RICE UNIVERSITY

Play at School

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ABSTRACT

play at school

by Aidan Chopra

A playground slide is a very specific thing. Its form enables a particular set of actions—climbing, sliding, falling—without dictating how these activities are to be carried out. It is left to the child to imagine uses for the thing, to invent the rules for the games that go with the device. These qualities of formal specificity and functional ambiguity serve as the point of departure for my design of a public elementary school in Houston.

Given an unusual variety of spaces and features which suggest different ways of sitting, ascending and descending, hiding, paying attention or not—the people who use this place will be inspired to invent their own activities. Definite but enigmatic elements are employed to trigger associations, to encourage exploration, experimentation and the use of one’s imagination; not only by children, but by the teachers, administrators and parents who also use the site.
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preface

The building project which is scattered throughout this document represents the product of five months of work, but it should not be considered the final result. The research, models and sketches that appear are every bit as relevant to the thesis as the plans, sections and perspectives. The interspersion of process and product that follows is an attempt to place the emphasis on both.

Sections and a key to perspectives are included at the beginning. Color perspectives serve as introductions to each of the eight general topics, and each topic is proceeded by a version of the plan. Upper and lower plans appear four times; in each appearance, labels are changed to reflect an interpretation of the project that is more or less relevant to the surrounding material. The plans themselves are identical each time.
2 BRIDGE Adults use it to get from the teacher’s lounge to the kindergarten area. Kids climb the hill to use it as a lookout. It’s a bridge that’s accessible from the middle. 14 CLASSROOM The bottom cubbies are for students. The middle cubbies are for teachers. The top cubbies are for everything else. All walls are cubbies. 28 CORRIDOR This end of the school is twelve feet in the air. Jump over branches and push aside leaves to get to class. Take one of the slides to get to recess. 40 MULTIPURPOSE ROOM Open the big garage door and have theatre in the round. Or invent 2-sided dodgeball. The blue walkway is a skybox for kids. 54 MUSIC ROOM What hap-
pens when the noise from choir practice mixes with the noise from the cafeteria? It's the Vortex of Sound. And it's loud. **64 COMPUTER ROOM** Go up and you're outside, standing on top of a hill in the playground. Go down and you're inside the hill—the computers live in a cave. **76 POLES** A world of multicolored vertical members act as structure for the building above. The variety of elements available serve to spark the imagination: why are they all different? Maybe the red ones are poisonous... **82 LIBRARY** The ziggurat of books acts as a shelving, seating, climbing and hiding element. The dark, quiet and somewhat secret A/V room is contained within.
BRIDGE Adults use it to get from the teacher's lounge to the kindergarten area. Kids climb the
hill to use it as a lookout. It's a bridge that's accessible from the middle.
S. Freud:

"The opposite of play is not what is serious but what is real."

Alexander:

Three dynamic processes that govern life:
Principle of stability
Principle of economy
Principle of surplus energy

"Play is the exercise of surplus libidinal energy not required for the grim task of survival."

Winnicott:

Play is a reflection of the child’s capacity to occupy a space between psychic and external reality in which the child uses elements from both domains.

WHY PLAY?

ASK A PSYCHOANALYST
The answer to this question seems to depend on who you ask, as many different people from many different fields of study seem to have many different points of view. Play can be studied from the perspective of psychoanalysis, in which case it is seen as a means of expressing something—feelings, emotions, secrets. Since psychoanalysts study children in part by observing how they play, everything they write seems to relate to what is meant by what the children are doing when they play. In other words, reading about why children play from the point of view of people who are using play to study children doesn’t reveal much about play itself.

ASK AN EDUCATOR
Educators tend to focus on what children gain through play. Instead of viewing play as a manifestation of what the child is going through, teachers and researchers into child development tend to focus on play as a tool that enables further stages of learning, socialization and physical maturity and growth. German educator Karl Scherler defined six development functions of play. (Moore, 1986, p. 15) These are outlined here, along with my own thoughts about how these functions might relate to the project at hand.

THE ADAPTIVE FUNCTION
"the biological adjustment of the child, development of strength, stamina, speed and pliancy"

This function seems to relate the physical body. The traditional playground, with swings, a slide and a see-saw, seems well suited to accommodating this function of play. Acting out physically is what one normally associates with kids’ play. One wonders, though, if a school with an extensive
"physical" playground goes far enough in linking the notions of school and play. When do kids get a chance to play physically at school? If only at recess, lunch, and before and after school, what is the importance of these times relative to the rest of the school day?

THE EXPRESSIVE FUNCTION
"evoking such emotions as tension, inquisitiveness, fury, hate, pleasure, joy and annoyance"

Relating more to the psychoanalytic perspective, this function talks about play in two sets of terms. First, it recalls what we can learn from observing play. Second, and perhaps more relevant to this discussion, is the idea that play provides an outlet for what is going on inside of a child. In effect, what play gives kids is the opportunity to act out feelings they might not know how to communicate any other way.

What are the implications of this for a playground? Is it important to provide opportunities for acting out aggression, fury or hate? What kind of physical object could enable this kind of expression? Could there be such a thing as a Feelings Playground?

THE EXPLORATIVE FUNCTION
"learning how to distinguish high, low, small, large, before, behind, soft and hard; to distinguish social roles and to learn how the adult world works"

Exploration and experimentation are keys to the link between play and learning. As will be discussed in the next chapter, play that involves discovery—of places, of things, of ideas—is exactly the kind of activity that I think a school conceived for play is capable of encouraging.

Peller:

Play is a fantasy accompanied by action and is possible when the level of anxiety to be mastered is not overwhelming.

The importance of play lies in its role of moving the child toward an increased capacity for autonomy and self-confidence, socialization and work.

The goal or central function of play is that it affords the child the "opportunity experiment with organmodes in extrabodily arrangements which are physiologically safe, socially permissible, physically workable and psychologically satisfying."

Through play, children elaborate their own identity based on the roles available for their observation and the external demands of their social world.
Primary function of play is to deny, decrease, or work through the anxieties that are specific to each phase of development.

The intent of play is “not so much the preparation for future activities in adult life as it is the assimilation of the mass excitations from the outer world”, which in turn strengthens the ego’s capacity to tolerate and endure difficulties.

The excitement of play is not primarily associated with displaced drive expression but rather with the child’s pleasure in the “precariousness that belongs to the interplay” between personal psychic reality and the experience of control of actual objects.

Some questions: How does one provide places to discover in a school environment where everything needs to be clear, open and obvious? What does an overtly experimental place look like? Is there such thing as a laboratory for kids? Is there room for exploration in the elementary curriculum, or do lesson plans set out by school boards and state boards of education mandate a more absolute teaching style? Can any discussion of a school’s form occur without also discussing curriculum? Are schools, in fact, just built expressions of educational philosophy?

THE PRODUCTIVE FUNCTION
“learning how to make things and how to alter them”

An alarming amount of my research into the role of play in childhood development dealt with trying to figure out the relationship between work and play. For many, play is simply a kind of training for adult work, wherein children try out roles, work out their relationship to others, and learn to perfect something in the process of becoming productive members of society. This view of play attempts to focus all attention on what, specifically, play does for the child in the long run. Instead of viewing play as an end in itself, proponents of “productive” play seek to justify its existence in so-called “useful” terms.

Scherler’s fifth function of play, the productive one, is more innocuous as he defines it. The importance of learning how to make things is obvious. It is necessary, but it is also critical to a child’s sense of self esteem. Making and altering things is a form of creativity, and creativity is the basis of feeling free to make one’s own decisions.

How might a building enable productive play? Sandboxes come to mind, but so do games. Does the invention of rules for
games that do not yet exist count as productivity? Perhaps an environment where starting places are prevalent but conclusions rare...

