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EXAMINING PEDAGOGICAL APPROACHES IN THE 'LIGHT & SPACE' COURSE: A REFLECTIVE INQUIRY

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ABSTRACT

Light plays a pivotal role in architecture, influencing the ambience and spatial experience from historical landmarks to contemporary structures. Within the evolving landscape of architectural education, experiential and exploratory workshop-based courses are essential, offering students with insights that inform their studio work. The 'Light & Space' course is one such course, offered as part of the second-year curriculum at the School of Architecture, Anant National University, Ahmedabad, India which delves into the transformative potential of light within built environments. This research paper undertakes a thorough investigation into the pedagogical approaches employed in the aforementioned course. Using qualitative analysis and reflective inquiry, the study assesses the effectiveness of these methodologies in achieving course objectives and fostering diverse learning experiences. Employing a multifaceted approach including curriculum analysis, participant observation, interviews and surveys, the research evaluates course content alignment, teaching methods, student interactions, and pedagogical effectiveness. By examining these dynamics, the study aims to deepen understanding of pedagogical practices and contribute to innovation in architectural education.

Keywords: Pedagogical Approaches, Reflective Inquiry, Curriculum Content, Architecture Education, Light in Architecture

1. INTRODUCTION

In this reflective paper, the authors draw upon their experiences and learning from the past five years (2019-2024), focusing on the integration of 'Light and Space' coursework into architectural studies. The 'Light & Space' course at the School of Architecture, Anant National University, Ahmedabad, delves into the transformative potential of light within built environments. Throughout the course, students gain valuable insights into manipulating light to enhance the functional, aesthetic, and experiential quality of architectural design. By exploring daylighting techniques, ways light enters a built space, and the psychological impacts of light, students deepen their understanding of light's multifaceted role in shaping built environments. Hands-on explorations and design projects centered around light enable students to experiment with different lighting possibilities, fostering a nuanced understanding of its application in architectural practice.

Understanding the perception of space is crucial, as it is intricately tied to the interaction of light within it. This interaction shapes what we see, experience, and interpret within our environment. The analysis of space, materials, or color in architecture is fundamentally influenced by lighting conditions, which engage both the object and the observer. This paper aims to examine the pedagogical approaches employed in the 'Light & Space' course through qualitative analysis and reflective inquiry. By assessing the effectiveness of these methodologies in achieving course objectives and fostering diverse learning experiences, this study aims to contribute to innovations in architectural education. Through the evaluation of course content, teaching methods, student interactions, and pedagogical effectiveness, insights will be drawn to enhance future iterations of architectural education.

2. BACKGROUND STUDY

Light shapes our perception of the world, helping us recognize objects, grasp shapes, admire textures and materials, notice details, and discern colors. Beyond its functional significance, light also affects human emotions and behavior, aligning with our natural body rhythms. It enhances spaces, transforming them and eliciting different feelings through its changing nature.

Throughout history, the use of light in architecture has varied, reflecting cultural influences, climate conditions, and preferences. The Egyptians used darkness to create mystique; the Gothic era emphasized dramatic light; and the Baroque period employed contrasting light effects to establish a divine ambiance. These examples show how each society approached light uniquely.

Advancements due to industrialization have transformed technology, construction materials, societal structures, and occupational patterns. This progress has encouraged a reflective approach to incorporating lighting elements into design processes. Present-day pioneering architects are exploring light as a core component of their design principles, investigating its ability to shape experiences and enhance the visual appeal and atmosphere of spaces.

3. MATERIAL AND METHODOLOGY

A comprehensive questionnaire-based survey was conducted for five different batches of B.Arch students at the School of Architecture, Anant National University, from 2018 to 2022, who undertook the course. The survey, conducted from March to April 2024, aimed to assess the course content, pedagogy, and outcomes of the "Light & Space" course, drawing on primary observations, personal experiences, and focused discussions with faculty members.

The questionnaire comprised 42 questions, including multiple-choice, open-ended, linear scale, and checkbox questions, organized into sections focusing on course content, pedagogical methods, feedback on master classes, and exercise-related inquiries. The collected data was analyzed using Microsoft Word and Excel, facilitating the generation of graphs for comprehensive analysis and informed decision-making regarding potential enhancements to the course structure and delivery.

4. BRIEF ABOUT THE ‘LIGHT AND SPACE’ COURSE IN THE B. ARCH CURRICULUM

Recognizing the critical role of natural light in architectural design, the Curriculum Review Committee (CRC) at SOA, Anant National University, introduced the "Light & Space" course at the second-year level in the B. Arch curriculum in 2019. Initially a 3-credit course, it included both theory and workshop components. Over time, the CRC adjusted the course credits to 2 credits to balance the workload and expected outcomes.

5. COURSE CONTENT AND CURRICULUM DESIGN

This course emphasizes the importance of natural light in architectural design, integrating this understanding into the design process. It includes examining theories on the physical and physiological effects of light on human behavior and interior environments. The 16-week course is organized into modules, covering technical aspects of daylighting, types of light applicable to buildings, methods for measuring light in real spaces, and historical and contemporary examples showcasing light as a critical element in design. Instructors have flexibility in designing assignments, selecting teaching methods, and determining evaluation criteria.

Table 1: Duration & Descriptions of Course Content

Sr. No.	Module Name	Duration	Module Content Description
1	Principles and Nature of Light	2	Technical aspects of light, including its types of units and measurement
2	Light & its effects	4	Types of Light and their effects on human behaviour and its effects on mood of a space
3	Light Design Strategies and Tools	6	Relationships between architecture, space and light Introduction to designing with light
4	Historical & contemporary Precedents	4	Showcasing various means and ways to capture light within built spaces experimented by Architects in their projects.

6. TEACHING METHODS AND APPROACHES ADOPTED FOR THE COURSE

The course follows Bloom's Taxonomy, focusing on Understand, Apply, and Analyze levels. At the 'Understand' level, students grasp concepts through lectures and discussions, while assignments develop observational and interpretative skills. At the 'Apply' level, students engage in iterative assignments, fostering creativity and innovative design thinking. At the 'Analyze' level, students tackle technically oriented assignments with defined parameters, synthesizing their leanings for future application (Figure 1).

