materials: rocks, stone, wood, landform, etc.	Teach about local materials and natural processes about the materials.
	Local Grass or Planting Materials	Teach about native plants, climate. Can be designed with play characters
	Sundial	Teaches science while playing; Can improve social ability
OTHER ELEMENT	Chessboard/ Music Equipment	Teaches while playing; Can improve social ability as well
	Message/Painting Board	Increases creative thinking
	Swing/Slide/Play Equipment	Playing and sharing improves social ability
	Outdoor Gathering Place/ Amphitheater	Increases social ability
	Outdoor Classroom/Gazebo/Outdoor Shelter	Provides a place for experiential learning, and social opportunities

Note: Objectives are referenced from literature reading, precedent studies and interview with school principal

SURVEY METHOD AND SUMMARY

Survey of School Students

To better understand future users' preferences for the character of the school site, a survey was conducted to the school's students on January 26, 2012. The survey was a questionnaire with ten questions.

The principal invited the survey staff to conduct the survey during the school's two lunch periods. At the beginning of each lunch period, the principal and survey staff briefly introduced the survey. While student input and perspectives were valuable, the survey was strictly voluntary.

At the first lunch period (11:05 -11:35am), students walked to the survey desk and picked up the survey after the introduction. Then the principal and the survey staff distributed the rest of the surveys to students table by table. Students could choose to participate or not. Responses were collected at the end of the lunch period. Sixty-six completed surveys were collected.

In the second lunch period (12:10-12:40pm), fifteen students stopped by the survey desk to pick up the survey before the formal introduction. Approximately thirty students walked to the survey distribution desk to pick up copies before the survey staff distributed the rest to

students table by table. In total, for this lunch period, 123 copies were collected.

The teacher for special-need students distributed the survey at the first lunch section among those students and helped them fill out the answers after talking to them. Only one copy was returned.

Altogether 225 copies of survey were distributed, and 189 copies were collected at the end of the survey. One survey was eliminated because it was incorrectly filled out.

Method and Reflection

During the survey process, some students were excited about changes in the school. Several students mentioned having swings that could be used by all students. Some did not know about the existing small garden for special-need students.

If 20% of respondents identified an idea, the researcher noted its significance. After analyzing the results, almost all responding students wrote that they wanted nice changes at the school. They wanted more natural surroundings so they could enjoy their time outside more. More trees would give them shade and places to read.

Question One reflected the places of school site that students use frequently on a daily basis. Question Two listed the proposed design elements after analyzing the precedent studies. Among 188 responses, the top four popular changes selected from a list in Question Two were: pond (139 –74%), swings (129 – 69%), fruit trees (129 – 69%), and an outdoor classroom (127 – 68%). Even the least-picked weather observation station obtained 21% of the votes, which is more than the threshold: 20%. The results reinforced the initial proposed design elements. The students listed other elements that were not in the list; eleven responses (6%) wrote outdoor eating, which was included in Question Five with requiring response 89.9% (118 of 148).

More than one hundred responses included desires for more hands-on activities; the students thought that eye-hand coordination would help them in their classes. "I believe that if we work outside in the biology section of science, it will be much easier to observe our plant's growth," wrote one student. Another wrote, "For science we could go outside and have an outdoor classroom and learn about outside."

The students also wanted a place to hang out with friends or a place to just sit and read. They wanted more trees and flowers at their school. In Question Seven, the top change that they want to have is more planting (27 of 109 - 24.8%). With more natural surroundings at the school, almost all students (106 of 126 – 84%) wrote they

would go outside more often and use the school site more efficiently for Question Eight. Students who lived within walking distance of the school said they would use the school site after school hours.

Survey of neighborhood children and teens

A door-to-door survey collected opinions from neighborhood children and teens. Only one question was asked of neighborhood children, who ranged from 2-years old to eleven. The question was "What do you like to do when you go to a park?" From the fourteen responses, the top three answers were: swings, climbing and sliding, and monkey bars.

Summary

Survey results from both school and the neighborhood reinforced the hypothesis that children want a place to play and learn; giving children experiential learning opportunities in a natural environment is something they want. If they have close access, they will spend more time outside, and they are willing to learn from experiential connections.

MIDDLE SCHOOL QUESTIONNAIRE WITH SUMMARIZED RESULTS

Note: The circled numbers and gray texts are students' responses. Additional answers are included in the Appendix C

1. Which part of school yard to you use? How often?

Number of students who answered: 188

Location	Frequency (times/day)		
✓ 1. Outdoor of Gym	1	45	2 33 3+ 23
✓ 2. Small Garden	1	25	2 6 3+ 7
✓ 3. Tennis/Basketball	1	49	2 25 3+ 41
✓ 4. Exercise Equipment	1	30	2 15 3+ 26
✓ 5. Trail	1	50	2 15 3+ 21
✓ 6. Creek	1	23	2 10 3+ 23
✓ 7. Track	1	43	2 36 3+ 39
✓ 8. Field	1	41	2 30 3+ 36
✓ 9. Field(west)	1	36	2 26 3+ 19
✓ 10. Field(northwest)	1	35	2 16 3+ 22
✓ 11. Field(north)	1	34	2 19 3+ 25
✓ Other Areas:			
Parking Lot			3+ 3
Stairs			3+ 1
Sidewalk			3+ 1

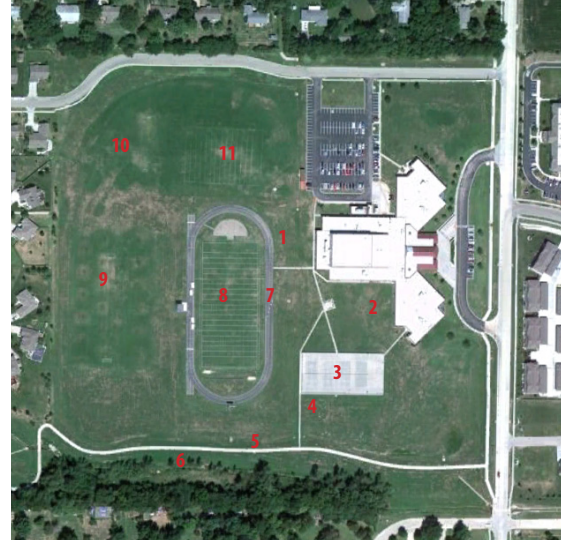


Figure 3.04 School Aerial Map (Google Earth Map, 2012).

2. Would you like your school to have any of following items? Choose/write/draw what you would like:

Number of students who answered: 188

39	Weather observation station	59	Green house
68	Garden	129	Fruit trees
60	Rain gardens	71	Wildlife observation (bird/butterfly)
139	Pond	50	Sundial
59	Chessboard/play equipment	62	Music equipment
99	Grass/plants maze	70	Message/painting board
129	Swings	74	Natural materials: rocks, stone, wood
127	Outdoor classroom	104	Gazebo/outdoor shelter
—	Others:	20	Pool
		11	Outdoor eating
		4	Tree house
		3	Mini golf
		3	Weight lifting
		3	Rubber track
		2	Softball field
		2	Playground
		2	Better soccer field
		2	Fountain
		1	Smurf village
		2	Vending machine
		1	Gymnastics
		1	Jump house
		1	Trampoline
		1	Christmas light
		1	Elephants/giraffes
		1	Horse stables
		1	Hammocks
		1	Station for hands-on activities
		1	Bed

3. What would you think will be cool to do in order to help you learn in classes such as physics/nutrition? Do you think hands-on activities would help you learn?

Number of students who answered: 124

Yes: 105

No: 1

Maybe: 1

"I don't know": 3

Other Answers:

Pools: 4

Recess/Field Trips: 1

Softball/Baseball Field: 1

Football Field: 1

Ty-Kwon-Do: 1

Outdoor Gym: 1

Swing Set: 1

Golf Course: 1

Weight Lifting Segments: 1

A Park: 1

4. Would you like to have an outdoor gathering/performance area? Where would you want it to be located? (Write below or draw on the map)

Number of students who answered: 118

Yes with marking on map: 87

Yes without marking on map: 16

No: 13

Other answers:

"In front of the school": 1

"By the tree": 1

"On open field": 1

"On street": 2

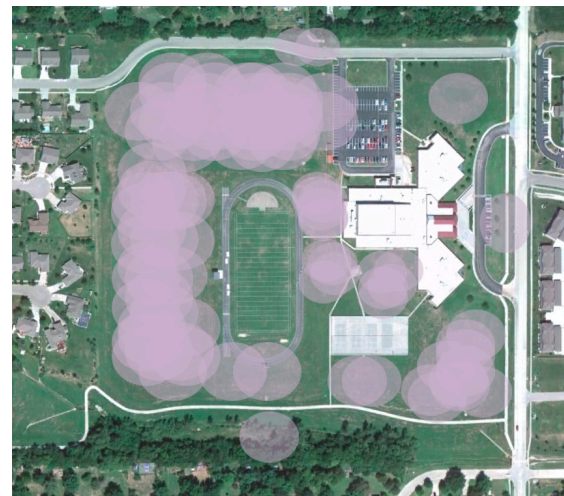


Figure 3.05 Outdoor Gathering/Performance Area Location Response Analysis. Adapted from Google Earth Map (Author, 2012).

5. Would you like to have some outdoor seating? Where would you want them to be located? (Write below or draw on the map)

Number of students who answered: 148

Yes with marking on map: 118

Yes without marking on map: 15

No: 9

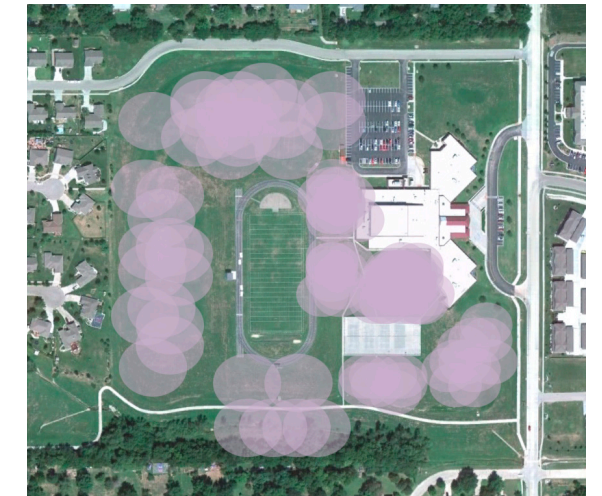
Other answers:

"All school site": 2

"In a shade": 2

"Under a gazebo": 1

"Close to school but not too close": 1



From Top Right to Bottom Right:

Figure 3.06 Outdoor Eating Area Location Response Analysis. Adapted from Google Earth Map (Author, 2012).

Figure 3.07 Natural Outdoor Seating (<http://milwaukeeerotary.com/display.aspx?id=4954>, 2012).

Figure 3.08 Outdoor Seating Wall (<http://outdoors.traviselementary.org/>, 2012).

Figure 3.09 Picnic Table (<http://www.furnitureleisure.com/>, 2012).

6. Which seating type do you like best in the following pictures? Please rank them from 1 (most like) to 3 (least like). (Or write/draw what you like)



37 Natural material seating



17 Seating wall



109 Picnic tables

7. What changes in the schoolyard do you wish to have?
(Write/draw your thoughts)

Number of students who answered: 109

Planting(trees, fruit trees, flowers, etc): 27

Play Equipment: 32

Pond: 15

Seating: 13

Pool: 7

"None": 7

Outdoor Performance: 6

Better Grass: 4

Basketball Court: 3

Soccer Field: 3

Tennis Court: 2

"Colorful school Site": 2

Others: 2

Volleyball Court: 1

Green House: 1

Roller Coaster: 1

Waterfall: 1

Rubber Track: 1

Baseball Field: 1

More People: 1

"Get Rid of Exercise Equipment": 1

"Take away Tennis and Basketball Court": 1

Artificial Football Field: 1

Arcade: 1

Skate Board Ramp: 1

Fountain: 1

Yes: 1

"All in Question #2": 1

8. If there were such things you listed/imaged above at the school yard, would you come to use them after school hours/weekends?

Number of students who answered: 126

Yes: 106

No: 12

Maybe: 4

"I don't Know": 2

Others: 2

9. Do you live within the walking distance from school? If so, do you walk to school using the trail? Or draw on the map.

Number of students who answered: 112

Yes: 33

No: 69

Yes, No: 8

Maybe: 1

Others: 1

10. Any thoughts/comments:

Number of students who answered: 35

23 expressed the desire to have changes to the existing school's outside



Figure 3.10 Walking Route Response. Adapted from Google Earth Map (Author, 2012).



Kite Flying on the School Site (Author, 2012).



**JOINT-USE FOR
PLAY AND LEARN**

DESIGN CONCEPT

The design concept aims to provide a joint-use school site including three uses: a learning environment for middle school use, enjoyable and experiential park space for neighborhood use, and a place for shared use.

Learning environment space for middle school students (School use)

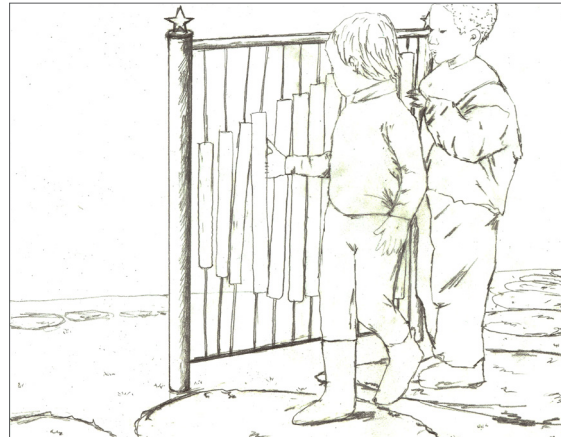
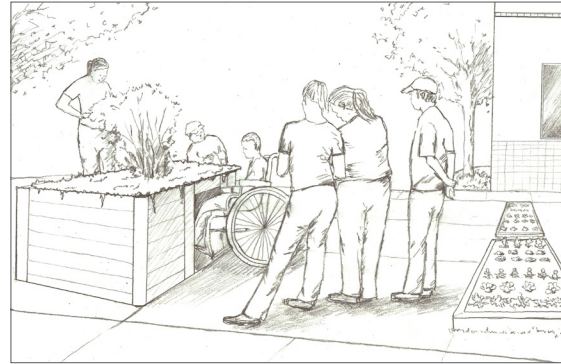
The vegetable garden and greenhouse are mainly for school use because of food safety concerns.

Enjoyable and experiential park space (Neighborhood use)

Playgrounds for younger children are mainly for neighborhood use. They include a climb and slide area, sandbox area, swings, and other play equipment, which are not suitable for middle school students.

Shared-use space

Shared-use elements include a rain garden, weather observation station, wildlife observation area, creek, fruit trees, natural materials, local planting and materials, sundial, chessboard, music board, message/paint board, outdoor gathering place/amphitheater, and outdoor classroom and pond. Students can use these elements during and after school time. Neighborhood children also can take advantage of the facilities after school



Left:
Figure 3.11 Vegetable Garden for School Use (Author, 2012).

Figure 3.12 Fossil Digging Sandbox for Children (Author, 2012).

Figure 3.13 Music Equipment for Shared Use (Author, 2012).

DESIGN CONCEPT (CONTINUED)

hours. Recreation for teenagers is incorporated as well.

For each area, the design concept focuses on the following features:

1. Play

The design incorporates play into the site. No matter where the user visits the school site, some enjoyable elements are revealed.

2. Learn

- Natural
- Social

The design concept also allows future users to have experiential learning experiences throughout the school park. During school time, middle school students can play and have access to experiential learning opportunities. They also have more opportunities to meet peers through their experiences on the school site.

After school hours, the neighborhood children can come to play at the school site.



DESIGN FRAMEWORK CONSIDERATIONS

The location of each program element required applying four considerations:

- Ecology
- Curriculum
- Proximity
- Accessibility

Ecology includes the functional analysis for the designed element, e.g., topography analysis. Curriculum consideration for the elements serves school needs, which will benefit learning inside the classroom. Proximity involves space both close to and far from school buildings. For example, outdoor classrooms should be close to the school building while the noisier music equipment should be far from the school building. Accessibility is the common consideration for each element because the design should provide everybody equal access to the area.

Figure 3.14 Design Concept Illustration (Author, 2012).

