

## AN EVALUATION OF NON-CLASSROOM SPACES OF PRIVATE ELEMENTARY SCHOOLS

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### Abstract

There is little evidence that special education day treatment for students with emotional and behavioral difficulties is effective. This is owing in large part to the work's methodological issues: day treatment placements are not balanced, and children enter and exit as needed. However, research on primary school students suggests that day treatment can help students return to and stay in private schools. In the case of private elementary schools in Kerala, India, this study examines the importance of non-classroom spaces in elementary school buildings where informal interactions among children occur. Students' preferred non-classroom places during their spare time are significant because they promote peer connections, which may contribute to informal learning processes. The space and recreation preferences of elementary school students were explored in their free time by emphasizing non-classroom sections of school buildings. According to the data, children prefer to communicate with their classmates during their intervals regardless of school differences. The research focuses on finding the sustainable factors that might help students physically and mentally. Also, various design elements that contribute towards this are taken into factor.

**Keywords:** Elementary School, School Architecture

**Elementary School:** Defines educational facilities operating from first grade through eighth grade. In this study, the term 'elementary school' is preferred instead of the term 'primary school' which usually describes schools including only the first three or five grades and a kindergarten.

**Learning:** In this study, learning is viewed as "an enduring change in a person's behavior due to experience" (Le Blanc & Bearison, 2004).

**Informal Learning:** Describes unplanned learning experiences anytime and anyplace. Heath (1991) defines "informal learning" as a mode of learning "...that takes place without the specific designation of teacher and student and outside the framework of a curriculum" (p.102).

**Non-Classroom Spaces:** Includes indoor and outdoor spaces of school buildings other than classrooms, laboratories, and other spaces where programmed learning activities occur. Non-classroom areas include locations like entry halls, cafés, hallways, gardens, and fields, to name a few. In non-classroom spaces, social interactions between students

and teachers occur through un-programmed activities.

**Social spaces:** The term "social place" is used in the same way as defined by Lackney (1996): "...places within the school building [which] provide opportunities for meaningful social exchange and interaction" (p.137).

### Problem Statement

Outside-of-classroom interactions amongst students are treated as a secondary concern in the educational research literature. Most educational research has focused solely on formal education contexts, and others claim that formal learning methods in classrooms cannot be regarded as the only medium of learning in schools. The focus on classrooms has concealed the critical importance of non-classroom settings where informal encounters take place. In contrast, there have been fewer attempts to envision the entire school as a learning environment. Other than classrooms, labs, and other venues where organized learning activities take place, school facilities are seen as secondary spaces with no specific function relating to learning. The goal of this study is to investigate how non-classroom

spaces and their characteristics are used in primary 4 schools to enhance or hinder student engagement.

### **Literature Study**

The term "elementary school" refers to educational establishments that serve students in grades one through four. Strong evidence and study have proven that school buildings have an impact on students' health and ability to learn over time. Green schools provide children and staff with a healthier environment. We also know that green schools save money from a practical standpoint. Buildings that are energy efficient help to cut energy expenses, which frees up funds for important academic and student support programs.

### **Traditional Schools**

In traditional educational techniques, the teacher or tutor is the most important figure. The students in the classroom, seated in rows of desks in a tight and hierarchical arrangement, pay attention to the instructor without actively participating. The paradigm of teacher-centered education molds the student's complete personality, and this learning activity takes place entirely within the confines of the classroom. This form of teaching is known as the "factory model" in educational literature, in which the classroom is viewed as an assembly line, with teachers as employees and students as objects to be fashioned (Sanoff, 1994). Similarly, Serafini (2002) argues that "the child was thought of as a piece of raw material to be molded by the educational factory into a quality product" under the educational paradigm of the 1900s. Throughout the twentieth century, the traditional system of curriculum uniformity, large group instruction, and teacher-centered lectures with a blackboard in front of the classroom has survived. The traditional educational system and progressive methodologies take different approaches to the concept of "experience." The experience a child has in a typical classroom may have an impact on his or her desire to learn. Fixed actions and static roles of instructors and learners, in Dewey's (1938) words, frequently generate "mis-educative" encounters, obstructing further personal experience for learning. Dewey's and the progressivist viewpoint's goal is to give kids lifelong respect for nature and a better environment for natural development (Dewey, 1938). The main thesis

here is that the quality of a student's educational experience is critical to their overall growth as interactive learners.

