

Architecture education may be able to teach students more about real-life problem-solving than traditional subjects.

SPARKING CREATIVITY AT BEEP LAB IN SINGAPORE

Albert Liang Tsu Ying
BEEP Lab

BEEP Lab is the first school of design and architecture for children and youth in Singapore. The mission at this design thinking creative lab is to engage, enrich, and empower young learners to spark their creativity and nurture in them a sense of stewardship toward the built, natural, and cultural environments in which we live. Since its founding, BEEP Lab has curated over hundreds of interactive and intentional design thinking in-person and Zoom workshops, camps, and events, which have impacted over 1,000 children in Singapore, Taiwan, Malaysia, and China.

BEEP Lab was selected by the Finland-based education improvement platform HundrED as one of its top 100 global innovations in 2020 and 2021. HundrED also recognized BEEP Lab in its spotlights for employability skills and visual arts education.



Photos courtesy of BEEP Lab

The BEEP Lab Team of Design Facilitators

The team at BEEP Lab consists of teachers, coaches, mentors, and facilitators who are also architecturally trained designers. They see the everyday nature of

Built Environment Experiential Programme LAB

Empowering kids to be aware of current issues around the world and participate in design to interact with these issues. Inspiring them to be confident, collaborative, and compassionate human beings.

Albert Liang Tsu Ying,
Founder and Creative
Director of BEEP Lab



the built environment around us as a fertile ground in which to engage young learners, helping them uncover the insights and intrigues associated with making buildings and cities. Tapping into their professional knowledge and diverse design-learning experiences, the team transforms daily encounters with our living spaces into novel, refreshing, and captivating activities that challenge the children and teens.

In his book *Understanding by Design*, Grant Wiggins describes teachers as designers. They play a key role in designing the education curriculum to provide learning experiences that meet their specified purposes. They also design assessments to diagnose the students' understanding, and ultimately redesign their teaching approaches for better learning efficacy.

BEEP and Epic Fun!

Architecture is equal parts art and science; it is a craft that requires both imagination and inquisitiveness. BEEP Lab's design studio activities are crafted to provide enjoyable moments of discovery and achievement while learning about how buildings, cities, and parks are designed and built for and with people. Underpinning these learning activities are the integrated pedagogical principles of experiential learning and inductive learning. An emphasis on learning by doing or making is key to helping students make sense of their experiences and form stronger mnemonic impressions.

The design of the learning journey is always contextualized in a project-based or problem-based scenario. Described by Prince and Felder in the essay, "The Many Faces of Inductive Teaching and Learning," inductive methods of

Architecture Education for Children AROUND THE WORLD



World of Architecture and Children

Around the world, a movement affecting architecture education is focusing on developing various platforms for engaging children and youth. Many of these programs are spearheaded by local architecture chapters and architectural centers or higher learning institutions. BEEP Lab was developed through corporate social responsibility efforts to take on education and architecture with a new angle.

teaching and learning present students with a challenge and then support their learning of what they need to know to address that challenge.

A project-based or problem-based learning platform facilitates incremental acquisition of the relevant skills for designing a solution. There is often no instant answer provided; rather, the learners are guided toward discoveries and encouraged to synthesize their learning experiences to form meaningful strategies for application. They are coached to be motivated learners with the basics of independent learning. This is

what BEEP Lab strives to imbue in the young learners they support.

BEEP Lab's Journey

To change the status quo, BEEP Lab's founder Albert Liang Tsu Ying decided to improve the way children learn by embarking on a journey to relearn, unlearn, and learn about architecture through the lens of children and youth. He strongly believes that by developing a new point of view on the world around us, we can work together to make better decisions about our learning and how to better serve our society.



OUR MILESTONES



In 2015, with support from SAA Architects management, Albert and some colleagues embarked on a civic engagement initiative known as ArKIDecture. With a team of architects, the initiative pursued various public engagements to promote learning about architecture through platforms such as Archifest, URA Children Season Workshop, National Library, and PA Arts Festival.

With a commitment to pushing the boundaries of the education and training sector in order to create a platform for promoting design education on a long-term and sustainable scale, Albert took a leap of faith and officially started up BEEP Lab

AR.C.HI.TEC.TURE

ART is content.
COMMUNITY is who we serve.
HISTORY forms context.
TECHNOLOGY helps to construct.
NATURE is what surrounds us.

on 1 October 2018. Since then, BEEP Lab has been on the move to grow and develop clarity for their mission of advancing holistic design education for children and youth, to help them become confident and self-directed learners, active contributors, and civic-minded individuals.

