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ANA RUTE COSTA and RACHEL COOPER

DESIGN FOR EDUCATION

Spaces and Tools for Learning

DESIGN FOR SOCIAL RESPONSIBILITY









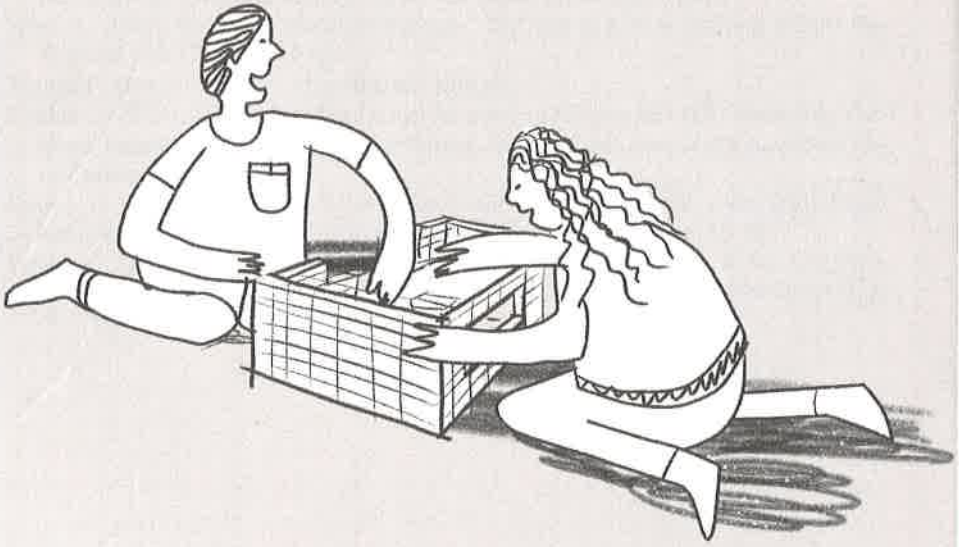





ROUTLEDGE

PART II

Design and the Social Construct of Learning Environments | PERCEPTION



5

A PARTICIPATORY APPROACH TO DESIGN EDUCATION WITH CHILDREN

An Overview of Methods and Tools from Two Diverse Case Studies in Haiti and India

Sruthi Atmakur-Javdekar

A diverse range of professionals, including designers, architects, creatives and researchers incorporate participatory approaches in their field of work to help create and improve products, methodologies and spaces used by people across varied age groups. In education, participatory approaches are well-known to make learning engaging and fun for children, young people and adults. Over the past decade, participatory design has become popular with fields related to the design of information and communications technologies and technology-based enabled systems (Simonsen & Robertson, 2012). Depending upon the product, space or process that needs to be co-designed, participatory design sessions typically include two key stakeholders – participants and facilitators, where oftentimes, adults are facilitators and participants include children, young people or/and adults depending upon the project. There are some exceptions though, such as the Child Friendly Places Methodology developed by the Children's Environments Research Group, where children and young people co-facilitate participatory sessions in communities, schools and cities to improve their physical and social environments (Wridt, Atmakur-Javdekar, et al., 2015; Wridt, Hart, et al., 2015).

In this chapter, the author specifically addresses participatory design activities (Hart, 1999) in the realm of built environments and does not evaluate or assimilate participatory approaches such as Participatory Action Research (PAR), Participatory Design of Information Technology (as originated in Scandinavia) or other methodologies. The focus is on how architects, researchers and other built environment professionals can use simple methods and tools with children and young people for design education, and to co-design and improve environments that shape their lives.

Accordingly, the author describes the methods and tools used with children (5 to 18 years) in two contextually different case studies that incorporated

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participatory design sessions. The first describes a 'Participatory Design Session' in a post-emergency context in a Transitional Learning Space in Haiti where the design inputs from children were gathered through walkthroughs and reimagining the existing classrooms using LEGO and loose-parts. The second case describes a 'Design-Education Workshop' consisting of two engagements – a participatory design session and an informative walk where preliminary concepts related to spatial planning and architectural design were introduced to primary school children in a fun and engaging manner. With the help of these two cases, this chapter brings together a range of participatory methods and tools that can be adapted by educators and facilitators when working with children during design-related workshops.