The tutor serves as a facilitator and guide, nurturing imaginative, conceptual, and practical skills. Each module includes a one-hour master class for a class of 80 students. Lectures introduce theoretical concepts, relevant case studies, and utilize audiovisual aids for better comprehension. Engaging discussions and Q&A sessions further enhance student involvement. Following each master class, students embark on assignments with clearly defined outcomes and evaluation criteria.

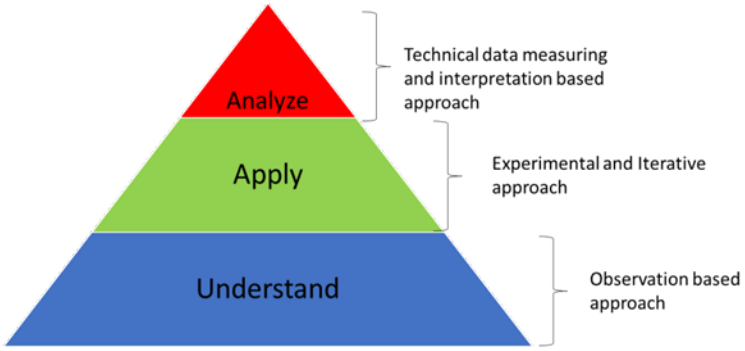

Figure 1: Bloom's Taxonomy first three levels and approaches adopted for the course,

Source: Developed by Author

Post-lecture, student's transition to self-discovery learning, engaging in discussions within closed groups of 15 peers and the tutor. These discussions refine initial ideas and foster peer learning, leading to an iterative approach where multiple options are explored to arrive at solutions. The course culminates in a showcase where students not only present their leanings but also participate in a culture of peer-driven learning, sharing reflections and insights to inspire one another.

7. ASSIGNMENT TYPES AND OUTCOMES

The diverse range of assignment types is tailored to facilitate holistic learning across multiple modules, accommodating students with varying skill sets. This approach not only enables all students to engage with the assignments but also provides opportunities for those with unique skills to excel and achieve high grades.

7.1. OBSERVATION BASED EXERCISES

In the first four weeks, students engage in any two of the exercises listed in Figure 2, focusing on observing light effects through sketching or photography. This helps them develop observation skills and understand light's impact on built spaces. Through these exercises, students learn about the dynamic play of light, the sun's path, the angle of light and shadow, and how these factors transform space.

Figure 2A: Exercise Type 1- Sketching the Transformation of the Space,
Source: Student work Repository, SOA, Anant National University.

Figure 2B: Exercise Type 1- Observing the light falling on an object and shadow study,
Source: Student work Repository, SOA, Anant National University.

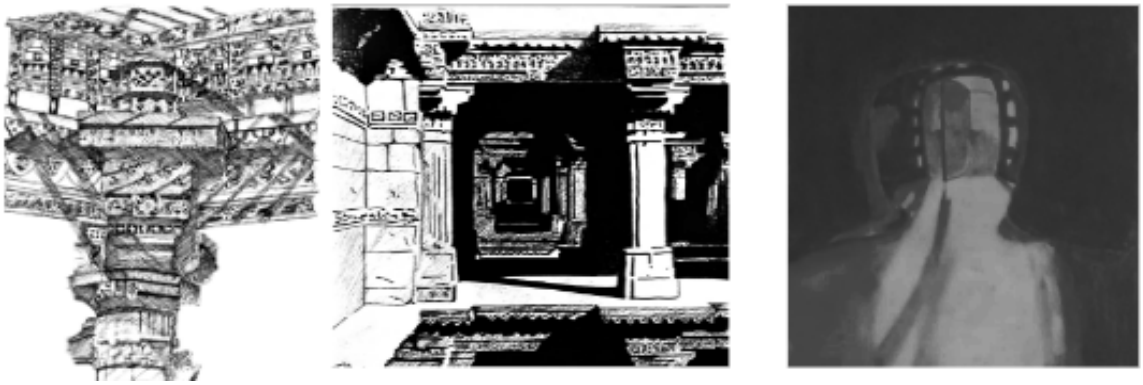

Figure 2C: Exercise Type 1 Observing and sketching the play of light in architectural building
Source: Student work Repository, SOA, Anant National University.

7.2. EXPLORATION BASED EXERCISES

These exercises are frequently assigned to promote experiential learning, allowing students to cultivate innovative and insightful solutions through self-discovery. Typically, students participate in tasks that utilize scaled models mirroring real-world scenarios (Figure 3&4), thereby facilitating practical application. Clear rules, guidelines, and constraints are presented, prompting students to interpret and comply with them while creatively navigating the simulated environments. These exercises are conducted iteratively, fostering discussion and refinement, embodying a

cyclical learning process aimed at enriching understanding and problem-solving skills. They are typically divided into sessions lasting 4-6 weeks, tailored to accommodate varying student learning speeds.

7.2.1. LIGHTBOX EXERCISE

Students construct a 30 x 20 x 15 cm cuboid lightbox (Figure 3) and explore various conditions related to fenestration size, orientation, light quality, and materials that influence spatial experiences. Initially, they observe light falling on the box using a torch and document the spatial qualities and experiences generated by sunlight through photography and videography. Subsequently, they conduct multiple iterations, considering various factors, to articulate a word that encapsulates the atmosphere created within the lightbox by the interplay of light and shadow.

