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THANK YOU NOTE

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TABLE OF CONTENT

09	Introduction
13	Educational Theories
29	Child Development
37	Senses
43	Influences
49	Playground
55	Case Studies I
61	Sketch Problem I
67	Sketch Problem II
73	Case studies II
79	Hexa
95	Bibliography

09

Introduction

How can architecture and design help improve children's development and ability to learn?

Introduction

Children are our future; there is no doubt about that. The political and social systems are based on the exchange of generations; the middle generation is raising the young ones and working for the elders. We put so much hope and expectations in the young ones, but do we provide them with the tools and opportunities they need to achieve our goals? I believe that the answer is no; there is so much more that can be done to further the children's ability to develop and learn and to make the learning process more efficient while satisfying our expectations. This raises many questions about our really complicated nature, questions which politicians, psychologists and teachers are already trying to answer for decades.

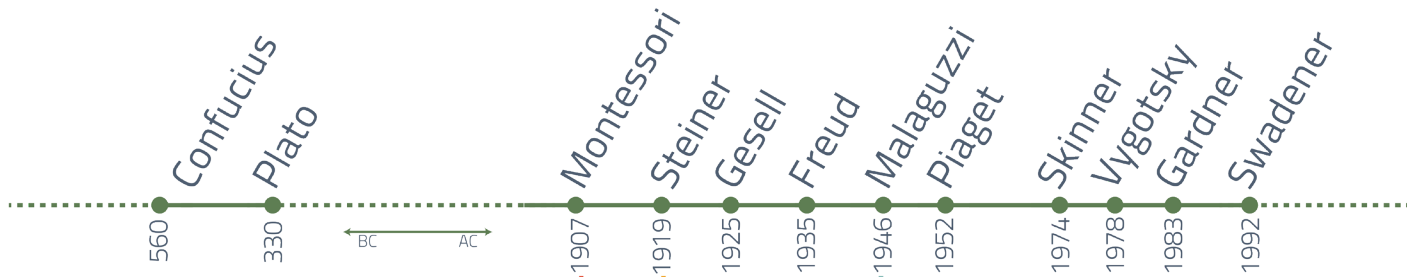
How to raise our children more efficiently without cutting into their playtime?

What would happen if we involved design and architecture into the education process?

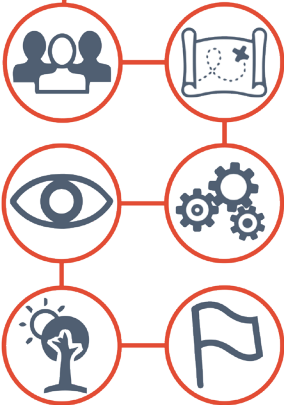
Is it possible to create a more intelligent, interactive and stimulating environment for children to grow up in?

13

Educational theories



Maria Montessori
(1870 - 1952)
Montessori
Rome, Italy



Rudolf Steiner
(1861 - 1925)
Waldorf
Stuttgart, Germany



Loris Malaguzzi
(1920 - 1994)
Reggio Emilia
Reggio Emilia, Italy

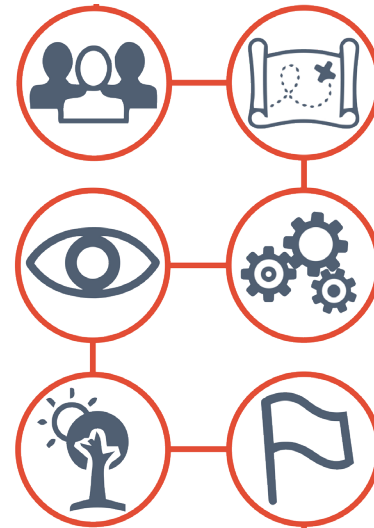


Educational Theories

For centuries now people have been investigating the human brain. Our interest in this topic is derived by the simple need of curiosity; curiosity for understanding the world and what our place in it is. As we attempted to answer the most fundamental questions like “Who are we?” and “Where did we come from?” only more, complicated questions were raised about the nature of human beings. There are many different theories that have been established throughout the centuries, some which were even developed many years before Christ like Confucius or Plato. The more modern theories like Montessori, Steiner or Freud were developed in the beginning of the twentieth century. People will always search for the answers to the fundamental questions and as a result, more theories will be established but hopefully one day science will give us the answers we have been speculating about for all these years but until then we must rely on the already established and proven theories.

As an architect, I am not trying to develop a new educational theory or improve the existing curriculum. I am taking theories and scientific studies that have already been established as the starting point for my thesis.

Maria Montessori
(1870 -1952)
Montessori
Rome, Italy



Montessori

Maria Tecla Artamesia Montessori was born in 1870 in Chiaravalle, Italy. In 1876 her family moved to Rome where she started her education. She graduated in 1896 from the University of Rome where she received a medical degree. Later on she enrolled in the philosophy/psychology program, which led to her interest in the development and education of children.

In 1906 Montessori was invited to participate in creating Casa dei Babbini (children's home), which was a day care for the children of low-income working parents in the San Lorenzo district in Rome. In the beginning of 1907, the first Casa was open with over 50 kids enrolled in the program whose ages ranged from three to seven years old. The program, everyday activities and classes, was consulted with Montessori but she did not teach the students. She was using the class as a base for her research on children's behavior, which formed the foundation to her early childhood educational method.

Montessori's educational theory is based on “neutral character of adults” which means that teachers are there to only guide the children through their educational experience while the children choose their own interests and activities.

1 - “Rambush in Montessori” 1965, p.26

“(…))freeing a child to learn through his own effort is a true beginning and end of early education”¹

The important part of Montessori's educational method is observing and analyzing of the surrounding world. For example, there are plenty of activities outside where children can observe plants and animals, which gives them the opportunity to ask questions so they can understand what they are seeing. Teachers are supposed to stimulate the curiosity in children so they can figure out their own way to achieve their own goals.

“Children reach the goal of self-fulfillment and self-control by different roads, indirectly, prepared by the perceptive adult “²

2 - “Rambush in
Montessori “ 1965, p.18

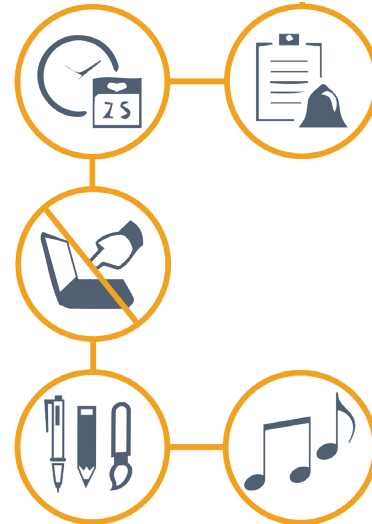
Montessori's method is concentrated on preparing the solid background for the actual knowledge that kids will gain later in their life. The method is full of writing, reading and language preparation activities that are based on stimulating the senses and training hand eye coordination.

The typical Montessori classroom is split up into two areas, one open area for physical activities and one area that is organized with furniture for children and a teacher's desk. The classroom is equipped with many different types of toys, creative materials and tools so kids can explore and discover their interests.

Photo credit:
[http://www.montessori.
school.nz/photo-gallery](http://www.montessori.school.nz/photo-gallery)



Rudolf Steiner
(1861-1925)
Waldorf
Stuttgart, Germany



Rudolf Steiner was born in Murakiraly, Austria, now known as Donji Kraljevec, Croatia, in 1861. In 1879 his family moved to Inzersdorf, which allowed Steiner to have the opportunity to attend the Vienna Institute of Technology. He mostly studied subjects related to science such as mathematics or biology. He also took courses in literature and psychology. In the end, he never received a degree from the Vienna Institute of Technology because he started working as an editor for Goethe (German writer and poet). After ten years that led him to a doctorate in philosophy at the University of Rostock where he started his studies on the synthesis between science and spirituality. His theory of anthroposophy became the foundation for Waldorf education.

3 - Oxford English
Dictionary

“A movement inaugurated by Rudolf Steiner (1861–1925) to develop the faculty of cognition and the realization of spiritual reality “³

4 - Dictionary.com

“philosophy based on the teachings of Rudolf Steiner which maintains that, by virtue of a prescribed method of self-discipline, cognitional experience of the spiritual world can be achieved.”⁴

The first Waldorf school was open for the children whose parents were employees of Waldorf-Astoria Cigarette Company in Stuttgart, Germany in 1919. The Waldorf educational method is based on a blend of 'strict science analysis' and artistic creativity and freedom. Science is expressed in everyday activities by a regular, repetitive schedule that sets up time frames for certain tasks. On the other hand, most of the tasks involve art, which stimulates the creative and flexible thinking. The students create their own textbooks based on the teacher's daily presentations.

“(...) focus through regular performance of creative skills such as illustration, music, play. “ ⁵

The Waldorf educational method strongly disagrees with involving modern technology in the education process. The educational experience should be pure, spiritual, and driven by self-motivation and the desire to learn. This is also the reason for not using a grading system and conventional tests; everything is based on progress and development.

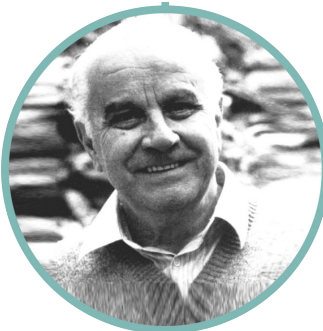
The typical Waldorf classroom is full of children furniture, which creates a lot of space for drawing, painting and the other handcrafts. There is a separate area or classroom fully dedicated to music where children can improve their sense of rhythm by playing musical instruments and dancing.