THE COMMUNICATIVE FUNCTION
“learning how to behave in relation to other people, to cooperate, to accept rules, to protect the weak, to empathize and relate to the points of view of other people”

How could a built project enable communication? From what I can tell, this function and the next one (the comparative function) might be the two most relevant aspects of play to the school program. A significant piece of the argument being made in the project presented in this document is that there are major parts of a child’s development that schools could do a better job of influencing. While teaching kids how to count, and to read and write, and to name the states, the elementary school curriculum focuses almost entirely on creating students. What an emphasis on play at school could contribute is the development of the rest of the person. A large part of who we are is determined outside of the classroom, at recess and at lunch.

THE COMPARATIVE FUNCTION
“learning to measure one’s strength against others and to win and lose”

Another thing that happens at school anyway, but which is neither planned for nor formally accommodated outside of the sporting arena. What would a racing playground look like? How about a spelling bee playground? Allowing kids to compete is good; what is better is making sure that everybody is the best at something. Giving kids the thrill of being resident experts does wonders for their confidence.
HOW KIDS PLAY

FUN?

In his excellent book *Design of Children’s Play Environments*, Japanese architect Mitsuru Senda develops a theory of children’s play that I will use as a metaphor for the development of my own elementary school project. A designer of playgrounds and playground equipment, he has over twenty years of experience observing how his inventions are used by children. His writing and illustrations are an interesting take on how kids interact with the physical environment when they are playing. Instead of thinking about what kids are getting out of playing on, in and around his creations, he seeks to answer a pretty simple question: Why are some play environments successful while others aren’t? Or: What makes playground equipment fun?

The issue of fun is almost never brought up in conjunction with any serious discourse on the topic of play. Ask most kids why they play and they’ll say, usually without hesitation, “because it’s fun”. Talking about play without ever mentioning fun is like talking about eating without ever mentioning hunger—we are discussing the origin of the tracks on the carpet while the elephant is still in the room.

So what makes for fun play apparatus? Senda begins his discussion by identifying three kinds, or stages, of play. They are illustrated at left.

FUNCTIONAL PLAY

The first stage (8.1) is what he calls “functional play”. In this mode, apparatus is used in the way that is it intended to be; in the case of a slide, one climbs the ladder, looks around, and slides down on one’s bottom.
This is the action suggested by the form of the object. This action, once completed a few times, gets boring.

TECHNICAL PLAY
The second stage (B.2) is called “technical play”. Here, other ways to use the apparatus are explored. The slide is climbed. The ladder is descended. Kids slide in tandem. The ladder is climbed from the underside. New ways to interact with the object are invented in order to keep things interesting. Most play equipment accommodates technical play; the key is to allow movement and action that uses the form in ways that are possible but not necessarily implied.

SOCIAL PLAY
The highest form of play, the mode to which all play apparatus should aspire, Senda calls “social play”. (B.3) If skills are learned during functional play, and mastered during technical play, then they are tested during social play. In this stage, the play equipment ceases to be an object that one uses alone. Ideally, it ceases to be a piece of play equipment at all. In social play, the physical object “disappears” and is rediscovered as an enabler of interactive activity. Put simply, it inspires chasing games, hiding games—whatever kids decide to use it for. The important thing is that it is appropriated for use by a group of children who might not have otherwise ended up playing together.

Play equipment that inspires kids to play together—inventing games, making up rules and organizing themselves—is ultimately successful, and much more likely to be used than equipment that does not.

Some play equipment lends itself to CHASE GAMES. Some doesn’t.

The element of CHALLENGE wears off.

EXPOSURE TO SMALL DANGERS PREPARES KIDS FOR LARGE ONES. "INSISTENCE ON SAFETY INHIBITS CHILDREN AT PLAY"
CIRCULAR PLAY ENVIRONMENTS

Having laid out his analysis of the kinds of play that occurs on apparatus designed for that purpose, Senda goes on to outline his "ingredients" for successful play environments. There are seven, and they are as follows:

There must be an overall circulation of play. By "circulation of play", Senda means that the path implied by the form of the object or series of objects must be a closed loop. Chasing games, races, and other forms of competition require this. Also, not having an obvious beginning and end point encourages kids to keep using the structure; they should never feel like they have "completed" it.

It must allow children to experience a variety of challenges. Different kinds of actions and postures are important to provide, if only to prevent boredom. In addition to this, variety allows kids to develop expertise on different challenges. Specialization is an important part of playing in a group.

The circle must contain symbolic high points. Being higher than everyone else is like a destination; a high point in a circular play structure is basically a desirable endpoint in a system without an end. Also, it's enjoyable to be up high.

It must allow children to experience "dizziness". Dizziness, according to Senda, is any action that involves losing partial control of one's direction of movement. Sliding, jumping, falling, swinging and bouncing are all examples of dizziness. Senda on the effects of dizziness:

The "dizziness" function occupies an important place among the factors generating games on these play structures. On the "Suspension Bridge", for example, it is difficult to swing the bridge by themselves. The bridge will swing only when a few children cooperate. While swinging the bridge, the
children experience the thrill that the bridge might fall. Small children will have to hold tight onto the sides. Once someone becomes frightened, others will shout at each other to swing the bridge even more. In this way, the "dizziness" function of "swinging" generates a game among the children and makes the game fun. (Senda, 1992, p. 17)

**It must have both large and small gathering places.** "Children's play not only consists of active elements like rolling and jumping but also involves resting and lazing about." (p. 21) These places can be thought about as being forms of public and private space. Hiding is also critical.

**There must be shortcuts.** No worthwhile path would ever have a single defined route. Having a variety of ways to circulate enables games to be played, and keeps the structure interesting.

**The circle must be accessible through a number of points so that it comprises a "porous" space.** Similar to shortcuts, having multiple in and out points reinforces the idea that the structure has no predetermined beginning or end.

Pictured on these pages are two of Mitsuru Senda's projects. 10.2 and 10.3 are images of "Running Circuit", a 400 meter long wooden deck pathway for "children to run around to their heart's content...You cannot stay on the floor unless you keep running."

11.1 and 11.2 depict "Möbius Band". The twisted surface requires kids to run, climb, jump and crawl.
CLASSROOM The bottom cubbies are for students. The middle cubbies are for teachers. The
top cubbies are for everything else. All walls are cubbies.
Cobb:

Edith Cobb describes kids age 5 or 6 to 12: ...a special period, the little-understood, prepubertal, halcyon, middle age of childhood...between the strivings of animal infancy and the storms of adolescence—when the natural world is experienced in some highly evocative way, producing in the child a sense of some profound continuity with natural processes and presenting overt evidence of a biological basis for intuition.

PEDAGOGY

ZOOS, PRISONS AND SCHOOLS

Discussing the conception and design of elementary schools with a few friends of mine recently, I realized that there are only a select few building types wherein the primary users have little to no say in the process of their invention. Along with inmates and zoo animals, school kids find themselves spending half their lives in places that they neither choose to attend nor have any say in administering. While I do not propose to put eight-year-olds in charge of designing schools, I maintain that a careful consideration of who, exactly, these buildings are being made for might be a good thing. Too often we forget that the client is the child—the school board is only footing the bill.

HOW KIDS LEARN: MONTESSORI

I was very happy with my elementary school education until I started reading about educational theory, different teaching methods, and about how much thinking has gone into how kids ought to be taught. Now I must admit to feeling a little cheated; my primary school experience was textbook Traditional, and I wish it hadn't been.

Maria Montessori was a physician in Italy at the turn of the 20th century. Given the task of trying to teach a group of children deemed "ineducable" by the hospitals, asylums and orphanages that rejected them, she began to formulate a set of ideas about human development that she eventually deployed in the form of a teaching method that is now used in thousands of Montessori schools around the world.