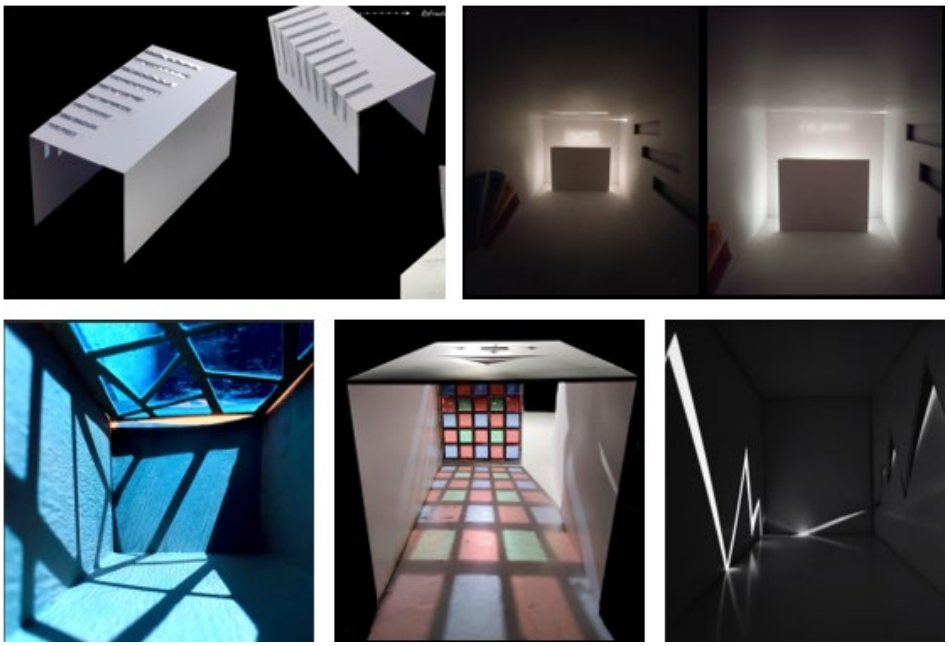

Figure 3: Exercise Type 3- Lightbox exercises with varied experiences created,
Source: Student work Repository, SOA, Anant National University.

7.2.2. CUBE COMPOSITION WITH FACADE DESIGN

In this study, students receive six specific-sized cubes and arrange them creatively to simulate a built environment using light as a major element (Figure 4). They then design the outer skin of this composition, including fenestration and strategic openings. This design process includes considering the sun's path, the structure's orientation, and creating an experiential space by responding thoughtfully to the dynamic nature of the sun.

To enrich their exploration, students imagine this setup as an actual built space, constructing sectional models to assess the quality of light entering the interior. This method allows for a thorough evaluation of light dynamics within the simulated architectural context.

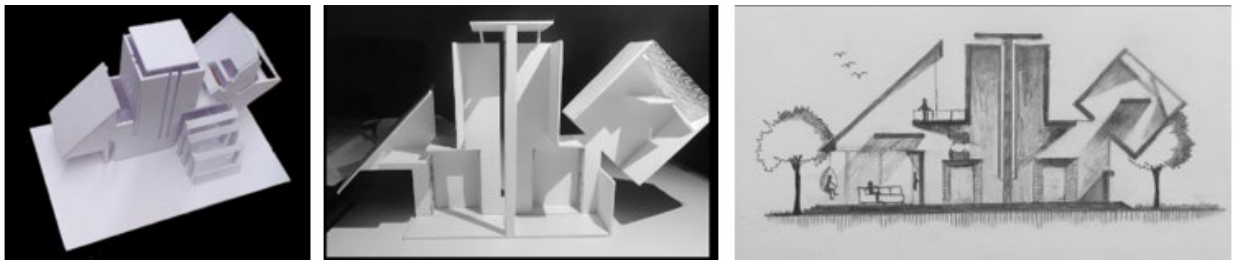

Figure 4: Exercise Type 3- Cube composition,
Source: Student work Repository, SOA, Anant National University.

7.3. ANALYSIS BASED EXERCISES

These exercises offer students analytical learning opportunities to deeply comprehend light dynamics and sun path behaviors, fostering a nuanced interpretation of lighting conditions within a designated space over two weeks in the form of groups. This hands-on experience in realistic spatial conditions enhances students' analytical capabilities, engaging them with complex concepts such as light dynamics and solar orientation, thus promoting a deeper understanding of environmental factors in architectural design. Additionally, these exercises enable students to exchange ideas, problem-solve collectively, and leverage diverse perspectives to enrich their learning experience effectively.

7.3.1. MEASURING THE LUX LEVELS OF A SPACE

This exercise allows students to measure light levels within a designated space using a lux meter, facilitating detailed analysis of factors influencing light quality in that environment and comparing light conditions in the same space throughout the day. Through this process, students gain insights into the penetration of light in space, the impact of shading devices on light, the influence of immediate context on light conditions in the building, and ideal light requirements for specific uses. This enables a more comprehensive understanding of lighting requirements in architectural design applications (Figure 5).

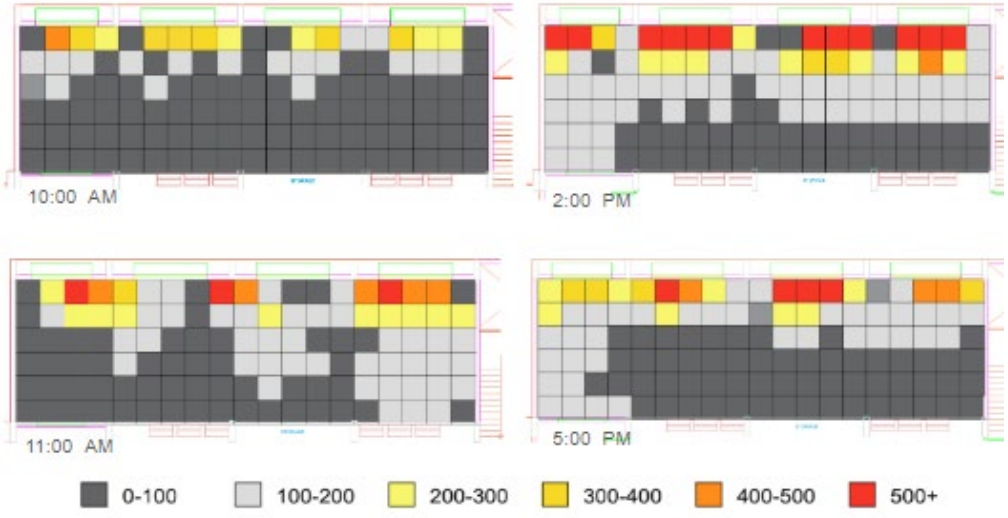

Figure 5: Exercise Type 2- Measuring the Daylight in the Given Space,
Source: Student work Repository, SOA, Anant National University.

7.3.2. DESIGNING A WINDOW AND WEATHER SHED

In this exercise, students are presented with a scenario involving a built space situated in a specific orientation within a particular climatic zone. They are tasked with comprehending this scenario and developing an opening design capable of protecting against extreme weather conditions. The primary objective of this exercise is to design a facade and detail a window with sun protection as an individual component. Students engage in developing solutions that respond to the complex behaviour of light by simulating scenarios using SketchUp models. This practical application allows students to apply their assimilated knowledge to a real-world situation, serving as a test of their understanding gained within the course. Through this exercise, students gain valuable experience in addressing architectural challenges related to environmental considerations and functional design requirements (Ref. Figure 6).

