



DISSERTATION

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EXPERIENTIAL LEARNING THROUGH INTERIOR SPACES

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CHAPTER 01

INTRODUCTION



1.1 Background of the study

Children today will be the actors transforming the future tomorrow. They will develop our society and be innovative, solving problems we could only dream of finding solutions to. School exposes the children to a way of life. A school complex is unified community of individuals of different background, casts and nationality studies together. The quality of a school's physical environment affects the mood of the students, which in turn has a bearing upon the activities of the school and further the interest they take in their studies.



Fig 1.1: Outdoor learning spaces



Fig 1.2: Experiential Learning Classroom

More than sixty years post-independence the education system has not been able to evolve effectively. The system is still focused on scoring high marks in examination that test a limited range of skills, most academic. Hence there is a need to soften the system, experiential learning is a pathway to alternate vision and possibilities.

Experiential learning experiences help to complete students' preparation for their chosen careers which reinforce course content and theory. Students learn through student- rather than instructor-centered experiences by doing, discovering, reflecting and applying. Through these experiences students develop communication skills and self-confidence and gain and strengthen decision-making skills by responding to and solving real world problems and processes. ⁽¹⁾

In order to provide Alternative Education strategies, the school needs to provide variety of pedagogical approach inside the building. ⁽²⁾ The curriculum is designed to provide the child with the time and space to pursue his or her own inclinations and passion in the early ages through theme-based project. ⁽³⁾

1. Source - <https://www.niu.edu/citl/guides/instructional-guide>

2. Source - https://en.wikipedia.org/wiki/Alternative_education

3. Source - <https://www.graduateprogram.org/2020/01/what-is-alternative-education/>

1.2 Criteria of selection

The essential condition to improve learning is an environment, in which the learners find himself, relatively secure and further exploration and intellectual development and to develop overall character. The built environment and spatial design of a school plays an integral part, by making physically possible the alternative education of such school, and new modes of learning through new pedagogical approaches which helps to develop the overall character of the students.

1.3 Hypothesis

Interior built environment impacts the overall learning experience of academic spaces.

1.4 Aim

To study how the teaching system in India and experiential learning for the students is affected by the interior built environment of academic block.

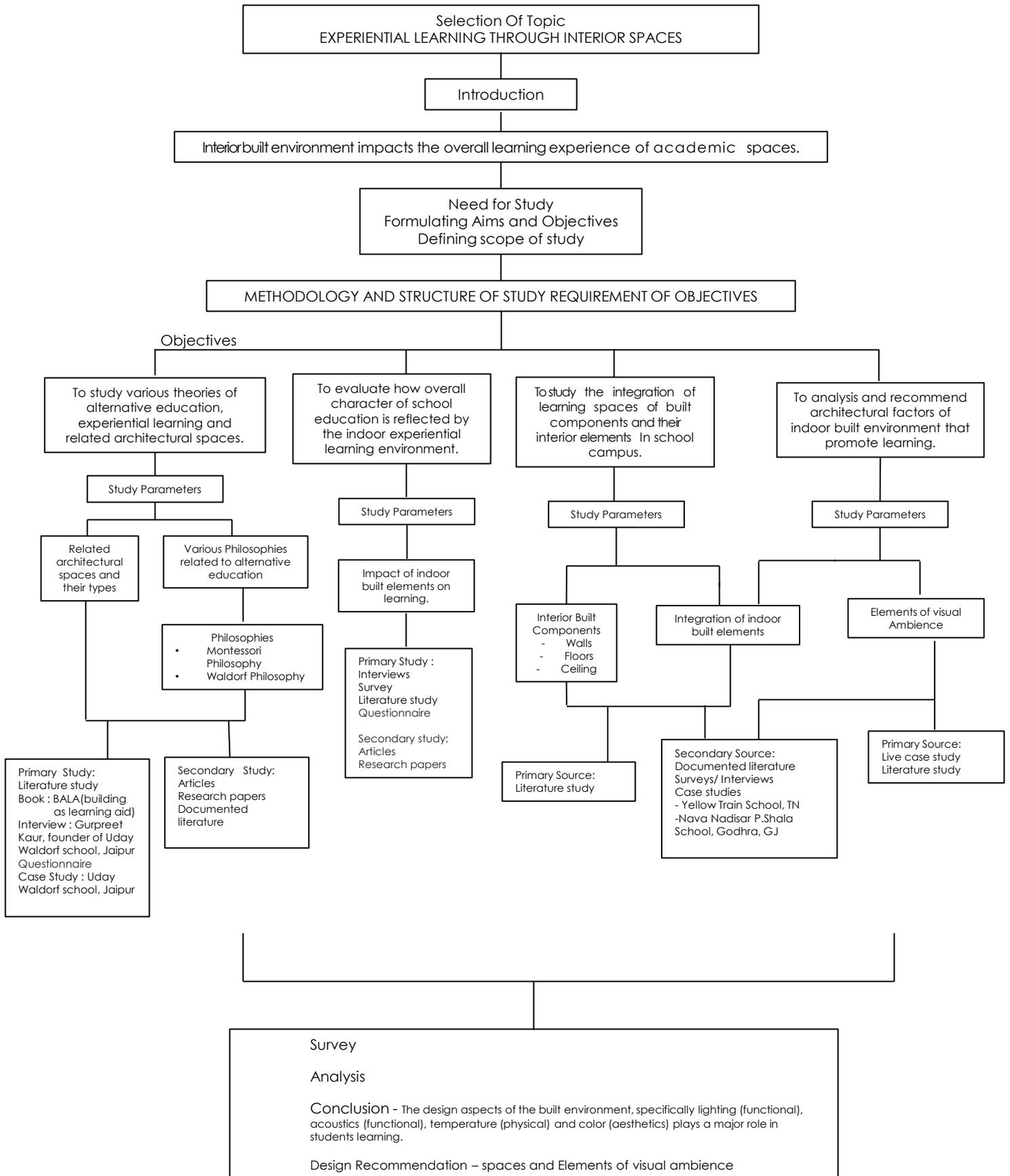
1.5 Objectives

1. To study the various theories of alternative education, experiential learning and related architectural spaces.
2. To evaluate how overall character of school education is reflected by the indoor experiential learning environment.
3. To study the integration of learning spaces of built components and their interior elements in school campus.
4. To analyse and recommend the architectural factors of indoor built environment that promote learning.

1.6 Scope

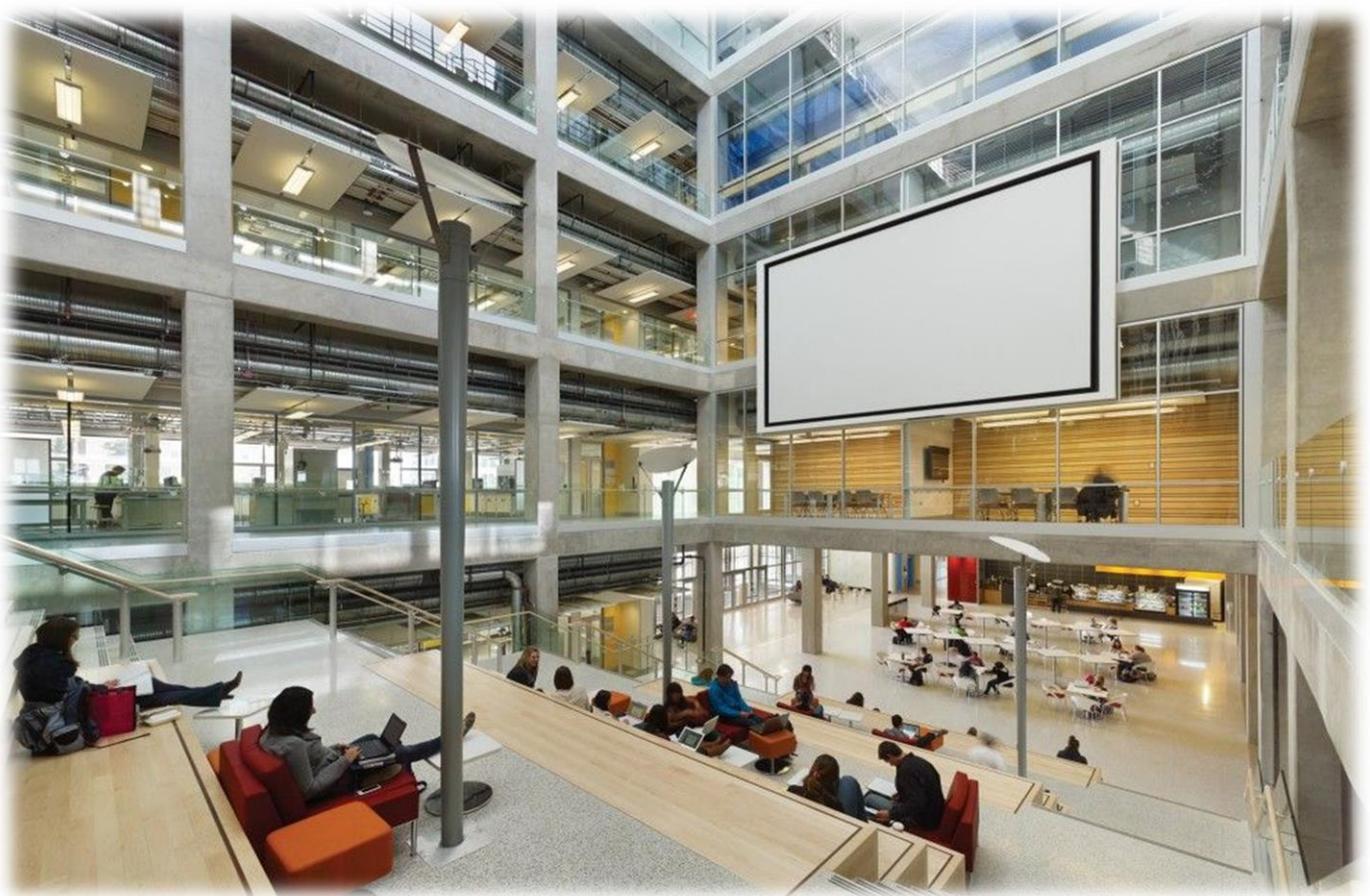
To explore the application of the philosophies, pedagogies and built environment of experiential learning education utilizing the hybridized curriculum in the school campus.

