THESIS REPORT
1988-1989
April 27, 1989

Michael Edward Johnson
ARCH 404

College of Architecture and Planning
Ball State University
Muncie, Indiana 47306

Environments for Child Development through Day Care
A PROCESS REVEALED
Acknowledgements

Forward

Introduction

Research
- Phase I  December 15, 1987 - February 23, 1988
- Phase II  January 16, 1989 - April 12, 1989

Design Process
- introduction
- site
- organization
- play space
- synthesis
- green space
- evaluation
- development
  - 2-7 yrs
  - 8-12 yrs
- elevation studies
- concluding remarks, final design.

Appendix A
- research environment

Thesis Proposal

Color Zeorxes - library copy only

Barcelona Housing Competition
Initially, I would like to express my gratitude by acknowledging those individuals who have made my college career possible and who have shaped my development, thinking, and self-expression.

Lonny and Lodean Johnson - To my parents, who have not only financially supported this cause, but who have inspired a desire for perfection and a strong work ethic, which is essential to this profession.

Sonny Palmer - Who was the first to really believe in my potential as a designer and has shown dedication to this belief by investing time in my growth.

Alfredo Missiar - Who has inspired a research-based approach to design and pushed my design development to new limits through self-criticism.

Carlos Cavascelli - Who I've grown to appreciate and better understand. You've helped me fight indecision and proceed with an idea, working hard until the end.

J. Bob Taylor - Who's level of achievement and work ethic has been an example to strive for.

Frank Mora - Who, dedicated to detail and perfection, has been my professional mentor and spiritual friend.

Gail Wickersham - Who's dedication to children and education has made my research with children possible.
Peggy Brindle - For your dedicated love, patience, and understanding of the long hours.

Deirdre, Becky, Rachel, and Jeremy - Who made phase one of my research possible and worked with a spirit which prompted phase two.

Nancy, Becky, Ben, and Sam - Who's weekly dedication and creativity has made this thesis possible and will influence my architectural pursuits for a lifetime to come.

Ball Corporation - Special thanks to Harry Fowler, Don Klein, and Larry VanDeventer for adjusting to my fluctuating schedule, aiding in my professional development, and for providing the equipment which made this report possible.
Although my thesis year has been officially divided into two parts, with a regular studio session and the actual Thesis study, I feel that the year has been a coherent learning experience. Personally, I believe this to be true as a result of the projects and process involved. Our first project for the Gateway Clinic involved, for the most part, the design of a movable partition system to be used within the existing facility. My initial design solution, as in most cases, began with a good idea which did not become apparent until the first phase of my design revealed what not to do. This idea, of what not to do or knowing what doesn’t work well can be more valuable than knowing what the individual perceives to work well.

A similar process occurred during my second project, in which a strong idea went in the wrong direction. Although it seemed to be a lot of work to no end, it was advantageous to try the idea pushing to be expressed, freeing my thought process to continue onto better methods and products of design. A critical self approach can be very beneficial. This second project, for the Barcelona Housing Competition, was especially appealing because of a personal interest in Spain and the Spanish culture. As a result, my official Thesis period of fifteen weeks included an intense three week period of computer drafting and presentation development. Aside from learning an additional software package I was exposed to the intensity of developing a design competition entry. Again, this entry was evidence of the design process and what can be accomplished with hard work up to the last minute. Daily, the format of the design presentation was mocked up and changed, progressing through a number of revisions, each based on intuitive, individual feelings of what image was being projected to the viewer. Without sufficient preplanning to allow for these revisions, an otherwise good design would be lost among the hundreds of entries, never to catch someone’s attention to say “Stop! Take a closer look!”
Through these projects I have strengthened three important areas. The first two had their genesis a year earlier when I studied design with Sonny Palmer. Sonny helped me to believe in myself and my ideas, thus beginning a process of negotiating the original design idea to develop a strong project. The third area of development has been to realize the potential of design development when a project is sufficiently completed to allow for critical review and subsequent design development. This area of my growth has been directly affected by Carlos Casuscalli and Alfredo Mission. Each have an intense work ethic which pushes design development. In addition, Alfredo’s desire to completely develop a project, from concept to each detail, has aided my level of design completion, an area that was often been lacking, particularly during my first three years within the College of Architecture and Planning.

Overall, a larger goal than studying environments for day care has been achieved. This goal has been a personal victory which each designer must come to realize, an understanding of your own design process. Many people will promote a particular design process, but this is something that must be deeply rooted within your own personal approach. It would be my advice to others, who may read this in search of answers to their own design process, to take a personal and intuitive approach to design. Although this is not as easily defended as an “established” process, it will, I believe, feel more comfortable and serve you better in the long term outlook. Afterall, design is a personal approach which should be unique to each of us, developing as we grow. It’s odd how the obvious is often overlooked and the last to be revealed.