Pedagogy and Philosophy of Learning

The core pedagogy at BEEP Lab sets out to impact young learners from all walks of life through experiential learning about the built environment. Just as our built environment develops from multidisciplinary sectors working together, we developed a framework, AR.C.HI.TEC.TURE, to encompass different disciplines (art, community, history, technology, and nature). Within this context of AR.C.HI.TEC.TURE, programs empower children to *SEE, WONDER*, and *DO* and then move on to *BUILD, SHARE*, and *LEARN* with others. With the use of the *DIG DEEP* design thinking

methodology, BEEP Lab aims to engage and inspire the head, hands, and heart, so as to build a sense of stewardship and ownership toward the shared built, natural, and cultural environments.

BEEP Lab curates design briefs to approach the design challenges around us. This framework becomes the baseline for programs based on current issues surrounding the themes in AR.C.HI.TEC.TURE. They find exciting proposals that challenge teams to transform neglected parts of urban areas or cities into interactive landscapes that encourage community building and engagement.

AR.C.HI.TEC.TURE is a catalyst to promote interdisciplinary learning through scenario- and inquiry-based learning. Through the ArKIDtect studio, diverse programs cater to learners of different ages. In these studios, students explore the built environment, collaborating with architectural designers and educators to develop their ideas. This opportunity facilitates cross-disciplinary

discussions and teaching, allowing diverse ideas to be generated and shared for meaningful and impactful learning. As programs are term-based, the curriculum allows for learning to take place at students' own pace.

Multi-disciplinary learning is an important goal for the BEEP curriculum, which is designed to complement other disciplines, such as science, technology, engineering, art, and mathematics. Partners from other disciplines introduce such STEAM topics into programs, empowering children with broad knowledge and various skills to help them tackle the problems they will encounter as they grow up.

The philosophy at BEEP Lab is to build, share, and learn. The team cultivates an attitude about building ideas, reflecting on them, and then sharing them with others to gain insights and improve. From this, they make changes to the initial ideas and apply them to create better and more comprehensive ideas. This process of building experience, sharing ideas, and learning to improve is an attitude promoted with everyone who participates in the BEEP Lab programs. The philosophy is in line with the *Maker Movement Manifesto* advocated by Mark Hatch. He thoroughly explains how this process of making and exploring has led to discoveries and inventions around the globe. Such successes are possible with creativity, hard work, and a strong motivation to *Build, Share, and Learn*.

Design Thinking for Children and Youth: SEE. WONDER. DO.

In line with the experiential learning process researched deeply at



Harvard School of Education's Project Zero, BEEP Lab's approach to See, Wonder, and Do teaches children to look around themselves to find inspiration and ideas from the things they see. Through careful observations, they learn to be curious and think of creative possibilities. BEEP Lab provides materials and

guidance to support children as they create, giving rise to a myriad of innovative ideas.

*"What do you see?
 What do you think about that?
 What does it make you wonder?"*
 —A thinking routine from
 Project Zero, Harvard Graduate
 School of Education

BEEP Lab Approach

BUILD PEOPLE

Empower the future generation to create an environment of openness that values discovery and diverse perspectives, through the mastery of creativity, confidence, and collaboration.

SHARE EXPERIENCES

Share knowledge and experiences to invoke a sense of giving that heightens the purpose of learning.

LEARN TRAITS & SKILLS

Impart architectural traits and skills to equip lifelong learners of our built, natural, and cultural environments.

Design Thinking for Architectural Educators and Teachers: DIG DEEP

To effectively propose innovative solutions to design challenges around us, BEEP Lab developed a seven-step design thinking framework, DIG DEEP. This step-by-step process deconstructs a design brief, considers the problem to be solved, proposes compelling ideas, and presents the ideas to others. This process not only stimulates children's thinking, but also builds their confidence as they present their thought process and ideas to others.

Over the years, this framework has been refined with the guidance of mentor Dr. Anne Taylor, author of *Linking Architecture With Education*. Based on her advice informed by extensive

research in architectural education for children, BEEP Lab's DIG DEEP approach teaches children to solve problems, in ways that also could be applied to other disciplines, and to be effective communicators.

Define issues and scope

Investigate the issues

Generate ideas

Develop

Experiment

Evaluate

Present

BEEP Lab's 5G Values

An important aspect of the experiential learning process at BEEP Lab is a focus on imparting the 5G VALUES of **Grease, Grit, Grace, Gratitude, and Green**. Design thinking relies on a continuous process of exploring, making, and failing. In the process of construction, children learn to get their hands dirty (Grease) and be comfortable with that. When their designs do not work immediately, they learn to persevere (Grit). Through hard work and team work, children learn to care for one another (Grace) and to



appreciate that things do not just happen (Gratitude). They also learn how to be Green, with a focus on sustainability.

Community Building

In Singapore, children live in a built-up environment. Architecture is all around them and this provides a rich inspiration for them to connect their learning in the classroom to the community. Such authentic experiences allow them to appreciate that buildings are not just bricks and mortar. Within and around these structures are people, culture, history, and stories. At BEEP Lab, children learn about, connect with, and even build their community.