5 - “The spirit of childhood. The Waldorf curriculum. Grade one.”
1995 p.98

Photo credit:
<http://www.waldorfgarden.org>



Loris Malaguzzi
(1920-1994)
Reggio Emilia
Reggio Emilia, Italy



Reggio Emilia

Loris Malaguzzi was born in Correggio, Italy in 1920. During World War II he completed his teacher training and later continued his education by enrolling into the psychology program at the University of Rome.

The first school based on Malaguzzi's approach was open in 1963. The school was located in the small city of Reggio Emilia. The community financed the school after they sold a German tank and a few military trucks that were left after World War II.

The Reggio Emilia approach to early education is based on the belief that children are as important as adults and they have right to interact and be treated by society equally. Another key factor about this approach is the belief that children are full of desire and the ability to construct their own knowledge growing up.

An interesting aspect of Reggio's approach is the role of the teachers. They are in the classroom as a co-learner; to observe and document group discussions while playing. The photographs, tapes and notes are reviewed once a week so the school board can plan the activities for the following week to meet children's personal interests and desires.

6 - Reggio Emilia- Article
from Early Childhood
Today, May 2001

*"Teachers and directors review the documentation and strive to hear the strongest currents of interest within children's flow of ideas. They then use what they learn to plan activities that are truly based on children's interests and to gain insights into children's individual personalities and into child development as a whole."*⁶

This approach promotes freedom and independence for the child by providing them with a variety of opportunities to develop and explore. Instead of telling the children right answer, this approach guides them to figure it out on their own.

“What children learn does not follow as an automatic result from what is taught. Rather, it is in large part due to the children’s own doing as a consequence of their activities and our resources.”⁷

7 - “The Hundred Languages of Children”
1998, p. 78

The typical Reggio classrooms are integrated with the rest of the school, and with the outside surrounding context. Even the inside spaces are filled with plants and vines, and as much natural light as possible. The integrated environment is a really important part of this approach as well; they believe that children create a better understanding of the world by personal experience. This helps the children to become a conscious and valuable part of the society.

Conclusion

After analyzing the three most commonly well-known educational theories in the United States, the conclusion is that the environment is a really important part of early childhood education and should be further explored.

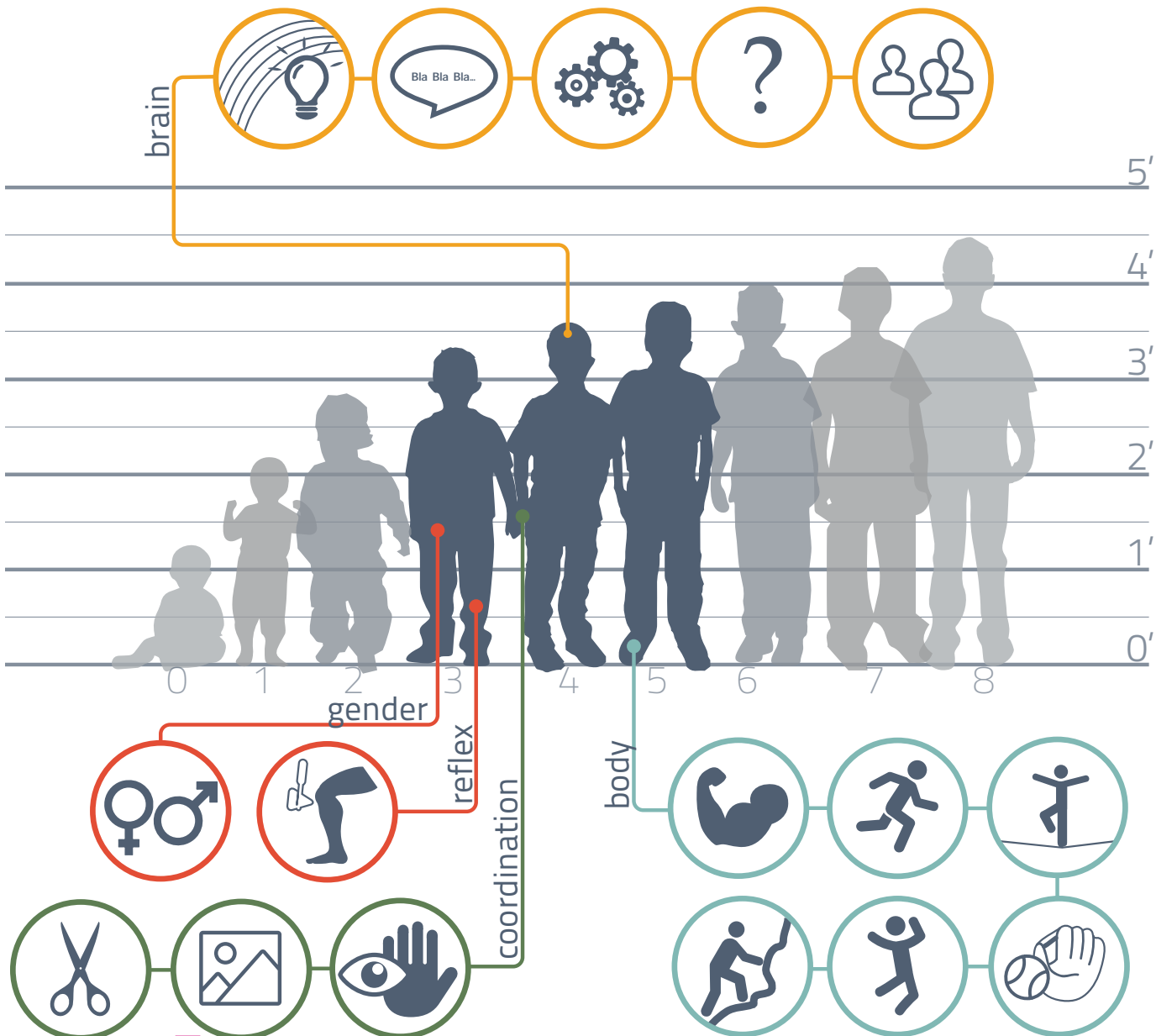
The second important aspect of the education process is the freedom to discover, experience and create. Children have a natural desire to learn and adults should help guide them instead of being forceful or demanding. That is why toys and equipment designed for children should be more intuitive and give a larger variety of ways to interact with them.

Photo credit:
<http://www.thehillsschool.com/philosophy/what-is-reggio-emilia/>



29

Child development



Child development

Child development is split in stages based on the age. There are many theories and approaches to the way of dividing the stages. Piaget's Stages Theory is the most popular one; it divides development in 4 main stages:

0 - 2 years old	Sensory Motor Stage
2 - 7 years old	Pre-operational Stage
7 - 11 years old	Concrete operational stage
11 - 16 years old	Formal Operations Stage

Each of the stages is split further into the smaller groups based on the certain type of development such as body or brain activities.

My main interests are the Pre-operational Stage and children from three to six years old because those are the ones who are the object of early childhood education.

Brain

Between three to six years of life, the children's thought process is developing; Basic logic starts to appear and kids are able to put simple facts together with an understanding. The vocabulary that a child is able to use nearly triples by the time they turn four, which is a tool to allow them to form thoughts and communicate their thoughts. The important parts of the brain development are creative thinking and imagination, which is around the age of three. 'Moral realism' is the next aspect of this stage and it is defined as the child's way of thinking about what is right and wrong that is based on everyone around them. Emotional development is also an important aspect of the child's development. This is where the child starts to understand the relationship between people and associate emotions with certain people and activities while being able to express them physically and verbally. The children in this stage like to be a part of the family, help with the everyday tasks and even pretend to be an adult like mom or dad.





Body

By the time the child is three years old, he has more than doubled his height and weight. Muscles grow and develop quite fast in this stage, hands and legs are much longer and skinnier than before allowing for more precise movements. The most important parts of the body's development in this stage are the basic motor skills and coordination. After children master the ability of walking and running, they are able to perform movements that require a more complex balance. Balance development allows for jumping and climbing which should not be a problem by the time the child reaches six years old. A bigger variety of movement helps raising the strength of the muscles and control over the body. The next aspect of this stage is the basic manual skills like grabbing and holding so the child can draw or cut.

Coordination

Coordination is understood as brain-body coordination. It requires more than the basic balance skills. The three-year-old kid starts to develop hand-eye coordination and it's manual skills start to become more precise. This is what allows children to participate in more complex tasks like cutting and coloring. Now, the child has gained a key tool that allows him to express his artistic and creative thinking on paper or with other creative materials.



Reflex

The body starts to process information much faster and gain the abilities needed to react to the outside stimulation. Reflex development can be stimulated by simple physical activities like throwing and catching the ball, or avoiding moving obstacles.