Montessori’s observations dealt with how children were being educated in traditional schools, and how this education did not ac-
cord with her idea that human development occurs in stages, or planes. There are four planes, each lasting about six years, during which people undergo major changes, not only in their ability to learn, but in their entire self. (17.1)

Furthermore, each plane includes both an “up” and a “down”; periods during which development occurs in either high or low gear. Basically, people learn at a rapid rate for three years, then slow down for three years until the onset of the next plane of development. The ages of zero to three and six to nine, therefore, are richer learning periods than three to six and nine to twelve. From birth to the age of twelve is considered childhood and from twelve to twenty-four, adulthood. According to Montessori, people are fully formed adults by the age of twenty-four.

More interesting to me is Montessori’s take on the difference between traditional methods of education and her own. Paula Polk Lillard describes “regular education”:

Montessori observed that regular education takes no heed of these planes of development. In virtually every country in the world, the first stages of development, from birth to age six, is ignored because schooling does not begin until it is over or nearly so. Beginning at the child’s sixth year, education follows a steady ascent, becoming more difficult each year with more and more subjects added, more and more teachers introduced, more and more study and production required, based on outwardly imposed curriculum and tests. (Lillard, 1996, p. 6)

Stating that “its underlying assumption is that intelligence increases with age”, Lillard criticizes traditional education for distributing learning unevenly over the life of a developing human being; young children, she argues, are able to
1. Human development does not occur in a steady, linear ascent but in a series of FORMATIVE PLANES.

2. The complete development of human beings is made possible by their tendencies to certain universal actions in relation to their environment.

3. This interaction with the environment is most productive in terms of the individual’s development when it is self-chosen and frowned upon individual interest.

Lillard, p. 4

learn at the same rate as university students. Failure to provide fodder for these rapidly developing minds is a huge missed opportunity. Furthermore, educational strategies that view children as “blanks to be imprinted upon”, empty vessels that need to be filled with information, make the assumption that everyone learns at about the same pace. Montessori’s method broadly defines the four “formative planes”, but allows children to move at their own rate. This recognition of the fact that people develop differently is critical to my interest in creating a learning environment that allows for many different kinds of activity.

Drawing connections between how children develop and how early humans developed long ago, Montessori talked about a child’s process of becoming a person in terms of the child’s relationship to the environment. Effectively, every time a child grows up, we learn something about how modern humans came to be. Identifying “tendencies toward certain behaviors”, she wrote about how people interact with the outside world.

Montessori recognized that human beings do not possess instincts to allow them to meet their needs and ensure their survival, as animals do. Instead, human beings have tendencies toward certain behaviors that help them fulfill their needs—primary needs for food, shelter, and clothing; and secondary ones for defense and transportation. Montessori identified these behaviors for the purposes of discussion. (Lillard, 1996, p. 11)

Montessori identified nine behavioral tendencies. They, along with brief descriptions, are:

EXPLORATION

“...Montessori education at each succeeding level is predicated upon the basic human urge to explore.” Children are natural explorers; they are curious, and any means of imparting knowledge that takes advantage of the child’s natural tendency to find out more
about things is bound to succeed.

**ORIENTATION**

Once undertaken, things learned through exploration can only be understood in the context of what is already known. A sense of orientation, of knowing where one is, where one is headed, and where one came from is integral to the process of exploring one’s environment.

**ORDER**

Order is similar to orientation in its role of allowing the developing human to put things which are learned into perspective. Newly discovered things must be compared to older things, new ideas reconciled with what was previously thought. The Montessori Method uses a highly structured environment, a sequencing of materials, and a “consistency of educational approach” to enable children to situate new knowledge in relation to old.

**IMAGINATION**

In addition to exploration, orientation and order, Montessori postulated that early humans, and thus young children, must also have a behavioral tendency toward imagination. The capacity to take what one observes and think of new uses, outlets and implications for it is central to how we change our environment to better suit us. Imagination is what begins to make us human.

**MANIPULATION**

Once we conceive, or imagine, something, it is through the manipulation of that thing that improvement occurs. Physical manipulation, in the case of objects, and mental manipulation, in the
Piaget:

Children should be able to do their own experimenting, their own research...in order for a child to understand something he must construct it for himself, he must reinvent it...if in the future individuals are to be formed who are capable of creativity and simply repetition.

REPETITION
A subset of manipulation, repetition allows people to get better, more comfortable, with what they’re doing. Montessori puts a high priority on the human being’s need for improvement.

PRECISION
Again, as people strive to get better at what they’re doing, they aim for greater and greater levels of precision, both in making things and in thinking about things. Being more precise is a way of improving.

CONTROL OF ERROR LEADING TO PERFECTION
Really, repetition, precision and control of error leading to perfection belong under one heading. All have to do with the deep human desire, according to Maria Montessori, to achieve perfection in everything we do.

COMMUNICATION
As social beings, we have a tendency to communicate. Without this propensity, we would not make progress from generation to generation. Children learn through communication with others.

INDIVIDUAL INTEREST AND LEARNING
The third and final basic tenet of the Montessori Method is that children, and in fact anyone, learn much better when they are learning about something in which they are interested. By providing students with options for how they will proceed at school, Montessori encourages kids to develop individual interests. In this way, they learn about things through other things. (20.1, 21.3)
DANGER

I believe that danger, or at least the perception of danger, can be an enormous motivating factor in child development. To face danger, a child must take risks. Risk-taking is beneficial because it requires the simultaneous consideration of factors that might mitigate the level of danger. How much will this hurt? Can I get away with this? What if I do this? Possibilities must be explored, options weighed, consequences imagined and evaluated. The best part of danger is the overcoming of it—the resulting boost in self-esteem and confidence is invaluable, and can’t easily be imparted in a classroom situation.

SUBVERSION

Subversion is the tenth behavioral tendency of people in response to their environment, the one that Maria Montessori didn’t mention and the one that I find most interesting. Where the tendencies of exploration, imagination and manipulation lead to the questions “what can I do with this?” and “how can I make this better?”, subversion goes a step, and a much more interesting step, further.

The subversive attitude toward the world makes us ask the following:

What ELSE can I do with this?
What else am I SUPPOSED to do with this?
If I flip this over
turn this around
paint this orange
tell people a lie
imagine I am a firefighter
imagine you are a basilisk
hide this in my closet
make up new rules

Björklid:

“For children, objects derive significance from their use (a tree that can be climbed). The environment is not an objective phenomenon but is interpreted …reconstructed, never a copy.”
and/or close my eyes, is this old thing new again?

With respect to play, people's tendency to make something of something else, to subvert an object, a place or an idea's original purpose to create something, somewhere or some new thought, is in some ways the most powerful asset we have in trying to make ourselves better. If getting better is the whole point of development, of education, and of growing up, a child's ability to subvert an existing condition to make it interesting again, and thus worthwhile, is something that a school about play should incorporate as a seminal idea. Mine will.

EVERYTHING'S A PLAYGROUND

If playing is how kids learn (when left to their own devices, at least), maybe the idea of a playground needs to be expanded. Say the word "playground" and North Americans think of a jungle gym, some monkey bars, a slide, a swingset and maybe one of those centrifugal motion merry-go-rounds that make some kids ecstatic and the rest violently ill. Everything is sitting in an enclosure of sand and there are benches arranged around the perimeter for the adults, who do not usually participate. This is a playground for the body, mostly, and for the mind, to the extent that kids sometimes subvert the amenities to refresh them.

What if classrooms were thought of as playgrounds? Kindergarten rooms are already an attempt to mediate between the traditional playground and the typical classroom, but what if the effort were extended to other grades, other subjects? What would a math playground look like?

EXPLORIMENT AREA

There is great affection in the world of elementary school design for the compound neologism. Sometimes a space's inher-
ent flexibility causes it to be called as such—the "cafetorium", for example, or the more mundane but just as open-ended "multipurpose room". Boundless possibility is embedded in these labels; I thought I'd get in on the act.