### **Peer Relationships**

In the educational literature, there is a growing corpus of research that highlights the importance of peer connections and social interactions in learning contexts. Wilkinson and Fung (2002) discuss how students are grouped in classes and how this affects learning. There are two benefits to working in cooperative groups in the classroom. It enables teachers to "use peer resources to assist learning" (p.425) and "lower demand on teachers' time" (p.426) (p.426). Wilkinson and Fung's (2002) study found that creating groups for instruction had a significant advantage over teacher-led whole-class instruction. Parr and Townsend (2002) go into detail about peer relationships that take occur in both "configured" and "ambient" settings. They propose a two-layered model that links peer learning contexts (both formal and informal) to learning mechanisms and processes. The study's hypothesis is supported by a review of educational literature that emphasizes the social character of learning and the need to improve interactions and connections among students throughout the school environment, both in and out of the classrooms.

### **Educational Design**

There are studies in the literature that highlight the importance of learning environment design aspects (Bradley, 1996; Earthman & Lemasters, 1998; Shrader-Harvey & Droge, 2002; Tanner, 2000; Yarbrough, 2001). These studies investigate the impact of educational facilities on student performance and conclude by emphasizing the importance of the learning environment. For example, Yarbrough (2001) disputes the notion that educational buildings are merely receptacles for learning. According to Yarbrough (2001), educational facilities should be viewed as tools that influence learning. Understanding how educational facilities affect children and other building occupants is critical for designers and academics. According to Maxwell (1999), "a great deal of attention has been dedicated to the subject of whether the state of the school facilities and other physical environmental qualities affect a student's learning and academic success." "Both the quality of student life and the quality of instruction are directly affected by the quality of the school

environment," Sanoff (1994) says of physical amenities. In general, the classroom is regarded as the most important component of the school facility, hence research on educational techniques and facilities focuses mostly on classroom operations and features. There is also a growing amount of research linking learning to the physical environment of the classroom. Sanoff (1994) highlights the body of evidence on how the classroom environment influences a variety of student attitudes and actions that may lead to greater accomplishment.

### **Studies in School Design**

School design could have a positive or negative impact on learning, or it could promote specific educational approaches through space planning. The current discussion in school design in connection to recent breakthroughs in educational theories will be introduced in this part. It will focus on the assessment and performance of learning environments, such as elementary schools, from a constructivist perspective that stresses peer interaction in the learning process. Contemporary learning theories, such as constructivism, stress a perspective that places the student at the center of attention. Rather than using approaches focused on knowledge transfer, some educators nowadays are more concerned with revealing the child's learning processes and cognitive growth. Theorists such as Piaget and Vygotsky believe that children's interactions with their physical and social environments are the primary source of cognitive development. Both theorists emphasized the importance of society, culture, and institutions in the development of children (Matusov & Hayes, 2000). The breakdown of traditional learning methodologies has an impact on the notion of 'learning environments.' The traditional classroom setting, which is based on traditional educational perspectives, is insufficient for a learning style that emphasizes peer interaction as a key component of learning. Unlike popular belief, which confines learning to the confines of the classroom, the learning environment in this study is described as "anywhere, anyplace, anytime" (Anstrand & Kirkbride, 2002). Learning environments, according to Anstrand and Kirkbride (2002), are defined by "relationships, activities, and time."

### **Facilities affect Learning**

Understanding how school facilities affect children and other building occupants is critical for designers and academics. "A great deal of attention has been dedicated to the topic of whether the state of the school buildings and other physical environmental factors affect a student's learning and academic achievement," writes Maxwell (1999). "Both the quality of student life and the quality of instruction are directly affected by the quality of the school environment," Sanoff (1994) says of physical amenities. In general, the classroom is regarded as the most important component of the school facility, hence research on educational techniques and facilities focuses mostly on classroom operations and features. There is also a growing corpus of research linking learning to the physical environment of the classroom. Sanoff (1994) highlights the body of evidence on how the classroom environment influences a variety of student attitudes and actions that may lead to greater accomplishment. Butin (2000) claims that the classroom design expresses how education is viewed in a learning environment. The expanding collection of interdisciplinary research on school buildings demonstrates relationships between physical conditions and learning environment designs and student academic attainment. Most learning environment studies focus on classroom environments, where students spend most of their time; however, there is less research in this area (Tanner, 2000; Yarbrough, 2001) examining the impact of complete school facilities on student learning. This study contends that school spatial arrangement, which includes both indoor and outdoor no classroom spaces, is just as significant as classroom space, and that the entire school facility should be considered as an active contributor to student learning and development.

