

# Developing Design Sense in First-Year Architecture Students: A Pedagogical Approach to Basic Design

Tapaswini Mohapatra Samant\*

## Abstract

*This study explores the pedagogical significance of Basic Design Studios in shaping the foundational competencies of first-year architecture students. Serving as the foundation of architectural education, these studios cultivate essential skills in spatial awareness, creative thinking, and problem-solving. The research underscores how structured studio exercises, material explorations, and conceptual modeling collectively nurture an understanding of the interrelationship between space, form, and function. By emphasizing experiential and hands-on learning, students are encouraged to engage directly with design processes that transform abstract ideas into meaningful architectural expressions. The study adopts a reflective and process-oriented approach, highlighting the iterative nature of design learning – where observation, experimentation, and critique form a continuous cycle of improvement. Through interdisciplinary engagement that integrates art, geometry, and environmental understanding, students begin to perceive architecture as both an artistic pursuit and a scientific discipline. The studio environment becomes a dynamic platform where feedback-driven pedagogy enhances analytical ability, aesthetic judgment, and technical precision. Furthermore, the study emphasizes that effective design education depends not merely on output but on cultivating design thinking – the ability to interpret, visualize, and communicate ideas spatially. The integration of sensory perception, cognitive reflection, and material manipulation contributes to a holistic comprehension of design fundamentals. By bridging theoretical concepts with tangible practice, Basic Design Studios encourage students to evolve from passive learners into active creators capable of critical and contextual design responses. Ultimately, the findings advocate for a balanced and inclusive curriculum that harmonizes creativity with rigor, exploration with structure, and intuition with logic. Such an approach ensures that architectural education remains rooted in human experience while preparing students for advanced levels of design inquiry.*

**Keywords:** Architectural pedagogy, basic design, creativity in architecture, experiential learning, iterative design, spatial awareness

## INTRODUCTION

### Importance of Developing Design Sense in First-Year Architecture Students

Design sense is crucial for architecture students, as it bridges abstract concepts with physical spaces.

#### \*Author for Correspondence

Tapaswini Mohapatra Samant  
E-mail: [tapaswini.architect@gmail.com](mailto:tapaswini.architect@gmail.com)

Associate Professor, Architecture Department, Vaishnavi  
School of Architecture and Planning, Hyderabad, India.

Received Date: October 21, 2025

Accepted Date: October 27, 2025

Published Date: January 10, 2026

**Citation:** Tapaswini Mohapatra Samant. Developing Design Sense in First-Year Architecture Students: A Pedagogical Approach to Basic Design. International Journal of Architectural Design and Planning. 2025; 4(1): 1–6p.

First-year students, often with diverse backgrounds and varying spatial understanding, need structured instruction to foster creativity, critical thinking, and problem-solving. Basic Design classes guide students in mastering form, space, proportions, and aesthetics (Arnheim, 1974) [1]. For example, creating a sculpture with geometric shapes helps students develop skills in manipulating form and space, enhancing their ability to approach complex design challenges (Kolb, 1984) [6]. As students experiment with different design elements, they refine their skills and gain a deeper understanding of design principles, preparing them for more

advanced projects. Ultimately, these courses equip students with essential tools for success in visual arts and design (Koffka, 1935) [5].

### **Role of Basic Design as the Foundation of Architectural Education**

Basic Design is the cornerstone of architectural education, providing students with the foundation to think critically about space, form, and function (Arnheim, 1974) [1]. The curriculum introduces essential design principles such as balance, rhythm, contrast, harmony, and proportion. By integrating both artistic and scientific elements, students are encouraged to explore design through mediums like sketching, model-making, and digital tools. This transition from theoretical concepts to applied exercises enhances spatial cognition, which is critical for success in advanced architectural studies (Kolb, 1984) [6].

### **The Pedagogical Approach as a Key Factor in Fostering Creativity**

The effectiveness of Basic Design education largely depends on the pedagogical strategies used. Traditional lecture-based teaching is often inadequate for developing an intuitive design sense. Instead, experiential learning, hands-on projects, and studio-based interactions are essential (Kolb, 1984) [6]. Learning by doing, iterative design processes, and peer critiques encourage innovation and self-reflection. Integrating interdisciplinary approaches, such as fine arts, psychology, and literature, enhances the learning experience, helping students develop unique design narratives and creative solutions (Koffka, 1935) [5]. This approach enables students to gain a deeper understanding of the subject and apply it effectively in real-world scenarios (Arnheim, 1974) [1].