If a school were to establish itself as a series of playgrounds, it is my opinion that exploration and experimentation would become the new virtues. Combining the terms "exploration", "experimentation" and the suffix "area", we arrive at "explerimentarea".

In the explerimentarea, nothing is a given. There are open containers everywhere, containing marbles, paint, playing cards, maps, dirt, army ants, whatever. Nothing is ever to be put away. There is a drain in the middle of every floor and a hose in every room. Surfaces are smooth, acoustics are terrible (so that everything can be overheard) and lighting is variable, but mostly bright. Ventilation is excellent.

IMMACULAREA

Combining the terms "immaculate" and "area", we get the opposite of the explerimentarea. In the immacularea, there are computers and rare objects, fragile musical instruments and living things to take care of. Repetition and precision are valued here. It is quiet, there is dim natural light and everything is either carpeted or upholstered.
CORRIDOR This end of the school is twelve feet in the air. Jump over branches and push aside
leaves to get to class. Take one of the slides to get to recess.
MARK TWAIN ELEMENTARY

THE STUDENTS
680 students enrolled in grades pre-k through 5
49% of students are girls
41% white
26% hispanic
20% asian
13% african american
33% take part in the free lunch program
27% take part in the limited english program
12% of students take part in the bilingual program
42% of students are designated "at risk"
17% are designated "gifted/talented"
13% participate in the ESL program
8% are designated "special education"
about 5 or 6 students are bused to school
about 300 students are driven to school every day
the remaining students (over half) walk to school

THE TEACHERS
45 teachers and another 30 staff work at the school
88% of teachers are female
76% white
14% hispanic
5% asian
5% african american
33% of teachers hold master's degrees
31% of teachers have 5 or fewer years of experience
33% have 6 to 10 years
36% have 10 or more years

THE INSTITUTION
being rebuilt after 54 years of existence
the new school will accommodate 750 students
Twain currently holds "exemplary" status from HISD
Twain is a "magnet" school
there are a number of special programs at the school:
behavior adjustment class
resource services
speech therapy
two-way bilingual program
literary development
extended day program
SIGHTS (gifted and talented program)

ECONOMICS
The neighborhood around the school is the same as it's been for 50 years; largely residential and economically homogenous. New construction in the area (both cultural and McDomestic) means that land values in the area will continue to rise. Kids who attend Twain ten years from now will be richer than they are today.

GETTING TO SCHOOL
About half the kids who go to Twain live within 20 minutes of the school—walking. The other half are driven to school because they live outside of the HISD boundary. With the construction of the new school, the proportion of Twain kids who live within walking distance is expected to increase dramatically.

OPEN SPACES
Bounded by two concrete bayous, a major road, and a railway, the neighborhood is an island. And while there are fewer large, open spaces now than there were 50 years ago, the conversion of the area immediately surrounding Twain into parks and public amenities is creating an "activity hub" for the neighborhood's children. Rather than exploring the periphery, kids might come to the area around school to be outdoors.
MULTIPURPOSE ROOM  Open the big garage door and have theatre in the round. Or invent
2-sided dodgeball. The blue walkway is a skybox for kids.

ON PROGRAM
PROGRAM

EDUCATIONAL SPECIFICATIONS

"Ed Specs", as they are referred to in educational circles, are sets of documents which mandate to varying degrees of specificity how schools are to be made. Authored by school districts or by state boards of education, they can lay out program, site requirements, building assemblies, construction materials, design methodologies, and even color schemes.

These are given to architects to follow for several reasons. The most important of these, and the one to which most proponents of ed specs point when asked to justify their use, is the importance of maintaining consistency and equality across all of a district’s or state’s facilities. In cases where schools are located in areas of different economic or political (or both) strength, ed specs provide a consistent and easy to implement way to provide all students with the same resources.

The downside comes in the removal of a significant portion of the architect’s responsibility for the design of a project. Specific site concerns, which include demographics, ecology, hydrology and history, are not always allowed for in the implementation of an ed spec. Many (and in some cases, most) of what an architect is trained to draw on is predetermined by the authors of the document. Rather than constraints, architects who design public schools in Houston are given puzzles. With all the pieces in front of them, they are asked to develop a solution for the site; in effect, “Here is the school—now make it fit.”
MARK TWAIN'S ED SPEC

The educational specifications for the Houston Independent School District's new elementary schools is seventy-five pages long, and includes guidelines and requirements covering virtually every aspect of the new school’s design and construction. An example:

23. Exterior benches: a total of about 6, located where students waiting for pick-up and where teachers supervise play activities, in shade if possible. Locate benches near walkways, so that a person sitting on a bench will have their feet resting on a paved surface.

The program for new HISD elementary schools is similarly exhaustive. For the sake of my undertaking, I chose to develop a program that is a hybrid of three sources: the standard HISD program from the ed spec; one which was developed by the architect designing the new Mark Twain in collaboration with the principal and a parents committee; and my own ideas about the incorporation of spaces for play.

ADD PLAY SPACE TO PROGRAM

Names of spaces called out in the HISD program are accompanied by square footages; the architect who uses it knows, for instance, that the music room is to be 1200 square feet in area. Play spaces, on the other hand, are not even mentioned as part of the program. They are listed with other site requirements in a separate section. While a specific size is given for a "covered play court", no dimensions are mentioned for any of the other three play areas required by the ed spec.

As a means of helping to conceive of my project as a place where the line between traditional learning space and space for play is blurred, I included the
required play areas in the revised program.

Their inclusion in the list of labels and square footages serves as a reminder that these spaces are not to be thought of as leftover or residual, but as "rooms" every bit as integral to the makeup of the school as the library, the cafeteria and the classroom.

DIAGRAMMING THE SCHOOL

In looking at the program, it is quickly evident that spaces in an elementary school fall into four general categories. There are large, one-of spaces (cafeteria, library, multipurpose room); medium-sized, heavily repeated spaces (classrooms); small, unique and specialized spaces (offices, meeting rooms); and substrate, the spaces that connect the others and hold overflow (corridors and storage).

An elementary school is actually a lot like a shopping mall. Large, medium and small spaces exist in both in about the same proportions, but they are different in terms of their organization. If large, unique elements of the school program like the library are likened to the anchor stores in a mall, then the classrooms which make up the majority of the area of the school, and are all but identical to one another, can be compared to the chain stores that line the hallways. Small, unique elements like administrative offices have direct analogues in the mall, and so do circulation spaces.

The diagram of a shopping mall can be said to be centrifugal; mass, in the form of the large anchor stores, is distributed at the extremities of the organization. As the ostensible destinations for the mall shopper, anchors are placed as far apart from each other as possible to allow for store-lined corridors to connect them. In walking from one anchor to another, shoppers are com-
pelled to pass, and inevitably patronize, the smaller stores in between. Common destinations are distributed in order to maximize the time spent travelling between them. The diagram, then, is essentially one of inconvenience, at least from the point of view of the mall shopper. (45.2)

Elementary schools, on the other hand, are subject to the inverse of the mall diagram. Anchors are clustered and central, with classrooms (stores) arrayed like spokes emanating from a hub. As common destinations, school anchors are placed close together for exactly the same reason that mall anchors are spaced far apart; reduced travel times from one to the other. Classrooms, as spaces that specifically do not desire to have a lot of traffic in front of them, are arranged in clusters at the periphery as destinations only for the students who use them. (45.3)

With this in mind, the questions that need to be asked are many:

How often do users of the school actually travel between the anchors?

Is there anything lost in restricting circulation to large parts of the school only to those students who “live” there?

Would an inversion of the school diagram—to something resembling the mall diagram—benefit users in any way?