### **Education Policy 2020**

NCFSE 2020-21, a new comprehensive National Curricular Framework for School Education, will be devised by the NCERT, founded on the principles of this National Education Policy 2020, the frontline curriculum requires, and discussions with all interested parties, which include State Governments, Ministries, pertaining Central Government Departments, as well as other expert bodies. It will be

available in all local languages. The NCFSE document will be modified every 5-10 years going forward, taking into consideration current curricula. Each subject's curriculum content will be pared down to its bare necessities to allow for more holistic, inquiry-based, discovery-based, communication, and analysis-based learning. Key concepts, ideas, applications, and problem-solving will be the focus of the required content. Learning and teaching will be more participatory; students will be encouraged to ask questions, and classroom sessions will include more enjoyable, innovative, collaborative, and exploratory activities for kids to practice more deeply and experientially. A whole other cross-curricular teaching philosophy is sports integration, which incorporates physical exercise, including indigenous sports, into educational methods to aid in the development of skills such as collaboration, self-direction, self-discipline, teamwork, responsibility, citizenship, and so on. Students will engage in sports-integrated learning in the classroom to enable them to adopt fitness as a lifelong attitude and acquire the relevant life skills as well as the fitness levels envisioned in the Fit India Movement. The importance of incorporating sports into school is generally understood since it promotes holistic development by encouraging physical and psychological well-being while also improving cognitive capacities. While students have a great deal of freedom in choosing their own courses, some subjects, skills, and capacities should be learned by all students for them to become good, successful, innovative, adaptable, and productive human beings in today's fast-paced world. These abilities

include scientific temper and evidence-based thinking; creativity and innovation; visual appeal and art; verbally and in writing communication; food and wellness; physical education, strength and conditioning, wellbeing, and athletics; team collaboration; conflict resolution and logical arguments; vocational exposure and skills; digital literacy, coding, and conceptual understanding; morality reasoning; knowledge and practice and based on the constitution principles; sexual identity sensitivity; Fundamental Duties; citizen skills and values; understanding of India; concern for the environment, which include water and resource sustainability, sanitation and hygiene; and current events and wisdom of crucial challenges confronting local areas, States, the country, and the world.

### **Research Design**

The multiple case study method was used in this research. Following a preliminary inquiry of suitable private elementary schools, three private elementary schools were chosen to study the research questions during the research design phase. Two diagnoses on public elementary schools guided the selection of private schools for this study. In India, public elementary schools follow (1) uniform construction types (similar structures with comparable plan layouts) and (2) standardized curricula. The curriculum in private schools is usually supplemented by extracurricular activities that are not available in public schools owing to space constraints. In private primary schools, teachers have more freedom to modify and update curriculums. As a result, private schools are more acceptable situations for our research.

## Rane Vidyalaya, Tamil Nadu by Shanmugam Associates



Figure 1 Ground Floor Plan - Rane Vidyalaya



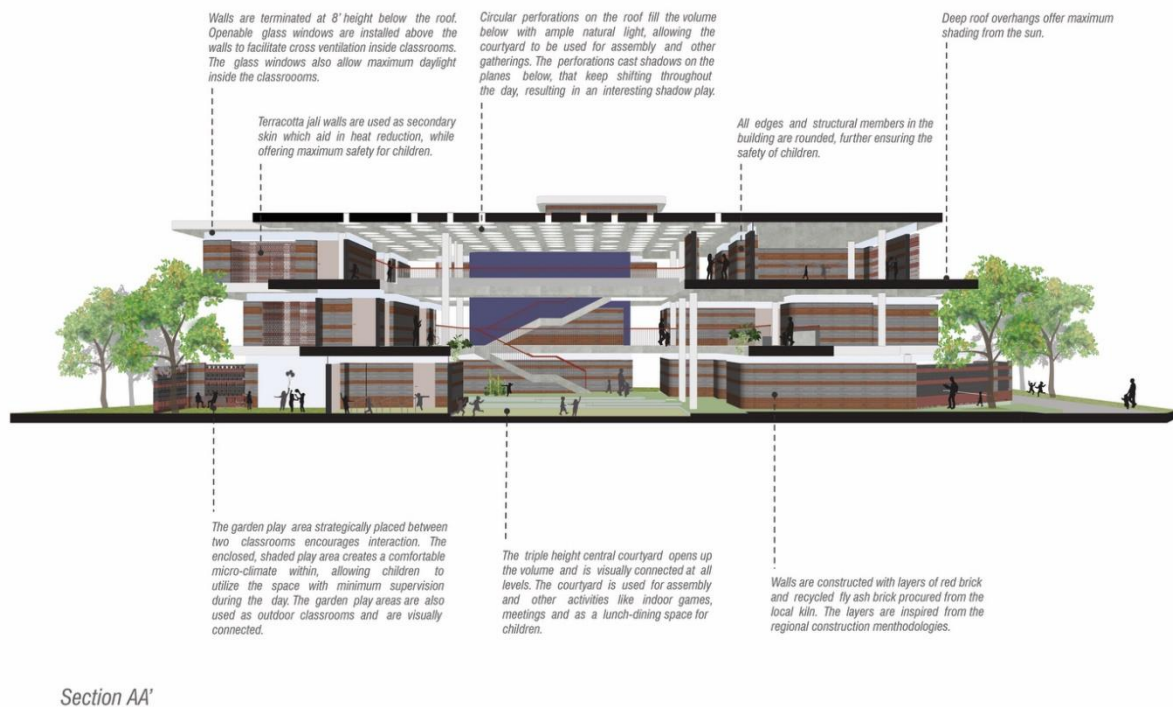
Figure 2 First Floor Plan of Rane Vidyalaya