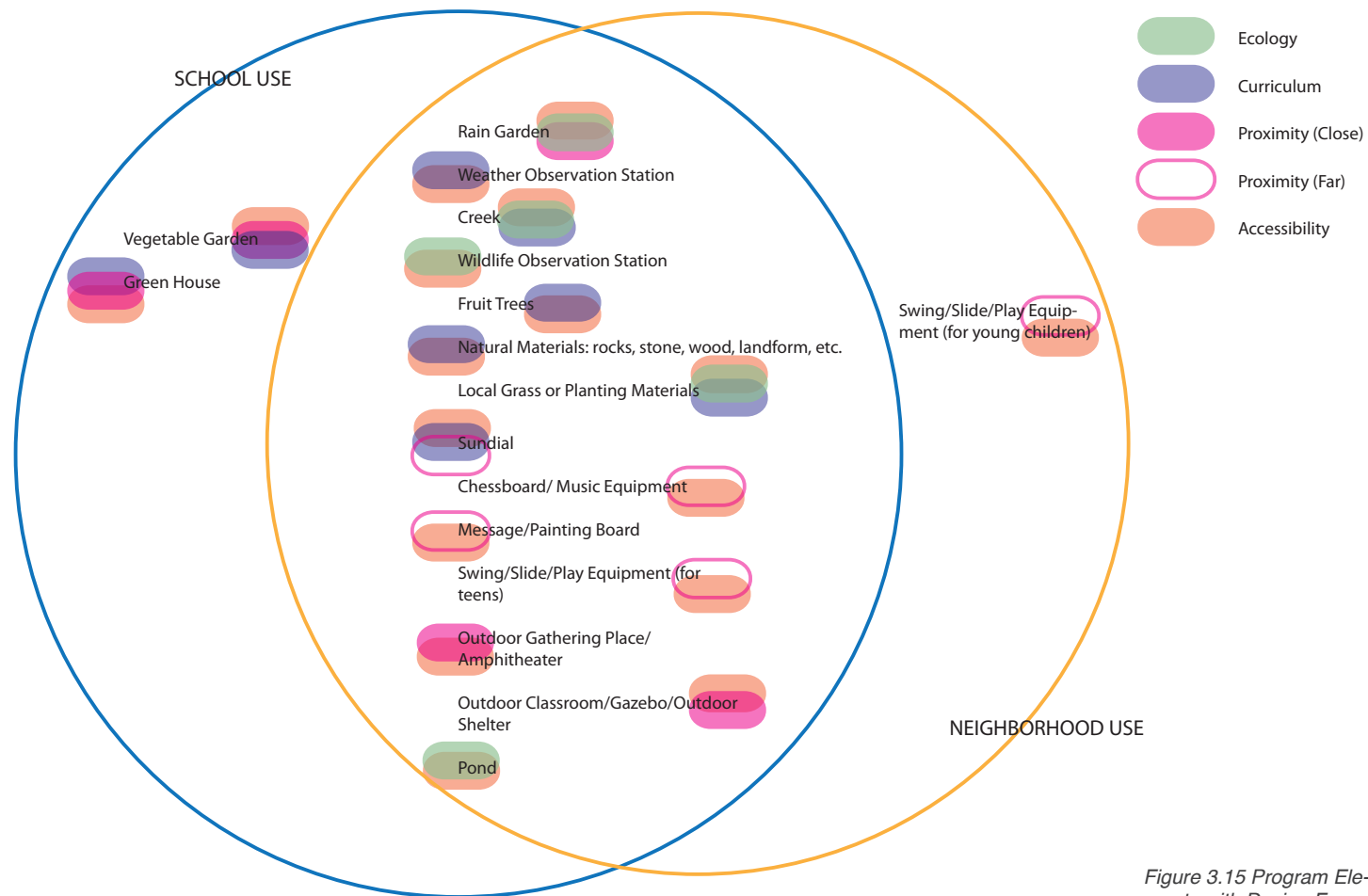


Figure 3.15 Program Elements with Design Framework and Considerations (Author, 2012).

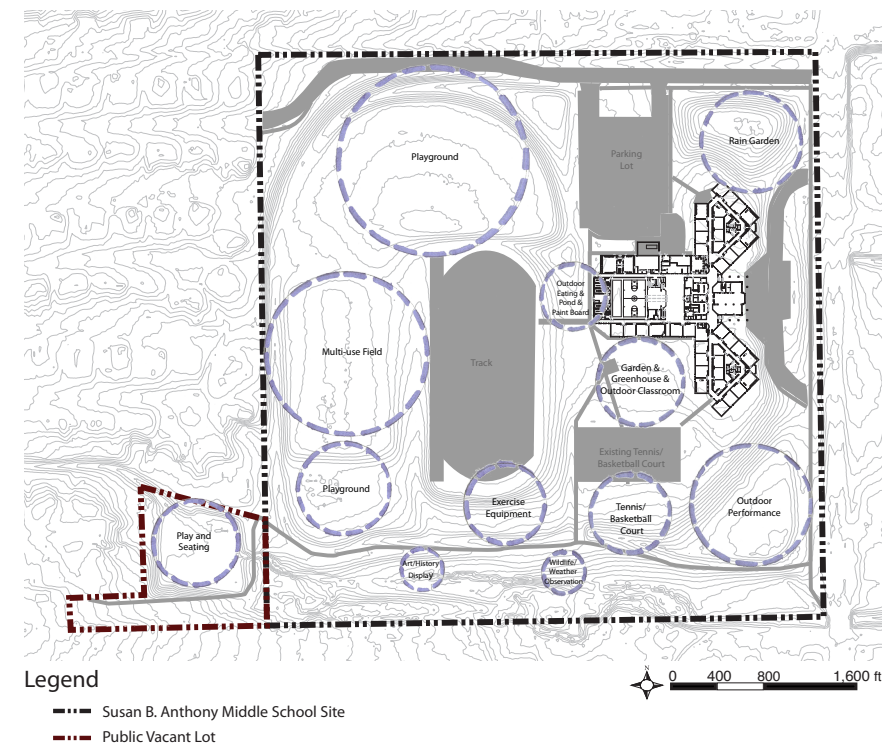


Figure 3.16 Location Relationship (Author, 2012).

ELEMENT LOCATION RELATIONSHIPS

After analyzing each design element within the framework of design concept, design considerations and stakeholders' responses, the conceptual location for the program elements was proposed. Thus, the conceptual location could serve as a guide for the detailed design illustration in later stages of design. More exact locations within the proposed conceptual location were determined during the design process with using aesthetics, functions, form, and path relationships.



*Girls Sitting on Existing
Fitness Equipment (Author,
2012).*



DESIGN FOR JOINT-USE SCHOOL SITE

MASTER PLAN

This proposed master plan illustrates the possible design changes for the school site (Figure 3.20). The master plan incorporates successes of the precedent studies, and the survey responses from the potential site users (Susan B. Anthony Middle School students and neighborhood children). Therefore, this master plan can also be used as an illustration tool for fund-raising that will actually make the school site change happen. The master plan can be used as a framework for improving the school site's environment for both the students and the neighborhood children and teens: it is a place that enriches the experiential learning opportunities.

Legend

- | | |
|--|---|
| 1. Rain Garden | 21. Four Square |
| 2. Amphitheater | 22. Tetherball Play Area |
| 3. Wind Observation With Seating | 23. Crazy Cups |
| 4. Fruit Trees | 24. Swing |
| 5. Tennis/Basketball Court | 25. Seesaw |
| 6. Moved Existing Fitness Equipment | 26. Outdoor Go Game |
| 7. Green House | 27. Outdoor Chess |
| 8. Vegetable Garden with Outdoor Classroom | 28. Hopscotch Game |
| 9. Football Field with Track | 29. Mathematics Game with Tires |
| 10. Outdoor Eating Area | 30. Sundial |
| 11. Outdoor Painting/Message Board | 31. Sandbox |
| 12. Pond with Solar Powered Fountain | 32. Natural Material Play Area |
| 13. Outdoor Music Equipment | 33. Outdoor Classroom |
| 14. Native Plants Maze | 34. Planter Maze |
| 15. Slides with Natural Material Stairs | 35. Turkey Sculpture Field |
| 16. Climbing Wall | 36. Mushroom Sculptures under Trees |
| 17. Climbing Dome | 37. Multi-use Field |
| 18. Monkey Bar | 38. Adventure Play Equipment |
| 19. Chin-up Bar | 39. Outdoor Seating |
| 20. Parallel Bar | 40. Entry Signage |
| | 41. Restored (Concrete) Channel with Natural Seatings |

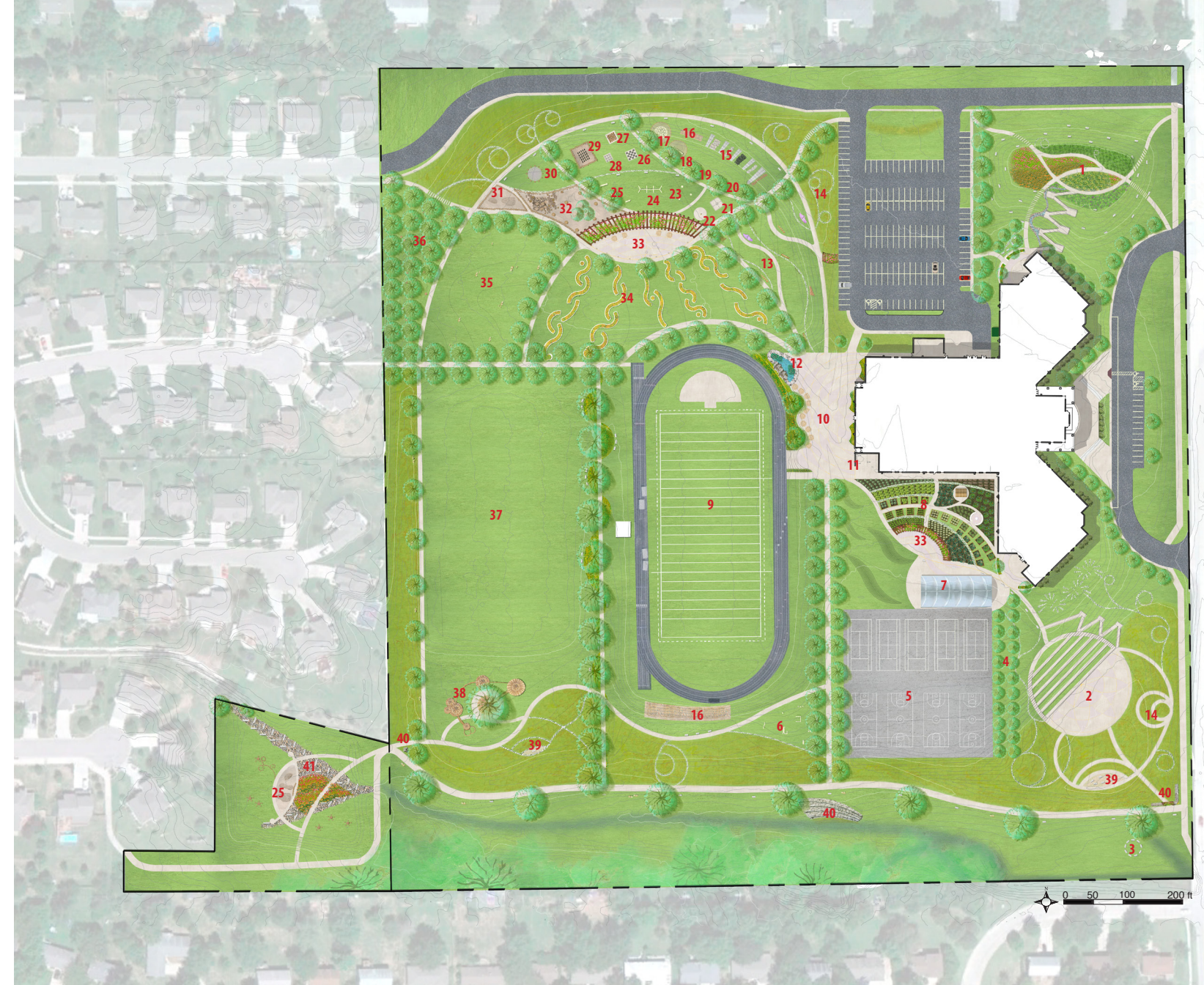
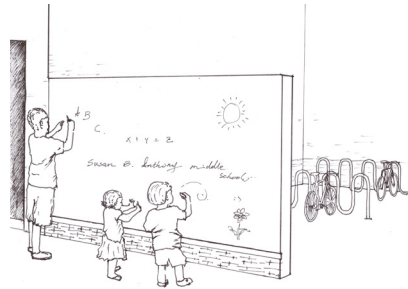


Figure 3.17 Master Plan
(Author, 2012).

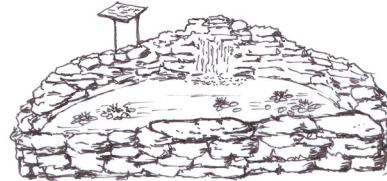
Figure 3.18 Detail Vignettes
(Author, 2012).

DETAIL VIGNETTES OF SCHOOLYARD

These vignettes (Figure 3.21) show the concept ideas about selected elements on the master plan .



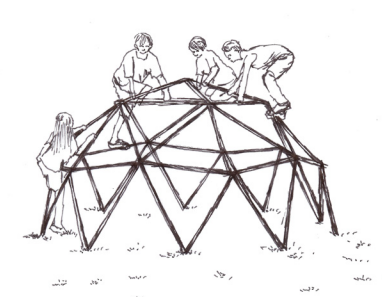
11. Outdoor Painting/Message Board



12. Pond with Solar Powered Fountain



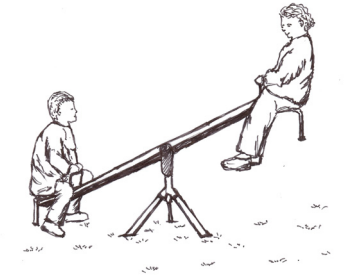
13. Outdoor Music Equipment



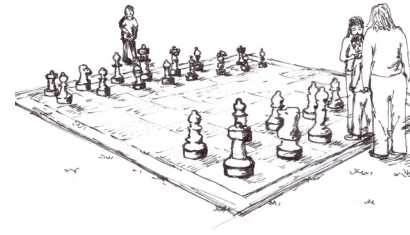
17. Climbing Dome



23. Crazy Cups



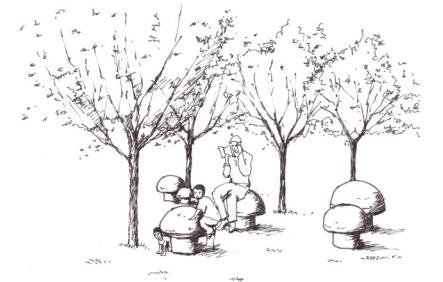
25. Seesaw



27. Outdoor Board Games



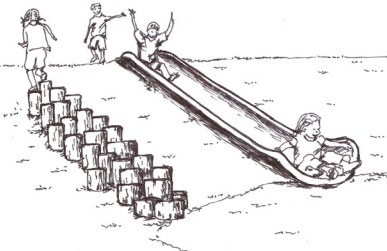
29. Mathematics Game



36. "Mushroom Field"



14. Plant/Planter Maze



15. Slides with Natural Material Stairs



16. Climbing Wall



38. Adventure Play Equipment

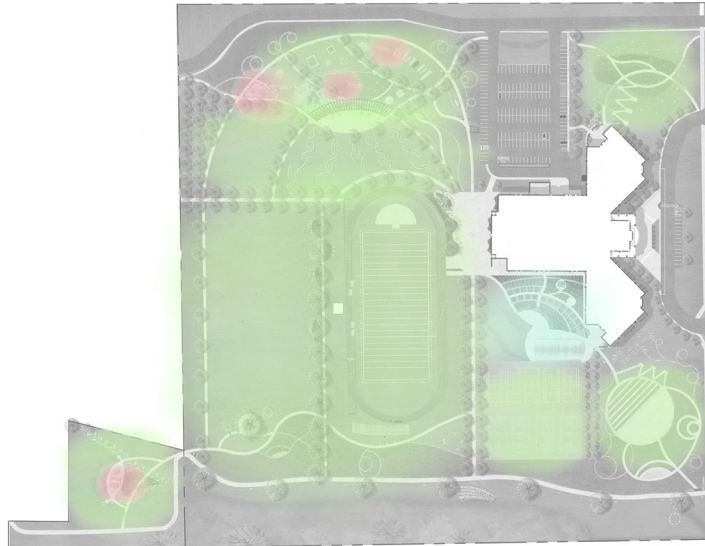


39. Outdoor Seating



40. Restored Concrete Channel with Natural Seatings

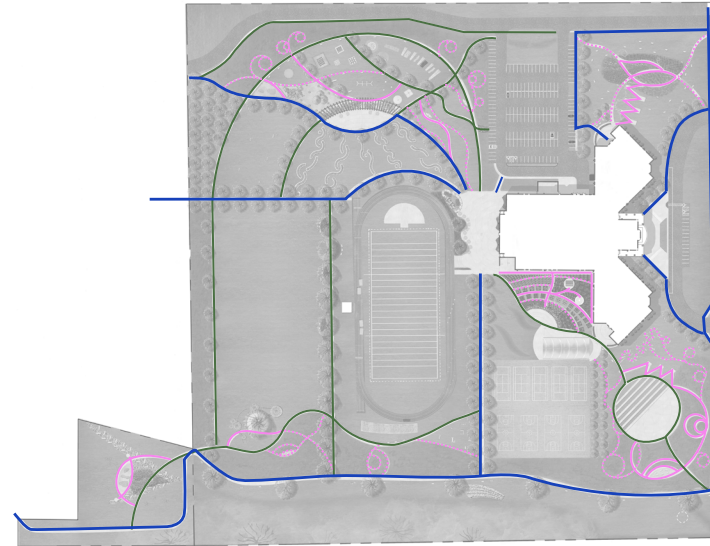
DESIGN FRAMEWORK DIAGRAM



Legend

- School Use
- Neighborhood Use
- Shared Use

CIRCULATION DIAGRAM



Legend

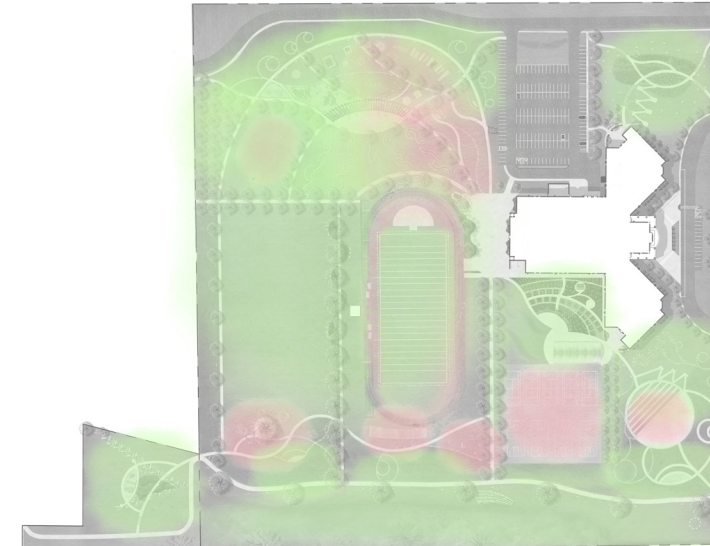
- Primary Pedestrian Path
- Secondary Pedestrian Path
- Tertiary Pedestrian Path with ADA Accessibility
- ⋯ Tertiary Pedestrian Path without ADA Accessibility

From Left to Right:

Figure 3.19 Design Framework (Author, 2012).

