



Child-Centric Interiors: Physical Learning Environment in Preschools

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ABSTRACT

This dissertation explores the profound Impact of built environments, specifically in spaces designed for children, on shaping user experiences, with a particular emphasis on the nursery setting. Investigating the smallest design considerations, the study underscores the significant responsibility that nursery design carries in influencing both the physical and psychological well-being of its young occupants. Central to the research is the concept of a "playscape," which transcends traditional notions of play areas and represents a holistic and intentional approach to space design. Parameters such as spatial arrangement, movement, microsphere, flexibility, and contrasts emerge as key elements contributing to the playscape. The study emphasizes that play is integral to early childhood development, and the playscape serves as a comprehensive framework accommodating age-appropriate features, diverse play zones, and sensory experiences. The research sheds light on the interconnectedness of physical and psychological well-being within the built environment, highlighting the pivotal role of nursery design in shaping the educational journey of a child. By acknowledging the importance of imaginative play spaces and recognizing the multifaceted nature of children's developmental needs, this dissertation advocates for a holistic approach to nursery design that fosters creativity, exploration, and learning in early childhood experiences.

Keywords: Built Environments, Physical Learning Environment, User Experience, Playscape, Design Considerations, Spatial Arrangement, Holistic Approach

PHYSICAL LEARNING ENVIRONMENT IN PRESCHOOLS

Introduction:

In an era characterized by rapid urbanization and evolving lifestyles, the significance of interior spaces in shaping the lives of children has gained prominence. The environment in which children live, play, learn, and grow hold substantial potential to influence their development in profound ways. Children spend a significant portion of their formative years within the confines of homes, schools, and various indoor settings, the role of interior design in optimizing these spaces for their holistic development becomes increasingly crucial. The concept of enhancing child development through interior design is anchored in the belief that thoughtful and intentional design choices can create environments that not only stimulate cognitive and physical growth but also foster emotional well-being, creativity, and social interactions.

1. Built environments have always had the responsibility to create spaces that enhance the experience of the user of the space regardless of the building typology and other limitations.
2. Spaces for children are of utmost importance as the smallest of design considerations can have the largest of impacts.
3. The quality of the space affects its inhabitants physically as well as psychologically.
4. Growing and developing their mindsets through nursery design can set a healthy base for the child to grow into a smart and stable adult.
5. To promote safe and healthy learning environments, designers must consider spaces that encourage learning,
6. The spatial design that will enhance creativity, and how to use design as a means for interaction.

Aim

The aim is to identify strategies and recommendations that can be applied in pre-schools interiors to create enriching physical learning environments for children.

Objectives

1. To study strategies for improvement in interiors of pre-schools based on the findings, aiming to enhance the overall quality of the learning environment.
2. Examining the Relationship between Physical environment accommodating diverse play activities needed for child's development.
3. To study & analyze the ideal requirements for positive impact and provide a safe and stimulating environment that enhances child's focus, engagement and learning outcomes through interior design.
4. To study the role of building as learning aid in educational spaces and its implications.

Methodology

This research employs a qualitative approach to investigate how the design of interior spaces can engage the full sensory experience to create more profound emotional connections and meaningful architectural encounters. The methodology consists of the following components:

1. Literature review
2. Case Study Analysis
3. Comparative Analysis
4. Findings and Insights

Scope

The scope of study will cover various aspects of interior design such as physical environment, layout, furniture, spatial organization with a focus on creating more enriching environment for learning.

To provide valuable insights and recommendations that can be applied in designing spaces that help in creating optimal indoor learning environment for children through study.

Limitation

The study will focus on the child's initial development years, therefore, the age group of 3-5 years with respect to learning spaces like creche & pre-school. Consequently, the findings and insights may not fully capture to the behaviors and development of children outside this age bracket.

The study will emphasize on the interior design aspect, allowing for exploration of design-related factors, it may overlook broader societal or external influences that could impact child behavior and development.

BACKGROUND

CHILD CENTRIC INTERIORS

The design methodology known as "child-centric design" is centered on the requirements, preferences, and developmental stages of children while creating goods, services, or environments. This idea acknowledges that children have certain qualities, capacities, and limits that should be taken into account when making anything that is meant for their use. A child-centric design approach guarantees that the design is meaningful and helpful for children's development in addition to being safe. In the end, child-centric design seeks to produce experiences that are not only kid-friendly but also specifically designed to improve their quality of life. In addition to lesson planning, which are equally important, preschools should also focus on the physical environment or spatial arrangements.

