Exploring Architecture and Design Education for Early Childhood

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Abstract

Can Pre-K children see and learn about architecture and the city? Although in very early developmental stage of their verbal communications, visualization, multi-dimensional understanding and fine-motor skills, they do have a sense of place and a vision of their world. The only way for us to hear their voices and see what they envision is to explore the concepts together with the children through hands-on activities.

In spring 2009, Design Plus LLC introduced the Pre-K Architecture and Design Education Program to the Children’s Campus at the University of New Mexico, Albuquerque, NM, USA. This introductory project consisted of a one-day Teachers’ Orientation for fifty educators and staff, and four 2-week children’s workshops with seventy children of age 4-5. This project was conducted by the Education Director at Design Plus, Atsuko Sakai, M.Arch. and observed and helped by Dilek Acer, Ph.D., a visiting scholar from the University of Ankara. The Architecture and Design program was originally based on “Architecture and Children” created by Dr. Anne Taylor and George Vlastos, which has been applied and developed over time throughout many K-12 projects that Design Plus LLC and Atsuko Sakai have explored.

Keywords: architecture and design education, built environmental education, early childhood, creativity.

1. Introduction

Under the sunny blue skies and bright white clouds of the Southwest desert, the history of design education in New Mexico, USA has developed over thirty years.

The “Architecture and Children” curriculum created by Dr. A. Taylor and architect, George Vlastos has influenced many organizations. The curriculum has been translated into Japanese and Spanish and become an international model with a healthy following in Japan, Europe and Mexico. The “Architecture and Children” curriculum posters [1] were published by School Zone Institute with the support of the American Institute of Architects in 1987 and the Teachers Guide book [2] came out in 1992. The Institute for Environmental Education was established by Dr. A. Taylor and Dr. W. Preiser as part of the School of Architecture and Planning at the University of New Mexico (UNM) in 1977 originating with a grant from the National Endowment for the Arts to train educators, architects and students in environmental design methods for schools. The institute offered Summer Design Programs for Youth as part of the UNM summer school program for many years.

Design Plus LLC, is an architectural design firm whose primary focus is in the design of educational facilities. The firm started Design Plus Education to promote the idea of design education which encourages the general public, especially young people to understand and celebrate their built environment through challenging and fun hands-on educational design exercises. The key facilitators at Design Plus are all graduates from the University of New Mexico who worked with Dr. Taylor for many years. The firm has offered the Summer Design Studio at Albuquerque Academy since 2005 where enrollment has grown to over one hundred students with many programs including a basic design studio, interior design courses, and aftercare design programs. The K-12 program at Design Plus Education has recently extended its program to Pre-K level through collaborative projects with the University of New Mexico Children’s Campus and the Department of Child and Family Development for the City of Albuquerque.
2. Design Education and Early Childhood

2.1. Design and Children

Design is everywhere. Design is attached to everyone’s life, but what can we learn from it? Design is a product of thinking and making an idea real through trial and error.

Design is personal. Because it is so personal, we sometimes see children’s lives through their designed products, almost accidentally. Children may not yet have communication skills to express themselves in the most effective way, but it does not mean that they have nothing to say. A child’s life starts with “me” and they need to connect themselves to their surroundings by learning and exploring. Design also starts with “one’s self” (my idea) within a physical, social and cultural context so it is natural for children to explore design by utilizing their self oriented mind system in a creative and productive way. When children create a design, it means something, something very specific to them. By giving them multi-dimensional tools to express their ideas while their vocabulary is developing, it gives them flexible and natural ways for self discovery.

Design requires a best solution in the form of product. It can be quite personalized, but still, it must synthesize all the decisions and solutions compromising many physical, psychological, and socio-economical needs. Working with these parameters is good because it stretches children’s minds and encourages them to think critically and deeper. Design is a process of thinking and doing in order to test envisioned concepts by writing ideas, drawing images, building models and analyzing the overall design based on its needs and contexts of its site and people, which is not limited to designers, but works for everyone.

2.2. The project context: UNM Children’s Campus

The UNM Children’s Campus provides care to children ages six weeks to ten years old, faculty and staff at the University of New Mexico. It is accredited by the National Association for the Education of Young Children (NAEYC) and maintains that organization’s highest five-star accreditation level. It also works with the UNM College of Nursing and the College of Education in non-experimental research and training of students.

Design Plus first provided architectural design services for the UNM Children’s Campus which currently has capacity of approximately two hundred students. The project was to increase the capacity of the existing Children’s Campus such that it can accommodate additional students in a sensitive and meaningful way that preserves the philosophical and physical core of the Campus. The Children’s Campus has a waiting list of over six hundred students at the present time. The existing facility is organized around a central courtyard open to each classroom cluster reflecting the communal architecture of traditional Northern New Mexican settlements. The proposed addition and expansion seeks to maintain the feeling of the place and to address the expansion to nearly triple in size along with other design challenges such as circulation. The current status of this project is at the end of the Schematic Design.