Listening to Children's Voices

Article 12 of the United Nations Convention on the Rights of the Child (UNCRC) calls for "children's perspectives to be heard on all matters that concern them" (UN, 1989). This means, children and young people need to be included in all decisions that impact them, including the creation of environments that shapes their today and the future. *Children's Participation* (Hart, 1999) is a seminal book that describes the theory and practice of ways to include children and young people in improving their communities and environments. To understand built environments from a child's perspective, researchers typically use tools and methods such as drawings and collages, scaled models, maps (Clarinval et al., 2023; Hennig & Vogler, 2016), various innovative technologies (Fails, 2012; Wridt, 2010) and often-times, simple innovations (Warren, 2010) while working with children, young people and adults (with low literacy levels).

While there is a plethora of tools and methods that are being tried and tested in the field by built environment professionals and researchers, it is important to remember that every participatory design session is heavily "contextual" (Yip et al., 2017) and finding universal tools and methods that work across a range of diverse contexts can be challenging. For example, a participatory design session using drawings and scaled models in an indoor school in an urban area would use different tools when compared to a participatory design session in an outdoor play area using drawings and scaled models. The key here is for the researcher or facilitator to adapt to different scenarios while keeping the spirit of children's participation at the centre of the design sessions.

Furthermore, there are many contexts in which participatory design sessions with children and adults have been conducted in rural or informal settlements of the Global South (Chawla, 2002; Driskell, 2002; Nallari, 2014; Wridt et al., 2015), but there are few papers that dig into the detail of the tools used and the methods adapted (Bossen et al., 2016). Taken together, given that participatory design sessions are heavily contextual, it only then makes sense to learn from as many unique case studies as possible.

The Value of Learning from Diverse Case Studies

Accordingly, this chapter focuses on methods and tools used with children and young people in two unique in-depth case studies. Diverse case studies provide an opportunity to learn from a range of methods and tools, draw references and inspirations, and help find ways to adapt methods across a range of geographical contexts, cultures and physical environments. The first case focuses on a Participatory Design Session where researchers (i.e., the author and her mentor) worked with children to improve their Transitional Learning Space (TLS) in a post-emergency context in Haiti. The second case details a Design-Education Workshop where the architect-researcher (i.e., author) conducted a participatory design session at her studio and an informative walk at a farmland site with primary school children to introduce concepts related to spatial planning and architectural design. While both contexts are different, the approach of "listening to and working with" children is at the heart of both case studies.

Case Study Methodology

Data Collection, Analysis and Validation

The author, who is an architect-researcher, uses case studies as a form of research inquiry (Groat & Wang, 2002; Yin, 2014), drawing from her detailed field notes of working with children and young people in a Transitional Learning Space in a post-emergency context in Haiti in 2012 and facilitating a design-education workshop with primary school children at her architectural design studio and a farmland site in Pune, India in 2022. In both cases, the author's field notes are thick descriptions where she describes in detail the participatory design sessions with children and young people. Such thick descriptions allow "transfer" of information to different settings, allowing readers to determine if the findings can be transferred "because of shared characteristics" (Erlandson et al., 1993, p. 32, as cited in Creswell, 2007).

The Case Studies

The cases described here are each unique in terms of the context and demographic of the participants. The aim of describing two diverse case studies is to compile a range of participatory methods and tools that can be used by facilitators, researchers and educators with respect to design education when working with children and young people.

Case Study One: Participatory Design Session at a Transitional Learning Space, Haiti

Project Description

In order to help understand children's perspectives about their learning environment, the Children's Environments Research Group (CERG) of the Graduate

Center City University of New York, Childwatch International, and the Education Section of UNICEF Headquarters piloted parts of the Child Friendly Places methodology to improve the quality of Transitional Learning Spaces in emergency contexts (UNICEF, 2013). The project was accomplished by partnering with UNICEF country offices in Haiti and the Philippines, international aid agencies, ministries of education, community-based organizations, children, caregivers and educators in countries transitioning from a natural disaster or human conflict. The initial goal of the project was to develop and pilot test the Child Friendly Places (CFP) participatory assessment toolkit for evaluating and monitoring conditions of transitional learning spaces, and to empower educators and emergency service providers to work collaboratively with children to evaluate and improve their educational settings.