Figure 3.20 Circulation (Author, 2012).

MATERIAL ANALYSIS DIAGRAM



Legend

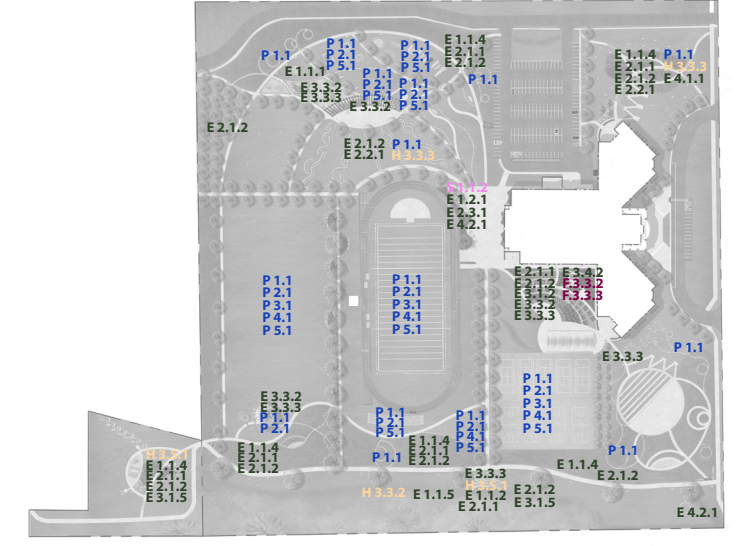
- Primary Man-made Play Material/Equipment
- Primary Natural Material Equipment

From Left to Right:

Figure 3.21 Material Analysis (Author, 2012).

Figure 3.22 Curricular Connections (Author, 2012).

DESIGN WITH CURRICULAR CONNECTIONS



Legend

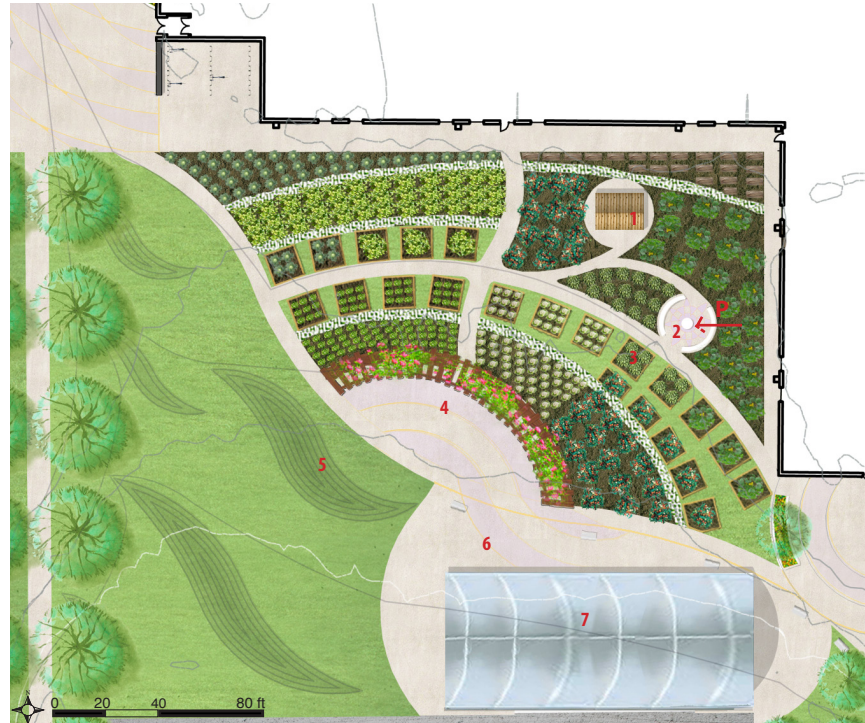
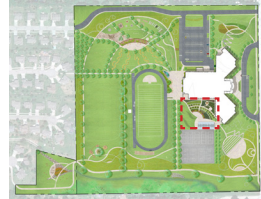
- E** Environmental Education
- P** Physical Education
- S** Science
- H** History, Government, Economics & Geography
- F** Family & Consumer Science

- Assessment Indicator
- E 2.1.2** — Benchmark
- Indicator
- Standard

* see Appendix F for listing of academic standards

SCHOOL USE ILLUSTRATION: VEGETABLE GARDEN

These illustrations show the potential design for the school-use area: vegetable garden and outdoor classroom. The raised vegetable planters give special-need students easy access to their hands-on activities while the on-ground planters are choices for other students.



Legend

1. Storage House
2. Outdoor Classroom/Preparation Area
3. Raised Planter
4. Outdoor Classroom
5. Berm Sitting
6. Preparation Area
7. Green House



From Left to Right:

Figure 3.23 Vegetable Garden Plan with Index Map (Author, 2012).

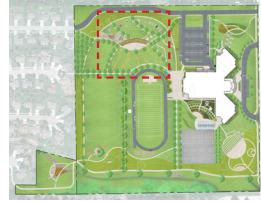
Figure 3.24 Existing Site Condition Picture (Author, 2012).

Figure 3.25 Proposed Vegetable Garden Perspective (Author, 2012).



NEIGHBORHOOD USE ILLUSTRATION: SANDBOX

These illustrations show the potential design for one of the neighborhood-use areas: sandbox area. The fossil digging activities can also teach the children about the Flint Hills history and geology.



Legend

- | | |
|---|------------------------------------|
| 1. Step Stone Maze Path in Native Grasses | 14. Crazy Cups |
| 2. Slide | 15. Swing |
| 3. Log Climb Stair | 16. Seesaw |
| 4. Stone Climb Stair | 17. Outdoor Go Game |
| 5. Tire Climb Stair | 18. Outdoor Chess |
| 6. Climbing Wall | 19. Hopscotch Game |
| 7. Climbing Dome | 20. Mathematics Game with Tires |
| 8. Monkey Bar | 21. Sundial |
| 9. Chin-up Bar | 22. Sandbox |
| 10. Parallel Bar | 23. Natural Material Play Area |
| 11. Outdoor Music Equipment | 24. Turkey Sculpture Field |
| 12. Four Square | 25. Outdoor Classroom with Pergola |
| 13. Tether Ball | 26. Planter Maze |



From Left to Right:

Figure 3.26 Park Plan with Index Map (Author, 2012).

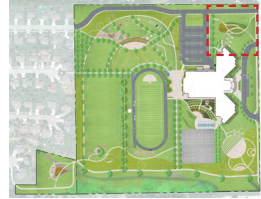
Figure 3.27 Existing Site Condition Picture (Author, 2012).

Figure 3.28 Proposed Sandbox Play Area Perspective (Author, 2012).



SHARED-USE ILLUSTRATION: RAIN GARDEN

These illustrations show the potential design for one of the shared-use areas: rain garden. With native planting and limestone seating, the rain garden can be used as an outdoor classroom for school as well as a relaxing place for neighborhood people.



Legend

1. Stone Sitting
2. Step Stone Path
3. River Rock Channel
4. ADA Ramp
5. Planter



From Left to Right:

Figure 3.29 Rain Garden Plan with Index Map (Author, 2012).

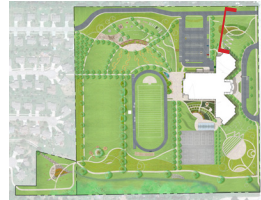
Figure 3.30 Existing Site Condition Picture (Author, 2012).

Figure 3.31 Proposed Rain garden Perspective (Author, 2012).



RAIN GARDEN SECTION

The paths in the rain-garden area give people close observation opportunities to the native plants, which attract wildlife. The variety of plants' heights gives people different experiences while walking in the rain-garden area.



From Left to Right:

Figure 3.32 Index Map (Author, 2012).

Figure 3.33 Rain garden Section (Author, 2012).

Figure 3.34 Dry Season Rain Garden Detail (Author, 2012).

Figure 3.35 Rain Season Rain Garden Detail (Author, 2012).

RAIN GARDEN DETAILS

Dry Season



Rain Season

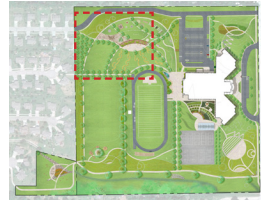


The big river rocks at the bottom of the rain garden give visual esthetics during the winter season. They also can be step stones for students and children who want to play in the rain garden.



SHARED-USE ILLUSTRATION: TURKEY SCULPTURE FIELD

These illustrations show the potential design for one of the shared-use areas: turkey sculpture field. While can be used as play/sitting equipment, turkey sculptures present the site history to users. The school site was once Kansas State University's turkey farm.



Legend

- | | |
|---|------------------------------------|
| 1. Step Stone Maze Path in Native Grasses | 13. Seesaw |
| 2. Slide | 14. Outdoor Go Game |
| 3. Stone Climb Stair | 15. Outdoor Chess |
| 4. Climbing Wall | 16. Hopscotch Game |
| 5. Climbing Dome | 17. Mathematics Game with Tires |
| 6. Monkey Bar | 18. Sundial |
| 7. Chin-up Bar | 19. Sandbox |
| 8. Parallel Bar | 20. Natural Material Play Area |
| 9. Four Square | 21. Outdoor Classroom with Pergola |
| 10. Tether Ball | 22. Planter Maze |
| 11. Crazy Cup | 23. Turkey Sculpture Field |
| 12. Swing | 24. Mushroom Sculpture Sitting |



From Left to Right:

Figure 3.36 Park Plan with Index Map (Author, 2012).

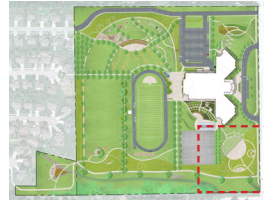
Figure 3.37 Existing Site Condition Picture (Author, 2012).

Figure 3.38 Proposed Turkey Sculpture Field Perspective (Author, 2012).



SHARED-USE ILLUSTRATION: ENTRY WITH SIGNAGE

These illustrations show the potential design for one of the shared-use elements: entry with signage. It not only defines the site's edge but also works as a welcome sign to the school site.



Legend

1. ADA Accessible Maze Path in Native Grasses
2. Amphitheater
3. Fruit Trees
4. Basketball and Tennis Court
5. Step Stone Maze Path in Native Grasses
6. Outdoor Seating
7. Signage
8. Wind Observation With Seating
9. Restored Concrete Channel



From Left to Right:

Figure 3.39 Amphitheater and Entry Location Plan with Index Map (Author, 2012).

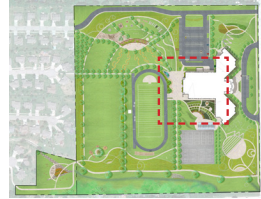
Figure 3.40 Existing Site Condition Picture (Author, 2012).

Figure 3.41 Proposed Entry with Signage (Author, 2012).



SHARED-USE ILLUSTRATION: OUTDOOR EATING AREA

These illustrations show the potential design for one of the shared-use elements: outdoor eating area. It provides students a place to have lunch outside and sit next to the nature. Neighborhood children can also play here after school hours.



Legend

- | | |
|-------------------------------------|--|
| 1. Pond with Solar Powered Fountain | 9. Outdoor Painting/Message Board |
| 2. Planter | 10. Bikeracks |
| 3. Outdoor Eating Tables | 11. Vegetable Garden |
| 4. Limestone Display Stand | 12. Storage House |
| 5. Track | 13. Outdoor Classroom/Preparation Area |
| 6. Football Field | 14. Outdoor Classroom |
| 7. Stairs | 15. Berm for Seating |
| 8. Ramp | |



From Left to Right:

Figure 3.42 Outdoor Eating Area Plan with Index Map (Author, 2012).

Figure 3.43 Existing Site Condition Picture (Author, 2012).

Figure 3.44 Proposed Outdoor Eating Area (Author, 2012).





RECOMMENDATIONS

LIABILITY DISCUSSION

Liability and maintenance costs are the main concerns preventing schools from offering sites for public use. Without a clear understanding of who is responsible for liability and maintenance, schools will be afraid to offer their facilities to the public after school hours.

Liability

In Kansas, Kansas Tort Claims Act provides general protection to municipalities for claims of liability that fall short of gross negligence. Therefore, a person cannot sue a school or city for injuries if the equipment or grounds are maintained properly (http://kansasstatutes.lesterama.org/Chapter_75/Article_61/).

Therefore, schools and cities in Kansas are released from liability arising from public use of a school site as long as the site is reasonably maintained and protected. In the worst case, a school's liability insurance could cover injuries on the school site even after school hours.

Joint Use

Another option to handle liability and cost issues is through a clear joint-use agreement. Joint use allows a school and a city to share their resources to bring down costs. Such a joint-use partnership should be formally documented with responsibilities and liabilities clearly specified to reduce the possibility of future problems in maintenance, operations, liability, ownership or cost (<http://www.jointuse.org/> accessed February 09, 2012).

With such a joint-use agreement, the city can pay the school to do the maintenance for the school facilities to be open for public, or the city can repair damage occurring after school hours when used by a city resident (Personal Communication with City of Lawrence, Kansas). Use of joint insurance to cover any injury after school hours can also resolve concerns of both the school and the city.

MAKING IT HAPPEN

Both money and time are necessary to create a joint-use park.

Funding

There are many potential grants that can help with installing the design and maintaining the site. They include but are not limited to:

- Federal grants
- State grants
- City of Manhattan
- School District 383
- Development-driven funding:

Grant from Organizations, such as: Robert Wood Johnson Foundation (<http://www.rwjf.org/>), Lorrie Otto Seeds for Education Grant Program (<http://www.forwild.org/>), etc.

Donation

Donations can also help make the changes possible. Donations can include money, time, and materials.

Money:

- Parent-Teacher Associations or Organizations

- Local community
- Private sector/business

Time:

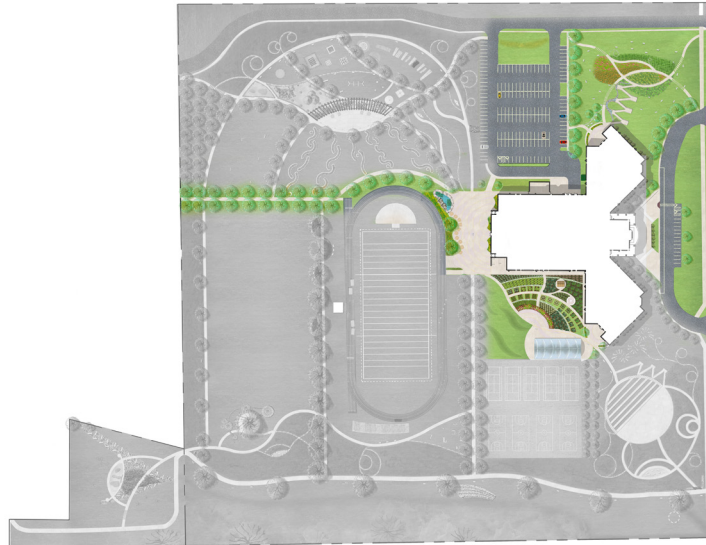
- Students
- Parent-Teacher Associations or Organizations
- Local community

Materials:

- Local community
- Private sector

If students and local community members participate in installing the equipment, they will have more interest in the whole school site design, which will increase their desire to use the school site. Once they get involved in the process, they also have stewardship of the space. In later stages. Involved teachers will be more familiar with the outdoor environment, which can help in curriculum preparation (Tai, Haque, McLellan, and Knight, 2006).