*Figure 3 Second Floor Plan of Rane Vidyalaya*

To create a positive social effect on the local society, the educational institution is located in the southern Rural society of Theerampalayam, because there are no established schools and residents are interested in agricultural and menial labor tasks. The curriculum was designed as a K12 school and a CSR initiative by the project's customer, Rane Foundation India Pvt Ltd., an industrial corporation. The architects took inspiration from the walls of the sixth-century Thiruvellarai temple near Trichy, Tamil Nadu, as well as the nearly 50-year-old walls of local residences in the area. The concept development was determined by local construction practices, structured pedagogy of the Indian schooling institutions, and a cost of the project of \$20 per square foot. The walls of the sixth-century Thiruvellarai temple, as well as the stacked cross-sections of 50-year-old dwellings in the area, served as a model. Layering was used in the construction of these walls, starting with random distribution rubble and stone at the bottom and progressing to finer solid brickwork, mud, and slate at the

top. Red wire cut bricks from a local kiln alternated with grey fly ash brick reclaimed from commercial cement trash as wall layers. The contained center courtyard is designed with porous light wells in the roof, taking influence from temple mandapams where large meetings took place. This courtyard will be used for break times, school assemblies, exhibition hall, co-curricular education, and informal meetings, among other things. The courtyard is positioned so that it is visibly linked on all levels. All these architectural aspects, which include the use of solid red bricks, baked earth tiles, terracotta jalli, and grey fly ash bricks, help to address the microclimate, provide intriguing light and shade experiences through roof perforations, safe green courtyards, and enough airflow. Simultaneously, they speak the local design language, source materials from the immediate neighborhood, create a joyful teaching atmosphere, and provide comprehensive, cost-effective solutions.

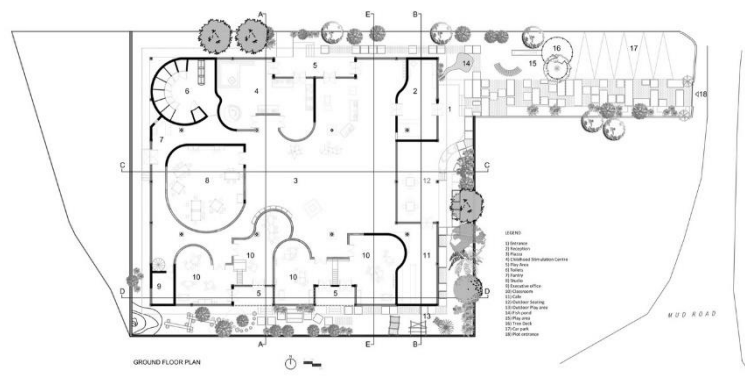


*Figure 4 Section AA' of Rane Vidyalaya explaining different sustainable aspects and how it affects student's academics*

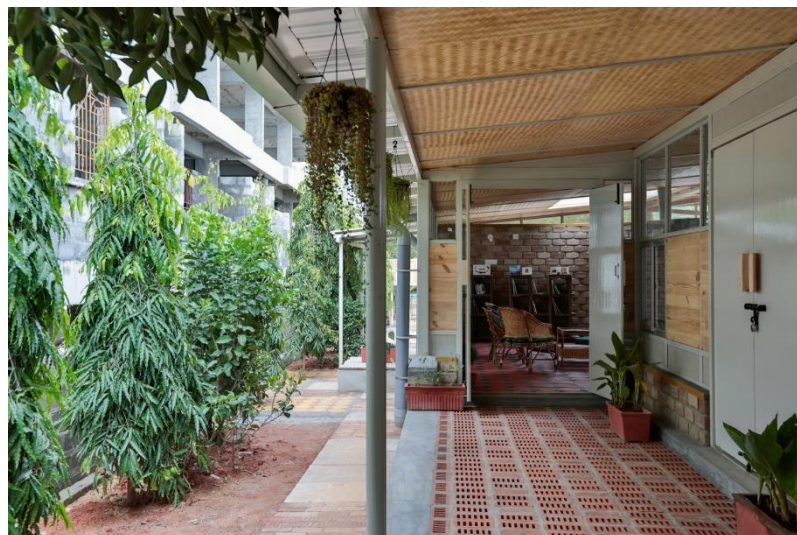
### **The Atelier, Bangalore by Biome Environmental Solutions**

Children in their early years are very well known for being sensitive to their daily environment, experiences, and habits. The Reggio Emilia Approach, based on this, emphasizes the importance of children's 100 languages, in which they demand complete independence to value the unlimited resources of their arms, eyes, and ears, as well as forms, objects, noises, and colors. This pre-school, designed by Bengaluru's Biome Environmental Solutions, is an instance of a sustainable

structure whose design contributes to enhancing a sensory, exploring learning opportunity. The structure, which is located on leased land near a warehouse and a construction activity site, seeks to create an architectural narrative that disables all external noise while focusing attention indoors. The architects steer the design in this direction due to the apparent and invisible experiential restrictions that surround the site. The key to this project's success is its adaptability.