During the development phase of the CFP assessment toolkit in Haiti, researchers (i.e., the author and her mentor) piloted the use of popular construction blocks, i.e., LEGO as one of the main tools to understand the ways in which children wanted to change the quality of the interiors of their classrooms. Here, LEGO was proposed as a supplement to the CFP assessment tools to enhance the participatory nature of the toolkit, allowing children who cannot read or write to participate in the evaluations of their school environment. The author took the lead in designing the program for conducting the child-led walks and the activity with LEGO. Also, the entire Participatory Design Session was conducted in English with the help of a translator as the local language was Haitian – Creole.

Methods

The Participatory Design Session included two key activities that were conducted in succession on the same day after the main Child Friendly Places assessment. These included (1) child-led walkthroughs,[1] and (2) a participatory design activity with LEGO.

Child-Led Walkthroughs. Before the LEGO activity, 15-minute walkthroughs with students in groups of no more than four members each were conducted. Each walking tour was conducted in gender-specific groups of boys and girls where students walked through the school campus.[2] During the walks, students shared the lack of open space for play and pointed to remaining debris from the 2010 earthquake that was still uncleared. Also, students gathered twigs, small stones and leaves as loose-parts to supplement the following LEGO activity.

Participatory Design Activity with LEGO. Next, a participatory design activity with LEGO blocks and loose parts collected during the walks was conducted with children in two small groups of eight students each. The activity included:

a. Step 1: Introducing the scaled model of a classroom (20 minutes).

   After the child-led walkthroughs, the researcher built two models of the students' classroom using LEGO DUPLO blocks and large building plates (see

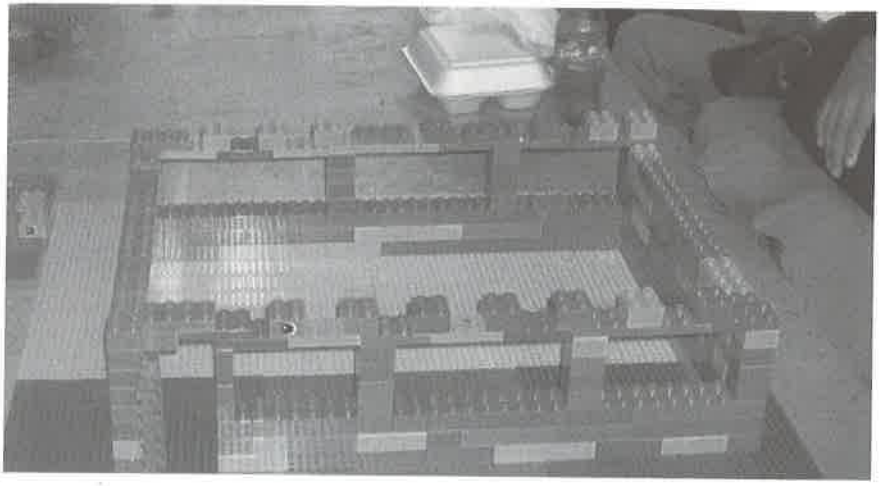

FIGURE 5.1 Basic model of the classroom. Image by Author

Figure 5.1). Here, a few students helped the researcher build the base model of their classroom. Next, the researcher introduced the models to two groups of children and explained that they could use new LEGO blocks and the loose parts they collected during the walkthroughs to modify their classrooms.

b. Step 2: Modifying the scaled model (20 minutes)

A total of 16 students – ten boys and six girls (ages 12–18) participated by voicing their opinions and worked collectively in modifying the interior of their classroom. This step allowed six to eight students to modify the interior of the classroom at a given time, where students participated equally by taking turns in contributing to the modification process (see Figure 5.2).

c. Discussion: What changes did you make and why? (20 minutes)

A discussion section followed after children modified their classroom. The researcher asked two simple questions: (1) What changes did you make? and (2) Why did you make those changes? The first question helped us understand what students wanted to modify in the interior of their classrooms, while the second question provided insight into the strengths and problems in the physical and social environment of the classroom faced by students.

Outputs

Using LEGO as a participatory tool, children were able to share their perspectives and opinions about the physical and social environment of their classroom environment.