### **TRADITIONAL VS MODERN SCHOOLS OF THOUGHT IN BASIC DESIGN**

Traditional Basic Design education is rooted in the Beaux-Arts and Bauhaus movements. The Beaux-Arts system, emphasizing symmetry, sketching, and classical principles, continues to influence architectural education, especially in historical restoration (Rowland, 2013). In contrast, the Bauhaus movement, founded by Walter Gropius, prioritized functionality, material honesty, and abstraction, promoting hands-on learning and the integration of crafts with industrial design (Koffka, 1935) [5].

Modern pedagogical approaches now focus more on process than product. The Experiential Learning Model (Kolb, 1984) [6] emphasizes learning through direct experience, fostering critical reflection, and is evident in design-build studios. Constructivist Learning Theory (Piaget & Vygotsky) encourages students to construct their own understanding through active engagement (Koffka, 1935) [5]. Additionally, parametric and digital design pedagogy introduces computational tools, expanding design possibilities but raising concerns about over-reliance on technology.

These evolving educational models highlight the shift toward a more holistic, hands-on, and interdisciplinary approach to architectural education, ensuring students are equipped for modern design challenges (Ni, 2017) [8].

### **Traditional and Modern Pedagogical Approaches in Basic Design**

The pedagogy of Basic Design has evolved over time from traditional apprenticeship-based learning to modern studio-based, experiential methodologies. Understanding these approaches helps in formulating an effective curriculum that balances structured learning with creative exploration (Table 1).

### **PEDAGOGICAL STRATEGIES FOR TEACHING BASIC DESIGN**

Effective Basic Design education relies on hands-on, experience-driven approaches that foster creativity and critical thinking. Traditional lecture methods often fall short in immersing students in design processes.

Interactive, iterative design thinking and real-world simulations suggest enhance learning. Dewey (2020) [3] emphasized that education should be about direct engagement, not passive absorption. By

integrating tactile learning, collaboration, and self-reflection, Basic Design Studios provide a strong foundation for both creative and technical skills, encouraging holistic, cross-disciplinary approaches (Parashar & Ghom, 2018).

### Learning by Doing: Encouraging Hands-on Activities

The "learning by doing" approach, rooted in John Dewey's [3] experiential learning theory, is fundamental to architectural education. Dewey [3] emphasized that "education is not preparation for life; education is life itself," highlighting active engagement over passive learning. In Basic Design Studios, this translates into hands-on exploration of materials, spatial compositions, and iterative problem-solving, fostering creativity and spatial reasoning Dewey, (2020) [3].

Basic Design assignments integrate tactile exploration and material manipulation, aligning with established design theories. (Arnheim, 1974) [1]. emphasized lines, dots, and shapes as fundamental to composition, while Arnheim (1974) highlighted balance in visual perception. For example, the Line, Dot, and Shape Composition assignment introduces students to basic visual elements, while the Symmetrical & Asymmetrical Balance exercise develops an understanding of equilibrium through cut-paper models and digital compositions (Arnheim, 1974) [1]. The Texture Composition Using Contrast assignment explores materiality using high-contrast techniques, reinforcing Gestalt principles of perception Rebay H (1926) [4] (Koffka, 1935) [5].

By engaging in these experiential exercises, students develop aesthetic sensitivity and a strong visual vocabulary, essential for their architectural journey (Ni, 2017) [8]. It also helps them understand the importance of visual hierarchy and composition in design (Figure 1 a & b).

### Experiential Learning: Using Real-World Materials and Exercises

Experiential learning, as theorized by Kolb's Learning Cycle (Kolb, 1984) [6], enhances architectural education through active engagement with materials, fostering an intuitive understanding of form, proportion, and harmony. By manipulating colours and textures, students bridge theoretical concepts with tangible experiences (Kolb, 1984) [6].

A key aspect of this approach is colour theory, where assignments like Primary, Secondary, and Tertiary Colour Wheels introduce students to colour mixing and psychological effects. (Itten, 2022) [10] emphasized the emotional impact of colours, shaping students' perception of spatial and aesthetic relationships.