Gender



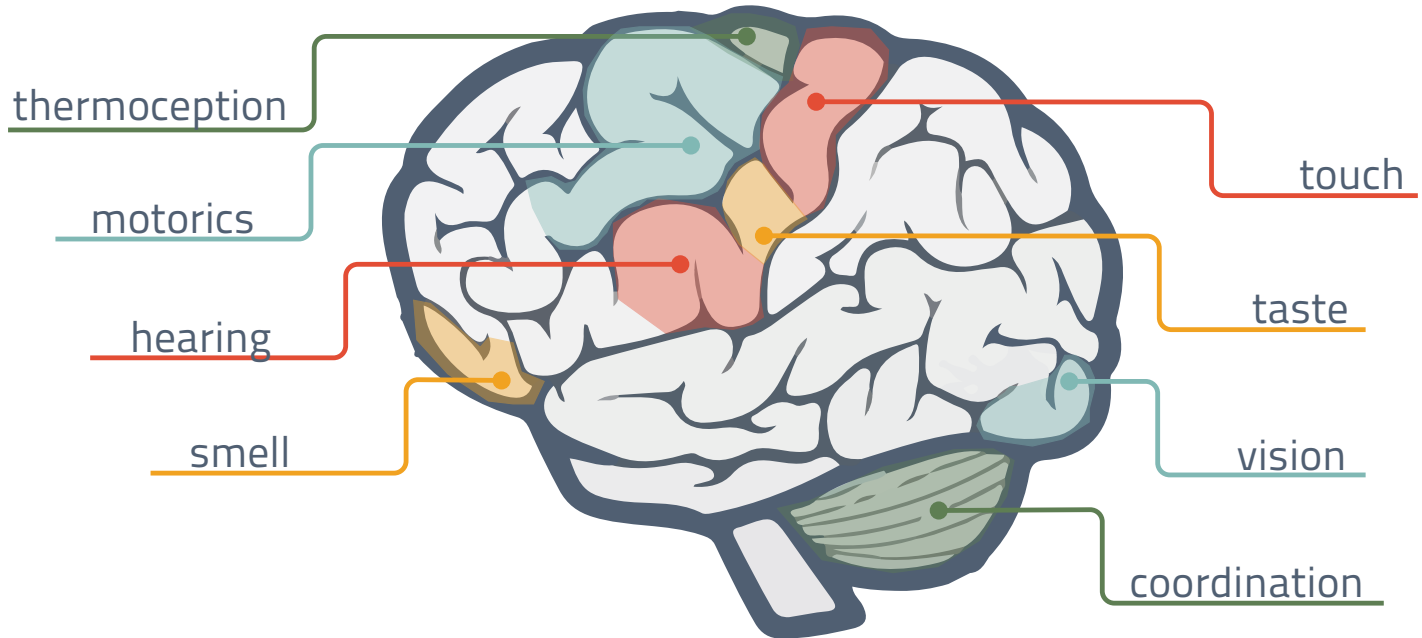
By the age of three, the child is conscious about his/her gender, which creates a division between boys/girls activities and groups of friends

Conclusion

The toys and equipment dedicated for early childhood should stimulate development of motoric and hand-eye coordination skills. They should also provide space for imagination and creative thinking to come into play as well as encourage and stimulate all types of social interactions.

37

Senses

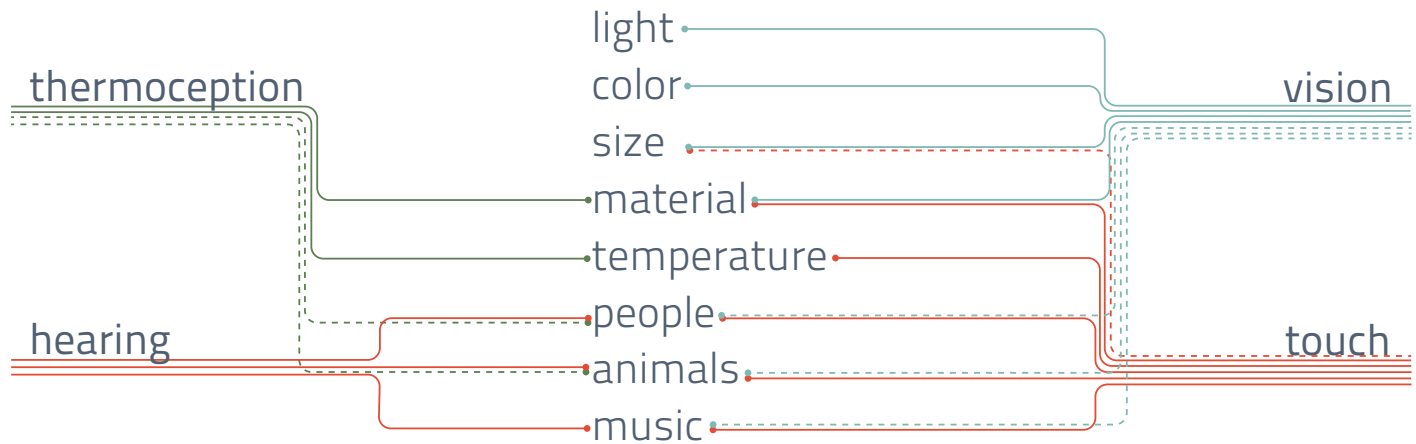


Senses

Sense is a faculty allowing the body to perceive an external stimulation, the data is collected by the sensory system and then transferred through the nervous system to the brain where it gets translated to the thought or feeling.

There are five 'traditional' senses; sight, hearing, taste, smell and touch. After many years of testing and experiments scientists were able to create a 'non-traditional' senses category into which we classify balance, kinesthetic and thermoception.

People use their senses to define and describe the surrounding world. Senses can be stimulated separately but it is more common to experience multiple at the same time. For example, when one eats food you are more than likely focused on taste and smell but vision, touch, and thermoception also help you enjoy and understand that experience to its full extent. The same thing happens with education, teachers are able to stimulate the children's senses by offering a choice of activities and approaches to them. It has been scientifically proven that the more senses are stimulated during the education process the more of the information is comprehended and will be remembered.



For architectural and design purposes, senses like vision, touch, hearing and thermoception are more important and more likely to be addressed than the others.

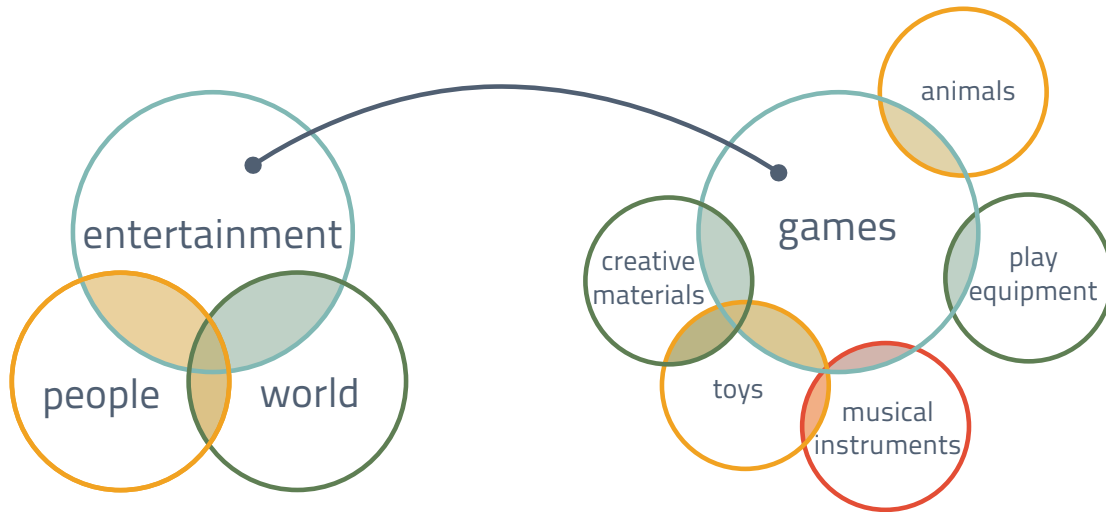
To talk about a design, we can use basic adjectives when describing the following categories like color, material, temperature or sound/music. Our senses are directly or indirectly associated with these categories. For example, the type of material is associated with vision, touch and thermoception but the temperature is only directly associated with touch and thermoception and indirectly with vision.

Conclusion

Based on the knowledge and understanding of way that senses truly work, it is important to remember that there are aspects of a design that could be working on many different levels to stimulate the senses. Designs for children should address and stimulate as many senses as possible. That would provide the opportunity for quicker and more complex development and learning.

43

Influences



Influences

Children and adults are constantly exposed to outside influences and the best option is dividing the influences based on their nature of activity associated with them. It is possible to distinguish two levels of influences; the main level includes the surrounding world, people and entertainment; the secondary level describes the division inside of the entertainment category.

Main level

People - Every person that has contact with the kid. Family, friends and teachers have the biggest influence but other people have some impact too.

Surrounding world – Context understood as everything surrounding the kid, can be divided in to the natural landscape and man made objects.

Educational Entertainment/ Recreation - (described in secondary level)

Secondary level

Game – Entertaining activities that are set up with specific rules to follow for everything participant which involves imagination. The games can be based off the imagined scenario alone or involves some type of kid entertainment (toys, play equipment....). The game can be played by just one kid or involves surrounding people. Each time the game is played, the rules can remain the same or change/adapt to fit the new situation.

Play equipment – Larger scale objects with predetermined set of instruction for a specific purpose how to be used. The purpose usually involves physical activity/energy to play. While the kid can't control the purpose, they can alter the purpose by how they use it with their own imagination such as involving a game.

Toy - Smaller scale objects which usually imitating real life objects or people. In most situations, they come with a suggested purpose how to play with it, which too can be altered by kids' imagination.

Creative materials – Materials that require some sort of manual and/or creative activity before they can be considered as an educational entertainment or a toy. The manual act can involve some sort of tools (like scissors, glue...), which allow the imagination or creative thought to be completed.

Animals – Any type of animal (pets, wild, zoos, farms) that the kid encounters which stimulates a thought process.