Changes to the Physical and Social Environment of the Classrooms. Proposed changes to the physical environment of the classrooms included extra storage

FIGURE 5.2 Children modifying their classroom. Image by Author

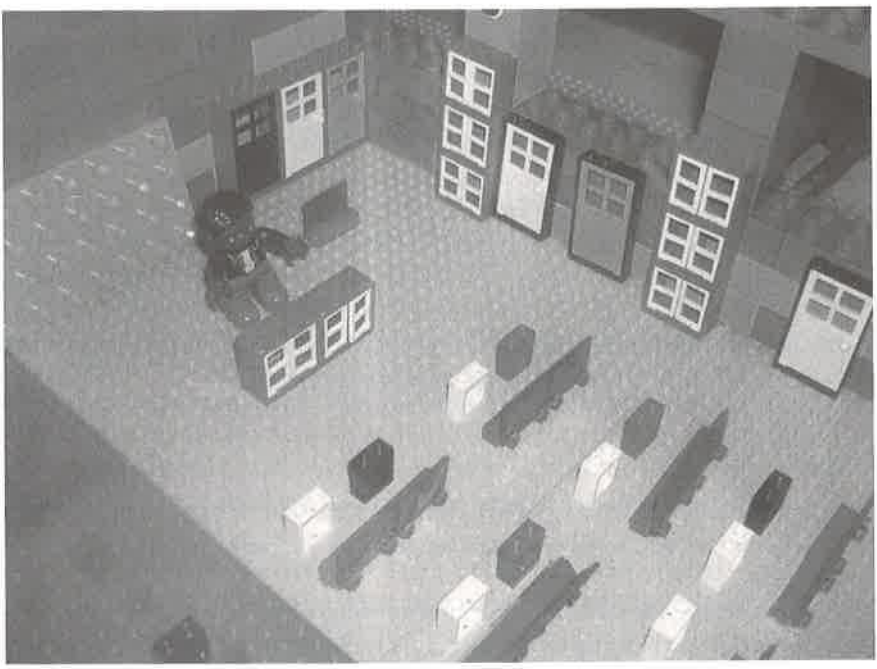

FIGURE 5.3 Storage and desk space – modification to classroom interiors. Image by Author

space to keep books and bags, a limited number of students at each desk and a door to the classroom entrance.

- *Storage space* – Students used windows and roof components of the LEGO DUPLO blocks to simulate the extra storage space they wanted in their classrooms for storing books and bags.
- *Desk space* – Students emphasized the need for individual desk space, or a bench that allows enough room for only two students. Students expressed that currently there are very few desks for the total number of students in the classroom and due to this, each desk has more than three students making it difficult to read and write during study hours.
- *Classroom entrance* – Students built a door to their classroom as there are no doors to their classrooms. Here, students complained that noise from other classrooms travels across and disturbs their learning.

Proposed changes to the social environment included an increase in the number of teachers per classroom to help maintain discipline, support learning, and welcome students to the school in the mornings.

- *Number of teachers per classroom* – Students wished for two teachers per classroom. Students opined that an additional assistant teacher in the classroom could assist students in learning concepts, maintaining discipline and welcoming students into the class at the start of the school day.
- *Emphasis on class discipline and entrance to classroom* – Students emphasized maintaining discipline in the classroom. They also expressed the importance of an entrance to the classroom by using LEGO figures from the World People Set that represents families from around the world. They mentioned, "students will stand in two lines, the assistant teacher will welcome them into the classroom, and they will follow her instruction" (see Figure 5.4).

Effective use of LEGO as a participatory tool. Using LEGO blocks to modify classroom interiors validates the effective use of LEGO as a participatory tool that helps us listen to children's voices in matters that concern them. Field observations revealed the 'ease of use' of LEGO among older children. Here, students were engaged throughout the process of modifying and expressing their opinions related to their learning environments. For example, during Step 1 of the participatory design activity with LEGO, young people as old as 18 years of age built a scaled model with the facilitator and other small models using LEGO blocks.