*Figure 5 Ground Floor Plan of The Atelier*

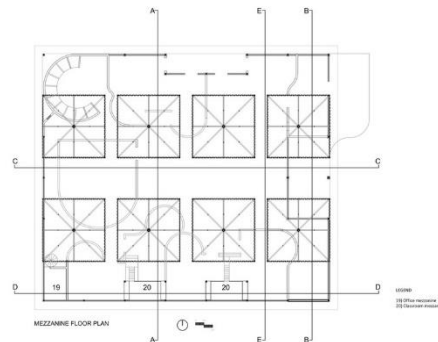


*Figure 6 Mezzanine Floor Plan of The Atelier*

It was completed in 2016 and sits on a 1955 square meter site with access from the northeast. The structure is designed as a single huge volume of 985 square meters, with outside play spaces on the northern, southern, and northeastern sides. The entire school is covered by a light galvanized metal roof that slopes from south to north. Individual spaces

elegantly separate from the whole as soon as you enter the structure. The architects have deftly linked the inside and outside with an unobtrusive permeable exterior and a modest interior. A toned-down earthen interior color scheme allows the eye to permeate the surface, compelling one of the materials' integrities.





*Figure 7 Lush Gardens and corridor of The Atelier*

Classrooms, a studio/atelier, and a childhood activation center are arranged around a centralized plaza that offers easy mobility between them. In furthermore, each classroom has a mini atelier for small group tasks. The different internal learning spaces are bathed in natural light, which pours through a fully sky-lit rooftop. The sloped roof is supported by eight structural columns that resemble a branched tree, like in a typical gurukul environment. As a result, the roof is at a perceptible size, allowing those beneath it to communicate with one other as well as the building. On a southwest mezzanine, the workspaces are nestled away. Additional spaces, such as a café to the southeast and basic utility services to the northwest, are enclosed by the four edges. No structure can be considered an end on its own; it frames, connects, separates and unifies, facilitates, and prevents. From the outside, the school seems like an art workshop or studio facility. The exterior envelope is made up of

perforated metal sheet fixed panels, reflecting glass, and pinewood. A continuous band of perforation encircles the structure below the conventional sill height, allowing for a visual connection to the outside environment while still ensuring the children's safety. Additionally, moveable louvers and sliding windows are strategically placed to allow sufficient daylight and ventilation. The architects have kept the basics of sustainable building discipline throughout the project, ensuring that rainwater is collected from the whole rooftop area and solid waste from the school is discarded in the dual leach pits that effectively come back nutrients back into the soil. When we talk about sustainable development as an occurrence (a state or process that is perceived through the senses rather than intuition or reasoning) in terms of architecture, we often forget that architectural style is made up of the intangible as well as the tangible.



*Figure 8 Fully Sky-lit Rooftop*

### **Axis Pramiti, Bangalore by The Ink Studio**

The school's curricular values consist in deviating from the traditional scholastic education process. To meet the demands of a diverse collection of learners, the design encourages the creative endeavor of 'flexible learning.' The location is a piece of land with a steep slope natural topography and several existing trees, making it a perfect location for delivering education in a green setting. The idea is intended to be safe and close-knit while still being entirely adaptable, resulting in an encouraging and engaging atmosphere. The built-form design process began with an awareness of the area's climatology, and it is meant to make the most of the current local environment. The land faces north and features large free areas on the east side that have been designated as a playground. The design approach is based on creating a sense of

continuity with the environment and carrying these lines into the structure's interiors. The administrative organization is traditional for ease of operation, while the learning spaces and recreational or extracurricular sections enable children to interact with one another. Each learning space is built around an outdoor court, allowing the inside space to be extended into the outdoors for additional activities or to serve more students in the same location at the same time. All of these climatically geared classrooms, which are utilized for the majority of the day, houses these semi-shaded courtyards, resulting in spaces that are comfortable to inhabit throughout the year. The generated airflow through the brick jaali perforations on the walls provides light to all the classroom spaces while also increasing air movement.