What would be the effect of distributing large programmatic elements like the library, the cafeteria and the multipurpose room (requiring students to circulate past classrooms the way mall shoppers pass chain stores)?

What would happen if travel to, from and between anchors took longer?

If a school were organized like a mall, what kind of mall (doughnut or throwing star) would it look like?
POSSIBLE ORGANIZATIONS

What follows are a series of investigations into the program as it developed. By looking at the school as the overlap of several projects, each focusing on a different set of drivers, I hoped to better understand what opportunities might develop for organizing a school where play is considered integral from the beginning.

EXPERIMENTAL OR NOT

One way to look at the elementary school program might be to place spaces on a spectrum based on how "experimental" their intended activities are (47.1). Presuming that the opposite of experimental might be "rote", one might imagine that art and science might be situated on one end of such a spectrum, with math (at the elementary level, remember) and spelling at the other. Assuming that all elements of the program could be arranged in such a way, an organization wherein experimental and rote learning wings are mediated by something in between might be interesting.

PROJECT ABOUT ACCESS

Dividing the program into categories according to access, specifically areas where kids are allowed to be and where they're not, yields a picture of an elementary school that is mostly open to its residents (47.2). Kids have access to at least 80% of the school's area, with only about 8% of the space being reserved for adult-only activities that do not involve mostly storage.

What might a school that is organized this way look like? If all off-limits program was concentrated together, and all kid-accessible program was similarly bundled, what might happen? An organization wherein the inaccessible block is placed at the edge of
the site as a buffer between the public and the children is imagined; the result-
ing "protected zone" could then be as open, visually and otherwise, as it want-
ed to be. (46.2)

Looked at another way, this arrange-
ment looks most like a prison or a zoo, with inmates separated both from their guardians and from the outside by a physical impediment. Any freedom that might be implied by having an all-kids-
zone is quickly subsumed by the reality that schoolchildren are not inmates or chimpanzees, and that proximity be-
tween allowed and not-allowed places is not only acceptable, but desirable.
Not being allowed to go somewhere is a normal part of childhood, after all, and the benefits of having teachers' offices and mechanical closets interspersed with classrooms are obvious. Call this the Lord of the Flies Scheme, and move on.

PROJECT ABOUT STORAGE
If anything is true of elementary schools, it is that there can never be too much storage space. Storage needs include:

kids' personal items (coats, lunches)
teachers' belongings and teaching materials
instructional equipment and supplies
gym equipment
fundraising resources (calendars, chocolate)
school store items (clothing, supplies)
maintenance equipment
projects, both recent and not-so-recent
theater props and sets

Looking at the program and separating out the spaces which are entirely dedi-
cated to storage, fully 10%, or 10,000 square feet of space in a 750 student school, is reserved for things instead of
people. (47.3)

The study model shown in figure 46.3 is a product of using the separation of storage from non-storage program as the only starting point for a massing idea on the site. Non-storage program is arranged around a conceptual black box of “things”; this space is central to everywhere, but is really convenient to almost nowhere.

PROJECT ABOUT SERIALITY

By seriality, I mean to refer to that fact that the school is made up of both unique and repeated spaces; program which exists in multiples and one-of program which does not repeat. (49.1) Fully 43% of the total area of the building is allotted to classrooms, and the majority of this, 34%, is made up of classrooms of similar size and finish. Given that the next largest proportion of space is given over to “public non-multiples” (unique program which is accessible to both students and teachers), and that a significant portion of this is made up of circulation spaces, it is clear that a school is basically 3 large spaces; 50 more or less identical classrooms, bathrooms, hallways and storage; and offices.

A project where classrooms are treated as blocks of repeated units in a sea of “other” is depicted in 48.1. Rather than making examples of the unique program and relegating classrooms (where students actually spend most of their time) to context, this scheme proposes the opposite. Here, classrooms are grouped to form the heart of the facility, with everything else understood to be a support structure.

PROJECT ABOUT PEOPLE IN GROUPS

The vast majority of the public elementary school program is devoted to groups of people rather than to individuals. Only about
3% of the total area is reserved for spaces meant to be occupied by a single person.

What might the implications be for focusing a school project on the nature of group space? What are the primary differences between spaces meant to be occupied singly or by a number of people? Do these considerations apply to the deployment of program at the scale of the building, or more to a discussion of how to treat individual spaces?

Figure 48.2 imagines a separating out of the individual program spaces, though the extent to which this is interesting or relevant is definitely in question. One suspects that there are more fruitful ways of examining the school program.

**PROJECT ABOUT QUALITY OF SPACE**

This take on the program was the point of departure for the rest of my semester; it is discussed in detail in the next part of this document.

Briefly, the program was developed into a matrix of information, basically a table into which I could insert more information about individual aspects of the project. In addition to describing spaces in terms of who used them and how, I created a series of opposite spatial qualities and categorized each line of the program as either one or the other. Grouping spaces according to how I imagined them to feel, I concluded that two-thirds of the school program was to be “wet, light and loud”. (49.3) These qualities, I believe, have important implications not only for materiality, but for the way the entire project could be organized.
play at school
MUSIC ROOM: What happens when the noise from choir practice mixes with the noise from the
cafeteria? It's the Vortex of Sound. And it's loud.
CHANGING THE SCHOOL

FLEXIBILITY

A discussion of the importance of flexibility in schools is all-consuming. Schools must be flexible. Classrooms must be flexible. The cafeteria is actually the cafeteria/commons space and the gym is labelled the multipurpose room. In a building type where space is tight and budgets are even tighter, flexibility is held to be the greatest of all virtues; anything is better if it can also be something else.

FAST FLEXIBILITY

Central to the idea of flexibility is the notion of the timeframe. If flexibility is understood as having to do with the way spaces function over time, it is important to consider the lengths of time over which they must be flexible.

One timeframe to think about is the minute to minute. How can a space change to accommodate a different function in a very short period of time? Moveable partitions, casement work and other furniture on wheels, and changeable lighting conditions are all examples of what I refer to as fast flexibility. Given a series of similar spaces and the above-mentioned amenities, different functions accommodating different groups of people can be provided for. (57.1, 57.2)

With fast flexibility, spaces are altered—altering their shape or contents—to accommodate change. Inherent in this idea is the necessity for such spaces to be generic; in order to suit many purposes, they must be perfectly suited to none of them. (56.2)

SLOW FLEXIBILITY

Taking into consideration another timeframe, one notices that elementary schools often
require flexibility on a much larger scale. Apart from suddenly needing to double the size of a room or reconfigure the desks to have a spelling bee, spaces are sometimes required to take on different functions for very long periods of time, sometimes forever. Over the life of a school, labels change yearly as attendance, curricula, technology and teaching methods shift.

Slow flexibility is the name that I have given this phenomenon. Rather than move things around, people are effectively moved to spaces which better accommodate changing needs. Unlike fast flexibility, where spaces can all be the same, variety is critical to the premise of slow flexibility. Different spaces with different qualities—light, acoustics, size, floor surface, etc.—are desirable in this model. (56.1)

Over time, function (which is perhaps better called use) finds the form (or space) to which it is best suited. Ideally, having a variety of different kinds of places in a school would allow each use to occur in the best possible setting. If fast flexibility produces equal but one-size-fits-all spaces, then slow flexibility allows for a measure of customization; customization which occurs over a long period of time. (60.1 through 61.6)

The possibility of an elementary school with classrooms that are all different is fascinating. What would make them different? This premise, along with my later investigation into a school organized around qualities of space, form the conceptual and operational core of what would later become my building proposal.
FAST FLEXIBILITY


In an effort to better understand exactly how big an elementary classroom should be, the architects marked off the corners of a given area on a field. A class full of kids, their furniture, and the teacher were then arranged in every possible configuration. These configurations were then photographed and used to determine the ideal classroom size for an elementary school in 1952.
Slow Flexibility
Pre-customize the space and let time sort out who uses it.
Here, a school is imagined where classrooms are not all the same, where differences between them make for spaces which are either more or less suitable for certain activities. Over time, activities will find their space; function will find its form.
Differences are not necessarily only in shape: surface finishes, quality of light, acoustic characteristics, etc., will create a variety of "usefulnesses."