1.7 Methodology



CHAPTER 02

**EXPERIENTIAL LEARNING,
ALTERNATIVE EDUCATION
AND RELATED
ARCHITECTURAL SPACES**



2.1 INTRODUCTION TO EXPERIENTIAL LEARNING AND ALTERNATIVE EDUCATION

EXPERIENTIAL LEARNING

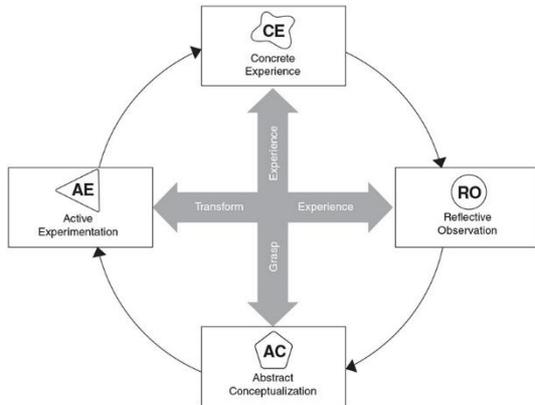


Fig 3: Experiential learning Cycle

Experiential learning is a philosophy and methodology in which educators purposefully engage with students in direct experience and focused reflection in order to increase knowledge, develop skills, and clarify values.

Experiential learning is an engaged learning process whereby students “learn by doing” and by reflecting on the experience.

Experiential learning activities can include, but are not limited to, hands-on laboratory experiments, internships, practicums, field exercises, study abroad, undergraduate research and studio performances.⁽⁴⁾

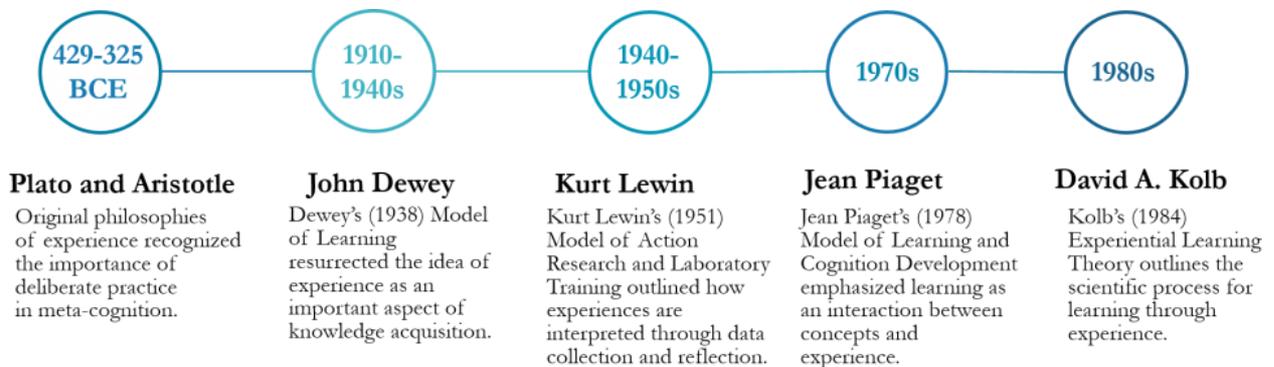


Fig 4: Early Experiential Learning Philosophies

THE EXPERIENTIAL LEARNING CYCLE

David Kolb's work on the experiential learning cycle is among the most influential approaches to learning. The experiential learning cycle is a four-step learning process that is applied multiple times in every interaction and experience: Experience – Reflect – Think – Act.⁽⁵⁾



Fig 5: Kolb's Cycle

4. Source- <https://www.niu.edu/citl/resources/guides/instructional-guide/experiential-learning>

THE EXPERIENTIAL LEARNING STYLES

The way in which we navigate the learning cycle varies from person to person. Due to personality, educational specialization, professional career, culture, and adaptive competencies, people develop preferences for how they use the learning cycle. The [Kolb Experiential Learning Profile](#) (KELP) describes nine different ways of navigating the learning cycle by learning styles. We lead with our preferred style and default to it when we are on automatic pilot or under stress.

Learning styles also provide a framework for understanding others whose approaches are different from yours. Being aware of your own learning style tendencies and knowing the preferred learning styles of those with whom you interact help foster productive interactions, teamwork and relationships. ⁽⁵⁾



Experiencing: When using the Experiencing style, you are engaged, connected, warm and intuitive.



Imagining: When using the Imagining style, you are caring, trusting, empathetic and creative.



Reflecting: When using the Reflecting style, you are patient, careful and reserved, allowing others to take center stage.



Analyzing: When using the Analyzing style, you are structured, methodical and precise. You plan ahead to minimize mistakes and use critical thinking to understand situations.



Thinking: When using the Thinking style, you are skeptical, structured, linear and controlled.



Deciding: When using the Deciding style, you are realistic, accountable and direct.



Acting: When using the Acting style, you are on time, assertive, achievement oriented and courageous



Initiating: When using the Initiating style, you are outgoing, spontaneous and able to shrug off losses or “failure” in favor of trying again.



Balancing: When using the Balancing style, you identify blind spots in a situation and bridge differences between people. ⁽⁵⁾

5. Source -<https://experientiallearninginstitute.org/resources/what-is-experiential-learning/>

ALTERNATIVE EDUCATION

Alternative education is a blanket term including a variety of pedagogical approaches that are different from the conventional system of education based on standardized curriculum and tests. A common principle behind these approaches is integrated learning, i.e. the aim to between to develop the whole human being, rather than just one dimension. ⁽⁶⁾

2.2 NEED OF ALTERNATIVE EDUCATION

More than sixty years post independence the education system has not been able to evolve effectively. The system is still focused on high marks in examinations that test a limited range of skills, mostly academic. The fact that each child is different is ignored in a majority of schools, where conformity is preferred over diversity. Children are railroaded into a testing culture that squeezes out the joy of learning and turns schools into factories“. ⁽⁶⁾

2.3 PHILOSOPHIES RELATED TO ALTERNATIVE EDUCATION

2.3.1 Montessori Philosophy

What Is Montessori?

Montessori is an education philosophy and practice that fosters rigorous, self-motivated growth for children and adolescents in all areas of their development, with a goal of nurturing each child's natural desire for knowledge, understanding, and respect.

Why Choose Montessori?