Summary of Case Study One

The Participatory Design Session was an insightful and creative learning process for both the researchers and the children. While researchers learnt about the existing

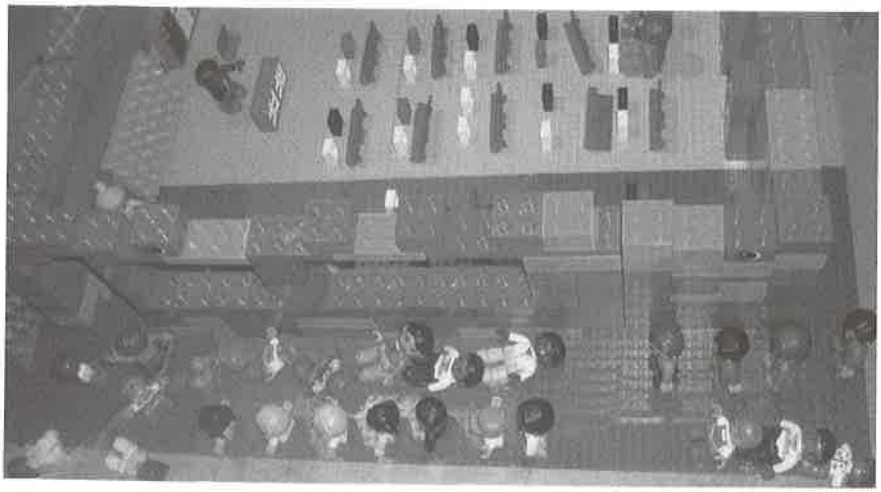

FIGURE 5.4 LEGO figures used to express discipline and emphasize classroom entrance. Image by Author

TABLE 5.1 Summary of Case One: Participatory Design Session at a Transitional Learning Space, Haiti

Aim	1. To gather design inputs from children to improve their temporary school or Transitional Learning Space (TLS). 2. To pilot test the use of LEGO as a participatory tool with children to design and plan their learning environments.
Context	Location: Transitional Learning Space, Haiti Number of students: 16 (6 girls and 10 boys) Date: Spring 2012 • The Participatory Design Session was conducted in a temporary school that was built as a Transitional Learning Space (TLS), after the 2010 earthquake in Haiti. • The Participatory Design Session was conducted in Spring 2012 as part of CERG's pilot of the Child Friendly Places assessment toolkit within UNICEF's Education in Emergencies project.
Age group	12–18 years of age
Methods	1. Child-led walkthroughs of the existing school for loose parts 2. Participatory design activity with LEGO
Tools	1. Loose parts gathered on existing school site 2. LEGO DUPLO blocks, World People Set and large building plates
Output	a. Proposed changes to the physical and social environment b. Effective use of LEGO as a participatory tool

school environment through child-led walkthroughs, children were able to fully express their opinions about their learning environments with the help of LEGO and loose parts in the participatory design activity. The LEGO activity helped children think out loud about the physical and social conditions of their classrooms, thereby encouraging them to collectively reflect and generate creative solutions to improve

their learning environments. On the other hand, for the researchers, using LEGO underscored the 'participatory' nature of the tool itself. LEGO is well known for engaging children in manipulative, constructive, imaginative and creative play. In the case of Haiti, children until the age of 18 years were engaged in the process and participated with enthusiasm. In summary, using LEGO added 'participatory' value to the main Child Friendly Places assessment toolkit[3] (Conscious Data, n.d.) and worked as an excellent instrument that enabled researchers to listen to the physical and social experiences of children in their school environments.

Case Study Two: Participatory Design-Education Workshop at an Architect-Researcher's Studio and Farmland Site, Pune, India

Project Description

The main facilitator of an unconventional school in the city of Pune, India wanted to introduce architectural design to their primary students over a period of six weeks under their program titled 'Architecture Quest'. The school was looking for local architects to meet their students at their school, and arrange for students to visit the architect's office and/or if possible a few under construction sites. During these meetings, the expectation for the architect was to engage with students and introduce them to the basics of spatial planning and architectural design, in order to help children grasp key concepts of space and use those concepts while designing their new school.

For this, the author,[4] who is an architect-researcher, planned a Participatory Design-Education Workshop. The goal of the workshop was to introduce concepts related to spatial planning and architectural design to primary school children through a series of two engagements. The first engagement was at the architect's studio where a participatory design session with three key activities was conducted. The three activities included (a) free exploration of natural materials, (b) exploring volumes with magnetic tiles and LEGO blocks, and (c) spatial design using hand-sketched scaled drawings.