Figure 9 Master Plan of Axis Pramiti

The administrative floors and sections for art lessons are on the lower levels, while the upper levels house amenities for extracurricular activities such as research labs, AV studios, and the library. Two levels are related by several courts that can be extended into outdoor learning areas, forming a lush corridor where students can engage in a natural setting. All community zones are seen as outdoor spaces,

which serve as a climatological feature as well as a significant aesthetic feature. The double-height perforations in the corridors also serve as light wells, generating a stack effect that maintains the space well-lit and ventilated.



Figure 10 First Floor Plan of Axis Pramiti

Natural light washes the open ceilings and walls with a beautiful dance of highlights and shadows, giving the space an organic sense. These rooms are further connected by a strong design language that includes exposed Cement finish, Pigmented Walls, and Brick Jaali perforations that literally connect the internal and external spaces. The Kota stones are set out according to the concept in all of the principal rooms, while the general passages have smooth polished IPS flooring. Even inside the premises, care has been made to limit the use of paints, and the colorful walls are all basic pigmented cement finishes blended during plastering. This enabled them to remove one entire layer that is generally a major component in buildings, making it both cost-effective and environmentally friendly. The play of shadows on the facade is enhanced by the pergolas in the break-out zones. The landscaping is designed to create a naturalistic and efficient workplace in which learning may be stretched to the outdoors, allowing education more environmentally conscious by preserving the campus' biodiversity. The landscape's vegetative mixture is intended to cover the entire site further than the building's outline, as well as grow over it (as earth berms) to soften the overall architectural shape. The planting is designed as a three-layered system with ground coverings, shrubs, and trees to help sustain the site's ecology. In other locations, the planting palette focuses on producing greens,

making the overall landscape environment interact with the user all year. Hard paving is restricted to driveways only on the exterior, allowing for maximum groundwater recharge. Due to the sloping nature of the property, surface run-off and overflow from the adjacent site are channeled by swales made of earth and stone pitches, which funnel the water toward another nearby lake. The planting is being done to keep the site's biodiversity. The regions around the playgrounds are buffered with an Akira Miyawaki-style forest with native kinds of trees containing over 350 trees, the art workshop spaces stretch into organic produce - making farming an intrinsic part of the curriculum, and the steeper sloped sections are controlled with sculpted earth in terraces that double as cheering and viewing places for the linear sports area below shading with greenery and flowering trees that extend to form the background of the linear sports area below shading with greenery and flowering trees that continue. As a result, the building acts as a selective ecological filter, boosting the best aspects of the weather patterns to meet heating and ventilation needs while lowering reliance on mechanical ventilation resources, making it an optimal structure.

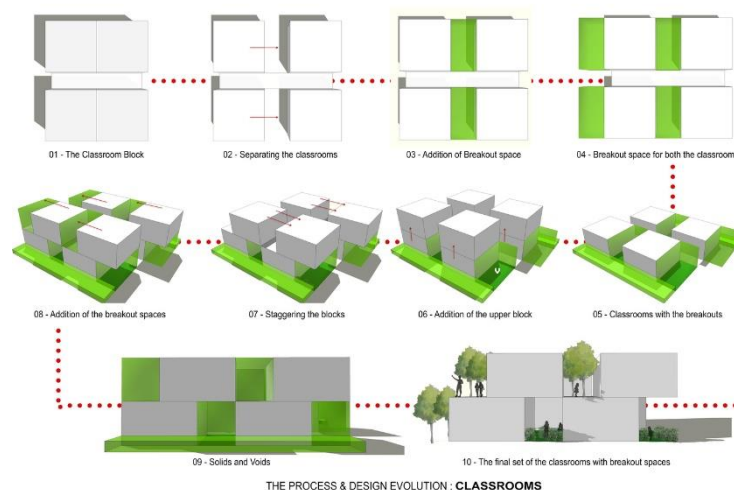


Figure 11 Design Evolution of Classrooms of Axis Pramiti



*Figure 12 Sculpted Earth Terraces of Axis Pramiti*

### **Data Analysis from students of Grade 1 to Grade 7**

Over 50 students from the locality of Kasaragod, Kerala were taken to an assessment to ask them about their favorite places in a school and focused on why non-classroom spaces are important. From ages 5 to 12, students varied their answers based on

their likes and dislikes. Although, the majority of students answered that playground was their favorite spot. This is probably because schools in the district are not familiar with other design perspectives and focus on fields and playgrounds as children's major non-classroom spaces.

Questions
1. I want to stay alone after class hours.
2. I stay inside the classroom during breaks.
3. I go out to the garden during breaks.
4. I spend the break time inside the building.
5. I spend the break time with my classmates.
6. I play with boys during breaks.
7. I play with girls during breaks.
8. I have friends from other classes.
9. I have friends from upper grades.
10. I have friends from lower grades.
11. I talk to my friends from upper grades during breaks.
12. I talk to my friends from lower grades during breaks.
13. I talk to my teachers during breaks.
14. I play with my friends in the garden after school hours.
15. There are places in the garden that I like very much.
16. There are places inside the school building that I like very much.
17. I have close friends from other classrooms whom I met at school.
18. I recognize the faces of most of the students in school.
19. I know most students' names in school.