DIFFERENT
BUT
EQUAL

FLEXIBILITY
(move the people around)
There are 6 different classroom types, and 36 classrooms in all.

YEAR 1
The 6 grade levels are evenly distributed into the 6 classroom types, so that no two classrooms are exactly alike.

YEAR 2
After a year's experience, it is decided that kindergarteners really needs to be in diamond rooms.
With the move, the 5 displaced classes move into the vacated rooms.

YEAR 3
One of the kindergarten teachers decides that her old star room was more suited to her teaching style, and trades with a second grade teacher.
A grade one teacher in a circle room trades with a grade 5 teacher in a star room.
Three teachers from different grades arrange a three-way trade: gr3 square to gr4 triangle, gr4 triangle to gr1 hexagon, gr1 hexagon to gr3 square.

YEAR 4
A new curriculum makes hexagon rooms more suitable for grade 4 than the red, green rooms.
Eight teachers change rooms in a mass swap round of negotiations.
Another kindergarten teacher decides to switch from diamond to star, switching with a grade 1 teacher.
COMPUTER ROOM Go up and you’re outside, standing on top of a hill in the playground. Go
down and you’re inside the hill—the computers live in a cave.
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>DESIGNATION</th>
<th>QTY.</th>
<th>TOTAL ROOM GROUP SF</th>
<th>ROOM ONLY SF</th>
<th>TOTAL ROOM GROUP SF</th>
<th>ROOM ONLY SF</th>
<th>MULTIPLE SF?</th>
<th>AREA, ROOM OR SUB-ROOM</th>
<th>ROOM CATEGORY</th>
<th>FUNCTION</th>
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<tr>
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<td>Administration</td>
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<td>500</td>
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<td>admin/staff</td>
<td>oper</td>
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<td>75</td>
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<td>75</td>
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<td>room</td>
<td>admin/staff</td>
<td>oper</td>
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<td>65</td>
<td>65</td>
<td>65</td>
<td>no</td>
<td>sub-room</td>
<td>toilet</td>
<td>pu</td>
</tr>
<tr>
<td>clinic toilet</td>
<td>Administration</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>room</td>
<td>admin/staff</td>
<td>oper</td>
</tr>
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<td>room</td>
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<td>oper</td>
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<td>admin/staff</td>
<td>oper</td>
</tr>
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<td>room</td>
<td>admin/staff</td>
<td>oper</td>
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<td>125</td>
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<td>room</td>
<td>admin/staff</td>
<td>oper</td>
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<td>admin/staff</td>
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<td>Workroom/Breakroom</td>
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<td>room</td>
<td>admin/staff</td>
<td>oper</td>
</tr>
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<td>workroom staff workstation</td>
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<td>oper</td>
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<td>storage</td>
<td>oper</td>
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<td>oper</td>
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<td>toilet</td>
<td>oper</td>
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<td>100</td>
<td>100</td>
<td>100</td>
<td>no</td>
<td>sub-room</td>
<td>storage</td>
<td>oper</td>
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<td>no</td>
<td>sub-room</td>
<td>storage</td>
<td>oper</td>
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<td>150</td>
<td>150</td>
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<td>150</td>
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<td>sub-room</td>
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<td>oper</td>
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<td>Common Areas</td>
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<td>75</td>
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<td>sub-room</td>
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<td>no</td>
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<td>300</td>
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<td>150</td>
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<td>sub-room</td>
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<td>Library toilet</td>
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<td>65</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>no</td>
<td>sub-room</td>
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<td>room</td>
<td>multipurpose</td>
<td>oper</td>
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3700 ft² of cafeteria

- classroom, grades 1 to 5 storage
- classroom, spec. pop. storage
- classroom, spec. pop. changing room with locker
- Music Rooms
  - music room storage
- Art Rooms
  - art room storage
  - art room, kiln room
- Science Rooms
  - science room storage
- Computer Lab
  - computer lab office
- Special Ed. Classroom
  - LDC Classroom
    - LDC classroom storage
- Behavior Adjustment Classroom
  - Behavior Adjustment Classroom storage
- SIGHTS Classrooms
  - Classroom
  - Classroom
  - Classroom
- Toilet, Students
  - Classroom
  - School Garden in the Sun
  - Play Area
  - Stay, Study, Play Area
  - Teacher Workroom
  - Teacher Lounge/Kitchen
  - Office, Maintenance
  - Office, maintenance storage
- Bookroom
  - Teacher
- Toilet, Faculty
  - Teacher
- Multi-use Community/Volunteer Room
  - Conference Room, small
  - Volunteer Center/Storage
  - Volunteer Laundry
  - Volunteer book/supply store
  - Fundraising Store
  - PTO Storage
  - Magnet Storage
- Kindergarten Play Area
  - Play Areas
- Grade 1 and 2 Play Area
  - Play Areas
- Grade 3 to 5 Play Area
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3700 ft² of wet loud smooth hard cool bologna space
DESCRIBING SPACE

In an attempt to find a way to work with the program (see the previous page), I began to add information. Building a matrix in Excel, I started by listing the elements of the program in a column on the left. Square footages were next, followed by information about the spaces: who would use them, when they might be used, and finally, what they should feel like to occupy. To generate the last columns of data, I came up with pairs of opposite terms that describe space—warm or cool, light or dark, etc—and marked each row in the matrix (each space called out in the program) as being one or the other.
It is important to note that how a space is described in the program matrix is entirely a product of my own will as a designer. For example, the cafeteria is noted as being wet, loud, smooth, soft, light, bologna space; this is entirely because this is how I think the cafeteria should be.

Once entered, I found that the new information about what spaces were, as opposed to what they were called, was more useful to me in developing the building project. Presented only with the fact that I needed to design a cafeteria and that it should be 3500 square feet in area, I was forced to draw on a very limited pool of inspiration. As a person who has lived in North America and attended elementary school, I have a very
preconceived notion of what an elementary school cafeteria is. I think everyone does. If the problem set out by this thesis is to propose spaces which are ambiguous in their function and provocative in their form, then designing a cafeteria based only on the label "cafeteria" and a size would not get me very far. Instead, I chose to jettison the right-hand information altogether, discarding the labels and only working with the area and the adjectives that described each space. What was originally "Cafeteria/Commons: 300 sq. ft." became "3500 sq. ft. of wet, loud, smooth, soft, light, bologna space." Working this way, I was free to design a project that would conform to the program but was not constrained by preconceptions about how
to make a library, or a cafeteria, or a classroom.

The implications of working in this way are pretty enormous. First of all, it destroys the tyranny of the bubble diagram. Since spaces no longer have a stated function, there can be no reliance on notions of adjacency to figure out how to arrange them. What needs to be next to what? Who cares! What is the space like?

Second, with function re-expressed as a detailed description of space, the mantra "form follows function" is moot. More relevant to this process might be "use follows function" (how is the space used?) and then "form
follows use”.

When it came to time to “pour” the program back into the project, I found that I had generated a place that was very different than the one I had originally pictured. With many options for where any particular label could go, I found that I had made spaces that were truly vague about the functions that they implied.

In terms of play, the relationships set out by the form of the building might actually encourage reinterpretation by the users of the school. In time, labels will be changed, furniture will be moved around, and partitions will be added as the needs of the school
change. Flexibility is inherent because the form of the school never followed the function in the program in the first place. Spaces in the school are used for the functions to which they are best suited. As requirements change, functions can move around. This dovetails with the idea of slow flexibility which I discuss in the previous chapter, “On Change”.