In conclusion, although my achievements as a designer have not appeared to be as promising, in the eyes of my peers, as I would have liked, I feel that my college years have developed my weak areas sufficiently to allow me to go forward and show my true potential.

Michael Edward Olman
Introduction:

This research documentation is intended to document my thesis study, but more importantly, to serve as an information base which myself and others may apply to further research, serving as a reference to what has been explored and learned, failures, and potential areas of investigation. The format of this documentation, which stems from the more scientific side of my personality, expresses personal opinions which will help acquaint the reader to my personal philosophy and viewpoints, but also attempts to present unbiased information which will permit subsequent researchers to recreate test conditions previously used, allowing for comparison to these test results.

Although actual work on my thesis did not begin until the middle of January, 1989, my past experiences have progressed in a direction which I believe made my particular thesis topic selection and process inevitable. I have always been younger at heart than my actual age would indicate. This may, in part, be responsible for what I believe to be a special link to children which allows me to work well with them. The first direct link to my final thesis topic began in the research class taught by Alfredo Missier. Alfredo's approach to design occurs through research, which set the direction and atmosphere for this course. At that time my intended focus was the study of environments for space stations. It is my belief that the design of environments in space must and will shift from the engineer to the architect/engineer. As a result, my intentions were to study environments, the creation of which is the real business of architects, capitalizing on the more imaginative and less biased viewpoints of children. During this period of research, as I became increasingly aware of the day care crisis which currently exist, my focus shifted to environments for day care. In either case, the focus on environments was maintained, based on my belief that an understanding of environments is imperative if an architect is to create quality space and a sense of place.
This first phase of research (December 15, 1987 - February 23, 1988) with the fifth grade class of Mrs. Gail Wickersham at Burris (a school affiliated with Ball State University) produced interesting results and inspired a process of design inquiry that would be utilized again. The group participants at this time consisted of three girls and one boy, Dandre, Becky, Rachel, and Jeremy. The results from this phase have been summarized. For complete documentation contact Alfredo Missior, Ball State University, College of Architecture and Planning, Muncie, Indiana, 47306.

Phase one group participants, left-right, Jeremy, Dandre, Rachel.

Phase two group participants, left-right, Sam, Ben, Becky, Nancy.
Initially, research began with a study of the types of environments and the elements from those environments which tend to produce a sense of place and security (based on each child's description of their favorite spaces and the question: "What items would you take with you if you were to spend 1 day, 1 week, and 1 year in a treehouse or other isolated environment?"). An examination (see chart) of this information indicated two basic ideas. First, a common expression for a TV, window, door, and phone revealed a desire for contact with the outside. Results indicated that this contact not necessarily be physical, but potentially mental or visual. A second common element was the selection of the living room and the bedroom as the favorite space. Although many of the items selected were based on survival, such as food and water, a number of other interesting items were selected which directly relate to the psychological aspects of an environment. The most common examples were books and family photos.

The second meeting (January 22, 1986), dealing with built form, reconfirmed the ideas expressed during the first meeting, although this was not the intended focus of this meeting, but rather to explore the creation of an interior space. This session saw the reoccurrence of familiar spaces, primarily the bedroom. This session also saw the introduction of new elements expressing a sense of entry and passage, which would become a major theme in Jeremy's work.

The third meeting (January 29, 1986) was important for several reasons. Again, Jeremy expressed the notion of transition and passage. Dendro's model also expressed the notion of passage and examined the relationship of interior and exterior space. Important themes for part of this third meeting were adjustability, seen in Dendro's playground design, and incorporation of a slide and tunnel by Jeremy.
FIRST MEETING - Inventory of characteristics of favorite space

<table>
<thead>
<tr>
<th></th>
<th>TV</th>
<th>Window</th>
<th>door/</th>
<th>Mirror</th>
<th>Phone</th>
<th>Color</th>
<th>important</th>
<th>Bedroom</th>
<th>Living</th>
<th>Room</th>
<th>spacious</th>
<th>room like</th>
<th>a house</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deirdre</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeremy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Becky</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rachel</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Important characteristics of favorite space

[ ] Favorite space

[ ] Absent

CHART: Items to take to the top of a tree or other isolated space

<table>
<thead>
<tr>
<th></th>
<th>parachute</th>
<th>board to eat on</th>
<th>food</th>
<th>books</th>
<th>clothes</th>
<th>blankets</th>
<th>water</th>
<th>Family photo</th>
<th>wood</th>
<th>suit case</th>
<th>tooth paste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deirdre</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeremy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Becky</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rachel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Documented items represent the three most important items for each time period.
SECOND MEETING - Interpretation of interior spaces through model building

Deandre - Bedroom and additional expansion

Floor Plan

Jeremy - Computer Lab - This is his favorite space because of the computers.
                                - He also dislikes empty spaces