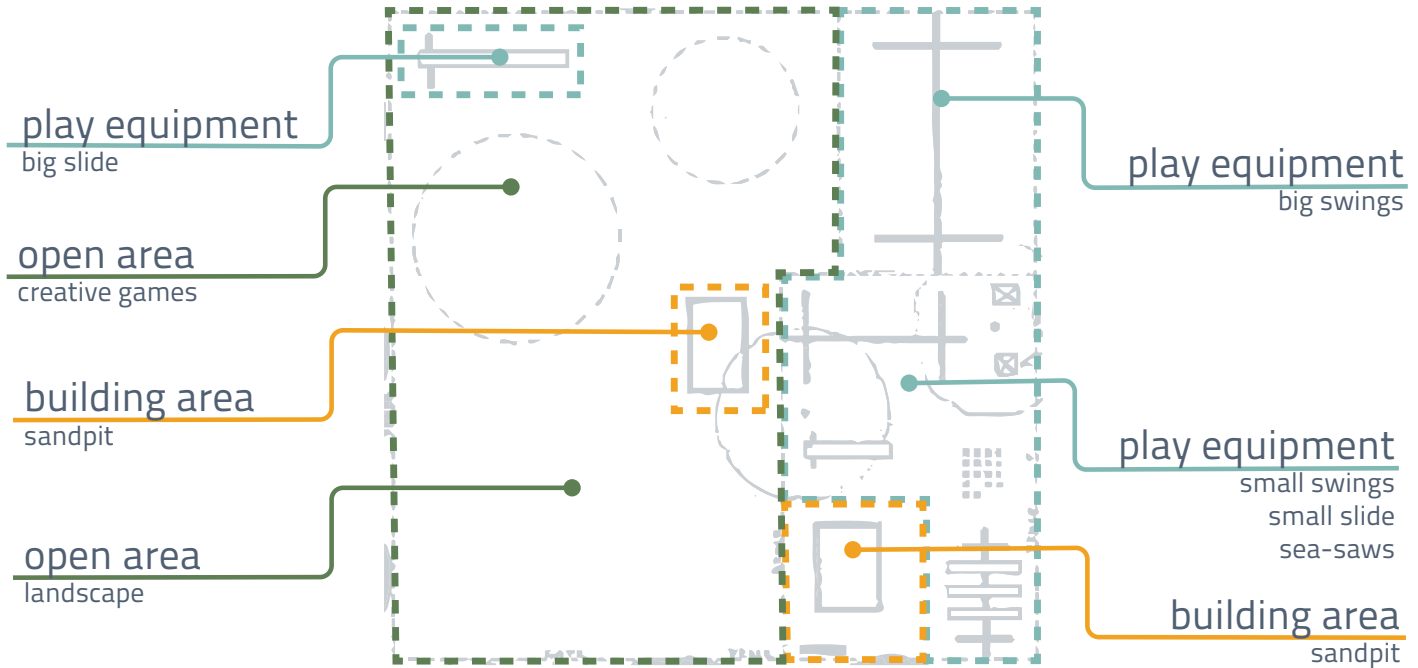
Musical instruments - Any types instruments that the kid is able to create sounds with.

Conclusion

Analyzing all the information gathered during the research phase of the thesis, led to conclusion that the role of the equipment and more specifically the playground equipment is underestimated. There is a huge gap that should be filled with well designed playground elements.

The playground equipment should be designed to further our mental and physical developments with the opportunity to explore through our senses so we can gain new experiences.

49
Playground



Playground

The typical playground is split between three basic functions; one for play equipment area; one used for building; and one left open. Each of these categories has their own distinct characteristic.

The area designated for playground equipment is designed based on typical the playground equipment requirements. The swings and sea-saws require an empty space surrounding them to avoid collisions between kids walking around and the one swinging. The jungle gym is usually a complex piece of equipment with built in slides, ropes and ladders. Usually the system does not require additional space around like the swings do.

A simple sand pit addresses the building area for the most playgrounds. This area is usually somehow intertwined with the play equipment area.

The last part of the playground is the open area that is dedicated for creative games and activities. There are two basic types of an open area; it is either an area covered in grass or pavement.

The research shows that the choice of materials is vital for the success of a playground, which seems to be a problem nowadays. Natural materials like wood, rock or sand are much better for children to play with rather than plastic toys that feel so foreign.

“(...) when children are climbing on this equipment, even if they are wearing have shoes or boots, their feet are still sensitive to the nature of the material they are standing on. And wood is a little friendlier, a little nicer to step on, than metal.”⁸

8 - “Elements of
Preschool playyards”
Pittsburgh 1973 p. 193

Out of all the natural materials, water seems to be the one that is underestimated and completely underutilized during the design process. This is surprising because water gives so much opportunity to play and learn. It would a great addition to the building or even the open area. It would be ideal if it could integrate the two areas somehow someway.

“Sand and water certainly do seem to go together. They are thoroughly compatible materials. Most sand that children play with comes from watered areas(...)”⁹

9- “Elements of
Preschool playyards”
Pittsburgh 1973 p. 204

Photo credit:
[http://playandpark.com/
play-activities/](http://playandpark.com/play-activities/)



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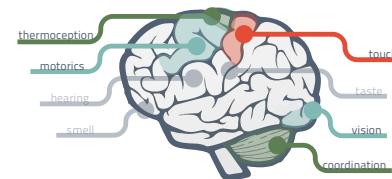
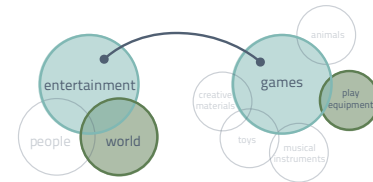
Case studies I

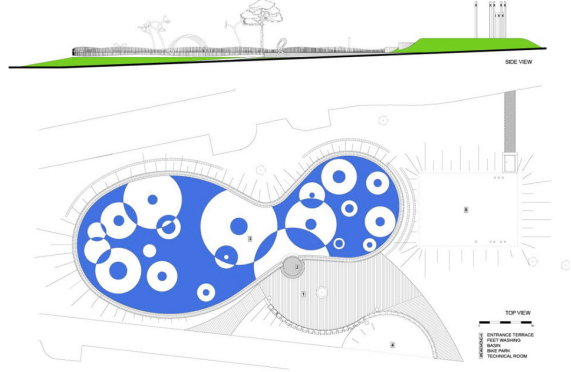


Darling Quarter

Sydney, Australia, 2011
designed by: Aspects studios

The playground is a part of the public space project in Sydney. It is the largest play area in Australia reaching over 43000 square. It is a highly interactive and adventurous playground based on the landscaping and use of water. There are many interactive water elements such as pumps, sluice gates and Archimedes screws. All the interactive elements are made of stainless steel to gather children's and adult's attentions. The idea of the playground is to stimulate social interaction and learning while playing.



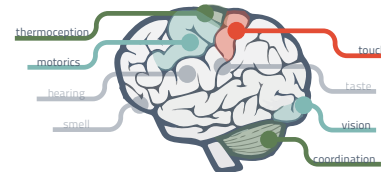
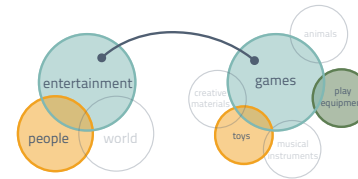


Water Playground

Tychy, Poland, 2011

designed by: RS+

The playground, which can be better described as and water park, was designed on the lakeshore not too far from the city center. The basin blends into the existing landscape by matching the outline of the surrounding trees. The basin and benches going all way around the playground are made from exotic wood to create a delicate division between the play area and its context. The play area is divided into two sections based on age. The sections are filled with colorful water equipment appropriate for the age and height of the users. There are all sorts of toys and equipment dealing with water starting with pumps and ending with hoses and pipes shooting water in different directions. After dark, the playground changes into a wonderful fountain park with colorful led lights that are installed under the water fixtures.



61

Sketch Problem I

machines



water well



pump



hose



water lock



water mill



dam

nature

spring



stream



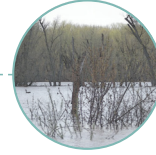
river



river fork



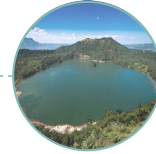
backwater



waterfall



lake



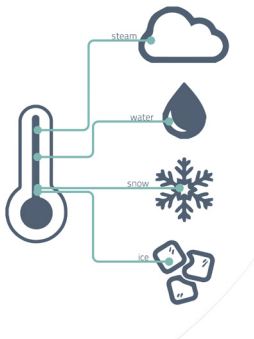
River Play

Based on analyses of the case studies, there are two common approaches with how to treat water in the design.

The first one is playing with the water and object of machines like pumps, water mills, hoses, water locks, or dams. It allows one to tame the water for human needs and convenience.

The second approach is playing in water, which treats it as a landscape, giving it all attributes normal for water in nature, not controlled by people. That means natural float of the river, which starts as a spring through the stream, river bends, forks and splits, back water, waterfalls to end in the lake, sea or ocean.

Sketch problem I deals with the design of a landscape involving water play and a building area with interactive elements. The final product is a result of combining the two different approaches to water, as a machine and as a landscape. It combines the most important aspects of the two approaches to water and intertwined them to provide the most of the possible opportunity for interaction and learning.