The second engagement was an 'Informative walk at a farmland site' where the architect-researcher introduced the site and explained the architectural decisions taken for that specific site. The language used during the workshop was English.

Methods

Participatory Design Session at the Architect-Researcher's Studio.

a. Free exploration of natural materials

Small-sized samples of natural stone (2" × 2") such as granite and a range of soft and hard sandstones (see Figure 5.5) were displayed at the studio for children to freely explore. Also, an exposed wall in the studio made of natural basalt stone (see Figure 5.6) prompted children to touch, feel and understand the different finishes and ways in which natural stone could be used in interior

FIGURE 5.5 Children exploring samples of natural stones. Image by work colleague

architecture. Children spent 30 minutes exploring and asking questions about the materials that were on display.

Exploring volumes with child-friendly construction blocks

While some children continued to explore the materials on display, a few moved on to working with child-friendly construction blocks – magnetic tiles[5] (see Figure 5.7) and LEGO DUPLO blocks. Child-friendly construction blocks were used in the studio for children to get into the zone to start thinking about space and volume. Here, it is interesting to note that children explored more with magnetic tiles as a building material when compared to LEGO blocks. When one student (10 years of age) was asked why she preferred using magnetic tiles to build, she responded by saying, "It's faster to build taller … and also more fun because it snaps!"

Spatial design using hand-sketched scaled drawings

For the first two activities, children took the lead in asking questions and creating objects and things. This type of free-play helped children settle into the studio before starting on a more direction-based design-oriented activity. The

FIGURE 5.6 Children exploring an exposed basalt stone wall. Image by work colleague

last activity was a design-based activity where children were asked to design their dream home. For this, children were introduced to the farmland site using simple hand-sketched drawings that included key landscape features such as water bodies and landforms including surrounding hills, canals, river, trees and mounds. The farmland site introduced in this activity is the same site that children were due to visit after three weeks. This type of a preview to the farmland site helped children imagine the space the way they visualized it before going to the actual site and getting influenced by the ongoing-work at the existing site.

Next, children were introduced to the concept of 'orientation' – i.e., North, South, East and West, and were explained the importance of spatially planning a home in accordance with the sun-movement and wind-direction. Key pointers included:

- Spaces used actively in the morning need to be located where sunlight comes in first into the home. For example, kitchen and dining areas are active spaces in the mornings that could use the morning natural light.
- It's ideal to orient bedrooms in the south-west where the evening breeze through natural wind flow could be captured.

FIGURE 5.7 Children building complex shapes with magnetic tiles. Image by work colleague

At this stage, children were split into two groups of four each and were asked to design a dream home for themselves keeping in mind the orientation-related guidelines. A range of drawing and creative tools such as markers, pencils, oil pastels, small wooden blocks and sticky notes were provided. Children mostly used drawing tools such as markers and pastels (see Figure 5.8).

Informative Walk at Farmland Site. Three weeks after the Participatory Design Session, children, school adult facilitators and the architect-researcher visited the farmland site, for a 20-minute informative walk. During the walk, the author shared the thought process behind the design decisions made on site. These included:

- Retaining existing trees and maintaining the local flora and fauna along the water bodies of the farmland site.
- Spatial location of the house, keeping in mind the flooding areas during heavy monsoons.
- Introducing diverse plantation to protect top soil with respect to heavy monsoon and dry summer months.

FIGURE 5.8 Children drawing their idea of dream homes. Image by work colleague

FIGURE 5.9 Students exploring the farmland site. Image by school facilitator

The walk ended with a 20-minute open-ended discussion with children about the diversity of birds and plants experienced at the farmland. Here, children enjoyed running in the open areas and exploring various plant species (see Figure 5.9). This visit was arranged during monsoons, so children were discouraged from going too close to the river as the water flow was harsh and at its peak. This decision made by the adults was however not welcomed by children as they wished to get close to the flowing water and experience the river. This act of being outdoors, close to nature afforded children to experience the environment as is (Heft, 1988), which they are unable to experience in dense urban environments.