20. I don't have a hard time finding playmates during breaks.
21. We accept students from other classes to our games
22. Sometimes I ask questions related to subject to students from upper grades
23. I want to have more time to talk to my friends
24. There are places inside the school building where I can stay alone.
25. There are other school places where I can stay alone.
26. There are places inside the school building where I can sit and talk.
27. There are places in the school playground where I can play a variety of games.
28. We cannot play in the school playground because it's too crowded.
29. There are places inside the school building that we play games together

Table 1 Questions asked to primary school students in the region of Kasaragod, Kerala

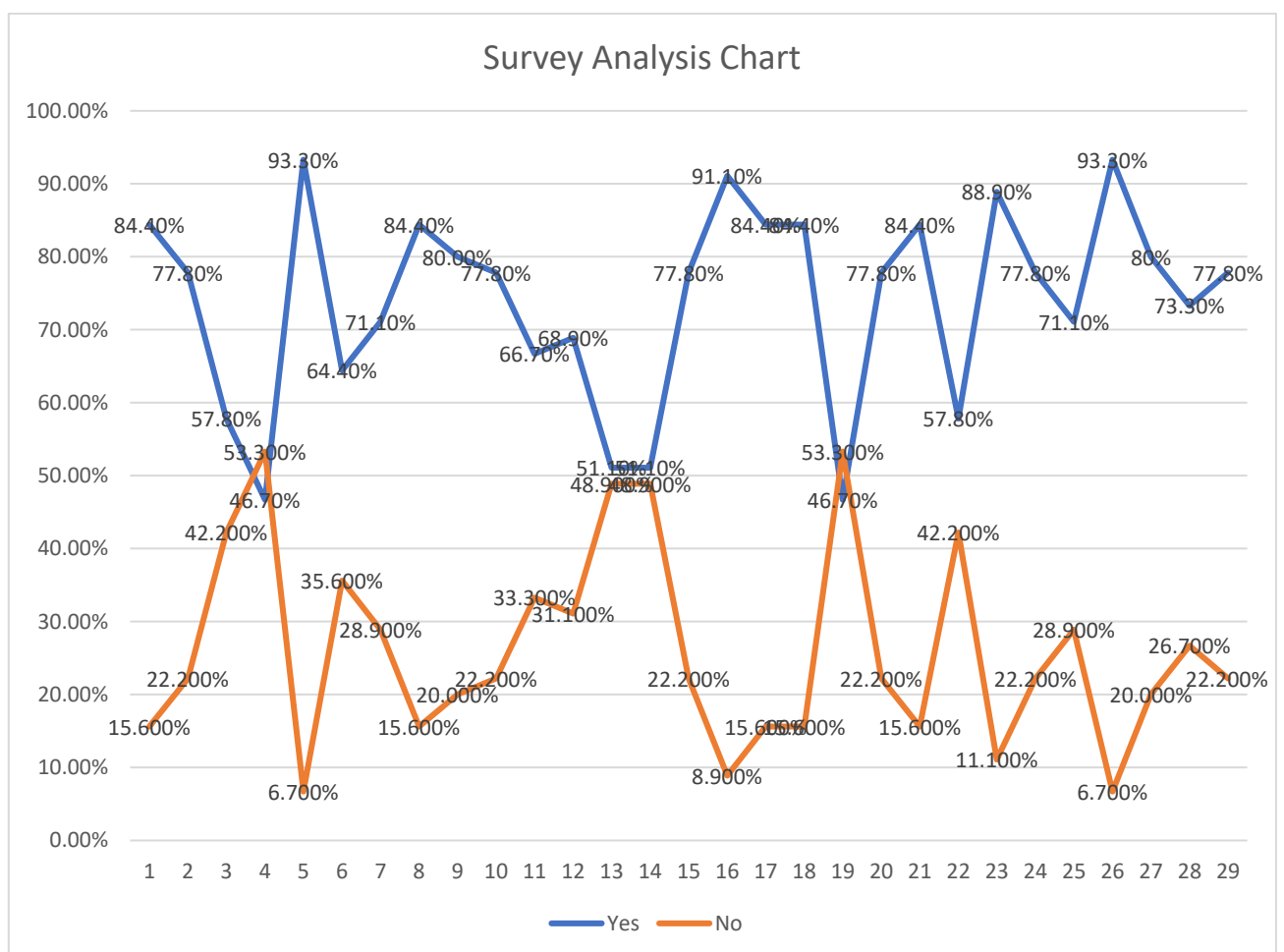


Figure 13 Survey Analysis Chart

From Table 1 and Figure 13 it is quite evident that primary students are finding playgrounds and gardens their favorite places to spend alone time. Deliberately locking down students in the name of safety and rules, stops students from making friends and also decreases their confidence level to talk to seniors. This infuses fear in the age gaps and is

a trend growing up which might be dangerous in the future years. Students with undiagnosed different abilities like autism, ADHD and many more will struggle in these locked spaces and therefore will be stamped as students with fewer marks which destroy them mentally and academically in their early years.