**Table 1.** Pedagogical approaches in basic design.

Pedagogical Approach	Key Characteristics	Strengths	Challenges
Traditional Theoretical Instruction	Lecture-based learning, textual study of design principles, and historical references.	Provides a strong theoretical foundation, historical awareness.	Limited hands-on experience, passive learning environment.
Hands-on Learning	Model-making, sketching, and direct material exploration.	Develops tactile skills, immediate application of concepts.	Resource-intensive, time-consuming.
Experiential Learning	Site visits, interactive exercises, real-world applications.	Enhances spatial perception and real-world understanding.	Requires external collaboration, logistical challenges.
Studio-Based Learning	Open-ended problem-solving, iterative design process, faculty guidance.	Encourages creativity, self-directed learning.	Highly dependent on faculty involvement, subjective evaluation.
Digital and Computational Design	Use of CAD, parametric tools, AI-based design software.	Enhances precision, efficiency, and new design possibilities.	Reduces tactile engagement, over-reliance on software.
Interdisciplinary Approach	Integration of architecture with psychology, fine arts, sociology, and technology.	Broadens design perspective, fosters innovation.	Difficult to standardize in curriculum.

Similarly, All Colour Schemes in Nature Composition explores biophilic design, translating natural colour palettes into abstract compositions, aligning with (Kolb, 1984) [6] emphasis on human-nature connections in design. By integrating real-world materials and cultural practices, experiential learning cultivates a keen eye for materiality and spatial relationships, essential for architectural thinking (Figure 2 a, b, c).

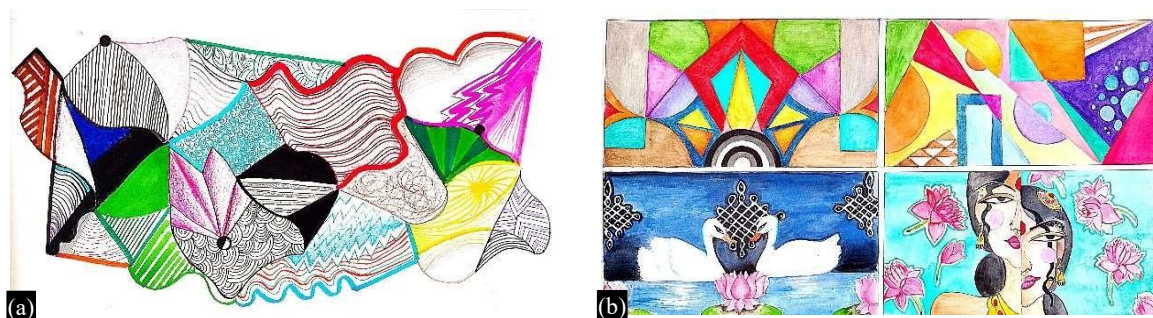
### Studio-Based Learning: Importance of Iterative Design and Feedback

Studio-based learning, emphasizes iterative refinement, critique, and reflection in architectural education. Unlike lecture-based methods, this approach fosters experimentation and problem-solving through cycles of sketching, prototyping, and feedback sessions.

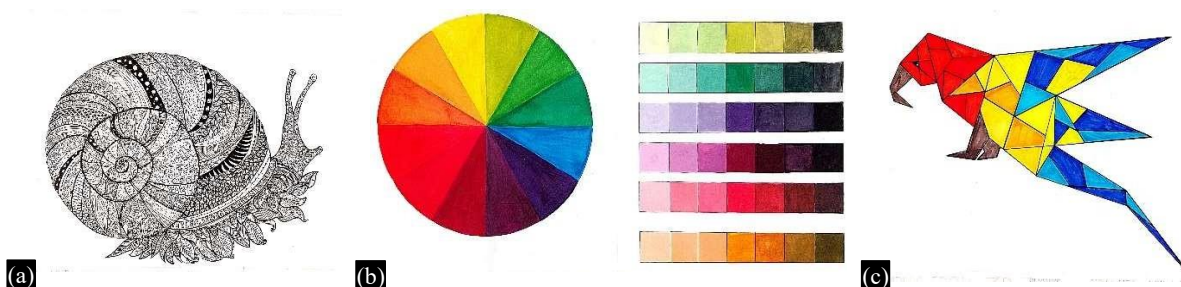
A key exercise, Extrusion from 2D to 3D guides students in transforming flat compositions into volumetric structures, reinforcing spatial understanding. This aligns with Le Corbusier's (1923) [2] principles of volumetric composition, where simple geometric forms evolve into complex architectural designs.

Similarly, Composition in Harmony Using Simple Geometric Shapes follows Bauhaus methodologies, emphasizing balance and rhythm through iterative adjustments.

By engaging in these exercises, students develop adaptability and critical thinking, essential for architectural practice (Figure 3 a & b).