Outputs

Better Understanding and Awareness of Materiality of Everyday Environments. An introduction to local natural materials at the studio enabled children to better understand and become aware of the materiality of their everyday environments. Children were able to relate the natural stone samples that they learnt about at the studio to other places they visited later during the school year. For example, a couple of weeks after the studio visit, the main facilitator from the school shared a photograph of a sink made out of natural stone with the author saying, "we are at a beautiful resort, and this is the sink in the bathroom. Naina[6] immediately asked if this is granite." This type of awareness and curiosity about their immediate surroundings continued to build throughout the school year.

Hand-Sketched Drawings Representing Key Landscape Features Versus Scaled Drawings. During the school year, an adult facilitator shared that teaching scale and measured drawings was not possible with primary children as, "it was very difficult to explain scale and show them how to convert a certain length into a scale on paper." Typically, studies that gather children's environmental experiences (Chawla, 2002) and programs focused on architectural education for children (Taller Abierto, n.d.) are designed keeping in mind children above eight years of age, as the concept of scale and scaled drawings is better understood after the early years. For example, the 'Arquitectura Para Niños' or 'Architecture for Children' project is an introductory course in architecture for children in 4th grade (9 years old) (Taller Abierto, n.d.). Observations while working with young children confirmed that it is helpful to work with hand-sketched drawings with key landscape references such as water bodies and landforms to make children aware about the environment instead of introducing complex concepts such as scale. This was evident when children visited the farmland site, as they were able to recollect the hand-sketched drawing used in the studio for designing their dream home in relation to the physical farmland site.

Sensitization About Building in Harmony with the Natural Environment. During the informative walk at the farmland, children were introduced to 'greening' concepts that were incorporated into the architectural design of the house in the form of planters and a sloping green roof. After the Design-Education Workshop,

the author was invited to the school to review children's designs of their new school, where the architect-researcher noted that they were able to bring similar ideas of natural green elements into the built form, such as green spaces and water bodies.

"We brought some green areas into our school through this lawn and this swimming pool on the second floor" (9-year-old boy) (see Figure 5.10).

Further, pre-school children had built models of their idea of a school environment where they emphasized green pockets inside the school building and the surrounding areas. "Here is the slide on a lawn and the earth" (5-year-old girl).

Summary of Case Study Two

The Participatory Design-Education Workshop was an experimental learning process for all stakeholders involved, i.e., the architect-researcher, primary school children and the school's adult facilitators. While the aim of the workshop was to introduce children to concepts related to spatial planning and architectural design, there were additional outputs such as children's increased awareness of the materiality of their everyday environments and a collective desire to bring nature indoors as seen in the proposed school designs. In case two, the author was able to explore a range of methods that could be used for teaching design-education to children in a fun and engaging manner. Methods such as free-play to explore natural materials and building with magnetic tiles and LEGO blocks to understand volumes and using hand-sketched drawings were helpful as children 'got into the zone' of working with space. Furthermore, the informative walk at the farmland site prompted the author to think critically about bringing nature close to children through design-education.

FIGURE 5.10 Children integrating green spaces in their designs. Image by school facilitator

TABLE 5.2 Summary of Case Two: Participatory Design-Education Workshop at an Architect-Researcher's Studio and Farmland Site

Aim	To introduce concepts related to spatial planning and architectural design to primary school children through a Participatory Design-Education Workshop.
Context	Location: Architect-researcher's studio and farmland site, Pune, India. Number of students: 8 (6 girls and 2 boys) Date: July and August 2022
Age group	5 to 10 years of age
Methods	1. Participatory design session at the architect-researcher's studio included: 1.1. Free exploration of natural materials 1.2. Exploring volumes with child-friendly construction blocks – magnetic tiles and LEGO blocks 1.3. Spatial design using hand-sketched drawings 2. Informative walk at a farmland site
Tools	1. Natural material samples 2. Magnetic tiles 3. LEGO DUPLO blocks 4. Hand-sketched drawings with landscape references 5. Drawing tools such as markers, pencils, oil pastels, small wooden blocks and sticky notes
Outputs	1. Better understanding and awareness of materiality of everyday environments 2. Hand-sketched drawings representing key landscape features versus scaled drawings 3. Sensitizing children and adult facilitators about building in harmony with the natural environment

Summary of Participatory Design-Education Methods and Tools while Working with Children

Below is a summary of seven methods and tools from both these case studies that can be adapted by other researchers and practitioners who work with children and the built environment:

1. **Child-led walkthroughs** encourage collection of easily found loose parts and enable the facilitator to learn about the contextual environment from children's perspectives. Such walkthroughs are also great for setting context before any participatory design activity.
2. **Participatory Design Sessions with LEGO models** help facilitators fully listen to children's perspectives about the issues related to the physical and social environments that shape children's daily lives.
3. **Free exploration of natural materials** using small-sized samples encourages continued curiosity and learning in children and empowers them to have an improved awareness about the materiality of their everyday environment.