The drawings on the pages in this section are versions of the upper level plan of the school. Each is divided pictorially into the two halves of one of the adjective pairs. Simply put, the drawing above shows which spaces are light and which spaces are dark.
POLES The variety of elements available serve to spark the imagination: why are they all
different? Maybe the red ones are poisonous...
NARRATIVE

MYTHOLOGY OF PLACE

I am very interested in the stories that kids sometimes make up to explain features of their physical environment who’s origins they do not know. These stories, if passed down from group to group of children, become a kind of mythology for the places that they inhabit. The story is bigger than the kids who know it; it is every bit as much a part of the place as the walls, and makes up the better part of kids’ experience of a particular place. Thinking about my childhood, it is sometimes difficult for me to separate my memories of the places I knew from the stories that were told about them.

Often, the myth is limited to a single concept: “The space between the gym and the dumpster is poisonous. Anyone who goes there dies immediately.”

Other times, the story is related to a particular form or object: “That’s not a hill. It’s a sleeping, buried monster that eats teachers. Climbing on top of it and clapping your hands in a specific rhythm will wake it up. Go figure it out.”

As an experiment, I developed a story (less a myth than an outline for a children’s book, actually) that would precede my building project. I was curious to see if inventing a narrative before designing the building would positively influence my process. The premise for the story is that the school is one day converted into a zoo, so that both kids and animals are forced to coexist for a period of time in the same space. Perhaps the spaces are ideally suited to other species, as well? What would happen if you told second graders that their school is a converted nature park? What stories would they invent to explain the building?
Some sample sentences from the narrative:

All but one of the otters made a beeline for the trough in the center of the room.

Rhinoceroses rarely knock, and Vincenzo was no exception.

Luckily, Mrs. Ramirez's hissing cockroaches hissing didn't bother anybody but Mrs. Ramirez.

The baboons enjoyed the view from the highest window in the class.

It was a lot of work to get their elephant into Mr. Harper's class, but it was worth it. Priscilla seemed very happy.

Who would have thought that tigers could be so picky?

It was a very good thing that the library had flooded—not so much for the books, but for the salmon. "And besides," thought Edgar, "salmon can't read, anyway."

Francis had never seen a herd of gerbils, at least not one this big.

Room 212's very high ceiling was perfect for Rowena.
LIBRARY The ziggurat of books acts as a shelving, seating, climbing and hiding element. The
dark, quiet and somewhat secret A/V room is contained within.
...OR SPECIFIC GENERALITY

84.1 The premise behind general specificity is that a physical thing—a place or an object—can be very specific in its form without being specific about its implied function. Lars Lerup discusses this in “People and Things”, an essay in his book Building the Unfinished. Referring to what he calls “the anonymous and the authentic”, Lerup uses the example of a staircase to describe an object with a form that one can interpret in many different ways. (85.2) Calling the corrugated object which acts as a stair a “lump”, he discusses how a boy imagines it to be a mountain, and slides down it. His father sees only a stair, and reprimands him. Somewhere else, someone uses a stair as a bookshelf, and yet another person (too old to climb the stairs) puts flowerpots on it. Lerup’s point is that the lump is not stair; it only looks like a stair because that is what we are used to seeing, and only actually becomes a stair when we use it as such. The lump itself can be anything. It’s identity is based on its use, not on its name.

84.2 A room with a ziggurat in the corner. The risers are storage and objects are displayed at each level. Kids use the steps as seating for presentations in the class. The high point with the window is a place of privilege. Every kid gets to go up there and work quietly one day a month.

84.3 A room with a drop-down quarter. Stairs descend to a completely glazed mini-room where kids can see out. Everyone in the class is hidden except the person in the box. This place is either a place of privilege or a place of punishment, depending on the will of the teacher.
85.1 A piece of playground equipment photographed at a public park about 200 yards from the school site. It is a tube in the shape of a caterpillar through which one is supposed to crawl. This object is a lot of things, but it is certainly not fun. There are no alternate ways to use it; it has a beginning and an end; there is no challenge at all in using it, let alone a “variety of challenges”, as called for by Mitsuru Sendai. The giant bug-head removes any question of what this might be, or how it might be incorporated into a game. It sits in a sea of ultra-safe “play surface”. This is the enemy.

85.2 Lerup’s Lump. The form of the object allows it to be used as a stair, but it also allows it to be used in others ways. It all depends on how you look at it.

85.3 Lerup calls things which are known to us, whose function is familiar to us, “anonymous”. Things which we do not know about because we have not experienced them before he calls “authentic”. Referring to anonymous objects as “stereotypes” and labeling authentic objects “unique”, he writes about the relationship between the two:

The importance and necessity of stereotypes is undeniable. Without them we would have no way of making sense, since they make up our socio-material vocabulary. Without stereotypes the world would be a senseless confusion. That is, if the world were forever new and authentic, both in terms of actions and objects, we could not communicate with each other—everything would be new. Likewise, on the contrary, if the world consisted solely of stereotypes, everything would be understood—a change would be no change—each action would be everybody’s action, since each action would be predictable and always a repetition of the original act as it occurred far back in history. The world would be reduced to natural process. (1977, p. 133)
UNDERNEATH AND OVERNEATH

86.1 Sometimes, the bottom of things is more interesting than the top. Of all people, I think children understand this best. Since I decided fairly early on to pick up the school and create a covered play area underneath, I found myself wondering, “What does the bottom of this thing look like?”

86.2 A play structure by Mitsuru Senda called the “Space Tube” at Space World Fun-Fun Kids, an children’s park in Japan. The translucent sections of pipe are lined with ropes and handholds, and form a honeycomb structure in the air. Being inside is exciting, but it’s the knowledge of what’s in store while you’re on the ground that makes this project extraordinary. I am interested in this because it is perceived primarily from below.

86.3 An idea for a boat form using a kind of continuous surface. Three places are created; there is a high point, a low point and an in-between point that is visible from everywhere. A see-through plane is used to suggest enclosure, but the walls on either side of the left most scoop might be enough to differentiate the spaces.
RAMPs AND RIPPLEs

87.1 A kind of boat form idea for a room. What would happen if one wall were an "unusable" ramp? Acoustic implications? Skateboard club meetings? I think the form actually has more potential in a circulation space—seeing who can run the highest up the wall would be fun, and it would be difficult to get seriously hurt doing so.

87.2 I became interested in corrugated surfaces after reading Lars Lerup's article about the stair that is appropriated by different people for different purposes. He calls the stair a "corrugated object". Here, I imply that a severely rippled surface could be a means of tying together space both inside and outside of an enclosure. Also, the ripples could be seen as reclined seating. I imagine a cafeteria like this, where ground outside is grass for use on nice days, and the inside is durable, washable plastic for use all the time. A possible alternative to chairs?

87.3 Increasing the scale of the ripple, several things happen. First, I see an opportunity for the separation of outdoor spaces without using fences or gates. Also, allowing the ripple to dip lower than the underside of the built form (or installing the built form mid-ripple) allows passage underneath. What would it be like to be on top of one of these ripples, looking across at the others?
ÜBERCUBBIES

There is nothing in the elementary school that is as ubiquitous as the cubby. Normally just a place for kids to put their coats, lunches and other personal belongings, I see the role of the cubby greatly expanded in my project. It is a fact that all schools need huge amounts of storage. Kids produce immense quantities of things, and teachers do, too. Supplies and other materials are bulky, there are always lost items floating around, and the PTA stores more stuff at school than most people realize.

Why not expand the prevalence of the cubby? Go higher than kids can reach and use them for storing the teacher’s things. Go even higher than the teacher can reach and put old projects in them. Run them into the halls and around the gym to make a giant climbing surface.