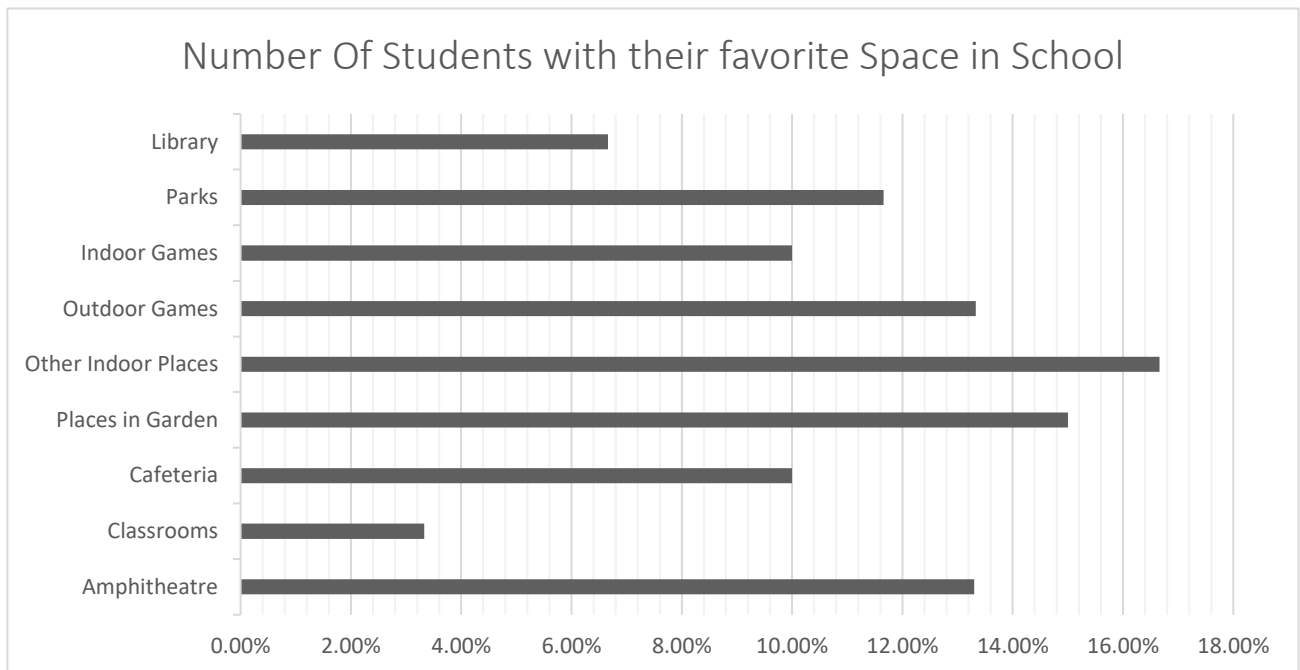


Figure 14

## Conclusion

Most adults will select a method of learning that is tied to the arts, the physique, or the natural world when encouraged to think about something they enjoy doing—a passion or an interest that offers them both pleasure and periods of severe hardship (Upitis, 2003a). In the introduction to this work, I claimed that the most common paradigm for education and learning is transmission and that school architecture contributes to the survival of this model. However, philosophers, psychologists, and educators have explored several other ways of research and education during the last century, moving away from teacher-centered to learner-centered areas of knowledge. It appears self-evident that the types of buildings in which students and their educators' work have an impact on not just what they learn but also how they learn. Public schools have been built largely as a reflection of the model in comparison for education: put a relatively uniform group of kids in a confined area, process kids for a year, ensure they have learned the defined and routine syllabus, move them to the next processing vessel, and repeat until they reach the age at which they are considered ready to leave. This paradigm has been questioned by many people, including architects and educators. (Boss, 2001a; Bullock & Foster-Harrison, 1997; Davis,

2004; Day, 2000, 2001; Fiske, 1995; Gardner, 1999; Lamm, 1986; Nair, 2002; Papert, 1993). The students of primary classes from the researched case studies thoroughly mention and like the areas and spaces that their free periods take into. That includes an amphitheater, playgrounds, and also gardens. Understanding the likability factor and students taken into account, it is necessary to design non-classroom spaces considering their safety of education and future.

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