During the design process, Design Plus introduced the director of the UNM Children’s Campus to the concept of its Design Education program in fall of 2008. The one day teacher orientation for the entire staff (approximately fifty teachers) and four different sessions of the design program for seventy selected students were conducted in the Spring of 2009. That summer, Design Plus also provided a design course for students ages 6-8 in conjunction with their summer program.

2.3. The educational style and overall process

There are many methods of how to conduct design education. Because we are a group of design professionals our typical approach is that we act as design educators. In a classroom situation, design educators facilitate the overall design process and at the same time encourage maximum involvement with the classroom teachers who know their children best from their daily interaction. The design educators first direct the whole class, including teachers, clearly stating the project goals, objectives and contexts through step by step activities with necessary technical information, demonstrations and vocabularies. After understanding the overall process, the classroom teachers converse with, motivate and assist individual children in their own familiar way, and ask questions as well as seek technical assistance as needed. The classroom teachers often expand their activities beyond the design program time period with additional reading and projects they conduct by themselves.

The overall program length and schedules vary based on the situation of the host schools, but there are three basic components in general, 1) teacher orientation/training, 2) children’s design activities, 3) final presentation/
exhibition. In the case of the UNM Children’s Campus program, we followed the same process with four selected classes. Each class had two hours of activity time per day for four days per week for a total of two weeks.

The teacher orientation/training is very critical, with the entire staff if possible especially when the program is introduced for the first time. The teacher should learn the concepts behind design education as well as experience designing in the same way their students will go through hands-on activities. Having this opportunity to understand the program in depth and actual experiences of both excitement and difficulties mentally prepares and gives them a broad perspective and understanding of the design process.

Children’s design activities can be flexible in order to incorporate the host school’s interests if any, but daily technical exercises are necessary in order to advance children’s basic design skills such as literal, verbal and visual communications, architectural conventions, spatial understanding, design vocabularies, fine-motor skill training and being aware of their own senses and others. These exercises can be stand alone daily training, or integrated as a part of a continuous large project which is more natural and preferable to gives a specific context to the learning. Even with a simple line drawing exercise, we explain to children that different lines represent different things to architects and this is how architects communicate.

The final presentation is a great opportunity for students, teachers, and parents to celebrate their design projects and to share the experiences with others. The format can be a formal presentation, or an open gallery review surrounded by exhibits. When children are working on their projects, they often do not see what they actually made. A presentation gives a student another critical look at his/her own product and the differences in designs and expressions. It is a meaningful ending of one design sequence, but also the beginning of the next cycle reflecting on their past thinking process and development to be continued.

2.4. The project’s key components and early childhood

One of the goals of architectural and environmental design education is to help children build a sense of place consisting of many surrounding natural and designed elements in both micro and macro levels. It is also to engage them in self exploration utilizing studio methods that help train architects and designers to become motivated, creative and productive problem solvers.

In the case of early childhood, some exercises may seem less technical in terms of their architectural and environmental aspects, but it is an interesting age period where children are building foundations for learning through their body and senses in a very flexible and memorable way. When a child needs to understand a structural system for an example, first he can experiment and feel the forces within his body, and that concrete experience even without a word of what he is experiencing now will become his basis of understanding physics and other subjects tomorrow. This is where he can really see something very complex in a very simple way without preconceptions. It could be the only time when he can fulfill his curiosity through pure perception of such elements as color, light, motion, force etc., absolutely just as they are. These elements are the origin of design. The memories of these tactile experiences may stay below the surface for a while, but when they are awakened years later, almost by instinct, they will become strong inner supports that give another dimensions to that person’s understanding deep inside.

![Image of children in a design activity](image.jpg)

**Figure 1.** “Body Structure” exercises.

Although the program has a fluid nature in teaching and learning style, it is important to thoroughly set up each project’s goals, objectives, schedules in time and size, expected outcomes, and evaluation system in order to communicate well with the classroom teachers and to correctly assess the program to continually improve for the next step. These programs have a tendency to be one-time events of short duration and typically hands-on
workshops. Most classroom educators, students and parents understand the benefit of the design exercise and enjoy its process, but often do not realize it is the training of critical thinking that takes time to fully develop until it becomes a creative habit. The design program has the potential for deeper effects on children’s learning and creativity, but it requires more long-term projects and research to assess its true value.