Elevation

Plan
SECOND MEETING - Interpretation of interior spaces through model building

Rachel - Bedroom

Floor Plan

Becky - Bedroom

Floor Plan

Section A - Stacked closet as seen in a magazine
SECOND MEETING
THIRD MEETING

Part 1 - Creation of form-space from a "kit of parts"

Jeremy
THIRD MEETING

Part 1 - Creation of form/space from a "kit of parts"

Deviote - Sitting room

Floor Plan - generated from one corner outward

Axon
Kit of Parts

wood

wood

Plywood

Plywood

Plywood

Plywood

wood

Plexiglass

Plexiglass

wood
THIRD MEETING

Part 2 - Playground design

Jeremy

- sandbox

- tunnel

- Apple computer corp. logo printed on cardboard

- piece to walk on "like a sidewalk"

- section cut

Plan

- slide - this is his favorite - you stand up to slide down this particular slide.

Deandre

- bigger ice cream stand

- mini bowling alley

- video arcade

- slide

- air bag

- a ride similar to a parachute drop

- small concession stand

- water sprout - the person is raised up by a spurt of water which allows them to climb on the swing

- swing with adjustable heights

- pole for climbing

Plan

- adjustable height slide with sandbox underneath
An interesting aspect of contradication stemmed from this session, although not realized by me until the sixth meeting when Jeremy and Deirdre expressed that a day-care facility should not have sand in the play area, but instead, animals. This notion strongly opposes the actions of Rachel and Beaky who made a special trip outside to add sand to their models.

The fifth meeting attempted to analyze the relationships of people to volumes and the exploration of mental and visual escape. Part 1 resulted in two different solutions. Both Jeremy and Deirdre were given two pairs of people and were asked to place them within an enclosed volume. Deirdre placed her people close to the center, each pair facing the same direction. Jeremy selected an area closer to the lower left, in relationship to himself, with each pair facing each other.

This session was also used as an opportunity to examine an idea from the first meeting which dealt with windows, TV, and a means of mental escape. Working with Jeremy, Deirdre, Rachel, and Beaky I asked them to design the only window in an enclosed volume and show the view.
This final meeting was concluded by discussing pragmatic ideas and specific design features. Initially, Jeremy and Dandre produced drawings of ideas which developed since the previous session. Jeremy designed a toybox and Dandre designed a separation wall to enhance the notion of transition between two spaces.

Another aspect of this session was the selection of playground equipment from a catalog. It was interesting to note that Dandre did not include a tunnel in her model during part 2 of the 3rd meeting (playground development), although it is the first item she selected and pointed out with much enthusiasm. Jeremy’s playground model first introduced a square sandbox during part 2 of the playground development exercise which is reinterpreted into a toybox which children sit around and play, as opposed to sitting inside. Jeremy’s selection of playground equipment during this session reiterates his playground model from the third meeting, part 2, which includes a tunnel and a beam to walk and climb on. The beam from his model takes on the form of the manufactured space climb and creepy crawler.

Overall, Dandre and Jeremy felt that the playground should be flexible and allow for redesign through the use of modular elements and flexibility in adjusting the height of slides and swings.
Climbers

Colorful climbers bring "imaginereered" fun to every playground.

There are all different kinds of kids...short or tall, active or quiet, adventurous or cautious—and TotTime has climbers to satisfy all of them. All TotTime climbers are "imaginereered" for strength and durability and constructed of galvanized pipe. TotTime's exclusive Powder Coat finish on the colorful climbers provides long wear and low maintenance. There are no sharp angles or exposed bolts, no sharp corners or crevices. Climbing bars and rungs are spaced to accommodate varied age groups. Climbers are great body builders for children of all ages. Each metal climber is especially sized to the preschooler's ability.

A. 4-WAY COASTER CLIMBER Outstanding way to develop upper body muscles while having fun.
- Galvanized and Powder Coated over galvanized.
- Easy assembly of sections.
NO. 3388 4-Way Coaster Climber, Powder Coated, ground space 14' x 14', ht. 5'.
NO. 6486 4-Way Coaster Climber, galvanized.

B. COASTER CLIMBER Brilliant yellow Powder Coat finish invites young athletes to try this rolling climber.
- Completely assembled by connecting half-rail sections.
- Arches and rungs galvanized.
NO. 3387 Coaster Climber, ground space 2' x 14', ht. 3'8".

C. SPACE CLIMB A new and exciting twist to the horizontal ladder. Colorful, challenging and fun to play on, Space Climb is a real muscle tester.
- Uprights and ladder assembly of 2½" O.D. galvanized pipe.
- Brilliant Powder Coat paint.
- Heights vary from 4'2" to 5'3".
NO. 3381 Space Climb, ground space 10' x 14'.