Learn what sets Montessori apart from traditional education. Discover how it develops students who are capable, accountable, and knowledgeable, with the strong sense of self they will need to thrive in the real world. ⁽⁷⁾



Fig 6: Inside Montessori Classroom

6. Source - <https://issuu.com/>

7. Source - <https://amshq.org/About-Montessori/What-Is-Montessori>

Benefits of Montessori Education

Montessori environment has many benefits. Known for individually paced learning and fostering independence, the Montessori Method also encourages empathy, a passion for social justice, and a joy in lifelong learning.

Given the freedom and support to question, to probe deeply, and to make connections, Montessori students become confident, enthusiastic, self-directed learners. They are able to think critically, work collaboratively, and act boldly—a skill set for the 21st century. ⁽⁷⁾

How does this happen?

- Each child is valued as a unique individual.
- Beginning at an early age, Montessori nurtures order, concentration, and independence.
- Students are part of a close, caring community.
- Montessori students enjoy freedom within limits.
- Students are supported in becoming active seekers of knowledge.
- Self-correction and self-assessment are an integral part of the Montessori classroom approach..
- Montessori supports social-emotional skills. ⁽⁷⁾

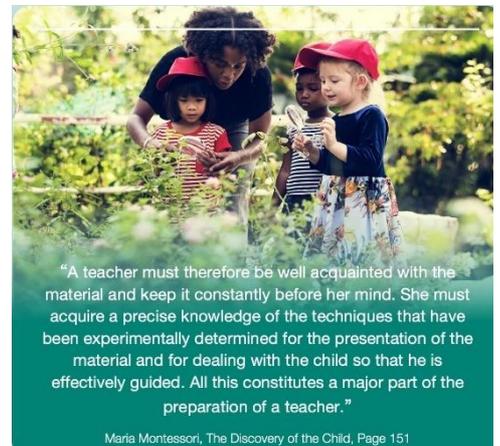


Fig 7 Montessori Quote

5 Core Components of Montessori Education



Fig 8 Core Components of Montessori Education

7. Source - <https://amshq.org/About-Montessori/What-Is-Montessori>

2.3.2 Waldorf Philosophy

Waldorf education is independent and inclusive. It upholds the principles of freedom in education and engages independent administration locally, continentally and internationally. It is regionally appropriate education with hundreds of schools worldwide today. Waldorf education is truly *Inspired Learning*.

"The need for imagination, a sense of truth and a feeling of responsibility – these are the three forces which are the very nerve of education."

Rudolf Steiner

Fig 9 Rudolf Quote

Waldorf schools offer a developmentally appropriate, experiential, and academically rigorous approach to education. They integrate the arts in all academic disciplines for children from preschool through twelfth grade to enhance and enrich learning. Waldorf education aims to inspire life-long learning in all students and to enable them to fully develop their unique capacities. (8)

Interview With Gurpreet Kaur (Founder of Uday Waldorf School, Jaipur)

Ques 01. What is Waldorf Education System ?

- Waldorf education system is a system that is coming from Germany. There are around 2000 schools worldwide and only one school is there in Jaipur. The core system is to understand each and every child. Education based on Head, Heart and Hand system. And also working on their behavior pattern and to develop Them holistically.

Ques 02. What is Experiential Learning?

- Process of learning through their own experience.

Ques 03. School Curriculum

- Early subjects – English, Hindi and Math's.
- For grade 4 – zoology, history, Geography with English, Hindi and Math's.
- For grade 5 – botony, astronomy with zoology, history, Geography with English, Hindi and Math's.
- Subjects come up with children's progress. (9)



Fig 10 Interview

8. Source - Live Interview at Uday Waldorf School

9. Source – Interview with Gurpreet Kaur (Founder of Uday Waldorf School, Jaipur)

Ques 04. What are the benefits of Waldorf Education System ?

- Waldorf education system is a child centered education system. There are never compete to other students till the time they are ready to face the challenges. Exploring themselves and respect is given to childhood. Here children learn for the joy of learning. Children here are self driven learners and they enjoy learning.

Ques 05. Which curriculum does Waldorf School follows?

- Waldorf Curriculum

Ques 06. Difference between Traditional School and Waldorf School.

- At Waldorf freedom of learning is given to the students
- No fear of authority
- Children Teachers training is given
- Works on inner self
- Social Emotional well-being of children



Fig 11 Display Work

Ques 07. Number of students and children to teacher ratio?

- 75 students (25 children in one section)
- Teacher to child ratio – 1:7 (11 Teachers) ⁽⁹⁾



Fig 12 Individual Pod

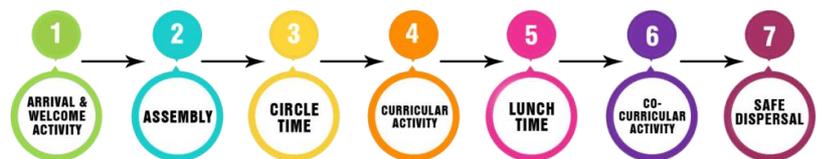


Fig 13 A Day At Uday's Kindergarten



Waldorf Philosophy



Traditional Classroom

Fig 14 Teaching

2.3.3. Case Study : **Uday Waldorf Inspired School, Jaipur**

- Location : A-85 1, Jai Jawan Colony, Milap Nagar, Jaipur, Rajasthan
- Architect : Ar. Anoop Bartaria
Ar. Gagan Sharma
- Construction completed : Nov. 2014

Spaces :

1. Playroom (Multi- purpose space)
2. Activity Room
3. Academic Room
4. Dining Room
5. Kitchen
6. Resource Room
7. Store Room
8. Library
9. Play Room
10. Semi- Open Spaces
11. Staff Room
12. Play Ground



Fig.15 School Building



Fig. 16 Dining Room



Fig. 17 Academic room

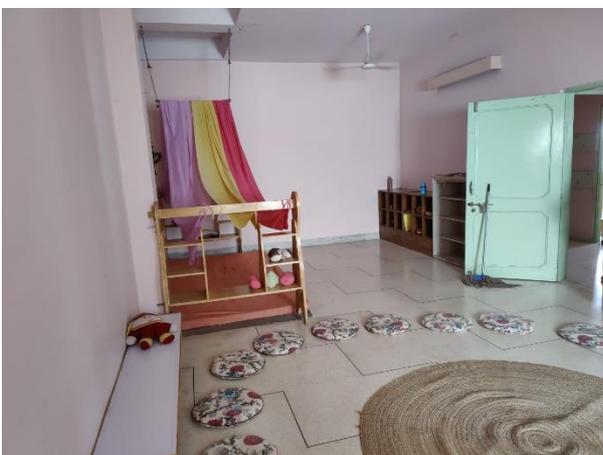


Fig.18 Activity room



Fig. 19 Storage Space



Fig .20 Library For Teachers



Fig .21 Academic Room



Fig 22 . Classroom



Fig 23. Individual Pod



Fig.24 Outdoor Play Area



Fig.25 Play Area on semi covered terrace

2.4 ARCHITECTURAL SPACES RELATED TO LEARNING

Bala(Building as Learning Aid) – Literature Study

The book tells about children and teachers to be central while planning and implementing education programme at elementary school level.

Depending of the area of work, they can plan, develop and use the physical environment of school as learning resource.

The educational approach is child centered and fosters a love of learning based on intrinsic motivation. The above is all about the environment for encouraging growth and self initiated study.

Natural behaviour of children in school space

Children are great inventors and discoveries of spaces what do children do with the spaces that they have or Discover in school?

They Run, play, jump talk among themselves, hide and do a score of other things that can be termed as Natural behavior.⁽¹⁰⁾



Playing



Sitting in Groups



Extra Curricular Activities



Laboratories



Playing in Ground



Lunch



Working Alone



Structured Class



Sports

Fig 26 Activities Of Children in School

10. Source- Book : BALA(Building as learning Aid)

About this book

This book attempts to inspire you -the readers with ideas that can be integrated into the physical spaces of a child so that the entire built environment becomes a learning aid. Simplicity and sensitivity to the child and the teacher, playfulness and cost effectiveness characterize these ideas.

Bāla design ideas can transform even the existing schools with the help of imaginative teachers and architects, supportive engineers and administration. This is possible with interventions in the physical, cognitive, institutional and social domains of an educational system, preferably, simultaneously. This book focuses on the physical domain.⁽¹⁰⁾



Fig 27. Learning through Walls



Govt.p.s. barkheda, Umrain



Govt u.p.s. Kali pahadi, Umrain

Fig 28 . Learning through outdoor spaces

How were the design ideas developed?