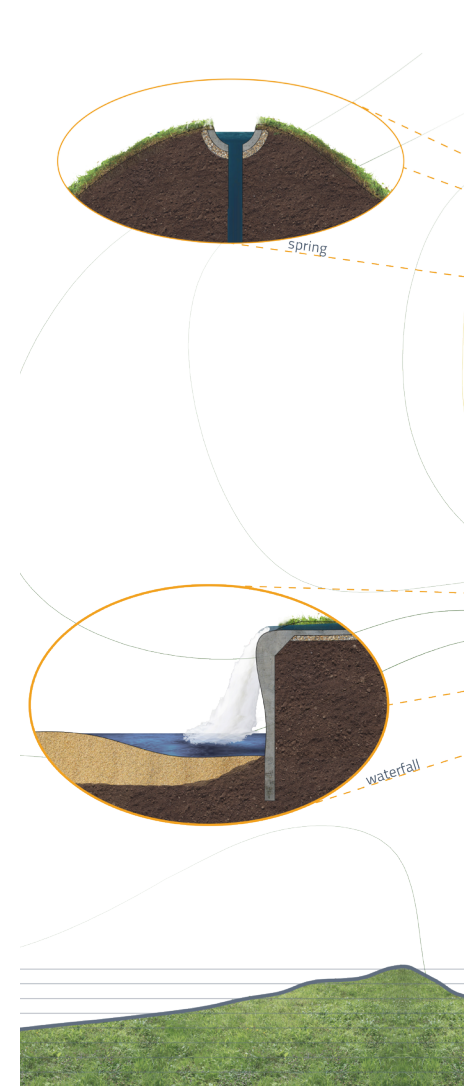


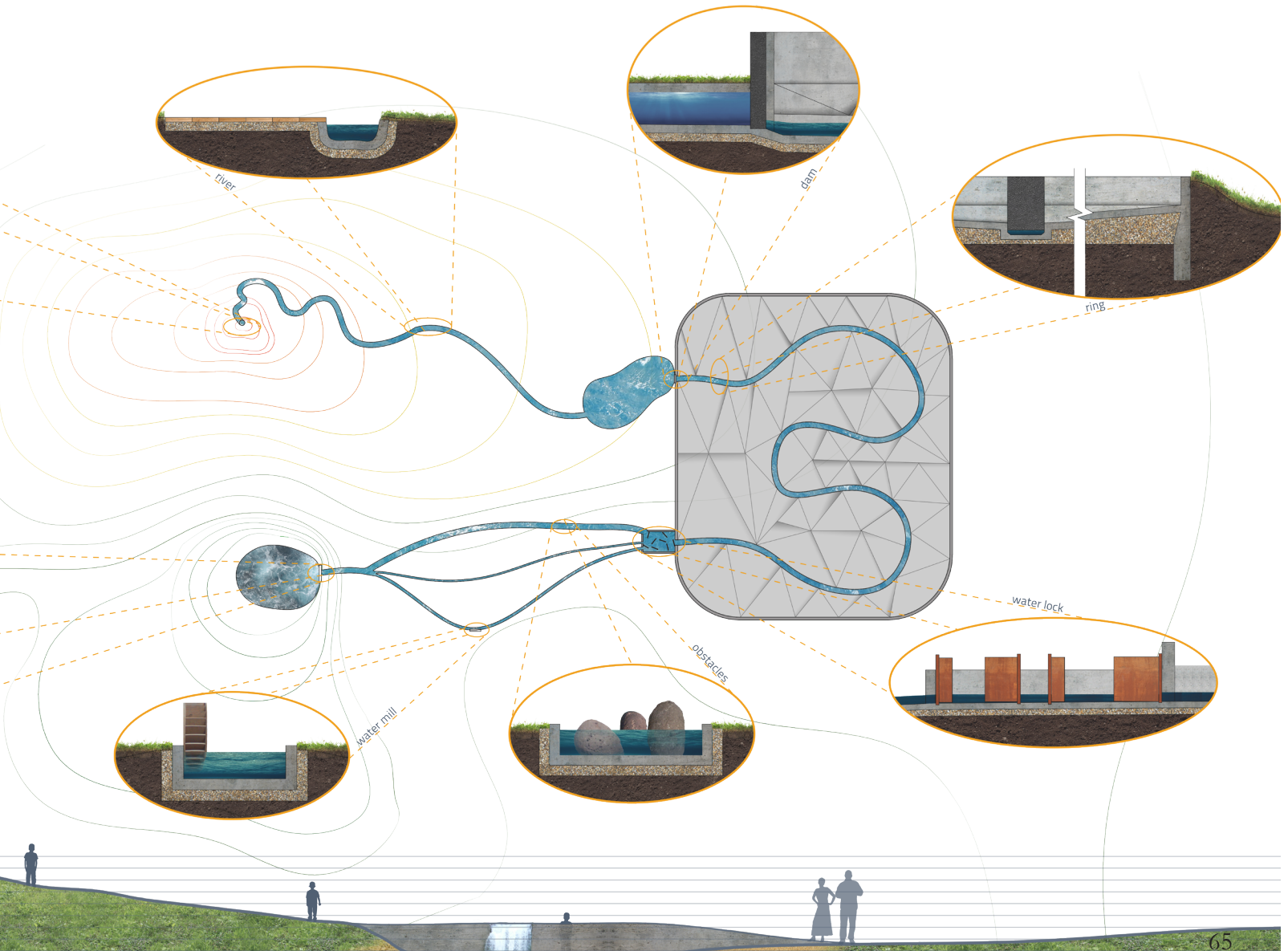
The idea takes the changing weather conditions into consideration, because the temperature affects the way the water acts. Winter brings in snow and ice, which too can be used for playing and learning purposes.



River Play was designed in a way that allows water to fill in the ring and freeze creating an ice rink. The difference between the highest and the lowest point of the landscape creates a hill that can be used for all sorts of snow play. The rest of the year the playground offers a variety of water interactions such as a lake with a beach allowing for building and wading in the water, a dam that can be controlled by the children and change flow of the water.

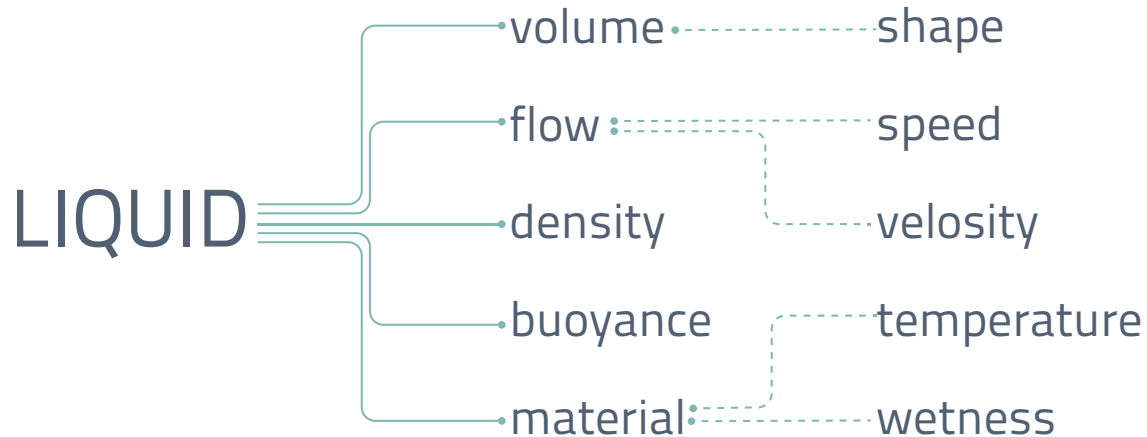
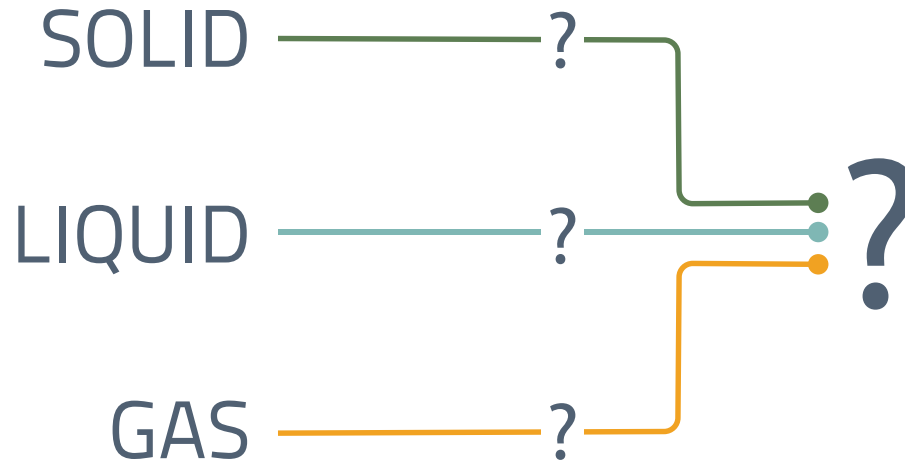
The idea of the design is to attract the children and offer a place where they can explore water. Place where they can experience touch of water on their skin and discover the behavior of water. It was also important to create a space that stimulates social interaction and a dialog between children and adults. The River Play addresses the main points of educational theories, senses stimulation and children development by trying to provide the best playground elements to stimulate the early childhood education.





67

Sketch Problem II



Sketch Problem II is a result from furthering the idea of natural elements being a part of the educational curriculum or the playground. It is an attempt to answer the question raised after analyzing previous sketch problem; what can we learn from natural materials/elements?

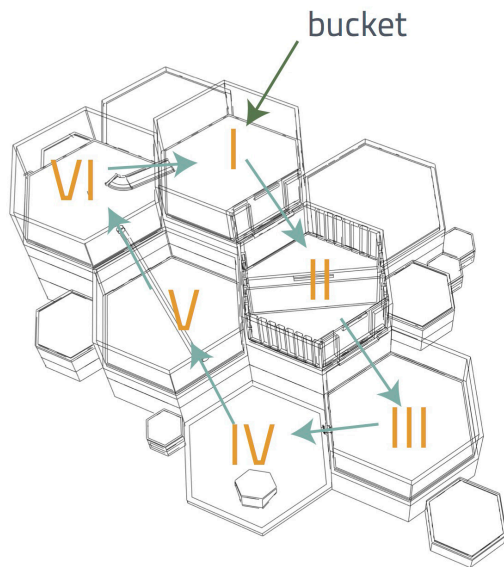
Solid , Liquid, Gas

These are the three states of matter that the natural elements can be found in our environment. Each of these states has its own characteristics that can be addressed by the specially designed play system.