**Figure 1 (a & b).** Student-created line-space-form compositions showcasing varied design approaches.  
 (a) Composition by 1st-year student Aishwarya (Batch 2024-2029).  
 (b) Composition by 1st-year student Sruthinija (Batch 2024-2029).



**Figure 2 (a, b & c).** Student-created explorations in line exploration, colour theory, and nature-inspired compositions.

- (a) Student-generated mandala compositions showcasing repetition, rhythm, and movement. Composition by 1st-year student Aishwarya (Batch 2024-2029).
- (b) Colour wheel studies demonstrating colour transitions and colour psychology. Composition by 1st-year student Jayavardhini (Batch 2024-2029).
- (c) Composition inspired by nature illustrating colour palettes. Composition by 1st-year student Jayavardhini (Batch 2024-2029).

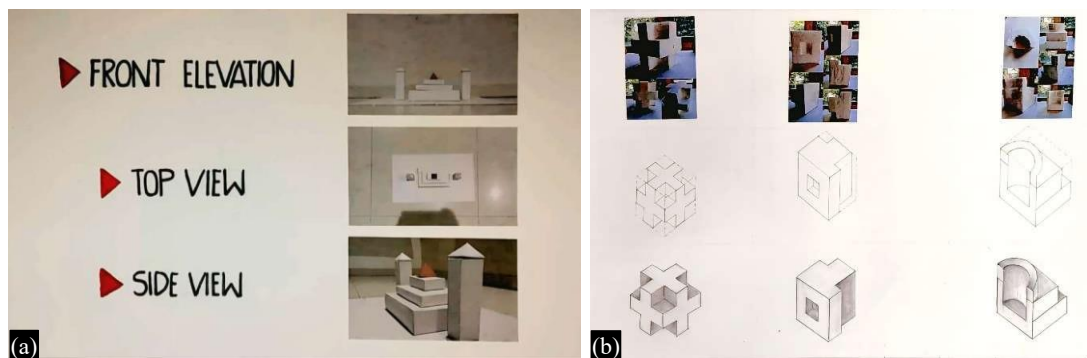
### Integration of Art and Science: Blending Aesthetics with Functional Design

Architectural education merges artistic creativity with scientific precision, aligning with Vitruvius' triad of *Firmitas*, *Utilitas*, and *Venustas* – balancing durability, utility, and beauty (Vitruvius, 1st century BCE). This integration ensures students grasp aesthetics, structural integrity, and environmental responsiveness.

Climate-responsive design is explored in Building Elements – Sunshade Design, where students analyze shading devices' impact on light control and thermal comfort. Inspired by vernacular and sustainable architecture, this exercise reinforces passive cooling strategies.

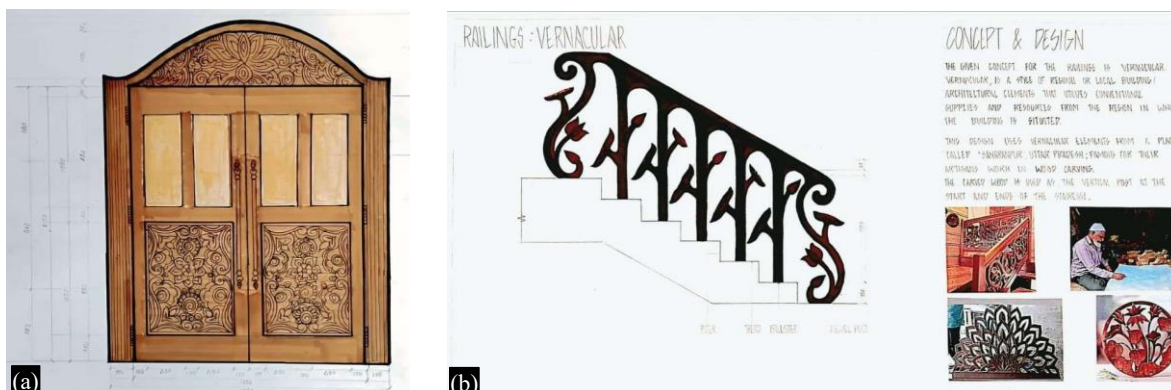
Similarly, Building Elements – Window & Railing Design emphasizes ergonomic safety and visual appeal, drawing from historical and modern precedents. The Window Grill Design for French Windows assignment bridges ornamentation with structural logic, resonating with Art Nouveau and parametric design innovations.

Through these exercises, students develop a holistic approach to architecture, ensuring their designs are both functional and visually compelling (Figure 4 a & b).