An in-depth understanding of the following led to the origin and development of the design ideas:

- Natural behaviour patterns of children in the built environment.
- Aspirations of children about the place they want to learn in.
- The need for facilitating all-round growth and development of each child as well as the specific needs of children at different developmental stage. Issues of inclusive education for differently able children.
- Problem areas in teaching and learning as identified by teachers.
- Issues of repair, environment enhancement and construction of the school building components.
- Children's socio-economic-cultural-educational background at home.⁽¹⁰⁾

10. Source- Book : BALA(Building as learning Aid)

Indoor and enclosed Spaces

Some representative space in a school are mentioned here. These spaces attempt to create meaningful and joyous teaching - learning situations - indoors or outdoors, structured or unstructured, formal or informal. Each of the spaces can have ideas from different subject areas grouped to respond to child behavior and activity patterns.

1. Classroom spaces
2. Circulation Corridor spaces
3. Corridor as Space for exploration and Discovery
4. Laboratories.⁽¹⁰⁾



Fig 29 Classroom Spaces



Fig 31 Corridor as Space for exploration



Fig 30 labs



Fig 32 Circulation Spaces

10. Source- Book : BALA(Building as learning Aid)

Semi-open and Outdoor Spaces

The purpose of an outdoor environment is to encourage children to be active, to give them a break from being indoors, and to support learning in a variety of environments. Similar to an indoor learning environment, your outdoor space should be safe and organized and include planned activities as well as free time. There are many benefits to children and youth playing outside. They can release energy, use loud voices, play vigorously, and engage in messy projects outdoors. In addition, children can explore the plants and animals in their local ecosystem.

1. Amphitheatre
2. Activity Space
3. Space for Outdoor Natural Environment
4. Space for outdoor play .⁽¹⁰⁾



Fig .33 Amphitheatre



Fig .34 Space for Outdoor Natural Environment



Fig 35 . Activity Space



Fig 36 . Outdoor Play Area

10. Source- Book : BALA(Building as learning Aid)

2.5 TYPES OF LEARNING SPACES

1. Classroom Meeting Space

The classroom meeting area is the learning space where we join together as a class. In this space, we build relationships and create a community of learners.

In addition, it's where we are teaching whole-group lessons, and sharing books with our students during read-aloud time.



Fig . Classroom Meeting Space

2. Classroom Library Space

It's a classroom learning space where students are selecting books to read, finding a comfy spot, and getting lost in their books as they become joyful readers.



Fig . Classroom Library Space

3. Writing Center Space

The writing center is a welcoming space for supporting the important writing your students are doing. This is the place where students find the writing tools they need for drafting and publishing writing pieces.



Fig . Writing Center Space

4. Creation space

Setting up a classroom learning space for creation means that students need large table spaces or other large areas and a place to keep or store their projects until they work on them again.



Fig . Creation space

TYPES OF LEARNING SPACES

5. Collaboration Space

Providing the time and space for students to collaborate, solve problems, and work with peers is really important. In this classroom learning space, you might see small groups working with the teacher or students collaborating in groups and partnerships on topics and projects



Fig . Collaboration Space

6. Individual pod

The individual pod, aka the calm-down spot, is a classroom space where students go when they experience moods of sadness, anger, frustration, annoyance, and more. Supporting the social-emotional needs of our students helps our students succeed



Fig. Individual Pod

7. Space For Tools

Classrooms need space and storage for housing math tools, and in the elementary classroom, learners are using all kinds of tools. Additionally, we want our young mathematicians to gather these tools with independence. Primary learners use number lines, dice, linking cubes, counters, and Base-Ten blocks. Older learners learn with rulers, calculators, 3-D Shapes, and more.



Fig . Space For Tools

3.1. Impact of INDOOR BUILT ELEMENTS on Students

According to anthroposophical philosophy, human development can be subdivided into stages occurring every seven years. These stages are described as such:

•**0 to 7 years:** Need for development through freedom of movement and exploration of the environment. This seven-year period is considered one of the most important . The Waldorf classrooms that house the activities of the youngest children seek to reproduce the atmosphere of a home, functioning as an extension of it. In these spaces, different age groups relate to each other like siblings, subconsciously educating one other.

•**7 to 14 years:** Need for development through emotions, creativity, and feelings. Arts and crafts contribute greatly to this increased search for sensitivity.

•**14 to 21 years:** The individual is mature and ready to use their mental and moral abilities. At this stage, they are theoretically capable of developing more abstract and complex thoughts.

Introduced by Rudolf Steiner, Waldorf pedagogy draws on the principles of [anthroposophical philosophy](#). One of the theory's foundational characteristics is its holistic approach to the human being: feelings, imagination, spirit, and intellect are considered unique to every individual, and thoughts, feelings, and actions are understood to always be linked.

Like the Waldorf pedagogy, which follows the principles of anthroposophy, the architecture of the buildings that house this type of school must also follow its philosophy. Therefore, anthroposophical architects propose some parameters that can be identified in most Waldorf schools. Its spaces must be capable of delivering a totalizing experience of education, and the interior settings must be adequate for each activity carried out (craft classes, sculpture, carpentry, and many others). They must also be consistent with the age and development cycle of the children who occupy them.

3.2. Elements of Visual Ambience That Promote Experiential Learning

- **Comfort**

For the first seven years, it is considered essential that the child is at home, in direct contact with their family and domestic activities. For this reason, classrooms dedicated to this age group seek to offer a homey, welcoming, safe, and stimulating environment. The use of designated corners for certain activities within larger environments is very common. For example, a large classroom includes a corner to prepare and consume meals, or areas to rest and play. The idea behind this spatial organization is that the child will feel safer occupying these smaller spaces. The classroom, with its homey atmosphere, becomes a metaphor for the home and in turn, the school represents the external community.



- **Interior Landscaping**

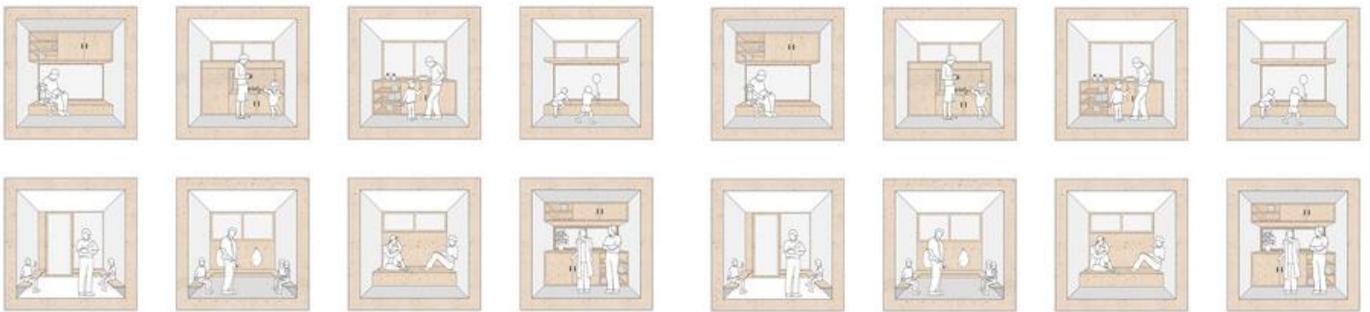
The connection (direct or indirect) with nature is considered highly beneficial for the psycho-emotional health of children and is often presented as the material for different school activities, incorporating pine cones, seeds, branches, shells, stones, roots, and other natural elements.



There's even a recommendation against the use of plastic objects and traditional toys. Outdoor spaces seek to include areas of earth or sand, as well as a large amount of vegetation (planted directly in the ground or in pots).

- **Flexibility**

As the activities developed by the Waldorf philosophy are very dynamic, it is essential that the composition of the interiors be very flexible, creating a living and active environment. There exist several common solutions to this necessity. Tables and chairs should be light so they can be easily removed. Uncovered courtyards can function as theatrical settings. Covered multi-sport courts can be used to celebrate the various festivities present in the Waldorf curriculum.



- **Natural Lighting**

The Waldorf pedagogy is a philosophy that values all the benefits that contact with nature can offer human beings. For this reason, natural lighting is also highly valued in its schools. Depending on the activities that will be carried out in its different spaces, however, it is possible to vary the entry of natural light, producing infinite possibilities for interior atmospheres.