Instead of lining the walls with cubbies, eliminate the walls and make double-cubbies the partitioning system. Engineer them to take load and support the roof with them. As they fill up, the walls will become more opaque—sound isolation will even improve!

88.1 A hallway lined with cubbies. Five-foot-rated fall surfacing material (like they use in outdoor playgrounds) makes up the floor, and hyperactive kids can circulate along the walls.

88.2 A wall of cubbies, only part of which is used for storage by children.

88.3 Separating classes from circulation space with walls of cubbies would allow for a semi-awareness of what is going on inside. Plugging the cubbies with stuff would cut down on noise.
89.1 Modular cubbies, maybe on wheels, maybe on sliding tracks, maybe just light enough to pick up and move around, would do double duty as both storage and partition.

89.2 An exterior wall of cubbies used to encourage nesting by native species. Imagine the fun of having a squirrel's nest, an angry mother opossum and a hornet's nest all in close proximity! Once a year, the wall is flushed out by a team of exterminators and the circle of life begins afresh.

89.3 Plan of a hallway/classroom arrangement wherein cubbies are used to separate the two. Staggering the classrooms and inserting small yards between each pair would make for an extremely unusual space. With glazing or an operable garage door between each classroom and its corresponding yard, each room would have its own little indoor/outdoor world.
PITS, DIPS AND SINKHOLES

90.1 A close-up photograph of a concrete form that I made. While a little too “Return of the Jedi Pit of Death” for most schoolyards, I think the form could be very interesting at a large scale. What games does this suggest? How do you get out if you fall in? What’s at the bottom?

90.2 A photograph of Maya Lin’s Wavefield at the University of Michigan in Ann Arbor. The ripple/mound/divots are the right size for sitting in, and kids who play here invent some very interesting rules for chasing games. The locomotion required of anyone of crosses this feature is sufficiently altered that simply walking on it can be considered a form of play.

90.3 Is it possible to engineer a site so that pits and crevasses appear over time? If we know what causes sinkholes, is it possible to design a field that will be full of them in ten years? Depressions are some of the most provocative landforms around. You can hide in them, run around them, jump over them. Intentionally creating “flaws” in an otherwise consistent landscape would be an interesting way to generate provocative form.

PLANNED SUBSIDENCE

90

ON FORM
MOUNDS AND TROUGHS

91.1 A mound which is intruding into three volumes. Normally, building on a hillside involves making a retaining wall to hold back the earth. What if the earth were allowed to enter the space? Would it actually be dirt, or would there be another material that would take the form of the mound on the inside? Maybe the inside of the mound is storage? Or dark, quiet occupiable space?

91.2 A mound intersecting a volume, where the mound is used as the primary (perhaps only?) means of access into and out of the volume. I love this idea. What if leaving a room meant having to climb a hill? In effect, access would always be via the roof. Entering the room would mean rolling down a hill. The state of lowest energy would be to be inside—energy would always be required to leave.

91.3 A series of recessed table-forms, where the surface of the table is level with the floor surface. Sitting down would mean climbing down, where diners (or workers) would be level with people’s feet. The depressions would be invisible from a distance. Potentially, the seating ring could be raised when the tables aren’t needed, creating a continuous floor surface. Ideally, the tabletop would be the same material as the floor. I imagine a spiral ramp, a quarter circle long, to access the seats without having to step down at all.
ONE-WAY CUBBY WALL

92.1 Aerial perspective showing two volumes split by an angled wall of cubbies. The cubbies are rotated more than the cut between the two volumes to allow access into each volume. If these were classrooms, the cubbies would be well positioned at the entrance to the room.

92.2 Standing outside the volumes and looking at the cubbies perpendicular to the outside walls, the cubbies are transparent, allowing a view into the volume which one is not entering. It is at this point that the two volumes seem most like one.

92.3 Standing inside the volumes and looking at the cubbies, it is noticed that the wall is now opaque, disallowing a view into the adjacent volume. This is because the dividers in the cubbies are installed perpendicular to the axis of the volumes.
SELECTIVE CIRCULATION

93.1 A wall of cubbies is used as a threshold in a hallway. Some dividers are removed to allow people to pass through. The level of transparency of the installation is dependant on the contents of the cubbies; when full, the threshold becomes a wall.

93.2 In an attempt to imagine a hallway that is primarily for children, I thought about one of the unique opportunities that is afforded by the elementary school program: there are people of all different sizes in an elementary school. What's more, the big people are the ones with the most freedom to move about (because they're in charge). What if the rules of access were inverted, so that the advantage was given to the smaller people? By lowering the ceiling everywhere but in certain places, people of a certain size would be free to go anywhere, but taller people would either have to duck or follow prescribed paths.

93.3 Sloping the ceiling or creating thresholds that slope is another way of sorting people by size. Much like small animals hide in spaces between rocks that are too small for larger predators to get through, the smallest kids in the school might be protected by staying in spaces that are only big enough for them. Big kids and adults would be forced to circulate in other places, inverting the freedom hierarchy in favor of the smallest people.
DOORS, RUINS AND SHELVES

94.1 A classroom with big garage doors that open to allow the inside out, and the outside in. Used in combination with an associated yard or terrace, this might be a good opportunity for being able to have class outside. If an activity were particularly messy, it could be done on the terrace. Opening up the walls of the classroom could also accommodate more people.

94.2 I am fascinated by the prospect of making something new which seems very, very old. Unlike a piece of furniture or a faux Georgian townhouse, I propose to go even farther. Rather than simply make something look old, I would like to make it look ruined. Part of this ties into my interest in creating architecture with an embedded fictional backstory, but part of it just seems like fun. Ruins are indestructible—after all, they’re what’s left after everything else has been destroyed. A play environment made up of ruins, original or not, could be durable without having to seem childproof.

94.3 A classroom with a ridiculous amount of storage. I think that every school has at least one teacher who needs a space like this. With a 20 foot ceiling and enough shelving for a dry goods store, this could be one of the most enthralling and distracting learning environments ever. Imagine a lesson plan where each day’s activity is determined by choosing an object from one of hundreds of shelves.
WET TABLE, WET ROOM

95.1 A room for science and art, and anything else where enormous messes are sometimes made. Floors and walls run together as a continuous surface and drains run down the center of the room. At the end of a working session, a hose is brought out and the entire room is hosed down. Even the lights are waterproof. The beauty of this environment is that it implies that anything is OK. Creativity should not always be bounded by the need to clean up afterward. Great chefs have other people to wash pots and pans; children in experimentation should be similarly unencumbered.

95.2, 95.3 A work table and sink for the wet room. The surface slopes to the center, where a drain carries everything away. A lip at each edge keeps things from spilling into your lap, and taps are positioned every three feet so that everyone always has access to one. A big like an autopsy table, but better because this would not be made out of steel. Maybe ABS plastic or even polished concrete.
TREEHOUSES

Instead of building wings with courtyards at the base of trees, why not pick up the build-ings and occupy the canopy? Live Oak trees in Houston are the most beautiful and grace-ful trees I have ever seen. They are by far the best thing about this city, and the site which I selected has a whole row of them.

These drawings suggest a platform in the trees, not supported by the trees themselves but seeming to be a part of the canopy. Circulating in among the branches, leaves, lizards and birds would be amazing. The ample shade would make being outdoors quite pleasant, and the fact that Live Oaks are evergreens would mean that the trees are never bare.

96.1 This section proposes a classroom which opens directly onto the tree platform. Used as outside space, lessons could be conducted in the branches, but the space would probably be better suited to in-be-tween times: recess, lunch and after school.

96.2 A platform ramping up to the tree canopy. The space under the platform could be very interesting, too.

96.3 A view from the platform with entirely the wrong kind of trees. An infinitely better idea of what this space might be like is on page 28.
bibliography