Figure 6: Exercise Type 2- Design of Shading Devices based on Climate,
Source: Student work Repository, SOA, Anant National University.

8. OBSERVATION AND FINDINGS

The questionnaire is given to the students to gain qualitative and quantitative feedback regarding their experience with the course. Based on the answers received from the students, it is categorized under the following subtopics: curriculum analysis, preference for teaching methods and approaches and their effectiveness, student interaction and experiences, and feedback on assignments. This categorization allows for a structured analysis of the data and provides valuable insights into each aspect of the study.

8.1. CURRICULUM ANALYSIS

The study aims to examine and analyse the curriculum in terms of various variables like course relevance, content appropriateness, and the balance between theory and hands-on aspects within the course. This helps to understand the effectiveness of the course curriculum structure and potential improvements required in the curriculum design.

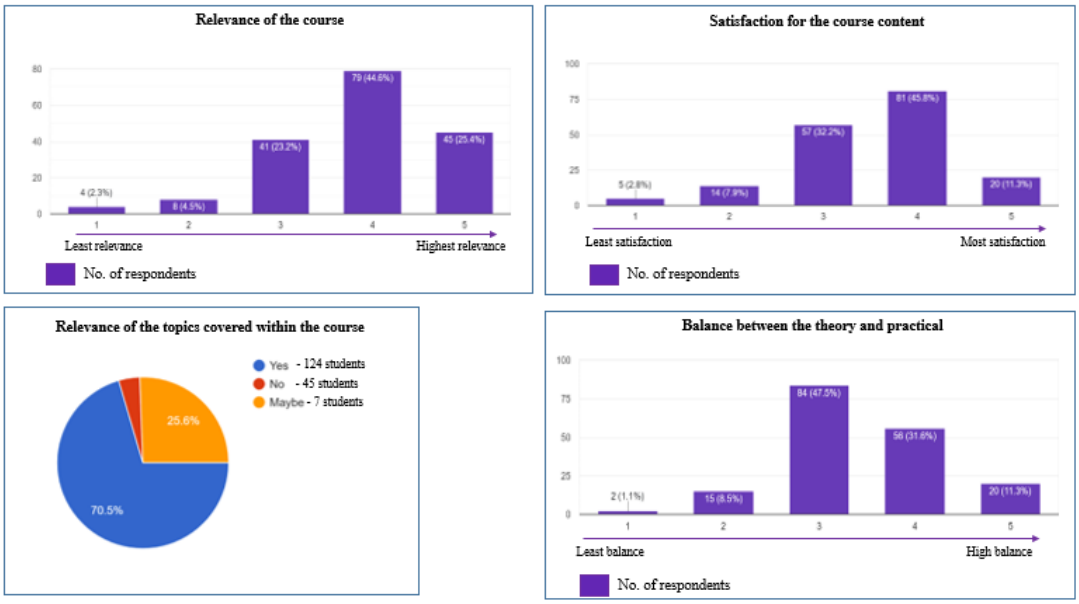

Figure 7: Charts showing curriculum analysis as part of the survey,
Source: Developed by Author

8.1.1. RELEVANCE OF THE COURSE

The survey data, collected from 177 students, reveals the relevance and inclusion of the course within the B. Arch curriculum. The findings show that a majority of 79 students (44.6%) perceive the course as relevant, with 45 students (25.4%) indicating that it is highly relevant and should continue to be taught in future batches. These results suggest a

positive reception and endorsement of the course among students, highlighting its perceived importance and value within the architectural education program (Figure 7, top-left).

8.1.2. COURSE CONTENT APPROPRIATENESS

The survey data, collected from 177 students, reveals that 81 students (45.8%) find the content of the course to be quite appropriate, while 20 students (11.3%) consider it highly appropriate, and 57 students (32.2%) find it moderately appropriate. Additionally, 10.7% of students are not satisfied with the course content. This indicates that approximately 42.9% of the students perceive a need for curriculum content revision to enhance interest and relevance. The findings suggest that while a majority of students find the course content suitable, a significant proportion expressed varying degrees of satisfaction, highlighting an opportunity for curriculum adjustments to better engage and cater to student preferences (Figure 7, top-right).

On evaluating the relevance of the topics/modules covered in the course, data from 177 students shows that 124 students (70.5%) consider the modules to be very relevant, indicating a strong consensus among the majority. This suggests that the course content is perceived as important in providing students with a clear conceptual understanding of fundamental concepts related to the course theme. However, the presence of 45 students (25.6%) who remain uncertain about the relevance of the modules highlights an opportunity for further clarification or enhancement of the content to address any perceived gaps or doubts among students (Figure 7, bottom-left).

8.1.3. INTEGRATING THEORY AND PRACTICE IN THE COURSE

The survey data from 177 students highlights varying perceptions regarding the balance between theory classes and hands-on tasks within the course. Specifically, 84 students (47.5%) view the balance as moderate, while 56 students (31.6%) perceive it as good, and 20 students (11.3%) consider it highly balanced. These findings suggest that the proportion of theory versus hands-on learning facilitated within the course is somewhat disproportionate. The course structure comprises 4 theory classes and 12 hands-on learning sessions and discussions, indicating a higher emphasis on practical application. However, the course credits and hours allocated (3 credits with 1 hour for theory and 2 hours for workshop components) imply a ratio closer to 1:2, whereas the actual delivery reflects a ratio closer to 1:3. This discrepancy suggests a potential need to adjust the curriculum to either increase theoretical content to provide more comprehensive information and strategies related to light conditions or reduce hands-on tasks to achieve a more balanced approach (Figure 7, bottom-right).

8.2. TEACHING METHODS AND APPROACHES

This section investigates the appropriateness of the adopted teaching methods and approaches. The inquiry focuses on several key aspects: the variation of exercises to suit diverse skill sets and learning needs, the extent to which peer learning is facilitated by the course, the adequacy of course materials and resources, opinions on the master class format, and preferred teaching methods. Based on the responses received, this section is divided into the following subsections for a more detailed interpretation and analysis of the data:

8.2.1. PROVISION OF COURSE MATERIALS AND RESOURCES

When inquiring about the adequacy of course materials and resources provided to achieve the set learning objectives, the survey data reveals diverse student perspectives. Out of 177 students, 82 (46.9%) agree and 9 (5.1%) strongly agree that the course materials and resources are helpful in meeting the learning objectives. Meanwhile, 67 students (39.4%) take a neutral stand, and 15% of the students disagree, indicating that the materials and resources do not sufficiently support their achievement of the course outcomes. These findings suggest that while nearly half of the students find the provided materials and resources beneficial, a significant proportion of students remain indifferent or dissatisfied. This indicates a need for improvements in the course materials to better support learning objectives. Specifically, there is a need for more relevant materials, such as presentations and notes that comprehensively explain various concepts, definitions, and technicalities about light (Figure 8, top-left).