D. G2T2 CLIMBER GameTime's answer to the outerspace robot world, this budget pleasing climber will provide young astronauts with an opportunity to reach other galaxies through the secret passage. Climber has a sliding pole for quick exit.
- Legs fabricated of 1½" O.D. galvanized pipe.
- Sliding pole of 1½" O.D. galvanized pipe.
NO. 3337 G2T2 Climber, ground space 6'8" x 4'2", ht. 6'3".
Durascape

Simplicity in design using a one-size square deck in different combinations and heights for the maximum play value.

- Super strength Durascape aluminum uprights, impervious to in-ground corrosion, cool to the touch in hottest weather.
- The only 10 year warranty on metal uprights in the industry.
- Pressure-treated wood decks, either in 2" x 6" or 4" x 6" wood, with a 10-year warranty against decay and termites. Decks also available in redwood or expanded metal.
- Brilliant Powder Coating on uprights.
- No field measuring, holes are pre-engineered directly on the load-bearing uprights.
- Easy installation, minimal maintenance, economical.
- Panels of rotational molded polyethylene.

A. NO. E3864 Durascape
Two tot swings, crawl tube, Lexan® spiral slide, curved tot slide, straight tot slide, horizontal ladder, coaster climber, two steering wheel enclosures, two bubble panels, vertical rung enclosure. Available in expanded metal or wood decks.
NO. E3864 Durascape, ground space 20'6" x 24'6".

B. NO. E6625 Durascape
Platform, arch climber, swing, climbing pole, panels, access, enclosure.
NO. E6625, ground space 10' x 13'.

Durascape Swings complete with belt seats as shown.
A. CREEPY CRAWLER Main support arches are 1 7/8" O.D. galvanized pipe, back of 2 7/8" O.D. galvanized pipe. Each section is welded.
NO. 486 Creepy Crawler, ground space 5'2" × 18', ht. 8'7".

B. SNAIL U.S. Patent The unique design of this colorful climber provides maximum play value in minimum space. Bolts are shielded.
- Climber constructed of 1 5/8" O.D. galvanized pipe.
- Rungs are 1" O.D. galvanized pipe.
NO. 6728 Snail, ground space 22" x 11', ht. 7'.

Playground equipment should never be installed on a hard surface such as concrete or asphalt. A fall on a hard surface can result in serious injury to the equipment user. A minimum depth of 12" of well-maintained loose surfacing should be placed under all climbers, extending at least six feet in all directions surrounding climbers. For information on soft surfaces, such as sand, pea gravel, bark, etc., refer to A Handbook for Public Playground Safety, Vol. II, U.S. Consumer Products Safety Commission, 1981.

- Jeremy likes sport.
2.19.88
The largest selection available!
No other manufacturer offers such a complete line of Saddle Mate animals on either a rubber, coil or "C" spring. This gives you the widest selection available to meet your individual playground requirements. Manufactured exclusively by GameTime, animals are now available in cast aluminum or DuraStress.

- NO. 7149 DuraStress Boss'y Bull, rubber spring.
  NO. 6050, coil spring, NO. 4250, "C" spring.

- NO. 161 Aluminum Bee, coil spring. U.S. Pat.
  NO. 7161, rubber spring, NO. 4161, "C" spring.

- NO. 176 Aluminum Rocket, coil spring. U.S. Pat.
  NO. 7176, rubber spring. NO. 4176, "C" spring.

- NO. 7191 Aluminum Stallion, rubber spring.
  NO. 191, coil spring. NO. 4189, "C" spring.

- NO. 7079 Aluminum Pony, rubber spring.
  NO. 79, coil spring. NO. 4079, "C" spring.
  NO. 6079 DuraStress Pony, coil spring.
  NO. 8050, rubber spring, NO. 4279, "C" spring.

- NO. 7157 Aluminum Whale, rubber spring.
  NO. 257, coil spring. NO. 4257, "C" spring.

- NO. 180 Aluminum Pig, coil spring. U.S. Pat.
  NO. 7180, rubber spring. NO. 4180, "C" spring.

- NO. 188 Aluminum Duck, coil spring. U.S. Pat.
  NO. 7188, rubber spring. NO. 4188, "C" spring.

- NO. 7171 Aluminum Elephant, rubber spring.
  NO. 171, coil spring. NO. 4171, "C" spring.

  NO. 7193, rubber spring. NO. 4193, "C" spring.
  NO. 6193 DuraStress Porpoise, coil spring.
  NO. 8053, rubber spring. NO. 4293, "C" spring.

- NO. 7174 Aluminum Pelican, rubber spring.
  NO. 174, coil spring. NO. 4174, "C" spring.

- NO. 7175 Aluminum Donkey, rubber spring.
  NO. 175, coil spring. NO. 4175, "C" spring.

- NO. 187 Aluminum Chicken, coil spring. U.S. Pat.
  NO. 7187, rubber spring. NO. 4187, "C" spring.

- NO. 196 Aluminum Mini Bike, coil spring. U.S. Pat.
  NO. 7196 Mini Bike, rubber spring.
  NO. 6196 DuraStress Mini Bike, coil spring.
  NO. 8054 DuraStress Mini Bike, rubber spring.