**Figure 3 (a & b).** Iterative transformations of 3D structures.

- (a) Refined 3D structures developed through iterative design explorations, reinforcing spatial understanding and form evolution. Composition by 1st-year student Rahithya (Batch 2023–2028).
- (b) Sketches illustrating the process of understanding 3D, guiding students in transforming flat compositions into volumetric structures. Composition by 1st-year student Aishwarya (Batch 2024–2029).



**Figure 4 (a & b).** Student-designed building elements showcasing functional and aesthetic considerations

- (a) Main door design created for the building element design task. Composition by 1st-year student Aishwarya (Batch 2024–2029).
- (b) Railing design for the building element design assignment taking inspiration from traditional designs. Composition by 1st-year student Jayavardhini (Batch 2024–2029).

---

## DESIGN EXERCISES TO DEVELOP CREATIVITY

Fostering creativity in architecture students involves hands-on exercises that enhance spatial awareness and design thinking. Collage and Abstract Composition develop visual balance and storytelling, while Material Manipulation explores structural properties through bending, folding, and weaving (Nicholas 2010) [9]. Site Interpretation and Spatial Mapping (Lynch, 1960) [7] train students to analyze environments and spatial interactions. These exercises build critical thinking and problem-solving skills essential for architectural design.

## CHALLENGES AND SOLUTIONS IN TEACHING BASIC DESIGN

First-year architecture students often struggle with spatial awareness and rigid thinking, limiting their creative exploration. To address this, educators should foster an iterative, experiment-driven approach that prioritizes exploration over perfection. Rather than imposing rigid frameworks, instructors can encourage critical reflection, dialogue, and interdisciplinary inspiration. Drawing from diverse artistic and cultural influences broadens students' design perspectives, helping them develop more meaningful and contextually aware solutions.

## CONCLUSION

A well-structured Basic Design curriculum builds essential architectural skills like creativity, spatial intelligence, and problem-solving, turning abstract ideas into functional spaces. By incorporating hands-on learning, iterative design, and interdisciplinary exposure, students gain a comprehensive understanding of design principles.

To stay relevant, teaching methods must evolve with new technologies and design trends. Integrating digital fabrication, parametric design, and AI-assisted tools bridges traditional and emerging practices, fostering creativity and technical proficiency. A collaborative, critique-driven studio culture further develops students' analytical and problem-solving skills, preparing them for real-world challenges in architecture.

## REFERENCES

1. Arnheim R. *Art and visual perception: a psychology of the creative eye*. Berkeley (CA): University of California Press; 1974.
2. Le Corbusier. *Vers une architecture*. Paris: Éditions Crès, Collection de L'Esprit Nouveau; 1923.
3. Dewey J. *Experience and education*. Abingdon (UK): Taylor & Francis Group; 1986. Available from: <https://www.tandfonline.com/doi/pdf/10.1080/00131728609335764>
4. Rebay H. *Point and line to plane*. Mineola (NY): Courier Corporation; 1926.
5. Koffka K. *Principles of Gestalt psychology*. London: Routledge; 1935. Available from: <https://www.taylorfrancis.com/books/mono/10.4324/9781315009292/principles-gestalt-psychology-koffka>
6. Kolb DA. *Experiential learning: experience as the source of learning and development*. Englewood Cliffs (NJ): FT Press; 1984. Available from: <https://books.google.com/books?id=jpbeBQAAQBAJ>
7. Lynch K. *The image of the environment*. In: *The image of the city*. Cambridge (MA): MIT Press; 1960. Available from: [https://www.academia.edu/download/46359078/Image\\_of\\_the\\_City.pdf](https://www.academia.edu/download/46359078/Image_of_the_City.pdf)
8. Ni. *Embodied and existential wisdom in architecture: the thinking hand*. *Architectural Theory Review*. 2017. Available from: <https://journals.sagepub.com/doi/abs/10.1177/1357034X16681443>
9. Nicholas FW. *Interaction of colour*. New Haven (CT): Yale University Press. Available from: <https://www.degruyter.com/document/doi/10.1515/9781531509071-004/pdf>
10. O'Connor Z. *Exploring the origins of Itten's colour theories using digital colour mapping*. In: *Proceedings of the International Colour Association (AIC) Conference*; 2022. Available from: [https://www.academia.edu/download/100056899/AIC2022\\_Conference\\_Proceedings.pdf](https://www.academia.edu/download/100056899/AIC2022_Conference_Proceedings.pdf)