When design professionals are involved as facilitators, one of the key aspects is to study and incorporate the school’s educational philosophy, main curriculum they use, and the Educational Standards as much as possible so that educators can easily adapt the design program into their class organization and curriculum. In the U.S., most K-12 public schools use either the National Standards or State Standards. It helps teachers to understand what activities may apply to which categories in the standards with what they have to work. In the case of Pre-K, the NAEYC Standards are popular in the U.S. In comparison to the K-12 Standards, the NAEYC Standards includes more broad contents in addition to early academic subjects, which are required as accreditation criteria such as teaching expectations, assessment of child progress, teacher relationships, family and community connections, physical environment, leadership and management, and overall curriculum promoting learning and development in social, emotional, physical, linguistic and cognitive areas for children’s school readiness.

One of the big challenges in working with Pre-K level is their basic fine-motor and communication skills. In order to digest complex architectural exercises, it often requires either going through the steps together, or breaking it down into smaller projects. Both have advantages and disadvantages and younger children are more sensitive to its timing, atmosphere and motivation. They know well what they can or cannot do and their interest is closely tied to it. Of course, when they do discover additional skills, they get very excited and say with a big smile, “I did it!” Observing this fine line and stretching it is worth a try. They are also the ones with wonderful imaginations who can truly become architects for a day if we raise them to wish so.

One of the attractions of architectural design projects is model building, but it is not that easy to make things stand up for young children. Children are excited when their ideas become three dimensional forms and spaces, and this is where an educator’s creativity comes into play to provide a strategy, steps, and materials to create volumes using very simple techniques.

Older children may feel a sense of accomplishment when they complete and present their design projects, but for little ones, the most exciting “Play” time begins when the models are completed. There is nothing like creating their own models and drawings, which they can modify and play with as their ideas continuously emerge and develop. “The house for a mouse” design was a long and hard project for some children, but when they started seeing children who had finished their models playing with fake cheese and mouse figures, they quickly went back to work in order to finish their own projects so that they too could join in the play.

Figure 2. Playing with “Mouse House” models children that built.

The same project is given to the entire class, but once the students begin working, they go off in a million different directions. As a result, educators soon have to meet the different needs of each child. As they work together, children start talking about many things pertaining to design. It seems very chaotic and inefficient sometimes, but if you think about it for a moment, figuring something out is not always clean and easy. Fostering creativity in a warm and patient manner is a messy process. Exploring the individual’s unknown worlds and allowing for mistakes is one of the most valuable aspects of design education. What we are producing is not a super curriculum, which makes everyone instantly creative, but rather a method of setting up both physical and mental learning environments called “Studio” where children and educators can live, work and learn together on their journey of life.
3. Conclusion: Envisioning our future environment and children

The word “Environment” is quite ambiguous depending on to whom you talk. Some may think just about nature, some may simply consider their surroundings, or some may include the entire Earth. The connotation of the “Environment” is diverse and many people treat it like air, i.e., something that is always there, but not visible until something changes, or goes wrong. Public awareness of our environment and people’s contributions for a better environment has reached a critical point and it requires everyone’s, not just professionals, daily effort to improve our environment at every level from the backyard to the overall ecosystem.

Because of the different way people conceptualize the “Environment,” there are big disconnections in our actions especially in-between natural and built environments. The effects of the built environment are so significant, it cannot be ignored. Protecting and sustaining is simply not enough. After all, both natural and built environments are a part of the whole environment along with social and cultural environments. We cannot solve our environmental problems and concerns without having an overall picture of the integrated elements.

Going forward, the future of environmental education will require a more holistic approach as well as many invitations to people with various interests to interact and work on interdisciplinary collaborations from a scientist to an artist. We need innovative ideas that touch people’s hearts and help people think creatively to the extent that everyone is actually doing something and working together while fully utilizing their different talents. What we are really creating is not limited to effective sustainable materials and technology, but also a humanistic mentality and well-rounded education that moves the world and people of all ages with passion and joy.

Young children have a natural way of looking at their world full of imagination and the sound of inner voices. The world and its environment were integrated before someone decided to separately teach math, science, etc., which works in many respects, but sometimes, it loses its original configuration of how things really are. Our environment holds all educational elements and opportunities for children to learn just as it is without breaking it into pieces as academic subjects. It is very important for children to have that holistic view of their world, and to associate it with physical experiences through their five senses. How can one imagine a beautiful forest if s/he only sees a leaf?

Our environment is always there. We are surrounded by lots of natural and designed things, but do we really see what is around us? Not always, but children do because they are the most sensitive and sensible creatures left in the world. They can, and should, contribute to the design of their own environments from the moment they enter the world to ensure a sustainable future and a beautiful life.

19. Acknowledgment

A. S. Author thanks the UNM Children’s Campus host school, Dr. D. Acer for her help during the programs, and Dr. Anne Taylor and Design Plus LLC for daily support.

20. References