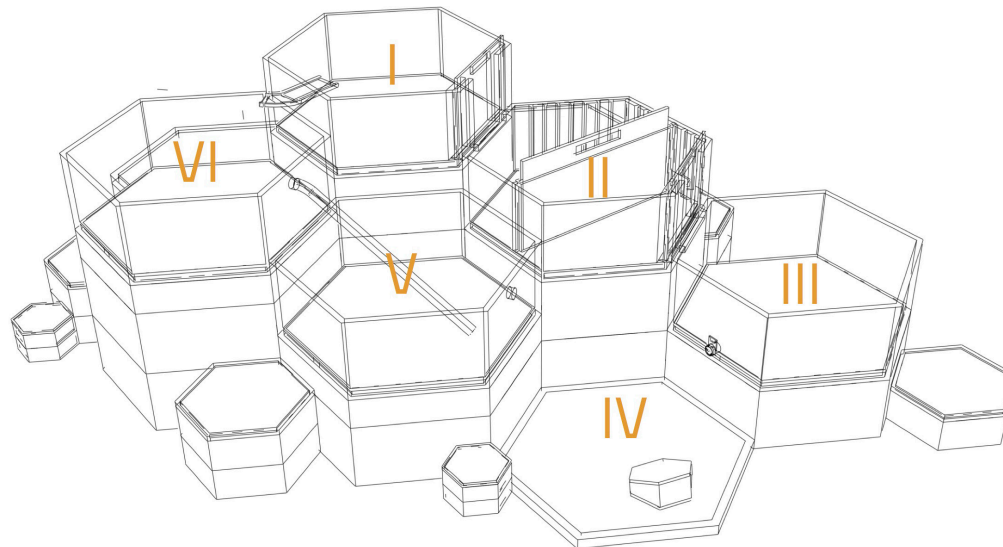
Water is a perfect example to illustrate each of its states. Mostly if not everyone knows the three states of water and have experienced them during their life. The liquid form of water is the most obvious state and also allows the biggest opportunity for playing and learning.

Understanding the characteristics of a liquid as well as the previous analysis of how water acts in a natural environment and with machines is the basis for the development of the Water Play system.

The Water Play system addresses as many of the characteristics of a liquid as possible. The complex design allows water to flow through the play system, presenting different problems and phenomena to the children playing.



- I Storage
 - II Dam
 - III Collector
 - IV Pressure Pump
 - V Archimedes Screw
 - IV Water Mill
- } down
- } up



I - The Storage element is the starting point. The water is brought to the storage element by the provided bucket. In this stage, the user has the option to mix the water with any other material, like food coloring, if they would like to.

II -The Dam element has exchangeable inserts with different types of holes and openings to create variety of water flow moderations. The inserts are not only exchangeable but moveable meaning the insert can be placed in different slots directing the water in different directions.

III - The Collector is placed at the end of the Water Play system. It has attachments that distribute the water evenly inside of its separated compartments, similar to the idea of an ice tray. The attachments are resistant to hot or cold temperatures to allow them to be placed in an oven or freezer, forcing the water to change its state of matter.

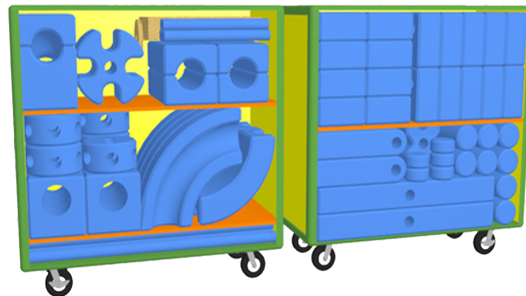
IV - The Pressure Pump is a step pump that uses the child's weight to create the pressure needed for the water to travel from The Collector to the next stage.

V - The Archimedes Screw is rotated by the children and is another way of pumping the water up the Water Play system.

VI - The Water Mill is the last stage of the pump system. The Water mill is placed in the bucket and operated by the children who brings the water up and dumps it into the track which will bring it back to the starting point –The Storage.

73

Case studies II



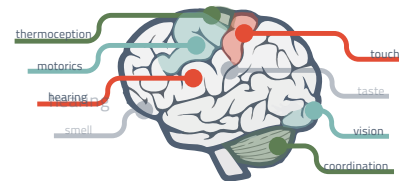
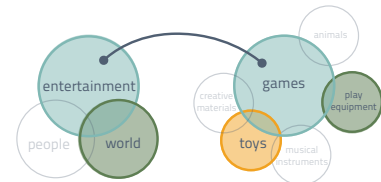
Imagination PlayGround

designed by: Imagination PlayGround

10- Matt Goldman,
Co-Founder, The Blue
School [http://www.
imaginationplayground.com](http://www.imaginationplayground.com)

*“Imagination Playground blocks are an incredible
play system for unlocking children’s creative spirit.”¹⁰*

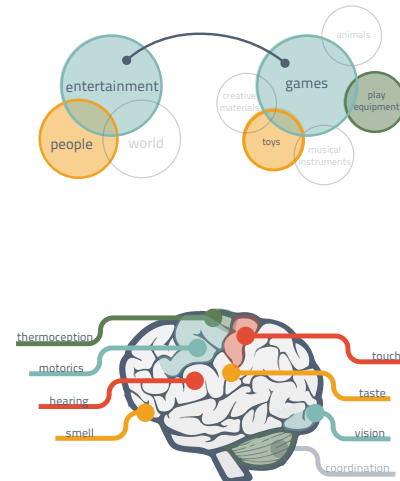
The Imagination Playground is play system that is based on loose elements made from the lightweight, blue foam which is safe for children. The variety of loose elements allow the children to create an unlimited amount of objects and installations for them to play with.





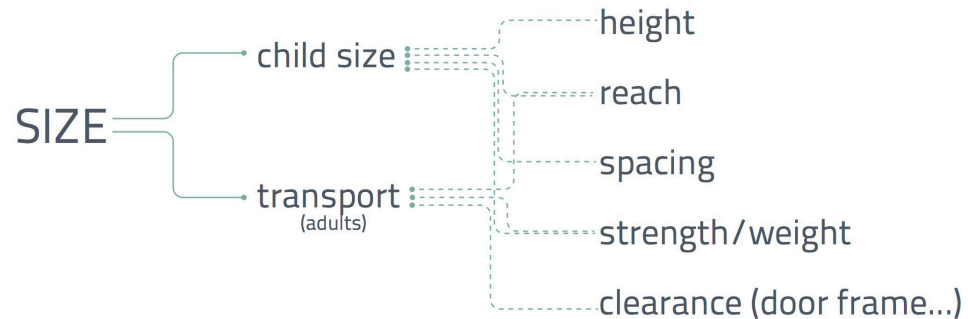
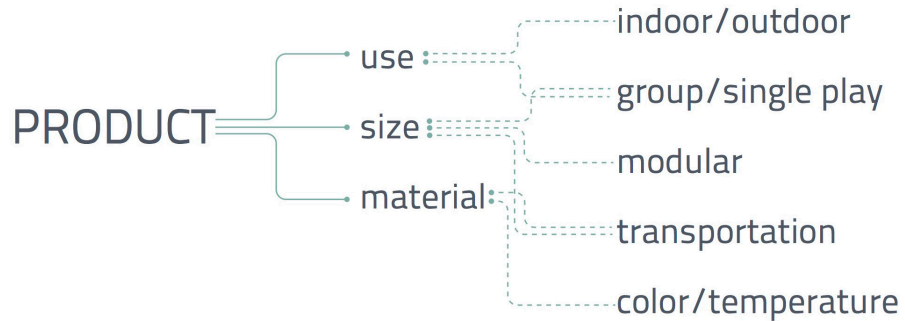
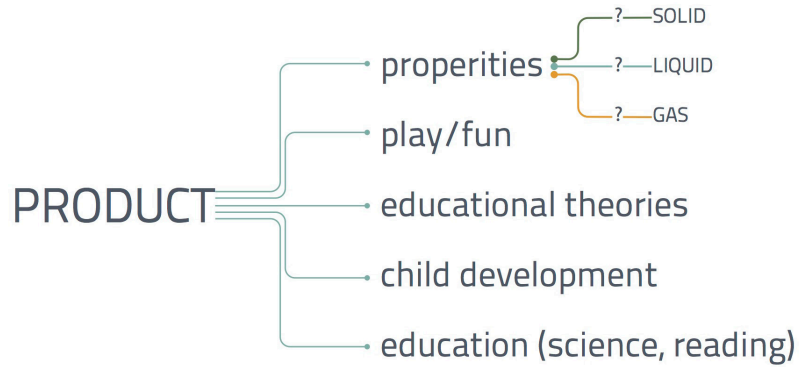
Sensory Table

The Sensory tables come in a variety of colors, shapes and materials but all of them are derived from the same idea; to provide a safe and easy way to maintain a place for children to experiment with different materials. It allows them to freely touch and play with whatever material is placed in the main collector of the sensory table. The success of the sensory table relies highly on the creativity of the adult in charge.



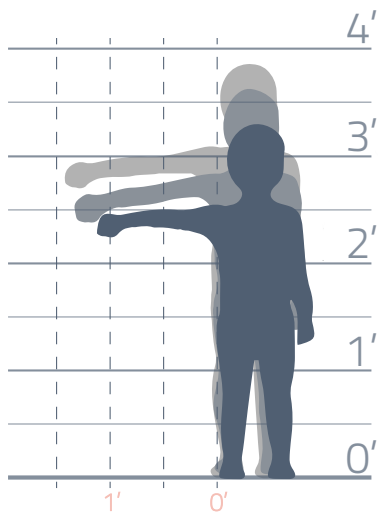
79

Hexa



The product design started from determining who the target group would be. This raised further questions like; where will it be used? what type of activity will it be? what material should it be made of? The answers to those questions rendered a general vision of the product.