- **Rhythmic Elements**

Music is also an art very present in a Waldorf environment. It appears in architecture through the repetition of elements such as frames or pillars

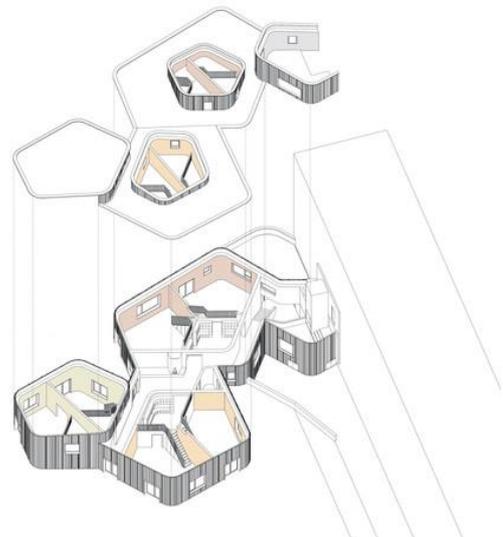


- **Color**

The Waldorf pedagogy places heavy importance on the use of colors. A specific palette is recommended for each age group according to the level of maturity of the children. The younger children's classrooms use primarily warm and light colors (especially reddish and orange) and are related to active and festive activities, more present in the daily life of this age group. Cold tones (bluish and greenish) are recommended for mid-aged students, associated with activities that require a higher level of concentration and focus.

- **Geometric Perception**

Steiner defended the use of divergent walls because, in his opinion, they are able to democratize the appearance of the user in the environment (convergent walls tend to direct), freeing their movements and their focus of attention. Therefore, many schools choose a trapezoidal shape for its divergent walls.



3.3 Impact of Experiential Learning on Students through Interior Built Components

Scientists and psychologists have developed a number of different models to understand the different ways that people learn best. One popular theory, the VARK model, identifies four primary types of learning methods:

- Visual
- Auditory
- Reading/Writing, and
- Kinesthetic

A learning aid is **something intended to enhance learning and retention by the learner**. They may include, but are not limited to: written materials, visualizations, charts, diagrams, processes, strategies, or any other appropriate item.

1. Wall

Wall with acoustic panels would help create a better learning environment in schools for auditory learning.

Writings and illustrations on the wall surface adds more focus for reading the information written on it and hence aids learning. Also wall surfaces are commonly

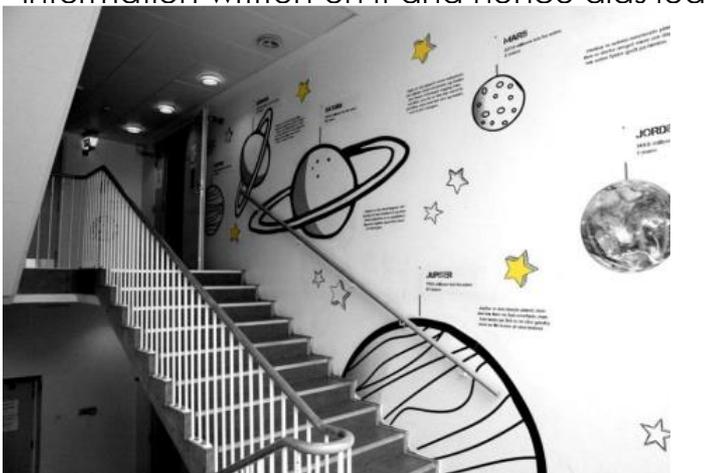


Fig Information of planets on wall surface



Fig World map on Wall Surface

2. Ceiling

Similarly ceiling treated with acoustic panels would help create a better learning environment in schools for auditory learning.



Fig Lecture Room with Acoustic Treatment on Ceiling

3. Floor

Floor Choosing the right flooring material such as carpet flooring would help create better acoustics for auditory learning.

While walking or running, most of the focus of the child is on the floor, hence writing illustrations and formulas on the floor would capture all the attention of the child and would help in aiding reading. o Also as movement is involved in learning through floor, the mind of the child is more active and hence learning is enhanced



Fig Golden Ratio Curve on the Floor



Fig Mapping on the Floor

3.3.1. Case Study : Nava Nadisar P.Shala School, Godhra, GJ



Door Angles

Children experience angles in familiar elements such as the doors in the school. They are used to introduce the concept of angles and are enhanced through markings on the floor.



Fig Door Angle Projector

Stairways

The stairways in the school promote the concept of counting, addition and subtraction. While younger children learn counting in a familiar, fun environment, the older children learn incremental and subtractive concepts.



Fig Mathematical Table on Staircase

3.3.2. Case Study : Julia P. Bryant Elementary School

LOCATION: Statesboro - Georgia, USA

DESIGNER/ARCHITECT: Rucker Floor Service, Swansea, SC

FLOORING: Customized Vinyl Composition Tile

Floor Design

□ Using over 34 colors, the designers for this forward-thinking school created a vibrant world map and large-format images of planets, constellations, seashells and tall grasses on classroom floors and in hallways.



Fig World Map on the Floor

Students can walk in outer space, go on safari and explore the deep ocean just by wandering through their school.

Not only do these colourful images make for fun, aesthetically pleasing floor designs, they're also used as a teaching tool. □ "Hello and good bye" is in the entryway in four languages



Fig Jungle Safari Pattern on the Floor

- The solar system is set into the floor of the first corridor with the names of each planet and their distance from the sun worked into the astronomy design.
- The second corridor has an oceanography theme, with sand dollars, sea shells, coral and star fish.
- The third corridor focuses on zoology and is made to look like a jungle safari with tracks of elephants, giraffes, crocodiles and elands.
- The bones of a T-rex make up an archaeological dig in the floor of the fourth corridor.
- The bones of a T-rex make up an archaeological dig in the floor of the fourth corridor.



Fig Jupiter Figure on the Floor



Fig Jurassic Figure on the Floor

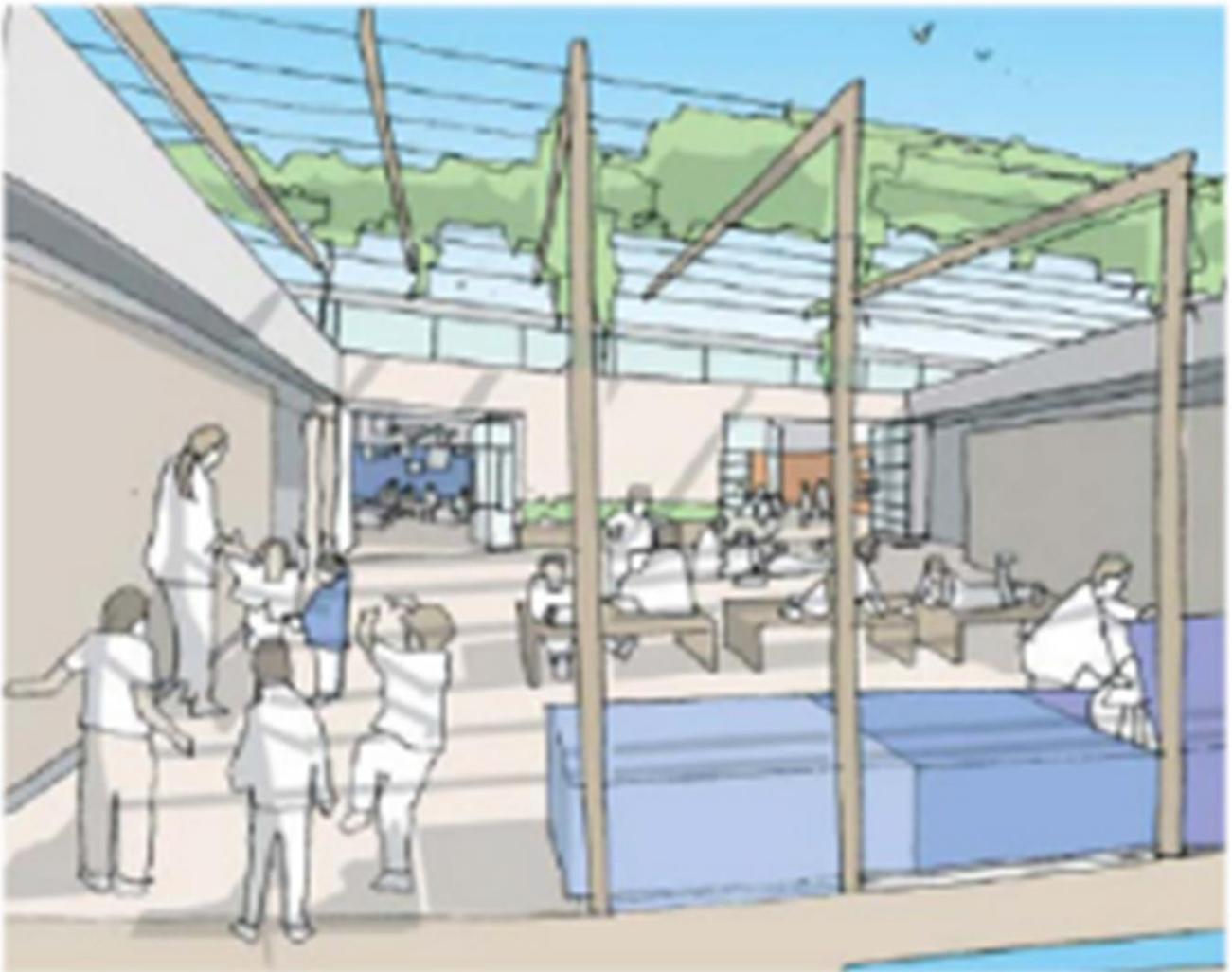
Learning boards, window art, patron artefact donations and other visuals were added to the décor to compliment the creative flooring designs and bring the design to life; turning an ordinary school campus into a science museum. This project provides students with the opportunity to achieve a worldly perspective, develop a thirst for knowledge and a love of learning