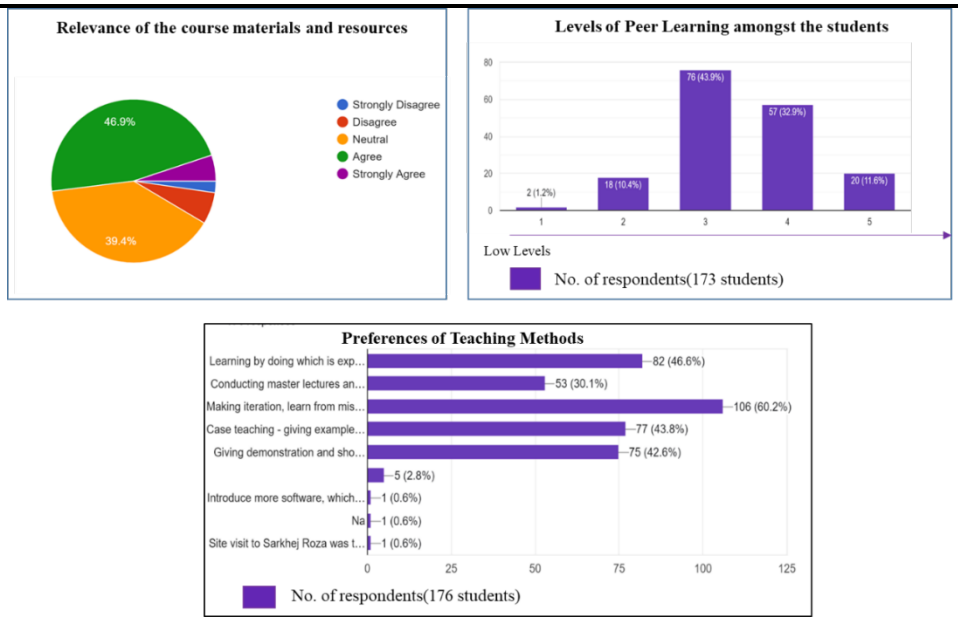

Figure 8: Charts showing teaching methods and approaches,

Source: Developed by Author

8.2.2. PEER LEARNING LEVELS AND OPPORTUNITIES

The survey data reveals insights into the effectiveness of the course in facilitating peer learning opportunities. Out of 173 students who responded to this question, 76 students (43.9%) agree, 67 students (32.9%) find the course to be conducive to peer learning to some extent, and 20 students (11.6%) strongly agree that the course facilitates significant peer learning opportunities. These findings indicate that a majority of students perceive the course as generating valuable peer learning 152-10

opportunities. This facilitation likely occurs through various class activities, such as collaborative discussions, clarification of doubts related to assignments, and the common culminating exhibition where students collectively reflect on the course outcomes. The positive reception suggests that the course design effectively encourages peer interaction and collaborative learning, contributing to a deeper understanding of the material and enhancing the overall educational experience (Figure 8, top-right).

8.2.3. PREFERENCES FOR THE TEACHING METHODS

An analysis of 176 student responses regarding their preferred pedagogical methodologies reveals significant insights into the instructional strategies that facilitate their achievement of the course's learning objectives. A notable majority, 106 students (60.2%), express a preference for iterative learning methodologies. These methods foster self-directed learning through assignments that interweave rational, analytical, and intuitive cognition (Boyer and Mitgang, 1996). The second most favored approach, selected by 82 students (46.6%), is the 'Learning by Doing' paradigm, which involves active engagement in task performance, internalizing knowledge through practical execution and reflection. The case study method, endorsed by 77 students (43.8%), involves examining precedent cases to illustrate how architects employ innovative strategies to manipulate light, creating intricate plays of light and shadow. Practical demonstrations and experiential learning sessions are also highly opted for by 75 students (42.6%), providing tangible, practical applications through live case studies and experiments. Students could observe and experiment with light angles using light boxes and torches or by situating light boxes in actual sunlight to study light penetration. Conversely, the master class format is the least preferred instructional method, indicating a strong student preference for pragmatic, hands-on learning experiences over theoretical lectures. This feedback suggests a curricular imperative to prioritize experiential and interactive learning modalities to better align with student preferences and optimize educational outcomes within architectural pedagogy (Figure 8, bottom).

8.2.4. MASTER CLASS VS LECTURES IN SMALLER GROUPS

Upon understanding that the master class is a less preferred choice as a teaching method, there was a deeper inquiry about the master class conduction, its effects on interaction among the class, and what can be a replacement for a master class. The survey indicates that 51.5% of students agree that the master class definitely fosters interaction among the class, but still, because the numbers of students are up to 80 (large-size class), they feel disconnected from the tutor conducting the lecture (Figure 9, left). This indicates an overreliance on trans missive lecture styles often observed, arguing for smaller class sizes, variety, and interaction in teaching sessions (Bligh, 2000).

On inquiring about their preference for master class vs. lectures in small group size, a majority of 63.7% of students opt for lectures in small group sizes with a student-teacher ratio of 15:1, which allows for better interaction between student and teacher and the ability to ask questions without fear, unlike in the formal setup of the master class within the large-class size (Figure 9, right).