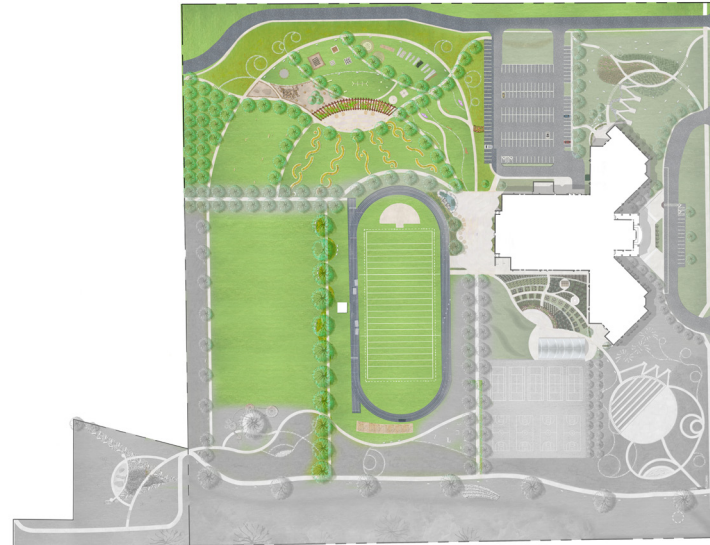
PHASE ONE



Phasing is recommended to make the design materialized as funding allows.

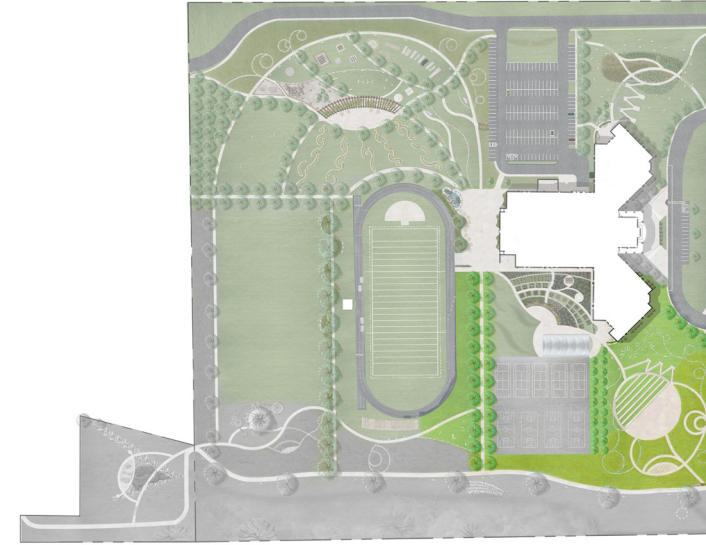
Phase one includes the pathway linking the existing sidewalk to the neighborhood on the west of the school. The pathway will meet the students' immediate needs. Outdoor eating area with pond, the rain garden, and vegetable garden are also in phase one because they provide the school students and the neighborhood children close access to nature while meeting the school's primary need - an outdoor environment.

PHASE TWO



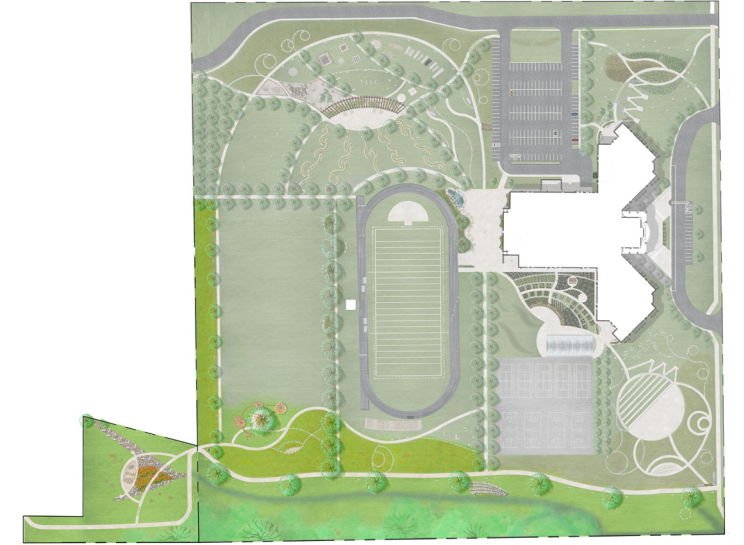
In phase two, the main shared-use park will be installed to provide more play and learning opportunities for both the school students and the neighborhood children. A pathway with shading trees will be applied to link the exiting trail at the south to the park.

PHASE THREE



Phase three includes amphitheater and planting maze, and the entry with signage. The existing tennis/basket ball court will be expanded to accommodate more uses while relocating the existing exercise equipment. Trees will be planted along the sidewalk; fruit trees will be planted at the east of the tennis/basket ball court.

PHASE FOUR



In the fourth phase, the adventure playground will be implemented to give the students and neighborhood children more options for play. Concrete channels will be restored and more outdoor classrooms/seating will be placed along the creek. With more natural planting, phase four will give more experiential learning opportunities.

Figure 4.01 Phasing Diagrams (Author, 2012).



CONCLUSIONS

Summary

Through the process of this project, several key points have been learned:

At the survey period:

Some school students desire to play outdoors; this can be simply sitting outside or playing with peers even though there are some students who prefer to play inside with electronic playing equipment. The neighborhood children and teens express their desire to have a park nearby because they want to play there and experience plants and wildlife with friends.

At the design period:

There are many arguments for a natural environment within the 40-acre school site: to give the students more opportunities to connect with nature, and enhance their knowledge with experiential learning; to give teachers more educational tools and materials instead of just teaching from books inside a classroom; to give surrounding neighborhood residents an enjoyable park space. The 40-acre site can accommodate all the above potential activities.

To give equal accessibility for students with special

needs, some areas of the site design must be carefully planned with topographic characteristics.

Considering the future implementation period:

Without support from potential users (school students and teachers, neighborhood children and their parents), it would be hard for this project to be constructed. Two major concerns from the city and school district regarding joint-use are cost and maintenance. If they can be addressed, Manhattan, Kansas could have more “school site as neighborhood park” applications.

Limitations and Future Research

“Experience” plays the central role in the learning process (Kolb 1984). This project proposes a site design that emphasizes experiential learning through contact with nature. The proposed design for Susan B. Anthony Middle School site aims to provide the students and neighborhood children a place to experience nature and meet peers.

Future research includes testing the thesis of this project. Only if the project is built can two main questions be evaluated:

1) Will the students and neighborhood children and

teens really use the designed school site as a neighborhood park? Why or why not?

A post occupancy evaluation method is suggested for this question. Observations of users’ behavior in the setting, their use of the designed elements, and the frequency of use could be recorded and analyzed.

A survey could be conducted to answer this question as well. A survey might gauge if users like to use the designed site as a park, which designed elements are most attractive and least attractive, and why.

2) If they use the school site as a neighborhood park, does the design make any difference on their learning process, social, psychological and emotional behaviors?

Test learning impacts

Test scores could be one method to verify the differences: is there any score pattern difference between using the designed site and scores before project implementation? School teachers could compare the performance on lesson exams after having experiential learning compared to students’ performance on exams without having experiential learning opportunities.

Test social behavior changes

Two methods can be applied: survey questions and post occupancy observations. Parents and school teachers will be surveyed reporting their children’s social and be-

havior changes. Do their children/students spend more time outside now than before? Have they made any new friends through using the site? Do children/students think their friendship with others is enhanced or not during playing or working outside?

Test Psychological impacts

Psychological researcher should be involved in this research to test if the school students/neighborhood children’s psychological and emotional behaviors are different by using the designed site. Through methods such as self-reporting, parental reporting and biophysical testing such as blood pressure measures, several questions will be asked. They include but are not limited to: do the site-users express they feel more satisfaction? Do they have less angry behavior? Do they feel less stressed?

Final Thoughts

As a designer, understanding users’ need is paramount. The survey answers from Susan Anthony Middle School students and the neighborhood children were surprisingly emphatic and the kids were crying for changes in the school site. I feel that this is the most I learned from this project, that a designer has the most enthusiasm in her project when she feels that her work is advocating the desire and needs of the people it will impact.



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APPENDICES

A: LITERATURE REVIEW

Louv, Richard. 2005. *Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder*. Chapel Hill, North Carolina: Algonquin Books of Chapel Hill

In his book, Louv pointed out a current problem: decreased access to nature and how this “nature-deficit disorder” harms children and our society. The author noted that when he was young, he could easily access nature, unlike his son’s generation. His son’s generation has lost much of what he thought was natural fun. He believes nature is very important to children. It heals their minds, affects their physical and emotional health, and also inspires their learning and creativity. He suggests without a connection to nature, children tend to suffer from obesity, attention disorder, and depression.

The author also suggests solutions. Direct exposure to nature is fundamental for healthy childhood development and for the physical and emotional health of children. Nature is everywhere, so children (or their parents or teachers) can create opportunities to learn about nature and be in nature. Schools should incorporate the local environment and should not confine children to classrooms. Environment-based education helps children learn about social studies, science, language arts,

and math; it improves academic scores and develops skills in problem-solving, critical thinking, and decision-making. Louv suggests creating nature within the urban environment. Vacant lots, playgrounds, and parks, any place where children can connect to nature, can be part of the educational environment.

Louv, Richard. 2011. *The Nature Principle: Human Restoration and the End of Nature-deficit Disorder*. Chapel Hill, North Carolina: Algonquin Books of Chapel Hill

Louv points out that because our society focuses and emphasizes technology, connections to nature have faded. This in turn causes nature-deficit disorder. He argues that we must create a reunion to nature: “Every day, our relationship with nature, or the lack of it, influences our lives. This has always been true. But in the twenty-first century, our survival-or-thrival will require a transformative framework for that relationship, a reunion of humans with the rest of nature” (Louv 2011. 3). He suggested seven concepts to achieve this transformation:

- 1) With more technology, more nature is needed to achieve natural balance.
- 2) Nature can help heal our minds and bodies, improv-

ing our health.

3) Combining technology and nature experience will increase our thinking ability and productivity, followed by the emergence of hybrid minds.

4) Bringing more life into cities making cities to alive.

5) In addition to human history and regional and personal identity, natural history is also important to achieve a purposeful place.

6) Sustainability is not the goal; we must go one step beyond sustainability to create a biophilic environment in individual backyards, workplaces, neighborhoods, and towns.

7) Conservation is not enough; we must create natural habits and in this way, connect to nature. In doing so, humans will become high performance and have stronger bonds to nature and other humans.

Rissotto, Antonella, and Giuliani, M. Vittoria. *Learning Neighborhood Environments: the Loss of Experience in Modern World*. in Spencer, Christopher and Blades, Mark (eds). 2006. *Children and Their Environments: Learning, Using and Designing Spaces*. New York : Cambridge University Press

In the article “Learning neighborhood environments: the loss of experience in a modern world”, authors Antonella Rissotto and M. Vittoria Giuliani pointed out that the automobile and other restrictions like parental fears have

kept children from contact with nature.

Verboom, Jana, van Kralingen, Rosalinde. *Teenagers and biodiversity Worlds Apart? An Essay on Young People’s Views on Nature and the Role it will Play in Their Future* <http://www.alterra.wur.nl/UK/publications/Booklets+and+Folders/Teenagers+and+biodiversity+Worlds+apart/>. Accessed on 10/06/2011

The author started with the statement that lifestyle has changed over the past twenty years. Twenty years ago, children had no Internet, and only a few channels on TV. They spent most of their time outdoors. However, children now interact with nature through television and computer. The author wanted to find out how this has affected children and what this means for the future. Because current teenagers will make political policy within a few years, the author started with a survey for young people (age 15-18) in The Netherlands, asking 1) What interests them? 2) Do they know or what do they think about biodiversity? 3) What do they identify as nature? 4) Twenty years from now, how will they use and value green space and natural areas? 5) What role do they think nature can play in their adulthood, and what will they do to protect nature?

Based on feedback from the questionnaire, the author pointed out that these young people had little knowledge about nature and biodiversity. According to their answers, they rely on government to protect nature.

However, the author concluded that nature involves more than natural reserves and designated areas, but has a bigger range—from back door to wild areas. Government cannot be the sole protector of nature. We also need non-governmental and individual action. Teenagers must connect with nature, and they have many possibilities: to have an adventure in nature; to plant streets with trees and flowers; to make nature part of their lifestyles; to use technology to understand nature; and to combine the social and recreational functions of nature.

Kolb, David. 1984. *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall, Inc.

In this book, Kolb clarifies the concept of “experiential” because it “emphasized the central role that experience plays in the learning process” (Kolb 1984. 20). He notes that “learning is the process whereby knowledge is created through the transformation of experience.” (Kolb 1984. 38) He started with three models of the experiential learning:

1) The Lewinian Model of Action Research and Laboratory Training is a circle connecting concrete experience, observations and reflections, formation of abstract concepts and generalizations, and testing implications of concepts in new situations, as shown in Figure 7.01.

2) Dewey’s Model of Learning makes the learning principle more explicit by adding feedback processes. Figure

7.02 shows the process.

3) Piaget’s Model of Learning and Cognitive Development has four stages according to age as shown in Figure 7.03.

Based on these three models, Kolb’s Experiential Learning Cycle has four elements: concrete experience (or “Do”), reflective observation (or “Observe”), abstract conceptualization (or “Think”), and active experimentation (or “Plan”). As shown in Figure 7.04, concrete experience is the basis of reflective observation, which leads to abstract conceptualization. New implications for action from abstract conceptualization can be immediately tested in the active experimentation stage, which leads to concrete experience as creating new experiences.

Kolb also claimed that 1) Learning is best conceived as a process, not an outcome. 2) Learning is a continuous process grounded in experience. 3) Learning is a holistic process of adaptation to the world. 4) Learning involves transactions between the person and the environment. 5) Learning is the process of creating knowledge.

Maudsley, Martin. 2008. *Playing Naturally*. ECOS 29 (2): 12-20

Maudsley started with two broad assumptions: “1) Natural environment is particularly attractive, inspiring and satisfying to children because natural environment supremely meet their play needs and desires. 2) Play is

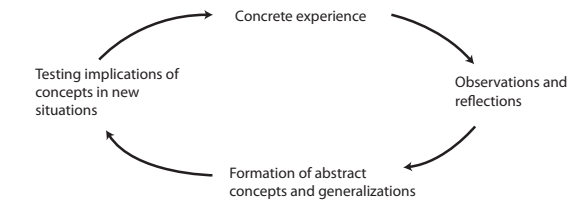


Figure 7.01 Lewinian Model. Diagram by Author, 2012. Adapted from Kolb 1984. 21

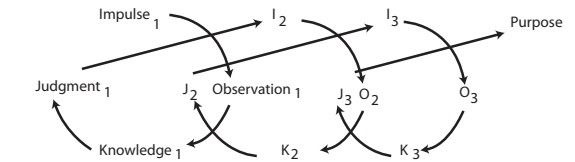


Figure 7.02 Dewey Model. Diagram by Author, 2012. Adapted from Kolb 1984. 23

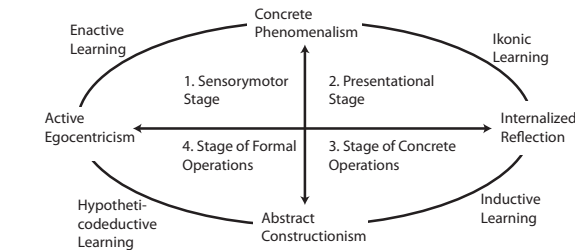


Figure 7.03 Piaget Model. Diagram by Author, 2012. Adapted from Kolb 1984. 25

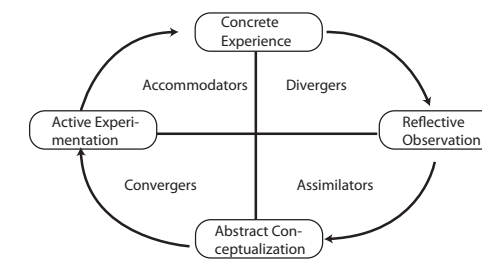


Figure 7.04 Kolb Model. Diagram by Author, 2012. Adapted from Kolb 1984.

primary mechanism through which children engage, interact and connect with the natural world” (Maudsley 2008. 12). He then used three examples to show that childhood memories of interacting with nature can influence adulthood activities.