Inference

To be like a science museum to stimulate students' interest in science and learning. Each corridor presents a different theme and acts as a way to bring the field trip to the students

Learning of students about the real world with their feet.

CHAPTER 04
**INTEGRATION OF LEARNING SPACES OF
BUILT COMPONENTS AND THEIR INTERIOR
ELEMENTS IN SCHOOL CAMPUS.**



4.1. Case Study : Yellow Train School

ARCHITECTS: Biome Environmental Solutions

LOCATION: Coimbatore, Tamil Nadu, India

AREA: 1334.0 sqm

PROJECT YEAR: 2013



Fig School Building

The brief was to follow the intent of Waldorf system of Education but be within the bye laws laid by the Tamil Nadu Board of education. Waldorf system stresses hugely on child centric education wherein more impetus is given on mental, spiritual, physical and psychological than only the academics. So while conventional classrooms are provided there is ample space and details added to make the kindergarten and primary wing, which is the present first phase, to accommodate and encourage activity based group learning. An individual classroom has three spaces- a space where teacher leads with the blackboard and seating, circled areas where group activity occurs with walls provided with facility to hang works of children and nooks which allow for individual contemplation.



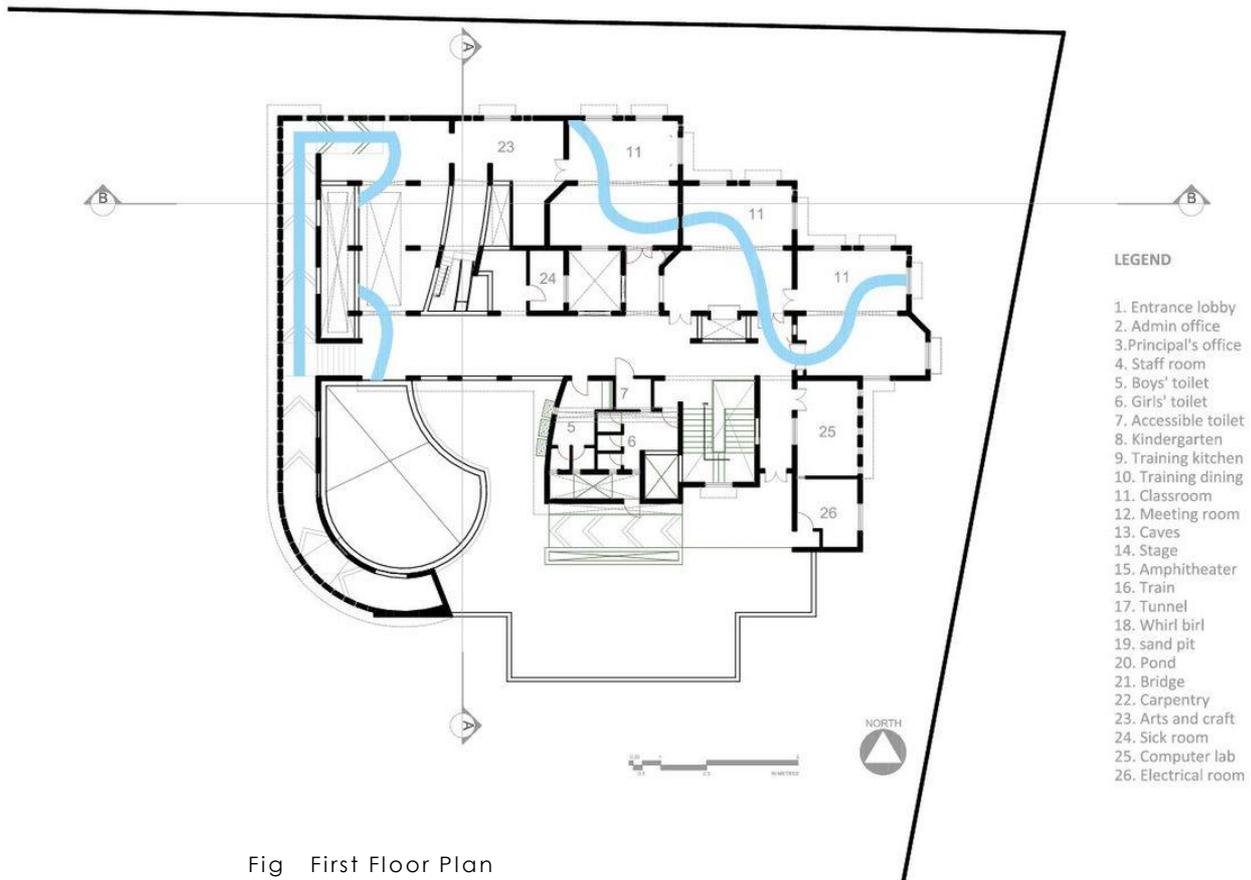


Fig First Floor Plan

Floor Design

The pattern on the floor depicts a river of knowledge running through the school like a life force connecting all the spaces together.



Fig Classroom Floor

c

- The floor design also creates an essence of the story and put in our energies to create a space which would allow for independent thinking, for rumination and for play, all at proximity to the classrooms but still under the care of the teachers.



Fig Corridor Floor

- The indoor play area is marked with snakes & ladder pattern on the floor. The students themselves become the game object and play by moving around on the floor. This makes them feel more of self involvement in the game and makes it more fun.



Fig Indoor Play area

- The Flooring has been done with Epoxy paint which is initially in a liquid state that is changed by chemical reaction to a solid state. The basic components in epoxy are hardeners and resins.

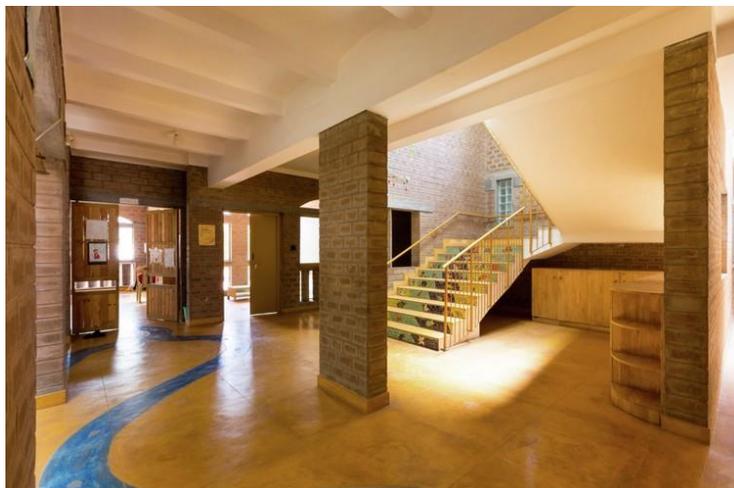
Nature, Inside and Outside

The Waldorf pedagogy is a philosophy that values all the benefits that contact with nature can offer human beings. For this reason, natural lighting is also highly valued in its schools. Depending on the activities that will be carried out in its different spaces, however, it is possible to vary the entry of natural light, producing infinite possibilities for interior atmospheres.