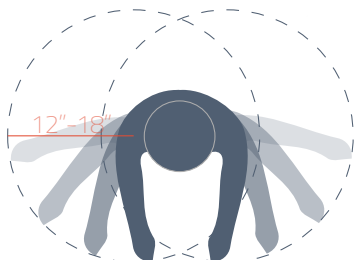
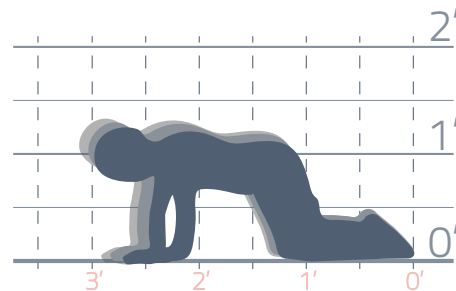
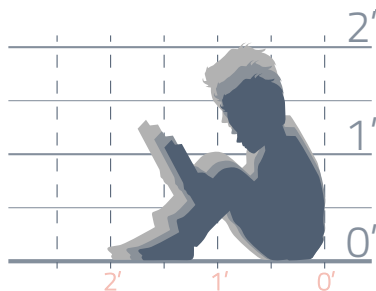
The size of the product was a main concern that needed to be addressed in order to start creating particular elements of the system. The elements of the system were split up into four different categories based on their use; inhabitable, base, special, and accessories. The elements for each category were sized appropriately to its use while taking into consideration child ergonomics and this was most crucial for the project's success.

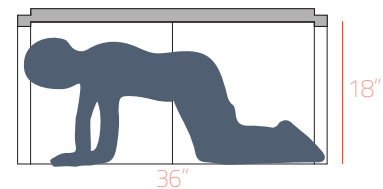
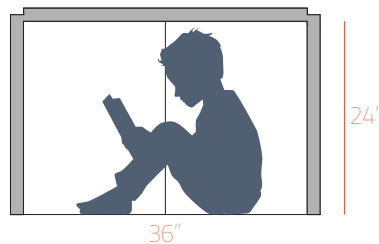
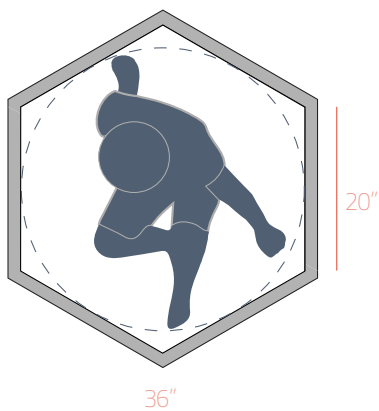
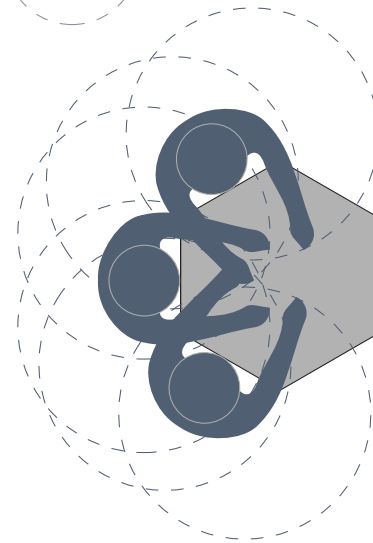
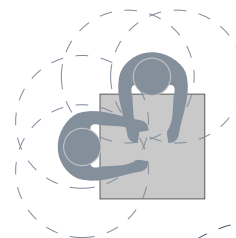
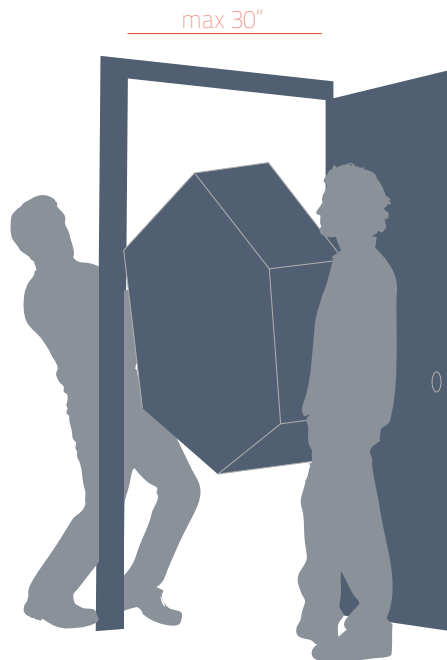


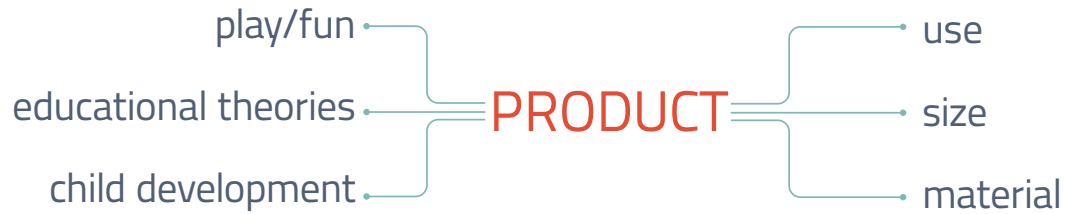
4"-7"



5.5"-7.5"







Use — Play & education



Size — Ergonomics



Material — Polypropylene



The concept of the project is how to enhance playtime by adding quality education experiences and body development stimulations.

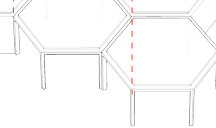
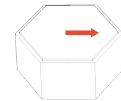
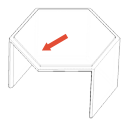
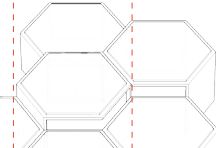
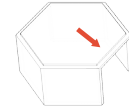
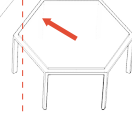
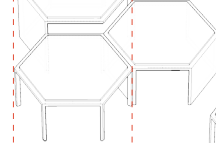
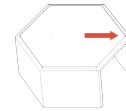
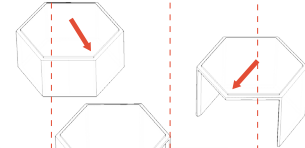
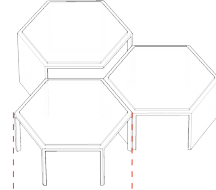
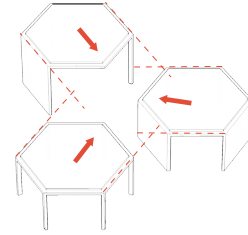
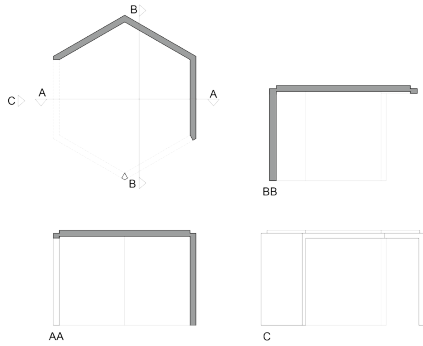
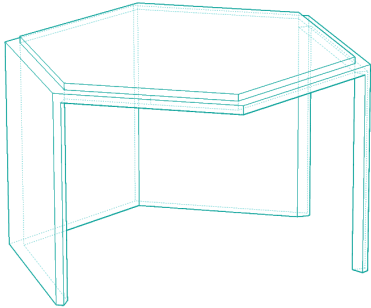
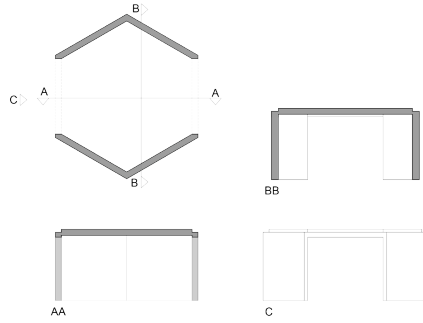
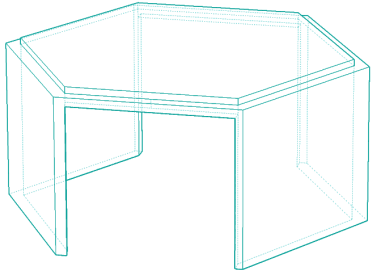
The Hexa project is designed for girls and boys whose age ranges from three to six years old. Hexa's main target is to create a collaborative playtime experience but the design allows for a successful single-user experience as well.

Hexa is an indoor/outdoor modular system, which stimulates a child's creativity and ability to develop and create their own environment to play in.

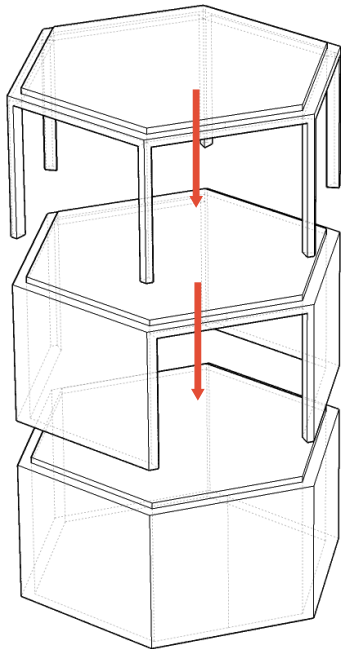
Education. Entertainment. Imagination. These are the main areas targeted by the Hexa system.

Hexa is an easy to transport, modular system based on a deep analysis of children ergonomics, behaviors and needs in their early phase of childhood education.