Maudsley discussed communities that designed places like wild commonlands, gardens, and school grounds to provide children natural places to play and interact with the environment.

Maudsley suggested that to plan natural places for children, two theories should be considered: affordances and field of free action. Affordances mean to incorporate local resources to create an inviting play place for children. “1) Affordances are not static but highly dynamic—different environments afford different play experiences for different children on different occasions. 2) The number of affordances increases with complexity of the environment, with diverse natural spaces providing almost limitless potential play affordances. 3) Through interacting with, manipulating and changing physical environments during their play, children create and detect new play affordances. 4) Natural spaces afford plentiful opportunities to play with feelings and emotions. Through playing with nature children can encounter and experience fear, disgust, disappointment and anger as well as delight, fascination, satisfaction and a sense of wonder. 5) Children are naturally good at discovering play affordances—they are ‘affordance connoisseurs’ – and seek to

maximize the play potential of outdoor environments” (Maudsley 2008.14).

Children’s free action in nature can provide more affordance, and this free action can be empowered and mediated by adults by “1) physical access, management and design of outdoor spaces 2) cultural, societal and community attitudes towards children outdoors 3) direct interventions by parents, playworks, teachers and other adults who interact with children in outdoor settings.” All the natural materials can be used for children to explore the nature.

Smith, Gregory. 2010. *Place- and Community-based Education in Schools*, New York: Routledge.

Smith argued that place- and community-based education is important to both schools and students. He cited place and community-based education currently as “inclusion of both the human and more-than-human, something we believe is essential if educators are to help students grapple with the messy and cross-disciplinary nature of humankind’s current dilemmas” (Smith 2010, 22), which is the gap between schools and local environment.

Using several schools as examples, Smith showed how place- and community-based education affects students’ ability to learn; test scores increased as well. Nature in the city can include cemeteries, where students

can observe in the field and find answers in the classroom. Because they pay attention to what they see in the field, they have more desire to learn and learn even more through interaction with nature.

Finally, he argued that schools should incorporate community members and use the natural environment for education. This is because place- and community-based education gives young people a reason to invest themselves in learning; their social skills will shift from individual striving to mutuality and cooperation; they want to become stewards and preserve the community; and they develop the capacity for solving local problems.

Garvin, Alexander. 2011. *Public Parks: The Key to Livable Communities*. New York, NY: Norton & Company, Inc.

In this book, Garvin first introduces the history of public parks in America. Then he discussed how important parks are in people’s lives. Parks improve both physical and mental health. For example, Frederick Law Olmsted believed that “well-being depends on enjoying two very different characteristics of public parks: the refreshing and tranquilizing effect of immersion in nature, and easily available opportunities for recreational exercise” (Garvin 2011. 33). Recreational places, exercise facilities, and playgrounds should be included in public parks to make people healthier.

Using several examples, the author also points out that

public parks are also good for social health: it welcomes people of different classes, races, and incomes. Public parks also benefit the environment by providing habitat and better air and water quality. Finally, the author stated that parks could be part of the framework of city development. Because public parks are a significant part of people’s lives, residents and city planners should consider designs as part of the surrounding areas, including transportation and real estate.

How Cities Use Parks to Help Children Learn <http://www.planning.org/cityparks/briefingpapers/helpchildren-learn.htm> American Planning Association. Accessed on January 08, 2012

In this forum briefing paper, the author notes that children should be encouraged to learn from nature, and four key points were expressed:

- 1) (City) parks give children the opportunity to interact with nature; this lets them have motivation to discover and learn daily about nature.
- 2) (City) parks give children a sense of place and give them social interaction opportunities.
- 3) (City) parks give children informal learning opportunities through play and interaction with others.
- 4) (City) parks close the educational achievement gap in communities.

Taylor, Andrea Faber, and Kuo, E. France. *Is Contact with Nature important for Healthy Child Development? State of Evidence*. In: Spencer, Christopher and Blades, Mark (eds). 2006. *Children and their environments: learning, using and designing spaces*. New York : Cambridge University Press

The current lifestyle trends have also caused children to have problems with understanding spatial surroundings. In this article, Andrea Faber Taylor and Frances Kuo point out the importance of the green spaces to children’s health. Green spaces include “wilderness programs, outdoor education programs with hands-on nature activities, and green space in neighborhoods, play settings, and schools.” Some studies that the author cited indicate that contact with the nature increased children’s psychological energy. Children who had the outdoor education opportunities showed better academic performance. Green spaces helped children be more creative in their play and gave them better health. Children with natural settings near their homes showed less psychological distress than peers without nature nearby.

Danks, Sharon. 2010. *Asphalt to Ecosystems: Design Ideas for Schoolyard Transformation*. Oakland, CA: New Village Press

“Ecological schoolyards allow classes to meet outside, enriching traditional lessons in every discipline with hands-on learning resources and living systems that

students can observe and interact with on an ongoing basis” (Danks 2010. 1)

Schoolyards can provide students with green areas that serve as a curriculum opportunity to interact with nature and learn local environment. Schoolyards can also be a public place for addressing environment issues. “Schoolyards are conveniently located for use as outdoor classrooms and often function as public meeting places or parks after hours. These educational and social spaces provide good venues for the discussion and practice of ecological design concepts in which the wider community can observe and interact” (Danks 2010. 5) Schoolyards can also provide place-based learning for children as well as provide more opportunity to meet nature, including wildlife.

This book also provides design guidelines for ecological schoolyards that include how to select a site and multipurpose designs. Curriculum connection and community participation were also advised in this guideline.

Moore, Robin and Wong, Herb. 1997. *Natural Learning*. Berkeley, CA: MIG Communications

The authors provide examples in this book of transforming schoolyards from asphalt to a greenspace for students, designing with nature to connect indoors and outdoors. Students were involved, hands on, from the beginning of the process, so they learned more about

plants and wildlife and created a sense of place by themselves. They became stewards and wanted to learn, recording what they saw and what they did.

This helps a child develop through moving and imagining, but children also learn how to live together in the process, enhancing their social abilities. Through interaction with nature, children not only use their senses but also learn to describe what they sense. Hands-on experience with nature also improved their science and math skills. Children learn more through interacting with nature both in school and out. The skills they learn benefit their whole-life learning.

At the end of the book, the authors called for more natural learning. They encourage children’s environmental rights and ask adults to reconnect children to nature in post-industrial childhood. Both adults and children should contribute toward this reconnection.

Hebert, Elizabeth and Meek, Anne. 1992. *Children, Learning and School Design: A First National Invitational Conference for Architects and Educators*. Winnetka, IL: Winnetka Public Schools

In this book, the author Steven Bingler argued that educator and architects should work collaboratively to build a better learning environment. This collaboration could strongly influence the learning process because the design will focus on experiential learning.

The author James Banning argues that the physical environment, seating position and open spaces, for example, are important to learning. He also suggests that to better understand the relationship between the school’s physical environment and the learning process, experiential learning should be considered throughout the planning process, and, moreover, children should participate in the planning process. Finally, Banning also suggests that playgrounds and school bus are learning environments, and they should be designed carefully for that purpose.

Author Hebert used Crow Island as an example of a place built for children. The school design was based on an understanding of children. Hebert evaluated how children learn and how their environment can enhance and affect their learning. The whole plan and design process was a collaboration with children.

Akinsanmi, Bukky. *Optimal Learning Environments: Societal Expectations, Learning Goals and the Role of School Designer*. <http://www.designshare.com/index.php/articles/the-optimal-learning-environment-learning-theories>. Design Share. Accessed on 09/29/2011

In this article, Akinsanmi notes that with the development of societal expectations, school has changed to provide the best physical learning environment. She covers four periods:

1) Classical antiquity (800BC-AD600): School was not for-

mal, parents had demands and their social expectations influenced learning goals.

2) Middle Ages (500AD-1600AD): Government had more influence on school systems.

3) Modern Era (1600 AD-1900 AD): More private schools emerged because of societal needs and influences.

4) Post-Modern Era (1900-present): Schools changed their physical learning environments (building layout, facilities, teaching methods, and philosophies) to meet social expectations resulting from the industrial revolution.

Akinsanmi also argues, “In order to create optimal learning environments, school designers need to design with change in mind.” School designers, in designing the physical learning environment, should keep societal expectations and emerging learning theories in mind and consider the future use. They will thus produce a timeless design, with a context including the “community history, heritage, values, identity, physical site, locally available materials and construction techniques.”

Hester, Randolph, Jr. 1975. *Neighborhood Space*. Stroudsburg, Pennsylvania: Dowden, Hutchinson & Ross, Inc.

In this book, Hester first considers the variations in the definition of neighborhood. The planner’s definition differs from residents’, and residents’ definition will change from individual to individual. Political and social factors influence how we define the neighborhood. Neighbor-

hood space is “public outdoor territory close to home which, because of the residents’ collective responsibility, familiar association, and frequent shared use, is considered to be their own” (Hester 1975. 20). Designers should consider natural boundaries, such as streams when planning neighborhoods or neighborhood space. Neighborhood spaces include such features as streets, playgrounds, parks, churchyards, storefronts, yards, outdoor cafes, and paths. Then the author analyzed examples of neighborhood places and argued that users have increased expectations. Social factors are also very important in planning neighborhood space:

- 1) The interaction processes continuum, from cooperation to completion.
- 2) The specific spatial concepts of the competition process, territoriality and dominance
- 3) Symbolic ownership.
- 4) Interaction variations for groups based on regional, ethnic, class, and lifecycle-stage differences.
- 5) Activity variations for groups based on regional, ethnic, class, and life-cycles-stage differences.
- 5) Usable space.
- 6) Comfortable space.

Based on these social factors, the author discussed what users need and how those needs should affect the design process. He explained both direct and indirect methods

of assessing user needs and their strengths and weaknesses. Finally, eight precedent studies were analyzed to “explore the essentials of design of neighborhood space in light of user needs and design responsibility” (Hester 1975. 244).

Marcus, Clare Cooper, Watsky, Clare Miller, Insley, Elliot, and Francis, Carolyn. *Neighborhood Parks*. In: Marcus, Clare Cooper and Francis, Carolyn. 1990. *People Places: Design Guidelines for Urban Open Space*. New York, NY: Van Nostrand Reinhold.

In this book chapter, the authors first introduced the history of American parks, beginning with four major periods since mid-nineteenth century: 1) the pleasure ground, which focused on large trees, spacious lawns, naturalistic water features, typically outside industrialized cities where workers could relax on Sundays; 2) the reform park, which appeared around 1900 and attempted to enhance the health of children and families of workers. Therefore, more playgrounds were one characteristic of this period; 3) the recreation facility, which started around 1930. With automobile use and suburban development, physical exercise became the emphasis in park use; 4) the open space system period began in 1965, combining separate land areas like mini parks and urban plazas into a system. Today’s neighborhood park may have characteristics of all four periods.

The author notes that in the future, designing and rede-

signing neighborhood parks will involve people in the neighborhood itself, and social needs will be emphasized. The author provides several design recommendations: 1) natural settings like variable Planting, contact with nature, and naturally aesthetic considerations; 2) human contact where park design will consider the surrounding context; different geographic locations have different needs in parks; 3) overt socializing with people coming with others or to meet others. Moreover, different age groups have different needs. Retired and elderly people, preschool children, and teenagers were all discussed separately.

At the end of the chapter, the author noted several neighborhood park case studies and analyzed what worked in design features.

Moore, Robin and Marcus, Clare Cooper. *Healthy Planet, Healthy Children: Designing Nature into the Daily Spaces of Childhood*. In: Kellert, S.R.; Heerwagen, J., and Mador, M. 2008 *Biophilic Design: the Theory, Science, and Practice of Bringing Buildings to Life*. Hoboken, NJ: Wiley.

Through literature review, the authors point out that children with direct exposure to nature were healthier and happier. The authors also point out design guidelines for integrating nature into design and show how physical design can improve exposure to nature, thus 1) engaging children in design with landscape architects, city planners, and parents, 2) limiting their indoor time

and giving them safe routes (like sidewalks, trails, green belts) to walk, and 3) promoting cognitive development. Contact with nature gives children mental, social, and physical health. The authors discuss several nature schools to show how they work to link children to nature. They also suggest how to design/rethink school sites as places to learn about nature during and after school. School sites can be designed to integrate with neighborhood parks, and neighborhood parks should be designed to offer natural experience. Space should be designed with different functions to attract different age groups.

The authors also suggest how to integrate nature into different residential neighborhoods (high density to low density) with examples ranging from shared spaces to green-way network.

For Landscape of Learning group literature review, please access it at K-State Research Exchange, Landscape of Learning Collection through <https://krex.k-state.edu/dspace/handle/2097/13625>

B: PRECEDENT STUDIES: ROSA PARKS ELEMENTARY SCHOOL

Location: Berkeley, California

Grades: K - 5

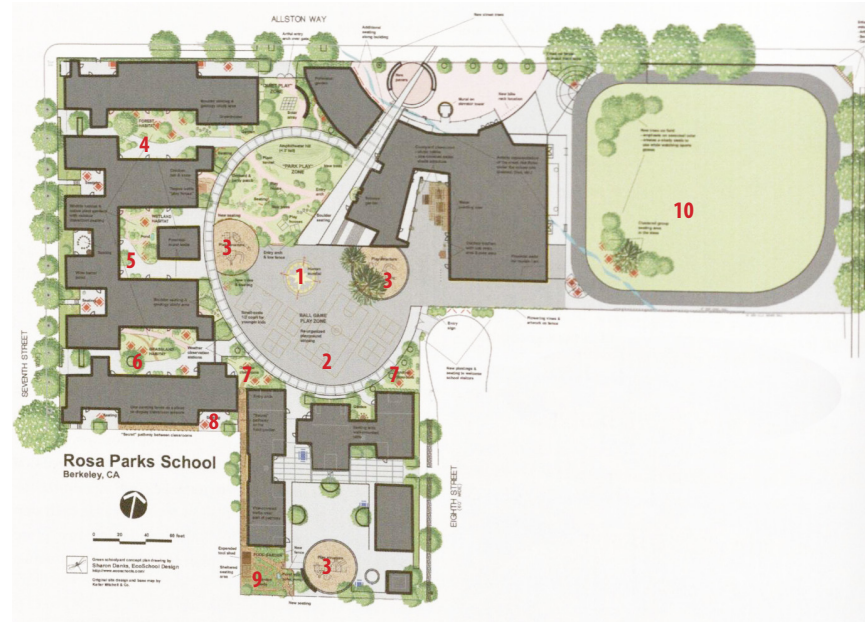
Funded by Land Water Conservation Fund Grant and measure Y in 1974, Rosa Parks School Park was originally built to meet community needs for recreation in Berkeley, California. With the community's cooperation, the school-age play area was completed in 1998.

The Berkeley Unified School District (BUSD) manages and maintains the school. A joint-use agreement between the City of Berkeley and the BUSD offers public access to Rosa Parks School facilities, specifically its play areas, gym, and basketball courts, when school is not in session.

The school site emphasizes play opportunities and learning opportunities. Several creative and explorative play places provide fun and adventure to users. An on-site garden and outdoor classroom space enhances the connection to earth and nature.

Category

- Landscape of Learning
- Neighborhood Park



Legend

- | | |
|--------------------------------------|--------------------------|
| 1. Human Sundial | 6. Grassland Habitat |
| 2. Ball Game Play Zone | 7. Outdoor Classroom |
| 3. Play Structure | 8. Weather Watch Station |
| 4. Wildlife Habitat | 9. Food Garden |
| 5. Pond and Wetland Wildlife Habitat | 10. Amphitheater Hill |

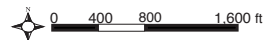
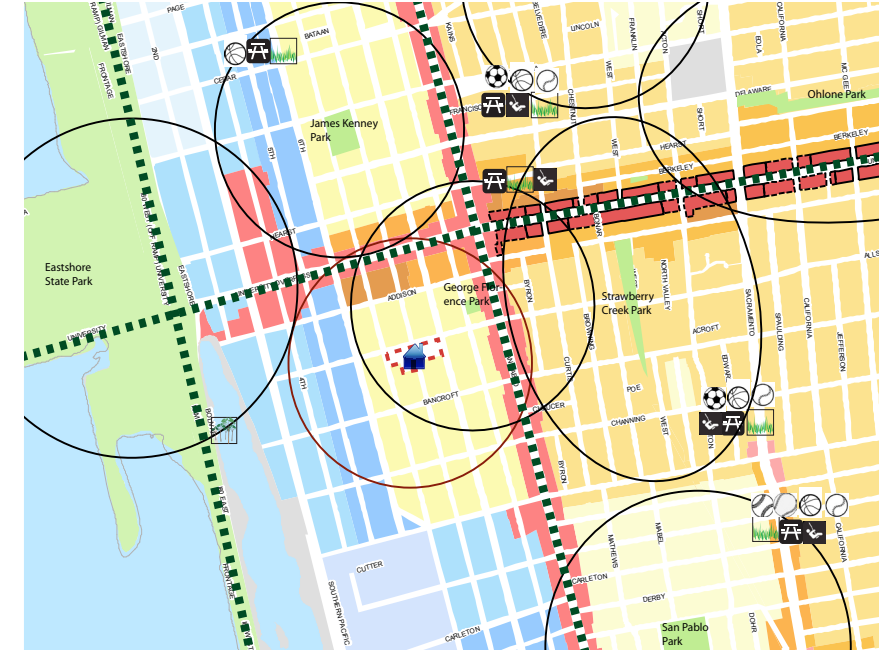
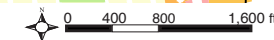


Figure 7.05 Roas Park Elementary School Master Plan (Danks 2010, 18).