- NO. 181 Aluminum Rabbit, coil spring. U.S. Pat.
  NO. 7181, rubber spring. NO. 4181, "C" spring.
**Flexplay** *Nets in Action*

For fun and action, Flexplay Nets are proving to be the high point in play. And they are used everywhere—beaches, schools, parks, children's zoos.

**Flexplay Net Features**

- Continuous rope network and pyramid shape provide maximum security in use.
- Rope network made of heavy-duty Steeltron® rope, constructed of strands of steel wire tightly wrapped with nylon yarn.
- Supporting mast assembly of heavy, hot-dipped galvanized pipe with solid aluminum casting for the mast saddle.
- Steel anchor base and base plates.
- Network connections use special stainless steel "S" hooks, closed with a hydraulic tool.
- Full installation instructions are provided for construction.
- Easy to install and maintain.
- Vandal-resistant.
- 1-year limited warranty.

**A. GEMINI FLEXPLAY NET**

For double capacity and multiple fun opportunities, this two-masted Gemini net complex is a spectacular playground showpiece.

- NO. 3184 Mini Gemini Flexplay Net, ground space 34' x 52'; mast height 13';
- NO. 3183 Gemini Flexplay Net, ground space 42' x 66'; mast height 20';

**B. MINI FLEXPLAY NET**

- NO. 3180 Mini Flexplay Net, ground space 20' x 20'; mast height 13';
- NO. 3181 Small Flexplay Net, ground space 30' x 30'; mast height 20';

*Flexplay Nets are suitable for children over the age of six.*

---

Heavy-duty Steeltron™ rope is constructed of strands of steel wire tightly wrapped with nylon yarn.
A. SPACE SYSTEM
The Space System consists of No. 618 Space Modules and No. 619 Space Crawlyways in as many configurations as desired. The system may be as large or as small as budget and space will allow.

NO. 619 Space Crawlyway. Support pipes made of 2½" O.D. galvanized pipe, guardrails are 1½" O.D. galvanized pipe, tunnel slats are 2" x 10" x 8' anodized aluminum. Crawl tunnel 20" x 23" opening, 8' long.

NO. 618 Space Module. Dome is constructed of 68" galvanized steel spinnings, with 24" openings for entry. Uprights on center ladder are 2⅛" O.D. galvanized pipe with 1⅛" O.D. galvanized pipe rings. Ground space 6' in diameter, ht. 9'.

B. NO. 1338 Therapeutic Space Module. Especially designed for handicapped children. Same as the No. 618, but designed at wheelchair height, to be used with NO. 619 Space Crawlyways. Ht. 7', ground space 6' diameter.

C. DELUXE MOUNTAIN CLIMBER
A GameTime Original
U.S. Patent, Canadian Patent
Easier and quicker to assemble than any other large climber, this equipment is popular for schoolyards and playgrounds. The unit's construction does away with the multiple legs, making a tremendously strong unit.

- Covered bolts.
- Heavy-duty galvanized pipe for active children's play.
- Rings bolted to legs with ½" bolts for extra security.

NO. 988 Deluxe Mountain Climber, all three sections, ground space 7'6" diameter, ht. 9'5".

D. G2T2 CLIMBER
Climber provides experiences for muscle development and increased eye and hand coordination. A sliding pole is included for quick descent.

- Legs fabricated of 1½" O.D. galvanized pipe.
- Sliding pole of 1½" O.D. galvanized pipe.

NO. 837 G2T2 Climber, ground space 6'8" x 4'2", ht. 8'2".

Playground equipment should never be installed on a hard surface such as concrete or asphalt. A fall on a hard surface can result in serious injury to the equipment user. A minimum depth of 12" of well-maintained loose surfacing should be placed under all climbers, extending at least six feet in all directions surrounding climbers. For information on soft surfaces, such as sand, pea gravel, bark, etc., refer to A Handbook for Public Playground Safety, Vol. II, U.S. Consumer Products Safety Commission, 1981.
C. SPACE CLIMB
An exciting twist to the horizontal ladder. Colorful, challenging and fun to play on. Space Climb is a real muscle-tester.

- Uprights and ladder assembly of 2\(\frac{3}{4}\)" O.D. galvanized pipe.
- Brilliant Powder Coat paint.
- Heights vary from 6'6" to 8'3"

NO. 6481 Space Climb, ground space 10'x 14'

F. Skill Tester III
The latest addition to the Skill Tester line of muscle builders. Powder Coated orange.

NO. 6499 Skill Tester III, ground space 2' x 8'; ht. 6'6"

A "No encroachment" zone of six feet from the edges of all safety surfaces should be used in planning your playground.

SKILL TESTERS
New climbing challenges for fun and muscle building. Exciting, colorful and economical.