PRE-SCHOOL

Preschool provides early childhood education for children typically between 3 and 5 years old. It offers a structured environment with organized activities and routines designed to help young children develop a sense of order and security. Preschools focus on promoting development across various domains - social, emotional, cognitive, physical, and communication skills are nurtured through play, interaction, and engaging activities. The preschool classroom is less formal than traditional primary grade levels. Rather than explicit academic instruction, the goals at this stage are to expand vocabulary and listening abilities, foster basic communication abilities, and develop emerging literacy and numeracy skills. Most importantly, preschool supports critical socialization opportunities and builds a foundation for the more rigorous learning children will encounter when they transition into primary school. The developmental focus and play-based curriculum help ensure children gain essential competencies across areas like speech, motor skills, cooperation, problem solving and self-regulation.

ROLE OF PLAY

Play serves as the fundamental way preschools facilitate learning and development in early childhood. Rather than explicit academic lessons, preschools cultivate children's growth through purposeful play activities and guided explorations designed around developmental needs and stages. Whether socio-dramatic play in the dollhouse, sensory investigations with art materials, or coordination practice on the playground, activities leverage play to holistically nourish language, cognition, motor skills, emotions, and social competence. Play spaces strike the right balance between freedom, engagement and developmental appropriateness. Play enables preschoolers to lead their own discoveries and construct new understanding, laying the foundation for

concept formation, problem solving, self-direction and other vital competencies needed for ongoing growth in primary grades. Thus preschools rely on the richness of play to deliver not just fun, but intentional learning in line with individual and age-based goals across domains.

PHYSICAL LEARNING ENVIRONMENT:

The physical learning environment is extremely important in determining how a child learns. The term "physical environment" describes the observable and tangible components of a place that affect how people use and interact with it. Design interior environments that improve users' overall enjoyment and well-being in addition to satisfying functional needs.

SIGNIFICANCE:

Impact on learning outcomes:

1. Well-designed physical environment supports engagement, concentration, and information retention.
2. To promote spatial design that encourage learning approaches.
3. The layout, organization, and aesthetics of the learning environment can contribute to cognitive development.
4. Stimulating and well-organized spaces foster critical thinking, problem-solving, and creativity.
5. Social interaction and collaboration.
6. Development of social skills, teamwork, and a sense of community through spaces that promote interaction.

PLAYSCAPE:

A "playscape" is a word used in preschools and early childhood education settings to describe a properly planned and thoughtfully structured area meant for play and exploration. Goes beyond a straightforward play area and suggests a more deliberate and comprehensive approach to space design. The idea of a playscape is consistent with the knowledge that play is an essential part of early childhood development. Components including age-appropriate design, a variety of play areas, sensory play areas, creative play areas, and educational resources.

The concept of a "playscape" forms the central theoretical foundation of this study. Transcending the conventional notion of a play area, a playscape represents a holistic and intentional approach to space design. It acknowledges the integral role of play in early childhood development and serves as a comprehensive framework accommodating age-appropriate features, diverse play zones, and sensory experiences.

SPATIAL ARRANGEMENT

OPEN STRUCTURE LAYOUTS:

These layouts minimize physical barriers and divides, promoting collaboration, visibility, and a range of learning encounters within an interconnected space.

MICROSPHERES:

Private spaces like reading nooks or quiet corners provide opportunities for focused activities and respite from over stimulating environments, catering to children's need for personal space and independent processing.

CONTRASTS:

Incorporating contrasts in elements like indoor-outdoor spaces, ceiling heights, lighting levels, and spatial definitions through the use of different materials, textures, and forms can create a visually stimulating and dynamic environment that captures children's attention and promotes sensory exploration.

MOBILITY AND CIRCULATION:

STRATEGIC DESIGN OF CIRCULATION ROUTES: Carefully planning the placement and design of pathways, corridors, and transitional spaces can regulate children's movement, minimize collisions, and promote social interactions.

INDEPENDENT MOBILITY: Providing ample opportunities for children to explore their immediate environment through well-designed circulation routes fosters the development of motor control, navigation skills, and independence.

INTERACTIVE ELEMENTS ALONG PATHWAYS: Incorporating elements like alcoves, eddy spaces, directional changes, and variations in flooring patterns or ceiling heights along circulation routes can create engaging and interactive zones that encourage children to pause, linger, and engage with their surroundings.

ANTHROPOMETRICS AND ERGONOMICS:

CONSIDERING CHILDREN'S PHYSICAL DIMENSIONS

Designing furniture, fixtures, and spatial configurations that are scaled to children's heights and reach capabilities ensures accessibility, comfort, and a sense of ownership within the environment.

ERGONOMIC NEEDS

Incorporating ergonomic principles in the design of seating, workspaces, and interactive elements can promote proper posture, reduce physical strain, and contribute to overall physical well-being.