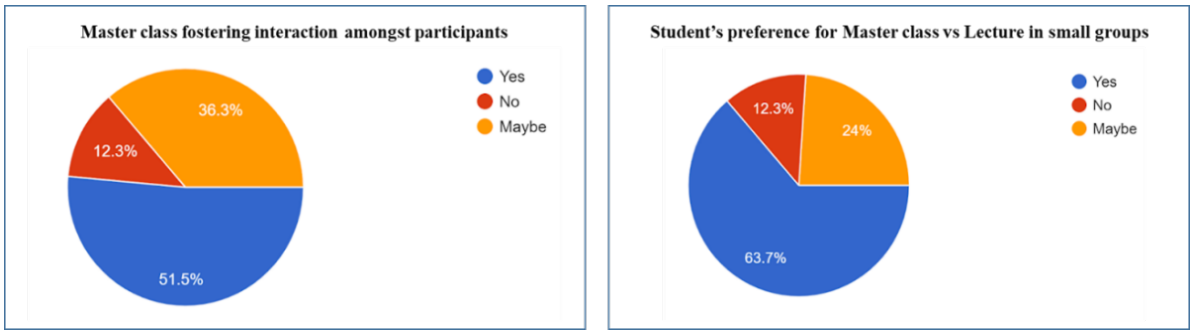

Figure 9: Evaluation of master class as a methodology,

Source: Developed by Author

8.3. PEDAGOGICAL EFFECTIVENESS

The employed pedagogy significantly impacts the class environment and student learning processes. This section examines various aspects to understand these effects: overall engagement levels, the methodology's contribution to creative outcomes, the role of the end exhibition in enhancing learning experiences, and the influence of the course's methods on students' design and problem-solving approaches.

8.3.1. ENGAGEMENT LEVELS DURING THE CLASSES

The survey reveals that 74 students (41.8%) report high levels of engagement during various class activities, while 15 students (8.5%) note very high levels of engagement. These activities promote valuable discussions that significantly improve their designs. Conversely, 68 students (38.4%) report moderate levels of engagement during class activities. These findings indicate that the employed pedagogy is effective in fostering an engaging and interactive class environment for a majority of students, promoting meaningful dialogue and collaborative learning. However, the moderate engagement levels reported by a substantial portion of the students suggest there is room for enhancing the methods to further increase active participation and involvement among all students (Figure 10, top-left).

8.3.2. METHODOLOGY'S CONTRIBUTION TO CREATIVE OUTCOMES

The survey reveals that 64 students (36.8%) agree and 14 students (8%) strongly agree that the adopted methodology within the course significantly encourages creative outcomes through hands-on learning. Additionally, 67 students (38.1%) indicate that the methodology moderately encourages creative outcomes. These findings suggest that the course's experiential, practice-based approach effectively 152-12

fosters creativity among a substantial portion of the students. The high levels of agreement indicate that many students feel their creative abilities are significantly enhanced through the practical learning activities (Figure 10, bottom-left).

8.3.3. FEEDBACK ON THE CULMINATING EXHIBITION

The survey indicates that out of 173 responses, the majority of respondents perceive several advantages of a culminating exhibition at the end of the semester. These advantages include gaining inspiration from new ideas and approaches, enhancing understanding of core concepts, interacting with peers and seeing their work, learning from their peers, and receiving valuable feedback from course faculty members. This exhibition becomes a collective event that provides opportunities for curation and collective reflection on their work. Conversely, only a small number of 33 students feel that this exhibition has minimal or no impact on their learning experience (Figure 10, bottom-left).

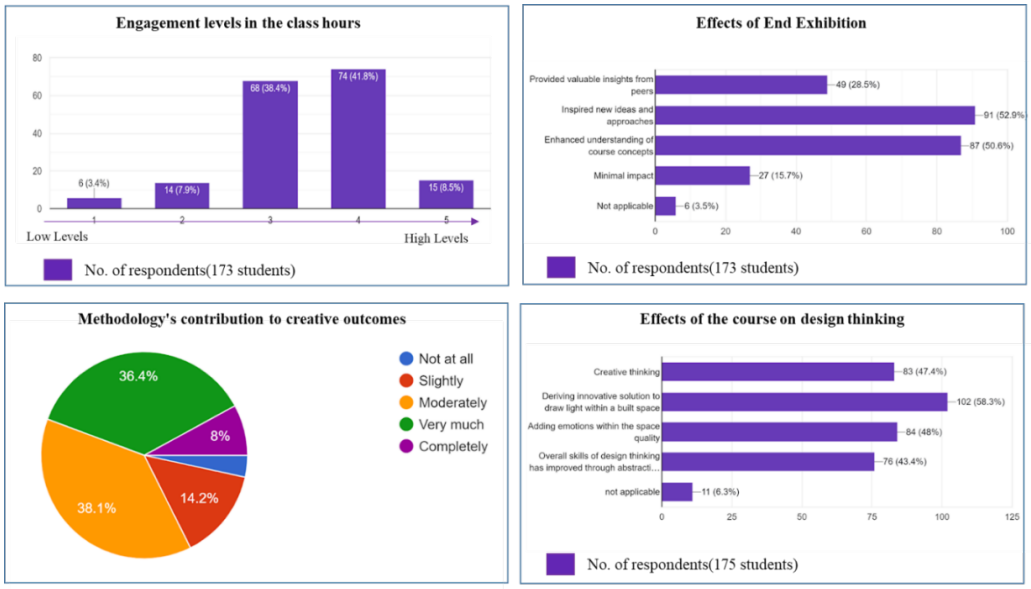

Figure 10: Evaluation of pedagogical effectiveness,
Source: Developed by Author

8.3.4. MPACT ON DESIGN AND PROBLEM-SOLVING APPROACHES

The survey, which includes 175 responses, reveals that the majority of students perceive several advantages in the adopted methodologies within the course. Specifically, 102 students (58.3%) feel that the methodologies help in deriving innovative solutions to draw light within a built space. Additionally, 84 students (48%) note that the methodologies facilitate the addition of emotional elements to the space, enhancing their understanding of core concepts. Furthermore, 83 students (47.4%) indicate that the course improves their creative thinking, while 76 students (43.4%) report that their overall design thinking skills improve through abstraction. Conversely, only a small number of 11 students (6.3%) feel that the methodologies have minimal or no impact on developing their design skills. These findings indicate that the adopted methodologies are generally effective in fostering innovation, emotional integration, and creative and design thinking among students (Figure 10, bottom-right).

8.4. FEEDBACK ON ASSIGNMENTS

The quantitative and qualitative feedback from 177 students is collected regarding the exercises and assignment types. The data is categorized into three types of exercises: Exercise type 1 (observation-based exercises), Exercise type 2 (analysis-based exercises), and Exercise type 3 (exploration-based exercises). The survey evaluates various parameters, including creativity in the design of the exercises, the relationship between the exercises and the creativity of the outcomes, difficulty levels, the time invested in working on the exercises, and ways to overcome difficulties with the exercises.