- Powder Coated brilliant yellow.
- All welded construction, 2" standard pipe uprights.

D. NO. 6477 Skill Tester I, ground space 2' x 3'; ht. 6'
E. NO. 6478 Skill Tester II, ground space 2' x 6'8"; ht. 6'
Durascape+ and Durascape Components for play systems.

Components serve as either links between two components or as attachments to platforms.

Components should not be used in an area where action conflicts could occur.

Your GameTime sales representative will assist you in designing your system.

Components may be used in both Durascape+ and Durascape systems.

Slide NO. 7931
Double Slide NO. 7933
Lexan Spiral Slide NO. 17919
Tube Slide NO. 7925
Half Tube Slide NO. 7837
4' Lexan Spiral Slide NO. L7873
Curved Tot Slide NO. 7878
Limb Pole NO. 7916
Horizontal Ladder NO. 7929
Expanded Metal Arch Bridge NO. E 7959
Angled Climbing Pole NO. 7854
Access Ladder NO. 7975
Suspension Bridge NO. E7978
Net Bridge NO. 7883
Durascape Systems

Simplicity in design, using a one-size square deck in different combinations and heights for the maximum play value.

- Super strength Durascape aluminum uprights, impervious to in-ground corrosion, cool to the touch in hottest weather.
- The only 10-year warranty on metal uprights in the industry.

- Pressure-treated wood decks, either in 2" x 6" or 4" x 6" wood, with a 10-year warranty against decay and termites. Decks also available in redwood.
- Brilliant Powder Coating on uprights.
- No field measuring. Holes are pre-engineered directly on the load-bearing uprights.
- Easy installation, minimal maintenance, economical.
- Panels of rotational molded polyethylene.
Durascape +
Dramatic - Different - Exciting

Featuring play opportunities found only in GameTime's exclusive designs.

C. NO. 9604
2 single slides, sliding pole, 2 ladders, 2 Steeltron+ climbing nets, tube slide, panels.

D. NO. L9608
Lexan spiral slide, double slide, sliding pole, Steeltron net climber, ladder, steering wheel.

Durascape +
Beauty and Durability for Parks, Schools, Play Areas

NO. 9604, ground space 23' x 24'6'', platform 94 sq. ft.

NO. L9608, ground space 12'6" x 23'
NO. 9608 with Stainless Steel Spiral Slide.

Durascape uprights can be easily grasped by children of all ages. (Shown with optional platform.)
Dandre likes tunnel slide
2-19-88
The concluding design from phase one of my research at Burris is outlined below.
The second phase of my research was a continuation of the process developed a year earlier in the research class. This year, research was conducted with the fourth grade class of Mrs. Gail Wickersham at Burris. The group participants from this class were Nancy McGrew, age 9, going on 10 years of age, Becky Waxman, age 9, Sam DeWeese, age 10, and Ben Keil, age 10. Weekly meetings occurred in a room which extends across the entire length of the main classroom (see appendix A). The group participants exhibited an individual character which is strongly linked to their parents' identity and to their recognition of a level of intelligence beyond many others their own age. Nancy expressed the importance of strong family ties, most likely noted to the large size of her family. In addition to both parents, she has five brothers and three sisters. Nancy is proud of her family heritage and enjoys visiting relatives, and has participated in gifted theater. Becky seems to be strongly opinionated and openly expresses her feelings. She often compliments Sam's work and seems to like him. Sam is popular and well liked by his fellow classmates. He is a good swimmer and would occasionally help teach others to swim, thus joining the group activities late. Sam also enjoys drawing and was eager to "do architectural stuff." Ben, like Nancy, expressed close family ties, and is extremely proud of his mother who teaches at Ball State as a mathematician. Ben is very analytical, enjoys doing math problems in his spare time, and likes computers (expressing a desire to become a computer scientist). In general, the weekly meetings occurred on Wednesday between 12:00 and 1:00, but would occasionally extend until 1:30 or even 2:00. They perceived the weekly meetings as an opportunity to miss geography and sometimes violin (for Nancy and Becky). Although this attitude was apparent, each expressed a desire to make a contribution, sometimes skipping recess and lunch to participate in the group. The intention of this brief analysis is to help provide the reader with an insight to the viewpoint from which each group participant is coming.
FIRST MEETING

The first meeting was designed to investigate the influence of memory by recording the reactions of each participant in response to slides of various interior and exterior environments. A list of slides used during this session, including reactions are listed below. The slides used were obtained from the architecture library at Ball State University.