The elements are made out of Polypropylene (PPE), which is a very strong and lightweight material – safe for children to carry around yet sturdy enough for them to climb on. PPE is water and heat resistant which allows the system to be used inside and outside without the risk of damages caused by weather. It is warm and pleasant to touch and it requires low maintenance thanks to its solid, easy to clean surfaces.



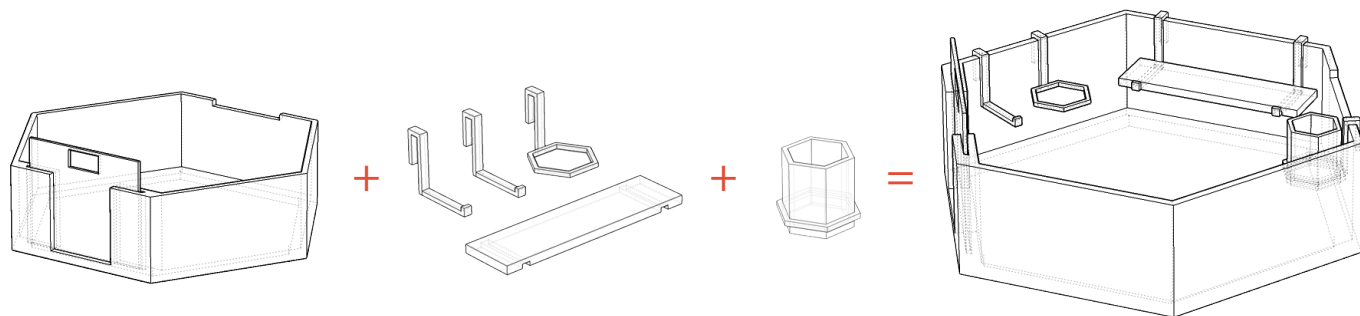
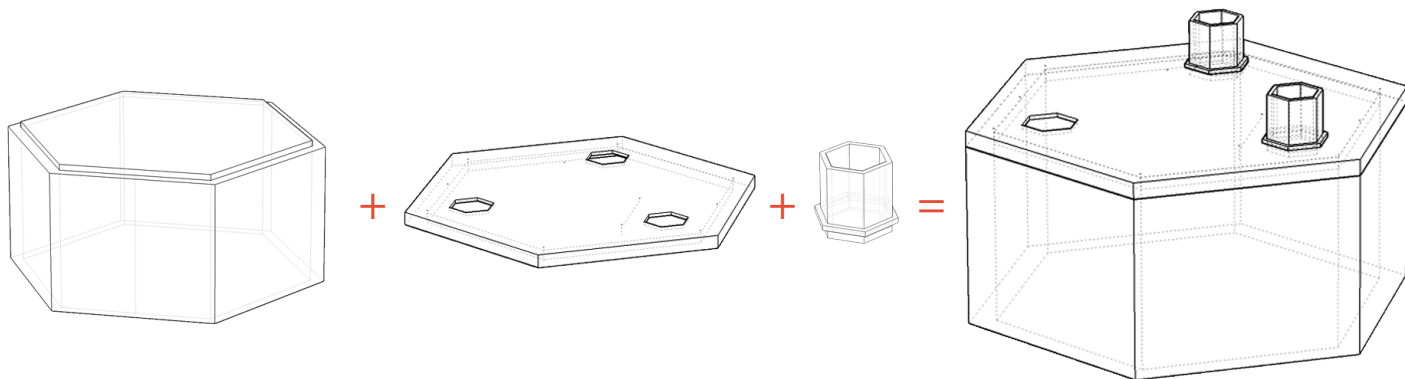
Inhabitable



The inhabitable elements of the Hexa system are designed large enough to allow children to play inside of them yet small enough to create cozy and intriguing spaces to hide. The elements lock in place one on top of each other, creating a safe and easy installation. The lightweight and safe design gives a chance for the children to pick the elements up and move them all by themselves. The hexagon shape and multiple element design allow children to reorganize the modules at any time to create complex organic systems of tunnels and spaces.

Bases

The base elements of the Hexa modular system are smaller than the inhabitable elements. Bases do not allow the children to access the inside space, they are meant to be foundation for the educational play. Together with the specialty elements allows to create multiple versions and scenarios for children to develop their creativity and learn something new everyday. Base elements lock one top of each other and are meant to be pushed together to create complex organic play system.



Special

The special elements target and enhance the educational and creativity aspect of a child's playtime. The elements are made to address a more specific type of play such as painting or water play. These more complex elements are designed based on the same module and idea as the base elements, which allows for them to be an equal part of the system. The special elements can be placed on any base element to create a complex play system. Now a child can decide when and where they would like to paint with minimal or no effort.

The painting system can be created from three elements of Hexa module system:

2.A Base + 3.A Painting Top + 4.C Cup

4.A Step (Optional - which can be used as a seat for children to use during painting.)

The water play system is a more complex system that targets and enhances a child's understanding of water properties. The system is created with:

2.A Base + 2.C Storage Top + 3.B Dam & Water Pump

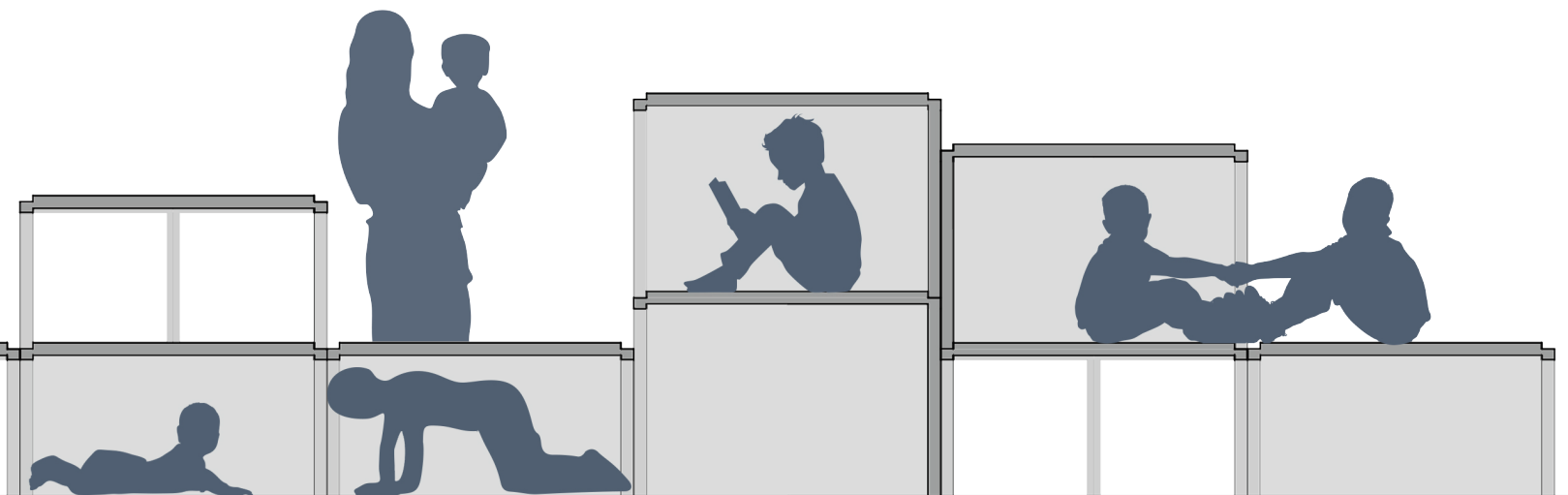
4.A Step (Optional - which can be used for children to reach the top elements.)

4.B Bucket (Optional – which can be used to transport water to fill up the water play top element.)

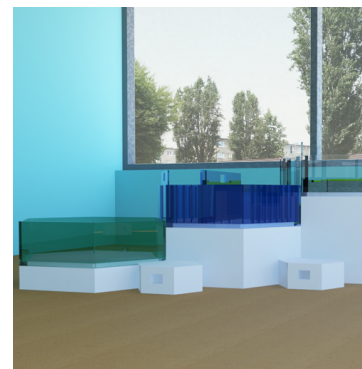
Accessories

Hexa is a well-designed system that provides and offers a variety of accessories so that the users can fully maintain the product on their own. The storage units and other elements will help keep everything organized and ready to be used at any moment.









Bibliography

Leslie R. Williams, Doris Pronin Fromberg *“Encyclopedia of early childhood education”* New York, NY 1992

Douglas J. Gabriel *“The spirit of childhood. The Waldorf curriculum. Grade one”* Livonia, Michigan 1995

Loris Malaguzzi *“The hundred languages of Children”* Rome, Italy 1998

Reggio Emilia- Article from Early Childhood Today, May 2001

Francis Wardle *“Approaches to early childhood and elementary education”* New York , NY 1947/2009

Wendy L. Ostroff *“Understanding how young children learn. Bringing the science of child development to the classroom”* New York, NY 2012

Karen Miller *“Ages and stages. Developmental descriptions & activities birth through eight years”* Marshfield, MA 1997

Brian Sutton –Smith *“Toys As Culture”* New York, London , 1986

Benjamin Spock *“Baby and Child Care”* New York, NY 1985

Rheta DeVries, Betty Zan *“Moral Classrooms, Moral Children. Creating a constructivist atmosphere in early education”* New York, NY, 2012

R Martin Helick, Margaret T Wtkins *“Elements of Preschool playards”* Pittsburgh 1973

Michelle Galindo *“Playground design”* Berlin 2012

Mark Dudek *“Schools and Kindergartens. Design Manual”* Berlin, 2008

**Koniec i bomba,
a kto czytał ten trąba!**

Witold Gombrowicz "Ferdydurke"