4. **Hand-sketched scaled drawings with landscape references** support understanding of key concepts such as orientation of everyday spaces for natural light and ventilation. Such simple hand-sketched drawings also help children understand key features such as water bodies, land forms and trees in their surrounding environments.
5. **Magnetic tiles** are fun, engaging and a quick way for children to build complex forms as per their interest and capabilities, and to explore their spatial awareness.
6. **LEGO** is a great tool to understand children's experience about their physical and social environment, and support the participation of children in design activities across ages.
7. **Informative walkthroughs** are an excellent way to engage children and adults in sharing knowledge about local landscapes and for participants to ask questions as they explore the environment through a guided walk.

Future of Methods in Participatory Design-Education

The two distinct case studies documenting participatory design methods, a decade apart, clearly emphasize the value of using scaled models, walks and hand-sketched drawings when working with children and young people. Outlined below are three key reflections that will help shape methods for future participatory design-education with children and young people:

LEGO as a Participatory Tool for Future Design-Education Related Activities. LEGO DUPLO blocks are an effective participatory tool for creative learning, exploration and gathering children's environmental experiences. The pilot test in Haiti confirms active engagement and participation of children in the creation of their built environments. This potential of using LEGO as a participatory tool for children (as old as 18 years of age) and adults with low literacy levels to voice their environmental experiences, calls for exploring the value of LEGO in future design-education related activities in low-income communities and post-emergency situations.

Design-Education Workshops for Children as Part of Their Formal Learning. Well planned and conceived Design-Education Workshops will help children have a better understanding of the materiality and spaces that shape their everyday lives. Moving forward, we need to create and pilot simple lesson plans with children across diverse age groups to better understand how we can support their understanding of their surrounding environments. Such workshops when introduced to children in formal school settings, equips them with design methods and tools, and empowers them to express their concerns and fully participate in the creation of their environments.

Children's Connection with Nature through Design-Education Workshops. Chawla (2020) reviews in detail children's connection with nature and the need for integration to cope with environmental change. Today, the narrative in childhood

studies points to children spending time indoors, being chaperoned to enrichment activities, and facing academic pressures (Atmakur-Javdekar, 2020; 2021; Chua, 2011; Karsten, 2015a) all while we move towards raising children in high-density urban environments (Agha et al., 2019; Andrews et al., 2018; Andrews & Warner, 2020; Atmakur-Javdekar, 2020; Karsten, 2015b). Taken together, the author's observations about children's engagement in nature during the farmland visit raise critical questions about the role of design-education in bringing children and nature together. Below are a few critical questions to get started:

- How can design-education workshops bring children close to nature and lead to meaningful experiences in nature?
- What kind of design-education methods and tools can be envisioned for bringing children and nature closer?
- What type of lesson plans can be curated for children, so they can find meaningful connections in the natural environment?

To summarize, participatory approaches empower children and young people to voice their opinions and help us – adults – gather a holistic understanding of their environments and the issues concerning their everyday lives. With respect to built environments, it is then essential to equip and empower children to co-design and co-create their everyday environments, so they can fully participate in matters concerning them. A way forward is to integrate participatory design methods and tools within design-related workshops and activities with children and young people.

Notes

1 In the original research, this method was titled 'walking tours'.
2 The TLS had three large classrooms built in wood and two temporary canvas tents donated by an aid organization.
3 The assessment toolkit can be accessed here: www.consciousdatainc.com/work-1/child-friendly-places
4 The author is the founder and director of an environmental design and research studio where she practices architecture, landscape architecture and environmental psychology.
5 Like LEGO blocks and wooden blocks, magnetic tiles are popular loose-parts used extensively by children to build things during play.
6 The name of the 8-year-old girl has been changed to maintain anonymity.

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