Legend

- | | | |
|----------------------------------|----------------------|----------------------------|
| Martin Luther King Middle School | Playground | Berkeley and Albany Zoning |
| 0.25 Mile Radius to Edge | Swimming Pool | Residential |
| Softball Court | Trail | Commercial |
| Baseball Court | Picnic Table | Manufacturing |
| Tennis Court | Natural Area | Mixed Use-Residential |
| Basketball Court | Open Space | Park |
| Soccer Field | School Site Boundary | Unclassified |
| Primary Road | City Boundary | Public Facility |



Location Analysis

The school is at Allston Way, between Seventh and Eighth streets in southwest Berkeley, California. The school is in a residential neighborhood, with commercial areas to the north and east, and an industrial area to the west, serving the San Francisco bay.

This community has several parks, but to get to some children must cross busy streets. The school park serves local residents within a 0.25 mile walking radius

Figure 7.06 Roas Park Elementary School Location Analysis. Adapted Map from City of Berkeley (Author, 2012).

Features

(Human) Sundials

Sundials teach students how time changes, providing an enjoyable and direct way to learn about the passage of time. The human sundial has a fixed gnomon and requires a large open place possibly on concrete or asphalt. Children themselves serve as the gnomon. One student stands still while another traces the shadow with chalk or some other medium. In this way, students see how the sun appears to move. Human sundial not only teaches students about time but also in a way to teach collaboration.

Rocks

Rocks can be used to teach geology, but also serve for seating or decorating. When teaching geology, teachers can bring their students outside to observe examples of igneous, metamorphic, and sedimentary rocks.

Pond (Wildlife Habitat Observation)

At a pond, students can relax and observe fish and other wetland creatures. Such locations can inspire students. Birds and other wildlife visit ponds, making them perfect places to educate students about local habitat and microclimate.

Open-sided Gazebo

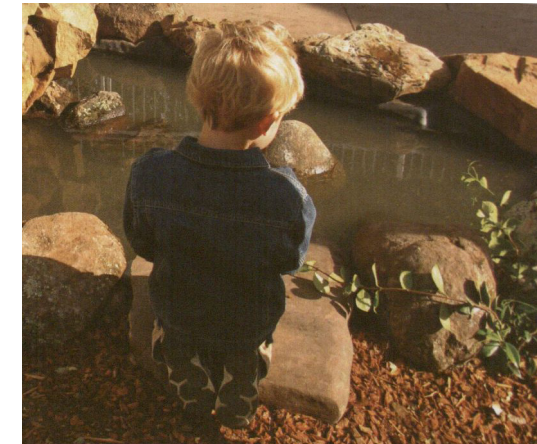
This small gazebo provides a comfortable place for outdoor classes. It is also visually aesthetic in the schoolyard landscape.

Outdoor Painting

Open space with asphalt or concrete surfaces can be used as outdoor painting area. Weatherproof chalkboards can also be placed there. Water, chalks, or natural materials can be used as media for painting. Outdoor painting can inspire students to observe surroundings.

Sound Tubes

Sound tubes are popular equipment for children. Children speak at one end of the tube without seeing the other end, but their friends can hear them. This will help their social ability. Children learn about how sound travels as well.



From Top Left to Bottom Right:

Figure 7.07 (Human) Sundials (Danks 2010, 126).

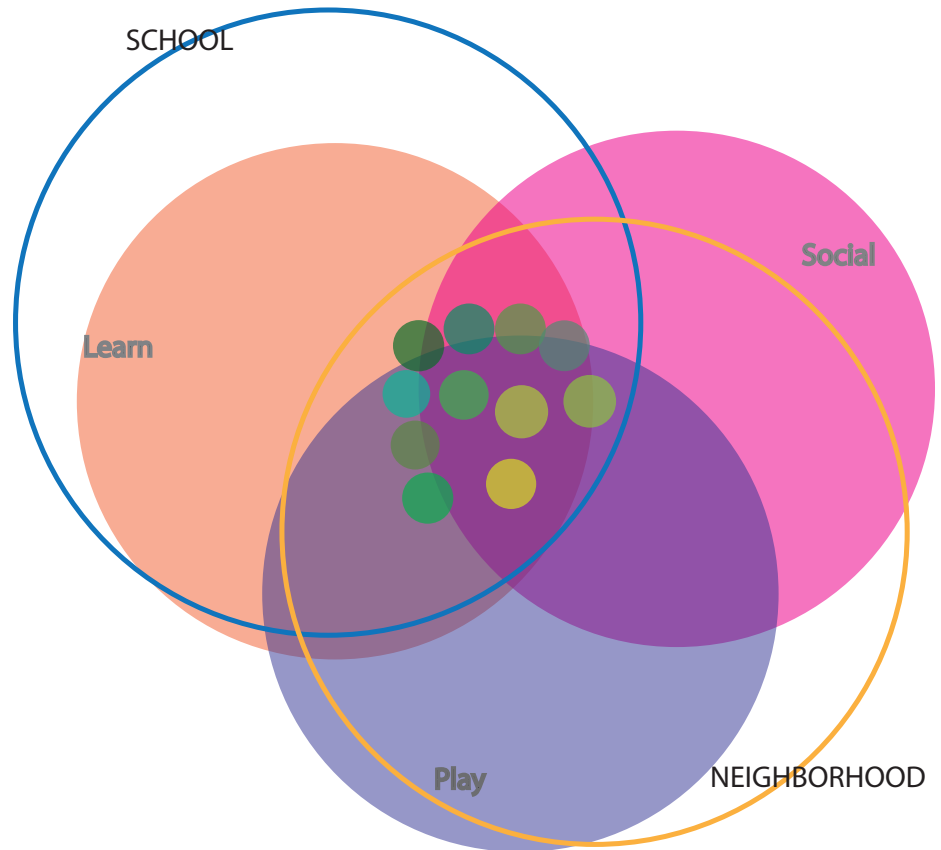
Figure 7.08 Rocks Function as Decoration, Seating, and Education Material (Danks 2010, 130).

Figure 7.09 Pond (Wildlife Habitat Observation) (Danks 2010, 12).

Figure 7.10 Open-sided Gazebo as Outdoor Classroom (Danks 2010, 208).

Figure 7.11 Outdoor Painting (Danks 2010, 179).

Figure 7.12 Sound Tubes (Danks 2010, 193).



Legend

- Human Sundial
- Ball Game Play Zone
- Play Structure
- Wildlife Habitat
- Pond and Wetland Wildlife Habitat
- Grassland Habitat
- Outdoor Classroom
- Weather Watch Station
- Food Garden
- Amphitheater Hill
- Open-sided Gazebo



Man-made Material

Natural Material

Figure 7.13 Site Element and Their Usages, Material Analysis (Author, 2012).

Concept Analysis

How is it a learning landscape/environment? Does the concept effectively support learning?

The schoolyard design emphasizes outdoor learning and connects to the school curriculum. Sundial, weather watch station, wildlife observation area, and garden give students experimental learning opportunities. The school was designed using native California plants, which teach children about seasonal changes, growth, and local ecology. Birds and wildlife are attracted by the pond and native plants. All components engage children's senses and enhance a feeling of stewardship. Site elements like the stones can be used to teach geography while providing seating. The outdoor classrooms and gazebo provide comfortable places for hands-on learning.

Who is the audience?

Students (grades K-5) at the school and local residents all use the park.

How is it a neighborhood park?

The school's site provides open access to its play areas, gym, and basketball court for the public to use outside of school hours.

Who is the user?

Students in the Rosa Parks Elementary School use the area, as do people of various ages in the neighborhood.

Comparison to Susan B. Anthony Middle School Site

This Site	Project Site
Elementary School	Middle School
Ponds and Wetland Habitat Area	Drainage Water Collection Area
0.46 Acre	39.1 Acre
575 Students	464 Students

B: PRECEDENT STUDIES: BROWN STREET ACADEMY

Location: Milwaukee, Wisconsin

Grades: PreK-5

The Center for Resilient Cities works with Brown Street Academy, a public elementary school, to transform the schoolyard into interactive learning stations made from natural materials. Teachers, community partners, and the Center for Resilient Cities collaborated to turn the formerly asphalt-covered schoolyard into an environmentally conscious learning and play environment, to be shared with the whole community.

The schoolyard project is part of the Greater Johnsons Park Initiative, and a Nature Explore Outdoor Classroom was built on-site in 2010. Made of natural materials, the outdoor classroom stations feature interactive learning, seeking to improve students/users' visual, science, art, math, literacy, music, movement, and social skills.

Category

- Landscape of Learning
- Neighborhood Park



Legend

- | | |
|--------------------------|----------------------|
| 1. Music/Movement | 6. Climbing/Crawling |
| 2. Messy Material | 7. Building Area One |
| 3. Path Through Planting | 8. Water |
| 4. Garden/Dirt Digging | 9. Gathering Place |
| 5. Sand | 10. Nature Art |

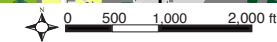


Figure 7.14 Enlarged Detail Plan (http://resilientcities.org/Resilient_Cities/GJP.html, 2012).



Legend

- | | | |
|---|--|---|
| Blue building icon: Brown Street Academy | Black square with white circle icon: Playground | Yellow square icon: Milwaukee Zoning Residential |
| White circle with black border icon: 0.25 Mile Radius to Edge | Black square with white circle icon: Swimming Pool | Pink square icon: Commercial |
| Black circle with white border icon: Tennis Court | Black square with white circle icon: Trail | White square icon: Open Lands |
| Black circle with white border icon: Softball Court | Black square with white circle icon: Picnic Table | Grey square icon: Industrial |
| Black circle with white border icon: Baseball Court | Black square with white circle icon: Natural Area | Blue square icon: Government and Institutional |
| Black circle with white border icon: Basketball Court | Black square with white circle icon: Open Space | Green square icon: Park |
| Black circle with white border icon: Soccer/Football Field | Red dashed line icon: School Site Boundary | Purple square icon: Communication and Institutional |
| Green dashed line icon: Primary Road | Red solid line icon: Rail Road | |



Location Analysis

The Greater Johnsons Park Initiative has three adjacent properties: a public elementary schoolyard (Brown Street Academy), a 13-acre county park (to the east of the school), and a two-acre community garden (to the north of the school). The total comprises about 20 acres. The vacant lands were redesigned from a railroad construction site.

The site is in the Johnsons Park neighborhood, providing the community with a safe recreation place. Some residents live within 0.25-mile walking distance of the school/park. With the school's outdoor classroom, this Greater Johnsons Park Initiative created a positive space for people to gather, celebrate events, pursue physical activity, and learn.

Figure 7.15 Brown Street Academy Location Analysis. Adapted Map from City of Milwaukee, WI (Author, 2012).

Features

Music/Movement

A stage was constructed for classes or outdoor performances. Students have more opportunity to express what they have learned right outside in nature. Marimbas allow children to have freedom to play music, a direct way to learn about sound, rhythm, and tonality. The marimba is made from natural materials, such as pipe and cedar wood—another direct tool to allow children to experience the different sounds of different materials. Both the stage and the marimba inspire children to create music and improve public performances.

Gathering Place with Natural Bench

The gathering place is a space where teachers can teach, students can have social interaction, or a student can simply sort through her knowledge. With natural benches, children do not use them as they would a concrete park bench; they discover more ways to play with it. Therefore, the gathering place provides not only a place for socializing but also a place for discovering new ideas.

Messy Materials

Materials include wood chips, log sections and perimeter, logs, large tree cookies, and small log sections. In this area, children can touch and play with natural materials.

They can build with those materials and then demolish what they built. Because the materials are wood, children learn directly about the age of trees and observe the natural processes of natural materials (cracking, breaking apart, and decomposition).

Nature Art

Materials include local/regional stone flagging, nature art tables, local/regional materials, and art panels. When children work with natural materials such as pine cones or seed pods and arrange them into patterns or mosaic-like pictures, they develop a deeper appreciation for the beauty of the natural world while strengthening skills in classification and close observation.

Path through Planting

This leads children into a more direct interaction with nature. When walking through the planting, children have more chance to observe the wildlife and differences with seasonal changes. It is a direct way to connect children with nature.



From Top Left to Bottom Right:

Figure 7.16 Natural Material Seating (www.resilientcities.org, 2012).

Figure 7.17 Natural Seating (<http://milwaukeeerotary.com/display.aspx?id=4954>, 2012).

Figure 7.18 Messy Materials (ftp://www.marc2.org/outgoing/2011_Built_Environment_and_the_Outdoors_Summit/JWikeNewApproachSuccessfulOutdoorClassDesign.pdf, 2011).

Figure 7.19 Natural Art (http://www.resilientcities.org/Resilient_Cities/BROWN_STREET_ACAD-EMY.html, 2012).



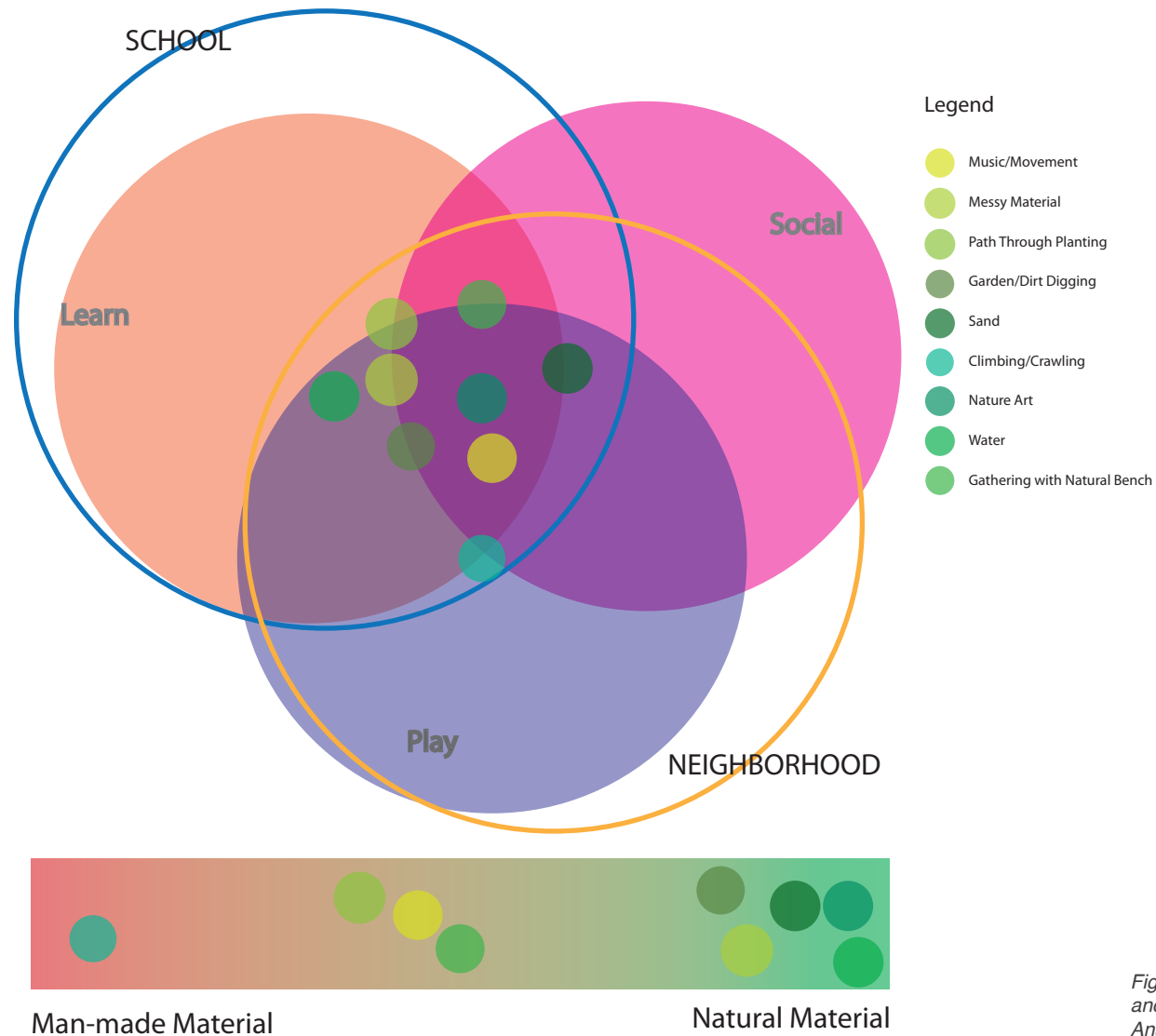


Figure 7.20 Site Element and Their Usages, Material Analysis (Author, 2012).