8.4.1. INNOVATIVENESS IN THE EXERCISE AND ASSIGNMENTS

Among the 177 respondents, over 92 students report that all three exercise types possess moderate levels of creativity. Notably, 66 students (37.3%) identify Exercise Type 3, exploration-based exercises, as having the highest levels of innovation and creativity. These findings indicate that while a substantial portion of students recognize moderate creativity across all exercise types, exploration-based exercises are perceived as the most innovative. This perception likely stems from the potential of exploration-based exercises to encourage divergent thinking and the exploration of imaginative ideas. Conversely, analysis-based exercises (Exercise Type 2) are deemed the least creative by 30 students. This suggests a lesser inclination towards technical and analytical exercises, which require the interpretation and analysis of collected data (Figure 11, top-left).

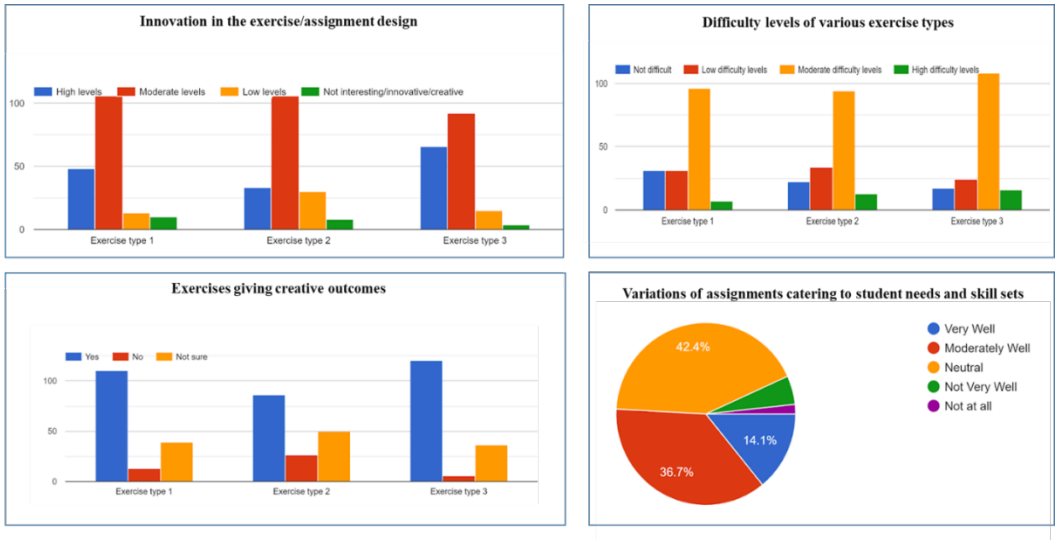

Figure 11: Feedback on various parameters exercises/assignments,

Source: Developed by Author

8.4.2. CREATIVITY ACROSS DIFFERENT EXERCISES OUTCOME

The survey indicates that the majority of students agreed that all these exercise types help generate creative outcomes. The highest level of creative outcomes was seen in exercise type 3 (exploration-based exercises) by the students, while exercise type 1 (observation-based exercises) had the next highest level of creative outcomes, and exercise type 2 (analysis-based exercises) had the least levels of creative outcomes (Figure 11, bottom-left).

8.4.3. ASSESSING ASSIGNMENT VARIATIONS FOR DIVERSE SKILL SET

When asked about the variety of assignments given to cater to different skill sets, the survey data reveals mixed responses. Out of 177 students, 72 (42.4%) remain neutral, indicating no strong opinion

either way. Meanwhile, 65 students (36.7%) affirm that the course exercises effectively respond to the diverse skill sets of the students, providing opportunities to learn new skills and push beyond their comfort zones. Conversely, 25 students (14.1%) strongly agree that the varying typology of exercises successfully addresses the diverse skill sets, allowing them to excel in their respective assignments and achieve outstanding outcomes. These findings indicate that while a significant portion of students recognize the value of diverse and challenging assignments in enhancing their skills and learning experiences, a considerable number of students remain neutral, suggesting room for improvement in tailoring assignments to meet individual needs more effectively. This feedback highlights the importance of continually refining the assignment structure to ensure it not only accommodates but also nurtures the varied abilities of all students, thereby maximizing their potential and fostering a more inclusive and effective learning environment within the course (Figure 11, bottom-right).

8.4.4. TIME INVESTMENT IN EXERCISES

When asked about the time invested in performing the various exercises and assignments, a majority of students (68.9%) feel that the time given to work on these exercises is adequate. Additionally, 71.75% of students state that having adequate time allows them to iterate on the given tasks and engage in discussions with their respective faculty and peers, who helps them improve their work (Figure 12).

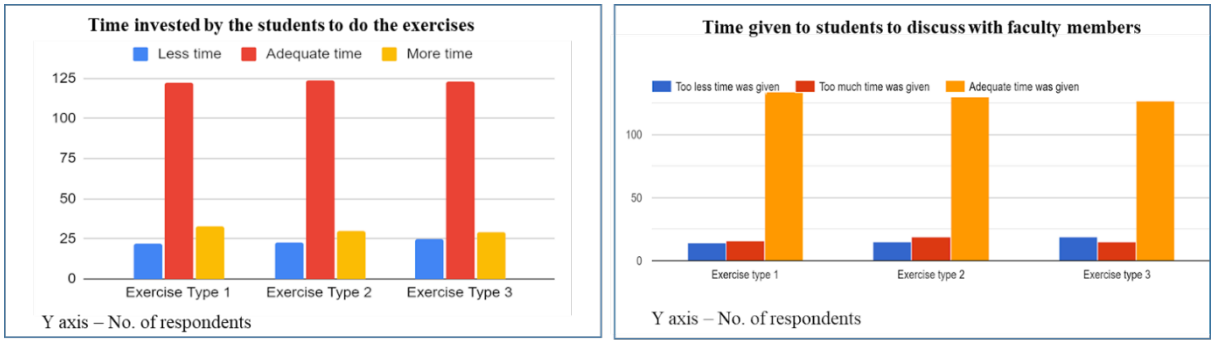

Figure 12: Time invested for performing the assignments,

Source: Developed by Author

8.4.5. DIFFICULTY LEVELS OF EXERCISES/ASSIGNMENTS

The survey indicates that more than 92 students (54.2%) agree that the difficulty levels of the exercises are moderate. However, a small number of students (9.3%) believe that Exercise Type 3 has higher difficulty levels (Figure 13, top-right). The highest level of difficulty is in thinking outside the box, faced by 48.4% of students, followed by translating the instructions into outcomes, faced by 37.3% of students. Additionally, 53 students (32.9%) encounter difficulty in managing their time to complete the tasks, while 26 students (16.1%) struggle with understanding the assignments. This indicates the need for better clarity in task instructions, including clear expectations and detailed rubrics for the assignments. Ideally, providing examples of expectations can guide students better (Figure 13, left).