Harmony Between the Arts

Rudolf Steiner believed that architecture was the integration of all types of art. Thus, the aesthetic portion of education is considered an important part of his theory. It is very common to find, in environments that follow Waldorf pedagogy, spaces that exhibit artworks developed by students.



Play is a very important part of the system. [Coimbatore](#) being a hot climate play spaces have been brought in within the building too thereby making them accessible to children at all times. Caves and unusually lit spaces like through jalis allow for explorations and creation of fantasy. An open air theatre within the interior environs encourages the children to create impromptu acts.

The architectural elements of a Waldorf school are almost always an active part of the learning and development process of its children. In tandem with other curricular activities, Waldorf pedagogy proposes to work on concepts such as the metamorphosis of form, colors, and geometry in the most complete way possible, giving children the freedom to fully perceive and explore different environments.



CHAPTER 05
ANALYSIS & RECOMMENDATIONS

5.1 The Influence of the Built Environment on students.

In order to provide students with the best possible education, educational administrators must allocate their financial resources appropriately to ensure that the built environment is long lived.

Built environment is defined broadly to include land use patterns, the transportation system, and design features that together provide opportunities for travel and physical activity. Land use patterns refer to the spatial distribution of human activities. The transportation system refers to the physical infrastructure and services that provide the spatial links or connectivity among activities. Design refers to the aesthetic, physical, and functional qualities of the built environment, such as the design of buildings and streetscapes, and relates to both land use patterns and the transportation system.

The design aspects of the built environment, specifically lighting (functional), acoustics (functional), temperature (physical) and color (aesthetics) plays a major role in students learning. ⁽¹¹⁾

Interview With Gurpreet Kaur (Founder of Uday Waldorf School, Jaipur)

Impact of architecture on overall learning of the students.

- Free flow furniture to have ample movement of space to students to move around .
- Multi-functional spaces
- Indoor plants for oxygenation of the place
- Lighting and ventilation : natural light across all spaces to

Encourage the mood of the students.

- Color
- Basic walls to be blank, to provide clutter free environment as because then the brain is rested and ready to receive rather than having too many things around. Light paint for keeping the Senses very calm.

If the built environment is not calm, students come out Aggressively because they had lot of stimulation during the day.

- Outdoor Learning Environment
- Believe in nature interaction with students everyday. The play

In order to improve sensory organs. Connecting with nature.

11. Source- <https://www.tandfonline.com/doi/pdf/10.11120/jebe.2011.06020079?needAccess=true>



Fig. Translucent light paint For wall



Fig. Playground

Survey and Analysis

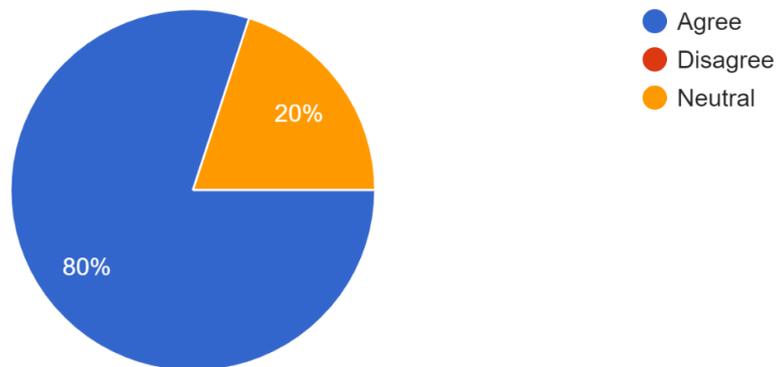
- The purpose of the Survey is to Evaluate the overall character of students and education, is reflected by the indoor experiential learning environment.
- The review found out that built environment directly influences students and post graduate students perception about their experience.
- The survey includes 50 people.
- Age Group Interaction :
 Students – 12
 Undergraduate – 18
 Others - 20

S.NO.	QUESTIONS	OPTIONS	ANALYSIS	INFERENCE
1.	What helps children retain knowledge/information better?	<ul style="list-style-type: none"> ● Hearing Lecture ● Reading/Writing ● Through Pictures ● Through Activitv 		Learning through physical activities is the most effective way of learning among all Experiential learning helped developing an eagerness in children which results in better and fast learning
2.	What do children take more interest in?	<ul style="list-style-type: none"> ● Hearing Lecture ● Reading/Writing ● Visual Illustration ● Activity Based 		
3.	What helps children visualize better?	<ul style="list-style-type: none"> ● Through Reading ● Sketching/Writing ● Classroom/Outdo or Activitv 		
4.	Where do children take more challenges?	<ul style="list-style-type: none"> ● Written Exercises ● Physical Activity 		

S.NO.	QUESTIONS	OPTIONS	ANAYSIS	INFERENCE								
5.	Does school play a major role in developing the overall character of student?	<ul style="list-style-type: none"> ● Yes ● No ● Maybe 	<table border="1"> <caption>Data for Question 5</caption> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>80%</td> </tr> <tr> <td>Maybe</td> <td>18%</td> </tr> <tr> <td>No</td> <td>2%</td> </tr> </tbody> </table>	Option	Percentage	Yes	80%	Maybe	18%	No	2%	Children prefer to get involved in group activity rather than individual.
Option	Percentage											
Yes	80%											
Maybe	18%											
No	2%											
6.	Do you think architecture of a space affects the learning environment?	<ul style="list-style-type: none"> ● Yes ● No 	<table border="1"> <caption>Data for Question 6</caption> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>98%</td> </tr> <tr> <td>No</td> <td>2%</td> </tr> </tbody> </table>	Option	Percentage	Yes	98%	No	2%	The element aiding in learning must encourage group activities.		
Option	Percentage											
Yes	98%											
No	2%											
7.	Do you think classroom to have a flexible environment rather than just Tables and chairs ?	<ul style="list-style-type: none"> ● Yes ● No 	<table border="1"> <caption>Data for Question 7</caption> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>91.8%</td> </tr> <tr> <td>No</td> <td>8.2%</td> </tr> </tbody> </table>	Option	Percentage	Yes	91.8%	No	8.2%	Students are more competitive in performing learning activities rather than in classroom study.		
Option	Percentage											
Yes	91.8%											
No	8.2%											
8.	Did your school focuses on other teaching practises rather than just teaching in the classroom ?	<ul style="list-style-type: none"> ● Yes ● No 	<table border="1"> <caption>Data for Question 8</caption> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>72%</td> </tr> <tr> <td>No</td> <td>28%</td> </tr> </tbody> </table>	Option	Percentage	Yes	72%	No	28%			
Option	Percentage											
Yes	72%											
No	28%											

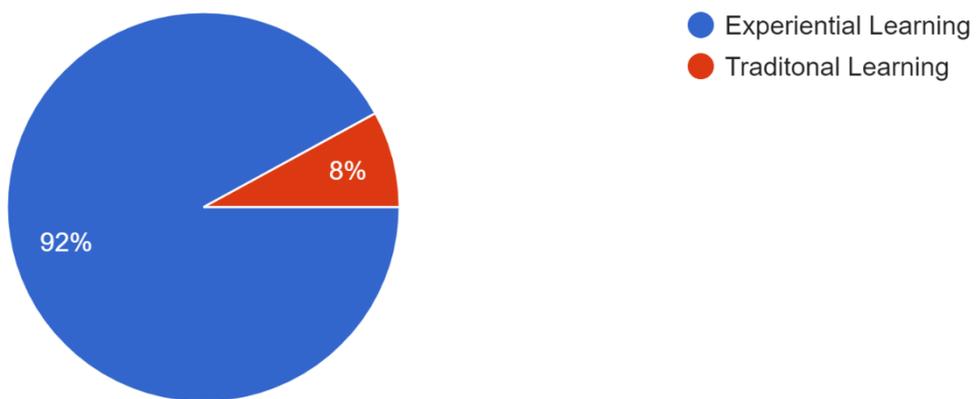
Interior Built environment impacts the overall learning experience of academic block ?