Concept Analysis

How is it a learning landscape/environment? Does the concept effectively support learning?

The schoolyard was transformed from asphalt into an outdoor classroom. It promotes students' self discovery and interactive learning in this open natural setting. Students use distinct activity areas differently. Using natural materials such as stone, wood, and natural plants, the schoolyard improves and inspires children's stage performances, visual art, vegetable gardening, mobile skill development, and scientific experimentation. All give students opportunities to experience and learn, improving their visual observation and social interaction skills at the same time.

Who is the audience?

Students (PreK-5) in the school are the focus, as are other users of the schoolyard.

How is it a neighborhood park?

As part of the Big Initiative, the school site serves the neighborhood. Because the school site is still under construction, and actual usage is not yet clear.

Who is the user?

Students at the school as well as the neighborhood residents.

Comparison to Susan B. Anthony Middle School Site

This Site	Project Site
Elementary School	Middle School
Part of the greater park Plan	No public parks within walking distance
Located at middle west environment	Located at middle west environment
353 Students	464 Students

B: PRECEDENT STUDIES: MONTESSORI COMMUNITY SCHOOL

Location: Durham, North Carolina
Grades: 18 months - 8

Montessori Community School focuses on interaction between indoors and outdoors. In the outdoors environment, students continue to build on the knowledge they gain inside the classroom with more experiential opportunities. The school has four different levels of students. The school uses the outdoor learning environment to teach students at each level. Toddlers walk around campus, observe nature, and find frogs and other exciting things. Children at the primary level pot plants, weed and dig, and have other hands-on experiences with nature. Children at elementary level begin to learn science from the natural environment. Middle school students, in integrating the enriched curriculum with an outdoor environment learn science, and the overall natural environment inspires their writing.

The Natural Learning Initiative worked with the school and the Montessori Community Association (parent-led organization) to create naturalized play and learning settings for the primary school area and the Spark Center serving the elementary school.



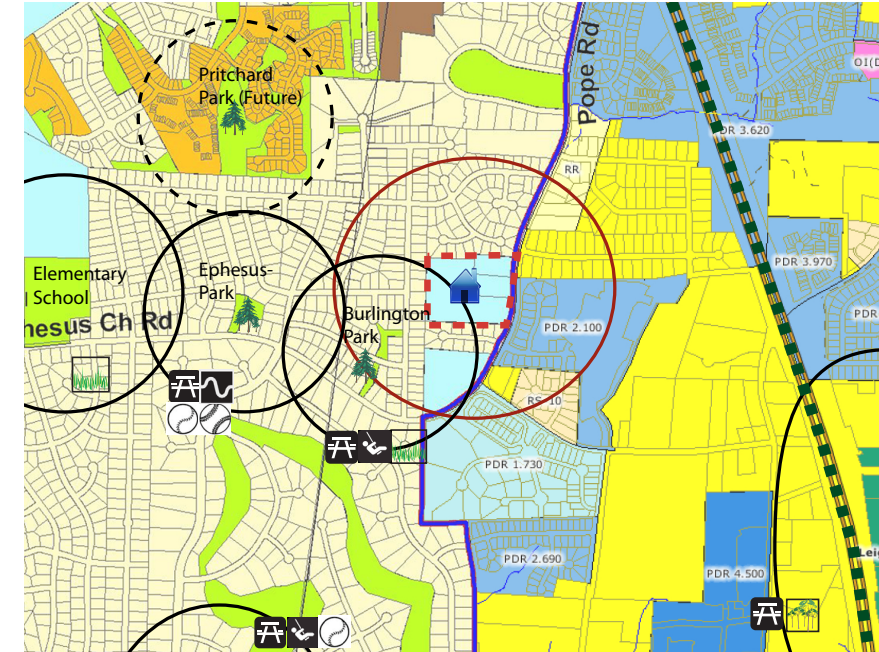
Legend

- | | |
|------------------------------|--------------------------------|
| 1. Play Structure | 6. Rain Gardens |
| 2. Informal Seating | 7. Outdoor Classroom Area |
| 3. Paving for Fountain | 8. Planting to Hide Gym Facade |
| 4. Tiered Planting for Slope | 9. Existing Swale |
| 5. Outdoor Seating for Music | |

Category

- Landscape of Learning

Figure 7.21 Montessori Community School Site Plan (<http://www.natural-learning.org/content/montessori-community-school-durham-nc>, 2012).



Legend

- | | | |
|-----------------------------|--------------------------|---------------------|
| Montessori Community School | Playground | Zoning |
| 0.25 Mile Radius to Edge | Swimming Pool | Residential |
| Tennis Court | Trail | Town/Village Center |
| Softball Court | Picnic Table | Commercial |
| Baseball Court | Natural Area | Mixed Use |
| Basketball Court | Open Space | Institutional |
| Soccer Field | Travis Elementary School | Office |
| Primary Road | City Boundary Line | Industrial |
| | | Park |

Location Analysis

Located between Chapel Hill and Durham, the Montessori Community School is a private school. On the north and west sides of the school are mainly residential areas. East of the school is industrial and office buildings.

Figure 7.22 Montessori Community School Location Analysis. Adapted Map from City of Durham and Chapin Hill, NC (Author, 2012)

Features

Paths in the Planting/ Grass Maze

This provides children and young adults direct access to nature. Children and young adults have closer relationships with nature because of this path --- they smell, touch, and observe changes in plants by walking among them. The maze also inspires curiosity, so children and young people want to play more outdoors.

Grassy Knolls

The landform provides an interesting place for children and young adults to climb and slide.

Rain Garden

The garden is a place to educate students about rainwater harvesting. With different planting, it is also a place to teach students about natural wetland plants.



From Top Left to Bottom Right:

Figure 7.23 Grass Maze (<http://www.naturalearning.org/content/montessori-community-school-durham-nc#>, 2012).

Figure 7.24 Grass Knolls (<http://www.naturalearning.org/content/montessori-community-school-durham-nc#>, 2012).

Figure 7.25 Rain Garden (http://www.naturalearning.org/sites/default/files/imagecache/sidebar_image/sidebar_imgs/IMG_0349.png, 2012).

Figure 7.26 Path through Plants (<http://www.naturalearning.org/content/montessori-community-school-durham-nc#>, 2012).



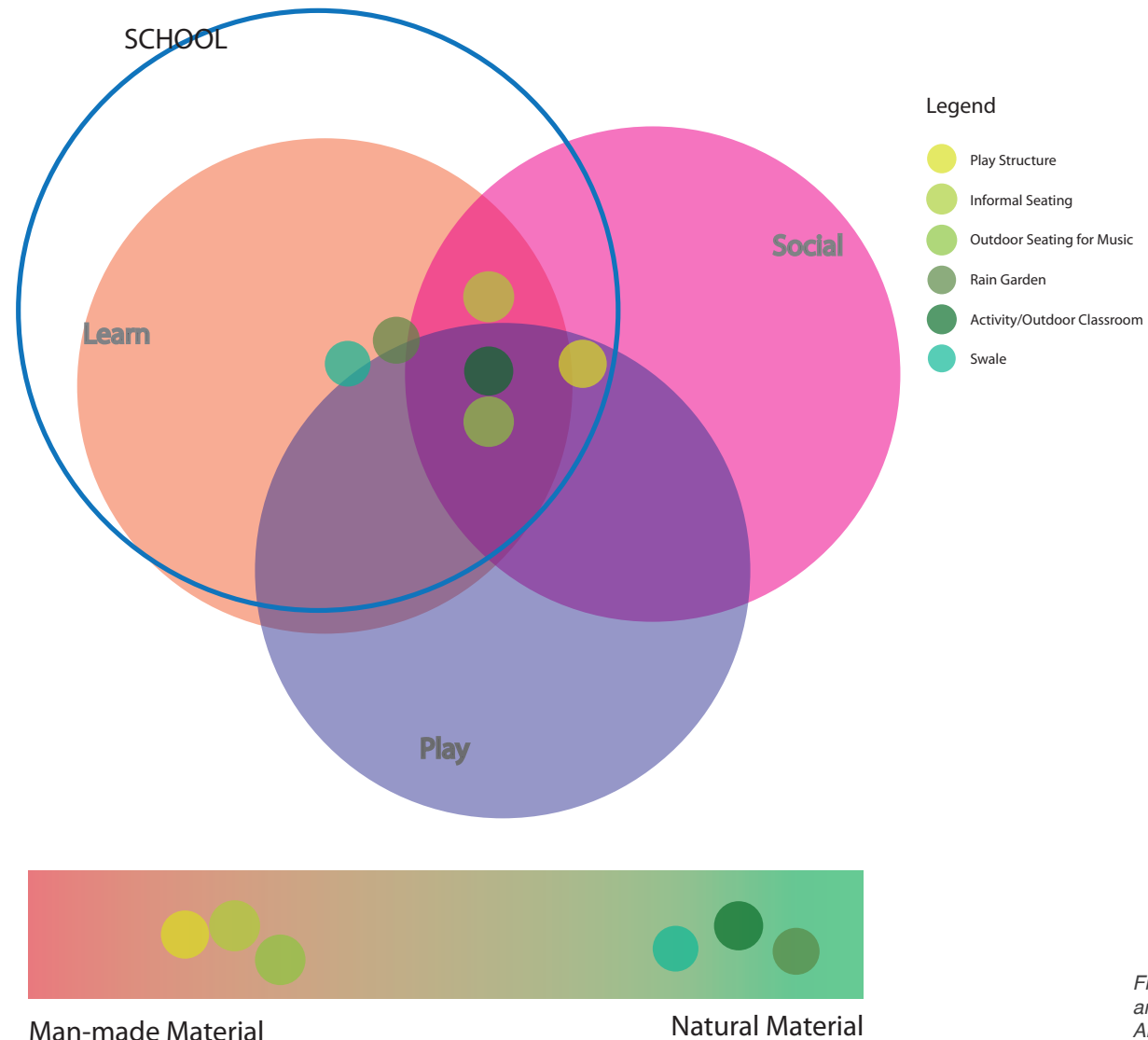


Figure 7.27 Site Element and Their Usages, Material Analysis (Author, 2012).

Concept Analysis

How is it a learning landscape/environment? Does the concept effectively support learning?

Various components, like the rain garden, swale, and playground, provide a perfect environment for experimental learning. Such an environment also provides opportunities for more direct teaching and learning. Informal seating and outdoor classrooms are places to hold learning activities. The learning environment is used as part of the curriculum.

Who is the audience?

Students (18month - 14year) in the school use the park.

How is it NOT a neighborhood park?

The school is a private school, and gives the site accessible only to its students.

Comparison to Susan B. Anthony Middle School Site

This Site	Project Site
18 month - Middle School	Middle School
Water Runoff Channel	Drainage Channels on the Vacant Lot and Low Elevation Points Collecting Water
250 Students	464 Students

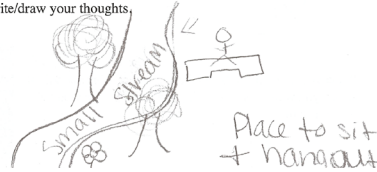
C: SELECTED DRAWINGS FROM SURVEY

I would like to picnic at LEAST 1 time a day.

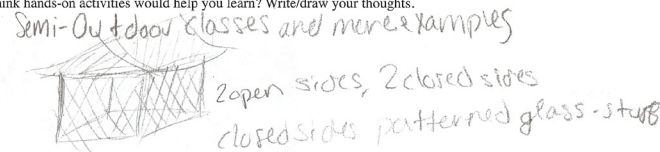
3. What do you think will be cool to do in order to help you learn in classes such as physics/nutrition? Do you think hands-on activities would help you learn? Write/draw your thoughts.



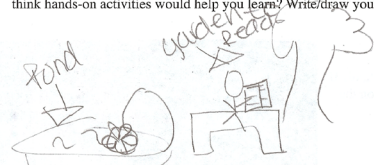
3. What do you think will be cool to do in order to help you learn in classes such as physics/nutrition? Do you think hands-on activities would help you learn? Write/draw your thoughts.



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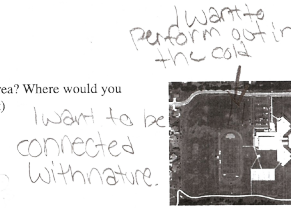
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3. What do you think will be cool to do in order to help you learn in classes such as physics/nutrition? Do you think hands-on activities would help you learn? Write/draw your thoughts.



4. Would you like to have an outdoor gathering/performance area? Where would you want it to be located? (Write below or draw on the map at right)



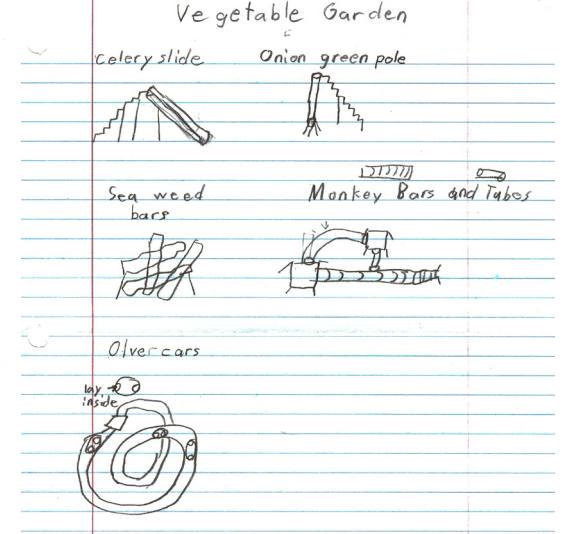
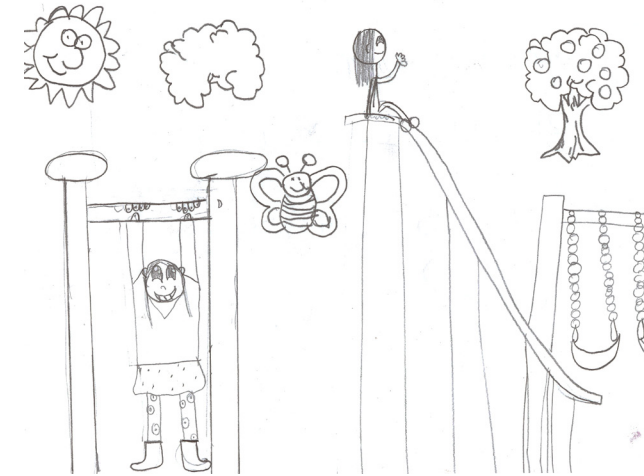
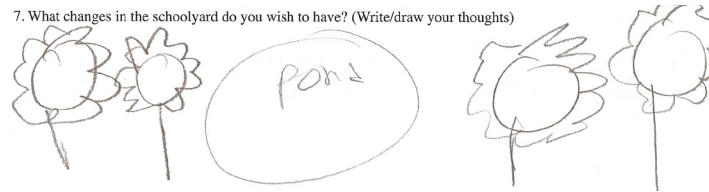
7. What changes in the schoolyard do you wish to have? (Write/draw your thoughts)



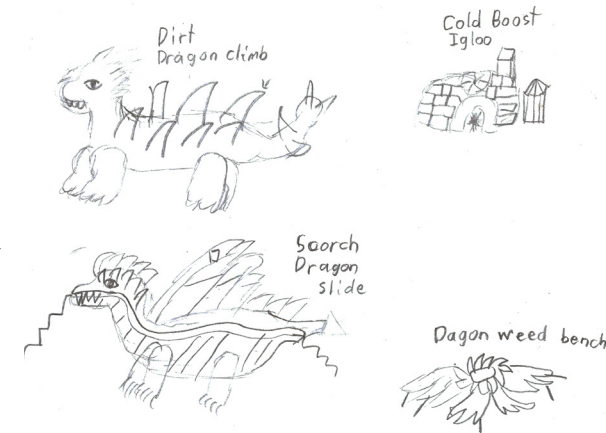
7. What changes in the schoolyard do you wish to have? (Write/draw your thoughts)



7. What changes in the schoolyard do you wish to have? (Write/draw your thoughts)



DRAGON TOWN!