Upon observing that students face difficulties in completing the assignments, further inquiry is conducted to understand how they overcome these challenges. The survey discloses that the majority of 101 students (61.6%) out of 164 responses overcome difficulties by discussing them with the tutor, while some (53.7%) address difficulties by discussing them with peers. Additionally, 47 students (28.7%) mention overcoming difficulties simply by performing and completing the tasks, while only a few (8.5%) skip the assignment tasks to overcome the difficulties faced (Figure 13, right).

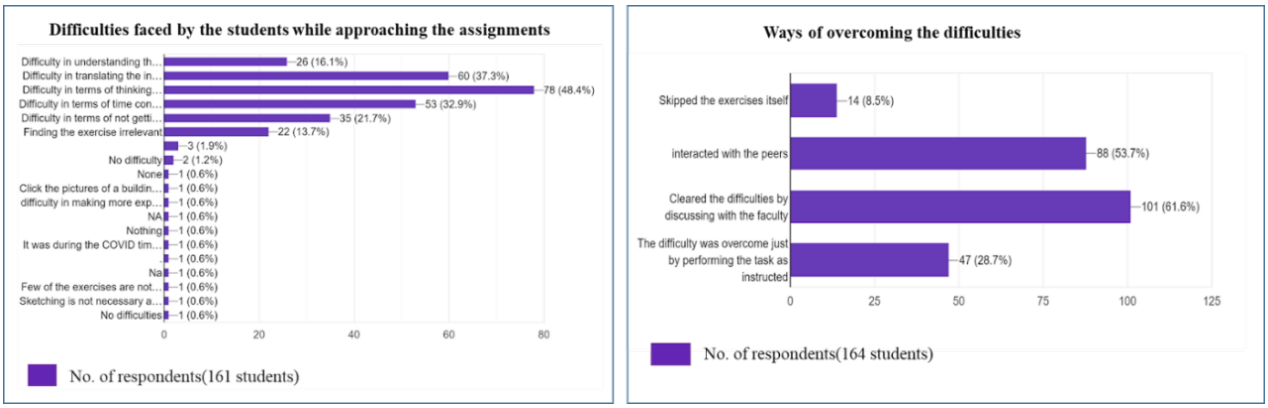

Figure 13: Difficulties faced by students,

Source: Developed by Author

8.5. GROUP DISCUSSIONS WITH FACULTY MEMBERS TEACHING THE COURSE

To gain insight into the tutors' perspectives on their experiences with the teaching pedagogy of the course, group discussions are conducted with twelve tutors who have taught the course across different years. The tutors find the course content highly appropriate, covering a wide range of topics. Additionally, they praise the modular structure of the course for aiding students in understanding concepts and progressing effectively from basic to complex levels. The faculty members agree that students face difficulties in interpreting the assignments and emphasize the need for clear and concise instructions to eliminate any ambiguity. Moreover, they suggest developing rubrics for the assignments to set clear expectations for the course. They believe that iterative and experiential learning methods help students think creatively and generate effective and interesting solutions. Overall, the tutors' insights underline the importance of clarity in instructions and the benefits of a structured, yet flexible, curriculum that fosters creativity and practical problem-solving skills. This feedback will be invaluable in refining the course to better meet the needs of both students and faculty.

9. REFLECTIONS AND RECOMMENDATIONS

Periodic evaluation and refinement of the course content are essential to ensure alignment with students' expectations and enhance the course's effectiveness. A balanced approach in designing the curriculum is necessary, allowing for proportionate adjustments in theoretical content versus hands-on assignments. Prioritizing experiential and interactive learning models in the curriculum design is crucial, as knowledge transmission can often be a self-directed pursuit due to readily available resources, while experiential learning leaves a lasting impact. Trial-and-error learning with materials and models is required that can complement lectures and aids conceptual understanding. Small group teaching has been valuable, enabling students to negotiate meanings, express themselves in the subject's language, and understand it deeply. It fosters intimate contact with academic staff and develops instrumental skills such as listening, presenting ideas, and persuading.

Peer-learning is an inevitable ingredient of any teaching learning model and it has to be promoted by allowing the students to do background research and present small topics before the classmates, which can improve their conceptual clarity and confidence to face the audience with improved engagement levels within the class. The experimental and practice-based methodologies adopted led to creative outcomes, and the collective exhibition at the semester's end was fruitful; however, involving external jurors and having it as a graded component, could enhance its seriousness amongst the students.

Assignments should accommodate the varied abilities of students to maximize productivity and foster design-thinking approach, making exercises more open-ended and less rigid based on students' difficulties. Analytical exercises, despite their lower preference, should not be discarded but redesigned to be straightforward and easily understood. Targeted reading sessions could engage students more effectively and enhance topic comprehension, ensuring all students have the necessary resources and 152-16

support. Software driver exercises can be given which can focus on faster reconnaissance of the work given and getting faster outcomes, which also lead to more number of iterations. The rubrics for each exercise type needs to be defined so that the weightage and evaluation can be done with utmost parity.

Henceforth, a dynamic and inclusive curriculum that balances theoretical knowledge with hands-on experience, fosters peer learning, and supports diverse student abilities will create a more effective and engaging learning environment.

10. CONCLUSION

The 'Light & Space' course at Anant National University demonstrates the significant impact of innovative pedagogical approaches on student learning and creativity. By integrating hands-on experiential learning with theoretical knowledge, the course effectively fosters engagement, enhances design thinking, and promotes creative problem-solving. Feedback indicates that while the course successfully incorporates diverse assignments and methods, there is room for further balancing theoretical content with practical application to better meet student needs. Overall, the course serves as a valuable model for architectural education, highlighting the importance of continuous evaluation

and refinement to ensure its effectiveness and alignment with student expectations. By continuously refining the above-mentioned parameters, the 'Light & Space' course. Agrawal, V., & Gujar, K. (2019). Role of creative exercises in design process: Documentation of first year design studio.

CONFLICT OF INTERESTS

None.

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