AGE-APPROPRIATE DESIGN

Tailoring the anthropometric and ergonomic aspects of the environment to align with the specific developmental stages and capabilities of the target age group is crucial for creating a comfortable and user-friendly space.

FLEXIBILITY AND ADAPTABILITY:

MODULAR AND MOVABLE ELEMENTS

Incorporating furniture, partitions, and other elements that can be easily reconfigured or rearranged enables the space to adapt to changing needs, activities, and learning styles.

MULTIPURPOSE SPACES

Designing spaces that can serve multiple functions, such as classrooms that can transition into performance areas or collaborative zones, maximizes the utilization of the available space and promotes diverse learning experiences.

ADAPTABLE STORAGE

Providing flexible and accessible storage solutions, such as mobile shelving units or cubbies, allows for easy organization and reconfiguration of materials and resources based on the current activity or learning scenario.

AGE-APPROPRIATENESS:

DEVELOPMENTAL STAGES

Considering the cognitive, social, emotional, and physical developmental stages of the target age group is crucial in designing spaces that provide appropriate stimulation, challenges, and opportunities for growth.

COGNITIVE ABILITIES

Tailoring design elements to align with children's cognitive capacities, attention spans, and learning styles can enhance engagement, understanding, and retention of information.

SENSORY PREFERENCES

Incorporating sensory-rich elements that cater to children's preferences for tactile, auditory, and visual stimulation can create a multisensory learning environment that promotes exploration and discovery.

Scale and perspective: Designing spaces from a child's perspective, with appropriate scale and viewpoints, fosters a sense of ownership and empowerment, encouraging children to actively engage with their surroundings.

BUILDING AS A LEARNING AID (BaLA):

The Building as a Learning Aid (BaLA) approach is a holistic strategy that transforms the built environment into an interactive and educational space. This approach acknowledges the potential of architectural elements to serve as teaching and learning tools, going beyond their traditional functional purposes.

The BaLA approach integrates educational elements into various components of the built environment, such as walls, floors, windows, doors, ceilings, and furniture. These elements are carefully designed and incorporated into the overall spatial configuration to create an immersive and stimulating learning experience for children.

Some examples of how the BaLA approach can be implemented in preschool environments:

WALLS AS LEARNING AIDS

Grooved writing patterns on walls to strengthen fine motor skills and letter formation

Measurement scales and fraction aids painted or etched onto walls

Interactive displays or murals depicting educational concepts or narratives.

FLOORS AS LEARNING AIDS

Tactile surfaces or patterns for sensory exploration

Grid patterns or hopscotch designs for counting and spatial awareness

Outlines or maps of states, countries, or continents for geographic learning.

WINDOWS AND DOORS AS LEARNING AIDS

Window grills designed as playful shapes or patterns for visual stimulation

Door angle protectors illustrating geometric angles

Transparent surfaces allowing visual connectivity between spaces.

CEILINGS AS LEARNING AIDS

Mobiles or hanging installations representing educational themes

Projected displays or interactive lighting for storytelling or concept visualization.

FURNITURE AS LEARNING AIDS

Tables or desks with built-in puzzles, games, or educational activities

Shelving units with integrated counting or sorting features

Chairs or seating designed to promote proper posture and ergonomics.

By integrating educational elements into the built environment, the BaLA approach transforms the entire preschool space into a dynamic and engaging learning landscape. Children can interact with these elements through play, exploration, and everyday activities, fostering a seamless integration of learning into their daily experiences.

The BaLA approach recognizes that learning occurs not only through formal instruction but also through interaction with the surrounding environment. By intentionally designing architectural features as learning aids, preschool spaces become catalysts for multisensory learning, creativity, and discovery, encouraging children to actively engage with their physical surroundings and develop a wide range of skills and knowledge.

CASE STUDY

WEGROW KINDERGARTEN, BY BJARKE INGELS GROUP, NEW YORK CITY

The interactive learning environment promotes a mindful approach to education, fostering the development of the 21st-century child's body, spirit, and mind. Emphasizing transparent and communal spaces, which constitute over half of the school, the learning environment encourages collaboration.

1. Departure from rigid structures, embracing a more fluid and engaging environment
2. Variety of functional spaces : concept of activity pockets, and space design emphasis on engaging kids through play indicates a desire to integrate learning seamlessly into recreational activities.
3. Visually engaging and child-friendly atmosphere.
4. Interactivity: Varied functions to enable children to move freely , encourage learning through direct interaction with the surrounding environment, emphasizing experiential education.
5. Incorporating flexible furniture, interactive installations,
6. Balance between enclosed and open arrangement provide diverse range of experiences
7. More inclusive and flexible educational setting, creates an environment that nurtures curiosity, collaboration, and active learning.

