

Lesson 2 Design Space, Design Mind

Reading 1

The New Frontier in Architecture

Jonas Salk, a scientist at the University of Pittsburgh in the U.S., was working hard in his laboratory to create a polio vaccine in the 1950s. However, his work was not progressing. To overcome his mental block, he decided to travel to Italy. Salk spent a season in the Church of Saint Francis, a 13th-century building in Assisi, Italy. The building had majestic, high-ceilinged corridors. Its walls were covered with paintings from the 14th and 15th centuries, and natural light poured in through tall windows. The architecture of the church stimulated his imagination, as Salk said years later: "The spirituality of the architecture there was so inspiring that I was able to do intuitive thinking far beyond any I had done in the past. Under the influence of that historic place, I intuitively designed the research that I felt would result in a vaccine for polio." In 1955, Salk succeeded in developing a safe and effective polio vaccine that saved countless lives across the world, especially those of children.

Inspired by this experience, Salk came to hold the belief that manmade environments have a profound influence on our minds. This led him to found the Salk Institute in La Jolla, California, in 1963. The institute incorporated architectural elements such as open space, abundant natural light, and integration with nature to foster innovative thinking and productive collaboration. Indeed, these designs produced the desired effect. The Salk Institute became one of the most respected and innovative centers for bioscience research in the world, and several of its researchers won Nobel Prizes.

The Salk Institute is a good example that reflects the concept of neuroarchitecture. Neuroarchitecture is a field of study that examines how built environments influence our brains and behaviors. It applies neuroscience to architecture, with the aim of designing spaces that improve our well-being.

According to the World Health Organization, human beings spend more than 80% of their lives indoors. Thus, it is crucial to design spaces that will enhance the experience of people living, learning, and working in indoor environments. Neuroarchitects aspire to design schools that stimulate learning, hospitals that boost patients' recovery, and workplaces that improve performance.

Recently, neuroarchitectural researchers have discovered how ceiling height, lighting, and other design factors influence our thinking and behaviors. For instance, neuroarchitectural studies suggest a close link between ceiling height and brain functions. People in rooms with high ceilings are more proficient at solving problems that require creative ability. In contrast, those in rooms with low ceilings tend to do better at tasks that demand concentration. Hence, rooms with high ceilings encourage freer and more abstract thinking, while rooms with low ceilings foster attention to detail.

Neuroarchitects also point out that lighting plays a crucial role in mental well-being. The amount of light available can affect our biological rhythms and overall mood. A well-lit room, particularly one flooded with natural light, helps prevent depression and diminishes the decline of brain functions in seniors.

Neuroarchitects, therefore, often recommend using natural light over artificial light because people generally feel happier in rooms with windows that let in natural light. On the other hand, artificial lighting can cause eye strain, headaches, and even emotional tension.

Going green for your space is also desirable. Natural elements such as flowers and plants can have healing effects and create a sense of calmness in an area.

Neuroarchitects recommend using windows that allow people to see plants and placing artworks with natural themes. Even painting walls green can help.

"We shape our buildings, and then our buildings shape us." This famous saying by Winston Churchill suggests a close connection between the environments we create and human psychology. The human mind does not operate independently of its surroundings but responds to them and sometimes makes better decisions thanks to them. Therefore, our location greatly impacts our thought processes. Just take a look around. What impact does your current environment have on you?

Reading 2

The Future of School Architecture

When you hear the word "school," what comes to mind? You probably picture rectangular school buildings that stand separate from playgrounds, straight corridors connecting classrooms, and rows of student desks that face the front of the classroom.

However, this conventional image of schools is rapidly changing as modern school architecture embraces designs that enhance students' learning experiences and academic performance. With open floor plans, large windows, and more school gardens, innovative school buildings foster curiosity and engagement, thereby contributing to improved learning outcomes. Let's start a journey to find schools around the world that have adopted these designs.

A Kindergarten with Open Floor Plans

Designed like a giant donut, Fuji Kindergarten in Tokyo, Japan, is a fascinating two-floor structure. It has ample open areas that inspire students to explore and learn through discovery. In fact, the entire school functions as a vast playground without traditional play equipment.

Its top floor is a massive wooden track where children freely move around and play games. The ground-level classrooms are interconnected, and they open onto a central playground. There are no interior walls between study rooms. Instead, they are enclosed by sliding doors that can be easily opened so that students can move freely between neighboring classrooms and the play area. This openness encourages creative thinking and active interaction.

A School Filled with Sunshine

Mesterfjellet School in Larvik, Norway, is designed to maximize the amount of natural light inside. From the outside, this school looks like an architectural wonder, with its large transparent glass panels that let in natural light. Its interior design features a spacious vertical area that allows in a generous amount of daylight and offers views of the playground outside, minimizing the need for artificial lighting. Abundant natural light is widely known to enhance student performance. According to a study by the U.S. Department of Education conducted in 1999, students in classrooms with ample sunlight do twenty percent better in math and twenty-six percent better in reading than those without access to sunlight. For this reason, an increasing number of schools are considering the adoption of large windows and high ceilings as a means of increasing natural light inside their classrooms.

A School That Looks like a Green Village

Singil Middle School in Seoul, Korea, stands out for its distinctive external appearance that gives the feel of a complex of houses. The school has about thirty classrooms, many with triangular roofs. The classrooms are clustered together to create a village-like atmosphere. One of the most remarkable features of the school is its green spaces. These include nineteen courtyards, terraces, and rooftop gardens. It is now widely acknowledged that greenery in school buildings has a restorative influence on mental health. It improves working memory and attention span, and reduces stress and behavioral issues. Singil Middle School's gardens seem to deliver such benefits, providing students with a delightful space for their well-being. They can relax or chat comfortably in the gardens while enjoying the sunlight and breeze.

Students spend most of their time at school, and the design of school environments plays a crucial role in shaping their learning experience. Educational spaces evolve according to the demands of the times. As creative thinking and open-minded exchange become increasingly important, school spaces need to change. As schools embrace progressive architectural practices, we can look forward to a new era of education.