50 responses



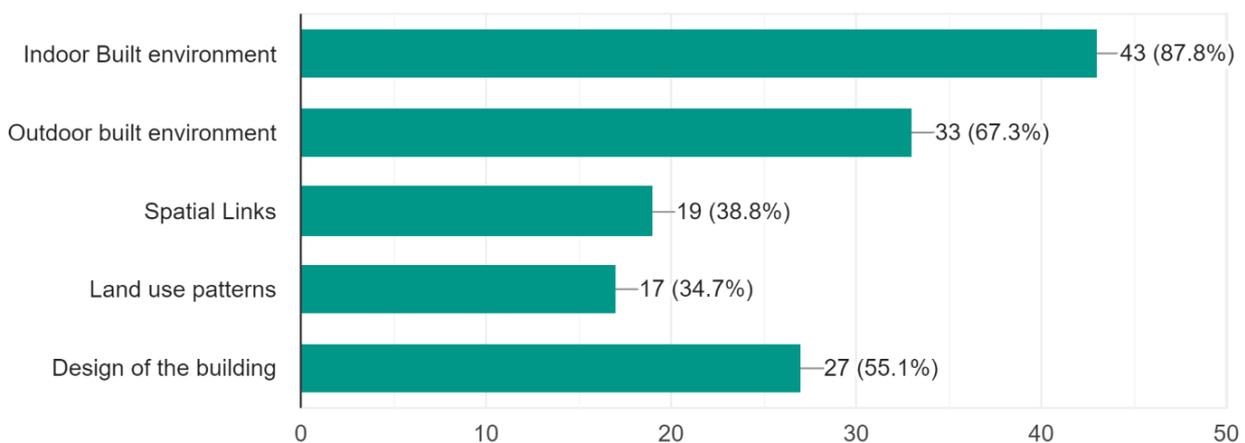
Which of the following education system will you prefer?

50 responses



According to you what all architecture factors can affect the learning experience. (you can select more than 1 answer for this question)

49 responses



Conclusion of the Study

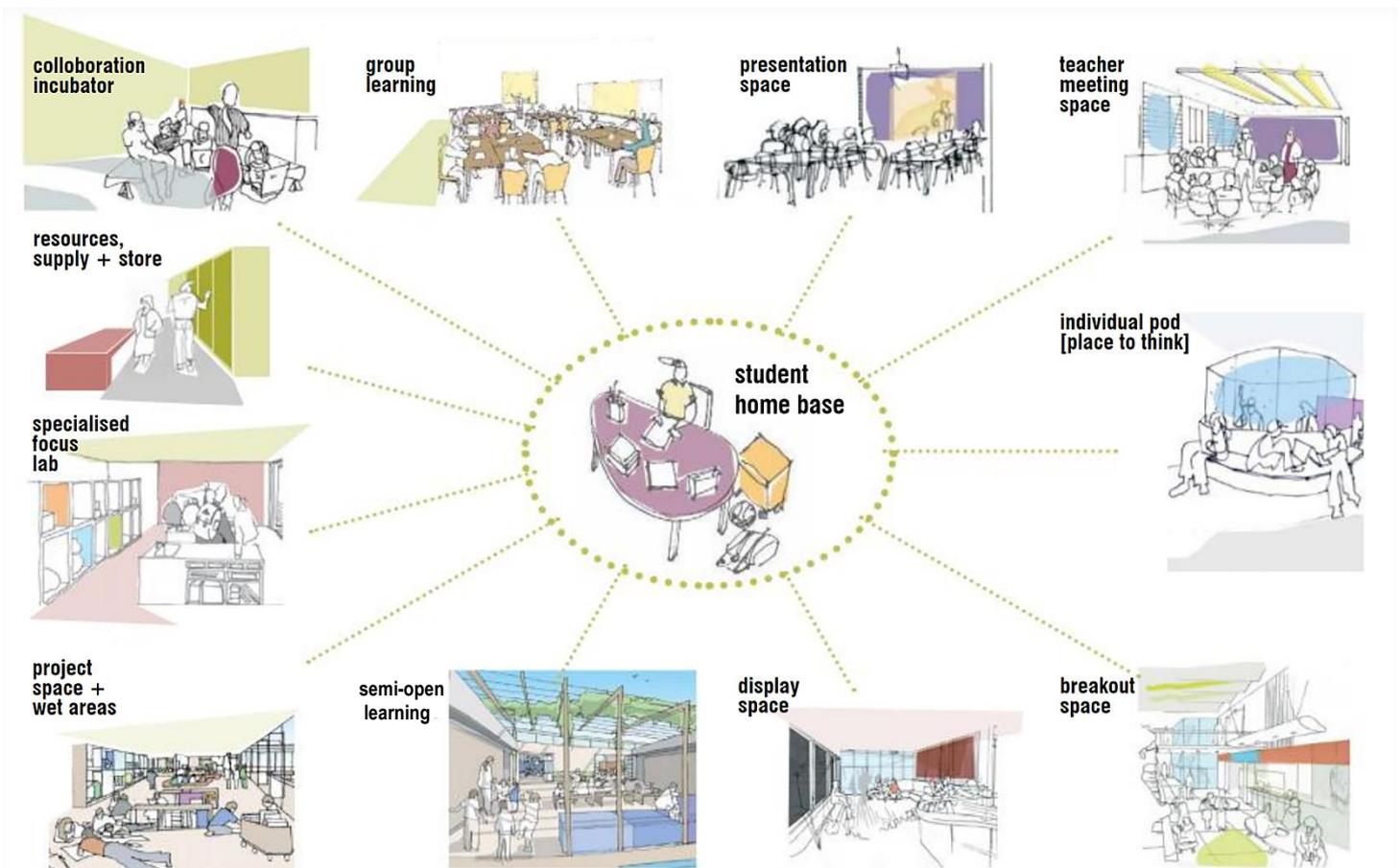
- As observed through the research, it was found that majority of the children (4-14 yrs.), learn best through physical learning activities. In a built learning environment.
- The educational approach is child centered and fosters a love of learning based on intrinsic motivation. The above is all about the environment for encouraging growth and self initiated study.
- Spaces must be capable of delivering a totalizing experience of education, and the interior settings must be adequate for each activity carried out (craft classes, sculpture, carpentry, and many others). They must also be consistent with the age and development cycle of the children who occupy them.
- The design aspects of the built environment, specifically lighting (functional), acoustics (functional), temperature (physical) and color (aesthetics) plays a major role in students learning.
- Experiential Learning is the most effective way of learning among all and Interior built environment impacts the overall learning experience of academic spaces.

Recommendations

- The connection (direct or indirect) with nature is considered highly beneficial for the psycho-emotional health of children and is often presented as the material for different school activities, incorporating pine cones, seeds, branches, shells, stones, roots, and other natural elements.
- The use of designated corners for certain activities within larger environments is very common.
- Natural lighting is highly valued in schools.
- It is recommend that the composition of the interiors be very flexible, creating a living and active environment. There exist several common solutions to this necessity. Tables and chairs should be light so they can be easily removed.

- Color : The younger children's classrooms use primarily warm and light colors (especially reddish and orange) and are related to active and festive activities, more present in the daily life of this age group. Cold tones (bluish and greenish) are recommended for mid-aged students, associated with activities that require a higher level of concentration and focus.
- Lighting and ventilation : natural light across all spaces to Encourage the mood of the students.
- Walls , Flooring and ceiling in coordination with other surfaces of the built environment could be used for depicting information related to the academic course of the students. This would aid in creating a learning environment in the built space.

Spaces



- Student home base

Space for an individual to personalize and in which to work and study.

Gathering place for learners and teachers.

- Individual pod [place to think]

Quiet Spaces for individuals or small groups.

- Group learning space

Individual or team spaces for staff that has adjacent material preparation area and meeting space.

- Collaboration incubator

Idea generation space, team meeting space, access to technology and other resources and display space for models and ideas.

- Presentation space

Places for individuals or teams to demonstrate and perform.

- Display space

White boards, black boards, tack surfaces, and show cases. Place furnishings to display work in progress or completed projects. Can overlap with circulation.

- Project space + Wet areas

Space that provides a variety of work surfaces, cabinets for supplies, storage areas for projects in development stage, access to tools and technology. Specialized lighting, and other infrastructure such as sinks and disposal.

- Specialized focus laboratory

Space Areas to support learning activities requiring specialized equipment or furnishings [e.g. Science, technology, art, music, dance, fabrication, troubleshooting].

- 'Breakout' spaces

Lounge areas, small study rooms, widened corridor spaces that allow gathering away from formal learning activities.

- Teacher meeting

Individual or team spaces for stall that has adjacent material preparation area and meeting space.

- Resources, supply store

Space within or adjacent to the learning activities spaces to provide resources, store supplies for classroom projects, tools, learning products and materials.