CITY KIDS EDUCATIONAL CENTER BROOKLYN, US

1. Organizational efficiency: allowing for the easy and accessible storage of educational materials, toys, and personal belongings, fostering a tidy and organized learning environment.
2. Thoughtful approach to spatial design,
3. Strategic design element, Half-height walls that balances the need for privacy with the necessity for supervision.
4. Age appropriate: creative and engaging design of storage, visually appealing, adds an element of interest & enjoyable experience.
5. Playfulness and imagination, adds an element of fun and helps children associate storage spaces.

EARLY EDUCATION CENTER By L&M DESIGN LAB

1. Based on Behavior characteristics of crouching, crawling, sitting and jumping in children's growing process.
2. Used thickened the partition panel between the corridor and the classroom, making it a multi-functional place that incorporates lighting, parentchild activity, children's games.
3. Variation in opening levels, Connecting open and enclosed area
4. Heights of opening in partition wall, to sit, crawl and see through.
5. Circulation: Children make interesting and dynamic journeys across the overlapping circles, which improves circulation. The whole potential is activated by the continuous passageways that provide smooth movement throughout the space. Circular movement and focal areas of interest help create a warm and inviting environment. A circular flow pattern encourages exploration and makes the most of open spaces. The climbing wall encourages healthy, energetic play, while the curves and spheres add gentleness.

NUBO, BY PAL DESIGN ARCHITECTS -SYDNEY, AUSTRALIA

The central spaces cater to children's curiosity, emphasizing the idea of 'Pure Play' to foster creativity. The facilities are thoughtfully designed and flexible, catering to children aged two to eight. Tailored for children at different learning stages, the design allows safe exploration of the entire space. Taking a minimalist approach, unnecessary furniture and equipment are eliminated, providing just enough for children to invent their own games.

1. Interaction & engagement: A range of distinct spaces, each with an individual style intended to spark creativity. • Playrooms equipped with artistic supplies Activity Zones are areas designed for "active play," where children can jump into a ball pit, climb, and slide.
2. Arranged seating with cushioned upholstery and concealed lighting forms an optimal setting for storytelling. This thoughtful combination of design elements not only caters to the practical aspects of a storytelling environment but also contributes to the overall enchanting experience, making it an engaging and memorable setting for the art of storytelling. The inclusion of a quiet area in the space enhances the overall learning and relaxation environment for children.

FINDINGS AND DISCUSSION

1. Integrating Learning and Play Spaces, ensures that children learn through interactive and playful engagement.
2. Diverse Learning Environments, diverse range of spaces tailored to different themes and activities. From nature-inspired corners to imaginative play zones, keeps children actively engaged and excited about exploring.
3. Cultivating a Sense of Connection, Foster a strong sense of connection among children through collaborative projects, teamwork activities, and opportunities for shared learning experiences.
4. Microenvironment designed to provide a sense of peace and comfort, fostering an atmosphere conducive to focused learning and emotional well-being for children.
5. Strategically combining elements that differ in color, texture, shape, and function to create a dynamic and visually stimulating atmosphere.
6. Exploration & playfulness, Creates an environment where children are motivated to move, discover, and engage with their surroundings actively.
7. Ergonomics, Prioritizing child accessibility and engagement, reflecting a child-centric and safe environment.
8. Flexibility in arrangements creates a learning environment that is responsive, versatile to the diverse ways in which young learners engage with educational activities.
9. Age-appropriate, Prioritizing a child-friendly atmosphere with playful and visually connecting elements.

CONCLUSION

This research delves into the profound responsibility borne by built environments, particularly in spaces tailored for children, shedding light on their significant impact on user experiences. The study underscores the pivotal role of nursery design in not only shaping physical surroundings but also influencing the psychological well-being of its young occupants. It emphasizes that even the minutest design considerations can play a crucial role in creating an environment conducive to the growth and development of children. Central to the research is the exploration of the concept of a "playscape," transcending the conventional notion of a play area. Instead, it embodies a comprehensive and intentional approach to space design. Parameters such as spatial arrangement, movement, microsphere, flexibility, and contrasts are identified as crucial elements contributing to the playscape. The study aligns this approach with the understanding that play is integral to early childhood development. The concept of playscape encompasses age-appropriate features, diverse play zones, and sensory experiences, acknowledging the multifaceted nature of children's developmental needs. It recognizes the importance of imaginative play spaces, creating an environment that fosters creativity, exploration, and learning. In essence, the research underscores the holistic nature of playscape design in shaping the educational journey of a child, highlighting the interconnectedness of physical and psychological well-being within the built environment.

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