1. Interior view of Pantheon - ARC 1894-178
   - "church"
   - "Hoosier Dome"

2. Acropolis - Erechtheum, Athens Gr. 405 B.C. - ARC 203-047
   - "exterior view"
   - "friends club house"
   - "construction site"
   - "mansion"
   - "jungle gym"

   Interior Nave wall
   - "cool"
   - "St. Mary's Church"
   - "lots of hiding places" - Nancy

   Detail of ribbing in chapel
   - "fabric shop"
   - "U.S. Flag"
   - "cool"
   - "spikes"
   - "Dairy Queen cone"
5. S. Chapelle - Paris, Fr. - ARC 1926-01
   Stain glass windows
   - "Oh!"
   - "stain glass"
   - "skylights w/ ladders to go up"
   - they liked the stained glass windows but wouldn’t want them everywhere

6. Unity Temple - Oak Park, IL - ARC 1932-422
   Interior of auditorium
   - "Holiday Inn"
   - "Church"
   - "Jail"
   - "carpet"
   - "great playground/holes/jumping"

7. Susan Lawrence Dana Residence - Springfield, IL - Art Glass Doors p. 33
   Detail
   - "window"
   - "door"
   - "wheat, barley patterns"
   - "alarm"

8. Wright House & Studio - Oak Park, IL - 1875 - Chicago 52:161 My’83
   Interior view of playroom
   - "house"
   - "fun"
   - "fireplace"
   - "heater"
   - "gym, big"
   - "soo"
   Interior view
   - "cool"
   - "parking garage"
   - "water slide"

    View down through gallery
    - "Indy Children's Museum"
    - "goes down"
    - "water slide"
    - "cool"
    - "pool"

11. Scottsdale, Az - Workers Housing - Paolo Soleri - ARC 1153-009
    Exterior view
    - "playground"
    - "washing machine"
    - "park"
    - "too little"
    - "country lim"
    - "weird shapes"

12. Rib Cage Dam - Model - Paolo Soleri - ARC 1617-034
    - "Chichi's"
    - "Egyptian"
    - "Bench"
    - "stairs"
    - "cave"
    - "spaceship"
    - "cool stairs"
13. G.G. Suspension Bridge - Model - Paolo Soleri - ARC 1617-519
   - "oh!"
   - "bridge"
   - "pally"
   - "belt bucket"
   - "cool"
   - "conveyor for meat things"

14. S.A.M. - Penthouse - Brussels, Belgium - ARC 1249-148
   - "bright room"
   - "hotel lobby"
   - "waiting room, glass all around, good views"

15. Thesis site (slide 17)
   - "river"
   - "bridge"

16. Thesis site (slide 18)
   - "train"
   - "like the ringing bell"

17. Thesis site (slide 19)
   - "cool"
   - "lake"
   - "pier"
   - "raft ride"
   - "swinging bridge"
   - "fun"
   - "fishing"
18. Waterfall - State of Kentucky
   - "waterfall"
   - "cool"

19. Gateway Clinic Panel
   - "mussels"
   - "candle"

20. Empty picture frame
   - "framed cloth"
   - "mountains"

21. Mosaic tile
   - they liked this - out of tune

This session served as a good introductory session between us. At the end I asked them to select their favorite slide:

Nancy - waterfall
Becky - undecided
Sam - Guggenheim
Ben - Acropolis
SECOND MEETING

The second meeting was used as an opportunity to investigate their favorite play space. In order to help maintain their interest throughout the following weeks an attempt was made to use various communication media. This session used watercolor which worked well during the previous year.

Nancy's watercolor shows her uncle's home in Utah, the location of a large family reunion. The home is built into a hill and faces the road. In the back there is a ladder which goes down the hill. This was her favorite space because she likes to play with her relatives. While there she enjoyed performing a skit for the family and walking on the paths in the country which lead into town. The watercolor also includes a dead cat that was hit in the road, a person walking by and a happy face which she drew on the house.
Ben's favorite play space is a "treehouse on stilts" located in his backyard. This treehouse is special to him because it was built by his dad and grandfather. The special features of this treehouse are the levels and a swinging rope ladder. The watercolor also shows the area beneath the treehouse where the grass has died.
SECOND MEETING

Sam's favorite place to play is at his babysitter's home, in the backyard. The structure features swings, a ladder, and allows for climbing. The babysitter's home is seen in the background. As I would learn during our last session, the watercolors were Sam's least favorite. As a result, Sam used his favored technique, paper and pencil, to draw what he had painted.

Becky was absent this day and didn't have an opportunity at a later time to paint one.
THIRD MEETING

The third meeting was used to explore the ideas of passage developed during phase one of the research process. Specifically, I asked each participant to design a stained glass window, based in part on their positive reactions to the slides of stained glass windows. Each participant, except Ben, expanded this request to include an entry.