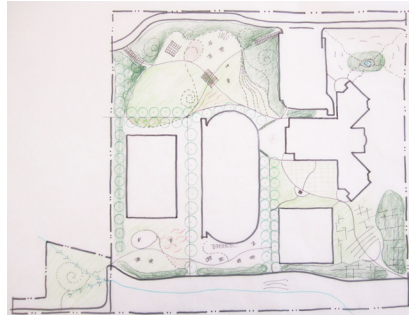
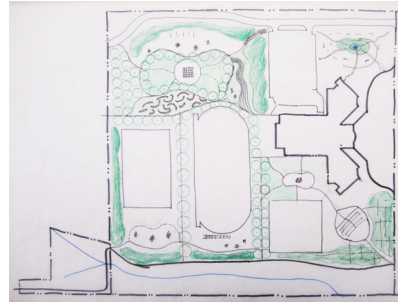
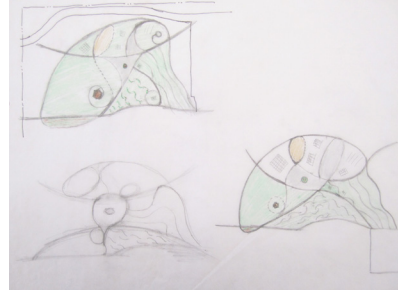
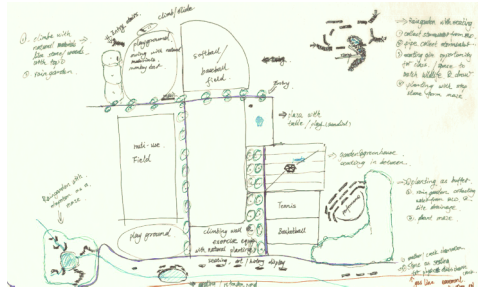


Left:
Figure 7.28 Selected Drawings from Susan B. Anthony Middle Students Survey Response (Survey Participants, 2012).

Right:
Figure 7.29 Selected Drawings by Neighborhood Children (Survey Participants, 2012).

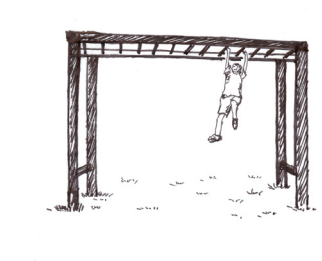
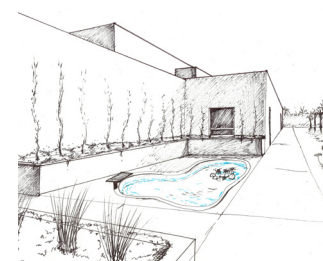
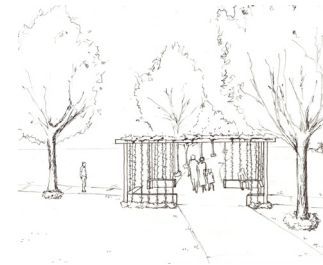
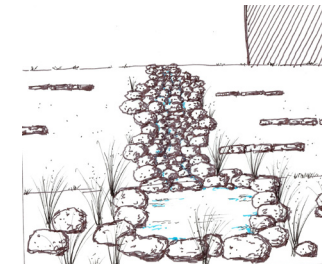
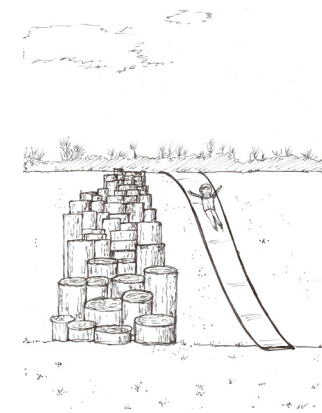


D: SELECTED PROCESS DIAGRAMS/DRAWINGS



Left:
Figure 7.30 Selected Process Drawings (Author, 2012).

Right:
Figure 7.31 Process Vignettes (Author, 2012).



E: GLOSSARY

Affordances	incorporate local resources to create an inviting play place for children (Maudsley, 2008)	Neighborhood park	a green space within walking distance to serve a nearby community, primarily pedestrian traffic (Althoff, 1975)
Biophilia	the innate tendency to focus on life and life-like processes (Wilson, 1984)	Neighborhood	within a quarter-mile or five-minutes walking distance radius (Perry 1929).
Cultural geography	historical perspective of how people affect their environment and vice-versa	Neighborhood Space	public outdoor territory close to home which, because of the residents' collective responsibility, familiar association, and frequent shared use, is considered to be their own (Hester, 1975)
Ecological design	design with regard for natural processes (Danks, 2010)	Place- and Community- based education	education with a local place or community involvement or identity (Smith, 2010)
Experiential Learning	learning through the process of interacting (Kolb, 1984)	School Environment	educational landscapes, educational facility (Danks, 2010)
Environmental psychology	how physical environments affect cognitive processes and emotions		
Environmental Stewardship	the responsibility to respect and protect the environment		
Formal Learning	learning typically found in traditional school classrooms (Ainsworth and Eaton, 2010)		
Health + Wellness	how the physical environment affects the quality of life of the users		
Human environment interaction	how people are engaged by the landscape		
Informal Learning	learning occurred outside of traditional school classrooms (Ainsworth and Eaton, 2010)		
Landscape of Learning	A landscape with natural environment that provides a setting for experiential learning (Author, 2012)		

F: SELECTED KANSAS EDUCATION CURRICULUM STANDARDS (GRADE 7 AND GRADE 8)

Environmental Education

1 Earth as a Physical System

Learners demonstrate an understanding that the earth is a physical system.

1.1 Learners examine the processes that shape the earth.

1.1.1 By the end of the eighth grade, the students: relate physical processes to the relationship of the earth to the sun. Indicators and examples are not listed in priority order nor are they to be considered as all-inclusive.

1.1.2 distinguish among naturally occurring short-term forces, long term forces, and human-caused influences on environmental processes. Example: Examples of these processes include earthquakes (short-term), erosion and deposition (long-term), and habitat change or pollution (human-caused).

1.1.3 analyze physical phenomena to show patterns. Example: Low rainfall patterns, over time, will result in desert climates.

1.1.4 link non-living parts of the environment with living portions of the ecosystem. Example: The amount of rainfall will determine which plants may grow.

1.1.5 recognize different processes that shape the

earth, such as weathering and erosion. Example: Take the students on a walk around the school yard or to a river, creek, or stream to identify locations where weathering and erosion are taking place.

1.2 Learners investigate basic properties of matter and energy.

1.2.1 By the end of the eighth grade, the students: recognize that the sun provides the energy to power various cycles in nature, e.g., the water cycle, air movements, ocean currents, and life processes. Example: Using two liter bottles, have students build models to demonstrate one or more of these cycles.

1.2.2 illustrate that energy and matter cannot be created or destroyed, but it can change forms. Example: Determine the mass of a tissue before and after burning it in a closed container.

2 Organisms and the Environment

Learners demonstrate an understanding of the relationships and interactions between organisms and the environment.

2.1 Learners investigate complex relationships among organisms and habitats.

2.1.1 By the end of the eighth grade, the students: identify the relationships between living and non-living components in a given habitat, e.g., white-tailed deer must have food, water, and shelter in their habitat. Example: Have students pick an animal and identify the living and non-living components of that animal's habitat. Have students "predict" what might happen if one or more of the components is removed from the animal's habitat.

2.1.2 indicate how resources are used by many organisms. Example: Identify different habitats found in a forest. Take two or more of these habitats and show how living organisms use common components of their habitats, e.g., an animal may live in a tree or use the tree as food.

2.1.3 recognize that resources are limited, which results in competition. E.g., carrying capacity, food webs, and food chains. Example: Discuss predator/prey relationships and identify or predict what might happen when the predator/prey balance changes.

2.2 Learners recognize the relationships between organisms' physical characteristics and behaviors and their ability to adapt to the environment.

2.2.1 By the end of the eighth grade, the students: link physical features and behaviors of plants and animals to their survival in their environment. Example: Identify plant and animal adaptations and describe the role that these adaptations have made to the survival of the species.

2.2.2 understand how features can be inherited which may allow an organism to better survive. Example: Trace the history of the color change of English moths or find other examples of camouflage for species survival by using magazine pictures and other resource materials.

2.3 Learners investigate the interdependence of living organisms with each other and with the physical environment.

2.3.1 By the end of the eighth grade, the students: compare and contrast various relationships among organisms, e.g., organisms interact with each other through communities, predator/prey relationships, symbiosis, mutualism, parasitism, etc. Example: Study the relationships between fish and other aquatic organisms in a classroom aquarium or an outdoor learning center.

2.3.2 investigate the roles of producers, consumers, scavengers, and decomposers. Example: Build a classroom compost bin.

2.3.3 trace the flow of energy through food webs. Example: Using owl pellets, work backwards to reconstruct possible food webs that the owl's prey may have been part of to survive until eaten by the owl.

3 Humans and the Environment

Learners demonstrate an understanding of the varied roles and interactions between humans and the environment.

3.1 Learners investigate the relationships between individuals, groups, cultures, and the environment.

3.1.2 understand that groups holding differing views on environmental issues must still work together. Example: Have students take part in a land use simulation activity.

3.1.4 recognize that limited resources can cause conflict among groups. Example: Investigate Western water rights issues.

3.1.5 predict how human-caused changes will affect future environments. Example: Study river channelization and the resulting environmental impact.

3.3 Learners investigate the relationships among resources, technology, and the environment.

3.3.2 classify natural resources as renewable, nonrenewable, or perpetual, and identify the impact of the future availability of natural resources in these categories. Example: Conduct a resource use simulation where tokens represent natural resources from each category. Students take the number of tokens needed (for each natural resource) for the role they play.

3.3.3 examine how Kansas natural resources are obtained, used, reused, recycled, or discarded. Example: Design graphs that illustrate Kansas natural resources and their uses.

3.4 Learners identify and analyze environmental issues from multiple points of view.

3.4.2 analyze local and state environmental issues based on benefits and risks. Example: Debate what families should do with leaves in the fall, e.g., burn them, leave them on the ground, send them to the landfill, compost the leaves, or another solution.

4 Scientific Inquiries

Learners develop the abilities necessary to conduct scientific inquiries.

4.1 Learners demonstrate scientific questioning skills.

4.1.1 By the end of the eighth grade, the students: design testable questions based on environmental observations, inferences, and predictions. Example: Develop open-ended problem questions that can be tested using scientific processes.

4.2 Learners demonstrate scientific inquiry skills.

4.2.1 By the end of the eighth grade, the students: refine questions; make assertions and predictions; identify and define variables; develop hypotheses; collect, organize and analyze information/data through surveys, interviews, experiments, or other means.

Science

1 Science as Inquiry

The student will develop the abilities of do scientific inquiry, be able to demonstrate how scientific inquiry is applied, and develop understandings about scientific inquiry.

1.1 The student will demonstrate abilities necessary to do the processes of scientific inquiry.

1.1.2 The student designs and conducts scientific investigations safely using appropriate tools, mathematics, technology, and techniques to gather, analyze, and interpret data.

Physical Education

1 Motor Skills

The student demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.

1.1 The student will demonstrate mature movement patterns of locomotion, manipulation of objects, and rhythmic concepts during modified individual or team physical activities.

1.1.1 The student uses basic offensive and defensive strategies in modified net games and invasive games.

1.1.2 The student performs a variety of simple folk, square, and creative dances.

1.1.3 The student designs and performs gymnastics (or dance) sequences that combine traveling, rolling, balancing, and weight transfer into smooth, flowing sequences with intentional changes in direction, speed, and flow.

1.1.4 The student demonstrates competency while

participating in modified versions of team and individual sports.

1.1.5 The student explores introductory outdoor pursuit skills.

2 Learning Concepts

The student demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.

2.1 The student will demonstrate movement concepts, principles, strategies, and tactics that apply to the performance of physical activities.

2.1.1 The student identifies similarities in body position in various team sports.

2.1.2 The student detects and corrects errors in personal performance.

2.1.3 The student explains at least two game tactics involved in playing a team sport.

2.1.4 The student designs a new game that incorporates skills and tactics that can be played fairly by all students, including those with disabilities.

3 Active Participation

The student participates regularly in physical activity.

3.1 The student will regularly participate in moderate to vigorous levels of physical activity.

3.1.1 The student participates in physical activities both during and outside of school for the purpose of improving skill and health.

3.1.2 The student sets realistic, measurable, and attainable goals for participation in activities of own choosing.

3.1.3 The student accumulates a recommended number of minutes of moderate to vigorous physical activity outside of physical education class on three or more days during the week.

3.1.4 The student maintains a physical activity log for a seven-day period, documenting progress toward achievement of personal goals.

3.1.5 The student logs a specified number of steps during the day using pedometers.

4 Physical Fitness

The student achieves and maintains a health-enhancing level of physical fitness.

4.1 The student will develop high levels of basic physical fitness.

4.1.1 The student participates in activities designed to improve or maintains that health related fitness components.

4.1.2 The student understands the importance of staying within the target heart rate (THR) zone while participating in games and activities.

4.1.3 The student self-assesses heart rate before, during, and after vigorous physical activity.

4.1.4 The student demonstrates appropriate training principles and exercise techniques designed to improve physical fitness.

4.1.5 The student maintains heart rate in THR zone for a minimum of 20-minutes while participating in a game or activity.

5 Personal and Social Behavior

The student exhibits responsible personal and social behavior that respects self and others in physical activity settings.

5.1 The student will exhibit responsible personal and social behavior while working in diverse groups.

5.1.1 The student makes responsible decisions about using time, applying rules, and following through with the decisions made.

5.1.2 The student remains on-task without close teacher monitoring.

5.1.3 The student demonstrates concern for safety of self and others during games and activities.

5.1.4 The student considers the consequences of choices when confronted with negative peer pressures.

5.1.5 The student plays within the rules of the game or activity and shows self-control by accepting a controversial decision.

5.1.6 The student resolves conflict with a sensitivity to the rights and feelings of others.

5.1.7 The student through verbal and nonverbal behavior, demonstrates cooperation with peers of different gender, race, and ability in a physical activity setting.

History, Government, Economics, and Geography

3 Geography

The student uses a working knowledge and understanding of the spatial organization of Earth's surface and relationships between peoples and places and physical and human environments in order to explain the interactions that occur in Kansas, the United States, and in our world.

3.3 The student understands Earth's physical systems and how physical processes shape Earth's surface.

3.3.2 (K) The student explains patterns in the physical environment in terms of physical processes (e.g., tectonic plates, glaciation, erosion and deposition, hydrologic cycle, ocean and atmospheric circulation).

3.3.3 (K) The student describes the characteristics of ecosystems in terms of their biodiversity (e.g., biodiversity: food chains, plant and animal communities; ecosystems: grasslands, temperate forests, tropical rainforests, deserts, tundra, wetlands, and marine environments).

3.5 The student understands the effects of interactions between human and physical systems.

3.5.1 (K) The student identifies ways in which technologies have modified the physical environment of various world cultures (e.g., dams, levees, aqueducts, irrigation, roads, bridges, plow).

Family and Consumer Sciences

3 Nutrition and Wellness

Demonstrate nutrition and wellness practices that enhance individual and family well-being.

*3.3.2 Examine the nutritional needs of individuals and families in relation to health and wellness across the life span. (*14.2)*

3.3.2.1 Assess the effect of nutrients on health, appearance, and performance. (*14.2.1)

3.3.2.2 Compare personal/family nutrition and wellness needs throughout the life cycle. (*14.2.2)

3.3.2.3 Assess the impact of food and diet fads, food addictions, and eating disorders on wellness. (*14.2.3)

3.3.2.4 Evaluate sources and reliability of food and nutrition information related to health and wellness. (*14.2.4)

3.3.2.5 Evaluate relationship between food choices, eating patterns, physical activity, and maintaining overall wellness.

3.3.2.6 Analyze menus and/or recipes for nutrient benefits to family members.

3.3.2.7 Apply various dietary guidelines in planning to meet nutrition and wellness needs of individuals, families, and individuals with special dietary needs. (*14.3.1)

3.3.2.8 Demonstrate ability to select, store, prepare, and serve nutritious foods. (*14.3.3)

3.3.2.9 Analyze nutrition label information to make positive food choices and wellness decisions.

3.3.2.10 Evaluate the impact of foods treated with chemicals/hormones on long-term health and wellness in comparison to organic foods.

*3.3.3 Evaluate factors that affect food safety, from production through consumption. (*14.4)*

3.3.3.1 Determine conditions and practices that promote safe food handling. (*14.4.1)

3.3.3.2 Demonstrate safety and sanitation practices. (*14.4.2)

3.3.3.3 Analyze food borne illness as a health issue for individuals and families. (*14.4.5)

3.3.3.4 Investigate the effect of science and technological advances on nutrient content, quality, availability, and safety of foods. (*14.5.1)

3.3.3.5 Analyze the differences in production between organic and inorganic foods related to food safety.

"Play, incorporating animistic and magical thinking is important because it:

Fosters the healthy, creative and emotional growth of a child;

Forms the best foundation for later intellectual growth.

Provides a way in which children get to know the world and creates possibilities for different ways of responding to it.

Fosters empathy and wonder."

---Carson, Rachel "A Sense of Wonder"



PLAY AND LEARN

Susan B. Anthony Middle School Site as a Neighborhood Park Design

Shuang Hao



PLAY ↔↔↔↔↔ LEARN

SUSAN B. ANTHONY MIDDLE SCHOOL SITE AS A NEIGHBORHOOD
PARK DESIGN

Shuang Hao

Landscape of Learning