Nancy's entry facade becomes symmetrically organized with an alternating green and purple stained glass. These colors alternate across the door from top to bottom. The entry also hints at being participatory with the user by introducing the word "Knock!"
Becky's entry facade did not include a stained glass window, but was designed with much care and becomes very user-oriented. In order to gain access to the day care center, the children must answer a question by inputting the information on an answer pad to the left of the door. If the answer is incorrect, an arm will come out to hit you. If the answer is correct, the door will open, revealing a ramp to slide down. The entry also has a dog shot with an air mattress at the bottom. The door has a built-in speaker and provides space at the top for an address and name for the day care center. Once inside, parents and children can register at a filing booth. The interior plan and elevation was drawn on the back side of the entry facade sheet, thus showing the direct relationship between the two.
Sam's entry design is symmetrically designed but uses a geometry which becomes irregular. Sam's design becomes more architectural by beginning to identify materials, such as brick and glass. Sam produced the only design to make any reference to the site materials, such as grass and weeds. Sam's drawing, as many of his others is without color and drawing with a straight edge.
Ben's stained glass window pattern was the closest to my initial design request. The design features two children playing with a basketball. I have adapted this particular design to create a pattern for the full scale construction of a stained glass window. It is my belief that the creation of architecture should involve art and craft. I also enjoyed the design of the children and adapted them to create a border for the report and drawing page. Ben's drawing also boldly displays his affection for math, giving himself a score of thirty out of a possible thirty-five points. The stained glass window pattern adapted from this design follows on the next page.
THIRD MEETING

Part two of the third meeting was used as an opportunity to explore the design of a playroom through model building. This exercise produced three models. Sam and Ben elected to work as a team, while Nancy and Becky worked individually.

The main features of Sam and Ben's playground design are a basketball court and a series of cantilevered bars to climb on and swing between, from one to the other. The basketball court has two different backboards. The provisions for a basketball court have been consistently made in this research and previously during a design charrette for the South Madison Community Center. Working together, as for the construction of this model, and during
THIRD MEETING

Group or team play, such as in basketball, aid in the positive social growth of children.

Nancy's playroom design provides for individual and cooperative play. Her design incorporates hopscotch, a tee-pee, ladder and a vertical ladder, providing for risk-taking.
THIRD MEETING

Becky's playroom design also provides for group play on a merry-go-round. Again, hopscotch is found in this proposal. A new feature introduced was provisions for outdoor movies. This idea consists of a projector area with shelter beneath and sculptural screen area.
FOURTH MEETING

By the fourth meeting I was seeking an idea to guide the overall design idea of path and cognitive mapping. At this point my intent was to develop a children's story that would provide such a guiding force. To accomplish this goal I went to the session with site maps and a mini tape recorder. I believe that the idea was good, but once the children realized that a tape recording was being made they lost control. A round table description of a sequence of events went from one form of torture to another, thus was born the "torture chamber day care".

As a result, the site maps were used to further acquaint the children with the site and develop a site plan with the building and outdoor play areas located. The major focus of each child, Sam, Ben, Nancy, and Becky was the body of water known as Phillips Lake. A variety of activities, ranging from fishing, swimming, boat rides, monkey bars, slides, diving boards, and an island were proposed. Other site features included development across the White River, being linked by bridge, boats, and a canal from Phillips Lake to the White River. A final, interesting concept which they suggested was the development of the site as a community center. I felt that this suggestion was important and was impressed for the scope of their thoughts.

The final part of this session investigated the aspects of memory and path by looking at the maze. The maze patterns generated were both structured and free flowing. Features of these designs included secret passages and routes which had no solution or means to reach the end.

An additional drawing that was produced by Sam's own initiative was a maze in its own right. This drawing included a building elevation that was linked to Phillips Lake and a parking area. The boundaries of the path also included "periscope lights".
FIFTH MEETING

The fifth meeting was used as an opportunity to introduce the children to the site and obtain a first hand experience of the site and its features. The visit occurred on a cold, rainy day, but in spite of these conditions, the children enjoyed themselves. This site visit was video taped and recorded. The site was approached from the south, providing a visual experience of several site features, although the water was not visible until after actual entry into the site. Actual entry into the site would have to occur from the northwest, thus beginning a journey, following a path from one site feature to another. The first (1) site feature encountered were the railroad tracks. After crossing these the children viewed into the site from the main entry gate (2). The gate being locked, and the southern edge of the site bounded by a 1' to 6' concrete wall (depending on site elevation at various locations) forced our entry in a northwesterly direction toward the White River. As a hill and the sound of the river approached the children became excited (3). Actual site penetration occurred from the north through a break in the existing fence (4). After following a short path through the trees and leaves the children came upon the next area of interest, an old junk pile (5). From the junk pile the children became aware of the structural framing of an uncompleted building (6). They entered this structure which rested elevated upon concrete block. After a few minutes of exploring here they were off to an abandoned house trailer (7). Inside the found various items, including what appeared to be evidence of a "homeless" person. The next burst of excitement occurred when they caught glimpse of the water and pier (the remains of a once functional bathhouse) (8). After a quick and controlled journey onto the pier we moved back along the water's edge, passing a stone wall and arriving at stairs which project out over a shallow portion of the water (9). Upon arriving at the top