

Analyzing the Architectural Internship Program in India and Recommending Guidelines

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Abstract

An internship is a period of professional work experience that plays a significant role in the lives of architecture students. During that period, they would learn the work culture of an office and understand the work environment, enabling them to handle projects individually and understand the details for execution. Further, it would facilitate personal development. The internship program in India has yet to have a programmatic approach. The student's exposure will differ based on the firm they select. It is high time to note that the students should gain knowledge in all areas of the architectural field, both in terms of office and site environments. This study aims to discover areas in which students are currently exposed to work in an internship and propose certain guidelines to be followed. The survey questions were formed by areas, which are divided into six categories adopted from the literature study Practice Management, Project Management, Programming & Analysis, Project Planning & Design, Project Development & Documentation, Construction & Evaluation, with the percentage interval ranging from 0%, 10–30%, 31–50%, 51–70%, 71–90%, and 100%. Furthermore, a question set with a 5-point Likert scale was asked to know about their experience, and open-ended questions were asked to know about their expectations. A survey was conducted among the students who completed their internship; there were 249 respondents from different architectural colleges in India. The results show a lower score for exposure to practice management, project management, programming analysis, construction, and evaluation.

Keywords: Architectural Internship Program, Guidelines, Architectural Students, Work Environment, Internship Experience

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Introduction

Architectural internships are essential to students' journey with an architecture background. The internship program, regarded as an essential component of higher education, allows students to "complete" their education by bridging the knowledge gap between the classroom and the real world.(Katula & Threnhauser, 1999). Students are better prepared for their future professions after internships because they have a greater awareness of what is expected of them in the actual work world and are more confident in their professional abilities. (Gündeş, 2017; Jackson & Jackson, 2009). Internships, according to Taylor (1988), are "organized and career-relevant job experiences attained by students before they graduate from an academic degree" (p. 393).(Jawabri, 2017; P. Maertz Jr et al., 2014). Students have said that internships significantly contribute to their educational experience and that case studies, discussions, and simulated business scenarios have proven highly effective.(Jawabri, 2017). The working environment comprises various factors, including opportunities for learning, chances for professional advancement, assistance from coworkers and supervisors on-site, organizational satisfaction, and chances to build networks (D'Abate et al., 2009).

The use of internships has been seen favourably by institutions to create thorough curricula that include opportunities for the real-world application of knowledge. This draws in both students and future employers since well-run internships assist in developing valuable professional skills (Lam & Ching, 2007). So, the internship has been thoughtfully considered in framing the rules and regulations, monitoring students' progress, and ensuring they cover all areas of their professional background. The COA (Council of Architecture) frames and regulates India's internship rules and regulations. The rules are framed as follows: do an internship for six months, during which 90 working days must be spent in the firm. However, the detailed approach was formed only in 2021, and there is the question of following and carrying on as per the rules in all firms. Moreover, the rules must be framed in detail by considering the student's professional development. In the USA, the Intern Development Programme (IDP) formed by NCARB has properly structured rules and regulations with proper divisions in the type of work and an hourly approach that helps the interns learn about all types of work in the office and site environment.

The research aim is to analyse the following aspects:

1. To analyse the architectural internship programme in India and the student's experience during their internship period.
2. To find out any issues faced by the students during their internship period.
3. Creating the survey questions by incorporating the AXP (IDP) approach and finding out the current scenario of the student after their internship experience.
4. Collaborating the IDP guidelines with the Indian context and proposing guidelines for a successful internship program.

Theoretical Background

Intern Development Program

The National Council of Architectural Registration Boards created the IDP (Internship development program) in 1976 after collaborating with the American Institute of Architects. AXP is called the Architectural Experience Programme and was started by NCARB to understand the daily realities of architectural practise. An essential step on the road to becoming an architect is completing the Architectural Experience Programme. NCARB

(National Council of Architectural Registration Boards) is a non-profit organisation composed of architectural licencing boards of 55 states and territories that formulated the AXP, which has 96 tasks that are performed in six experience areas, which are practise management, project management, programming and analysis, project planning and design, project development and documentation, construction, and evaluation (NCARB, 2020).

Practice Management

Gaining knowledge of how to operate a business, including project management, project safety, client coordination, and maintaining solid relationships with the office and clients. Practise management is where you will learn the ins and outs of running an architecture practise, including managing a business, promoting your firm, getting projects, interacting with clients, and maintaining a productive and professional work environment.

Project Management

It aids in completing the project according to the specifications given in the contract and acquiring expertise in project coordination, execution, and other related tasks. One will learn to deliver projects that adhere to your contractual obligations in project management, preparing one to plan, organize, supervise, and carry out a project.

Programming & Analysis

It is the project's first stage, and experience may be earned by investigating site information, code requirements, and client needs to determine a project's feasibility. The initial stage of a project, sometimes referred to as pre-design, is called programming and analysis. One will be done in such a way that you need to investigate and assess the client's needs, building codes, zoning laws, and site information to provide suggestions regarding a project's feasibility.

Project Planning & Design

The schematic design stage covers knowledge of creative concept development layouts, conceptual model development, schematic presentation preparation, coordination with clients and consultants, and adherence to codes and laws. Schematic design is covered under the project planning and design section. One will learn to draw out the building design, analyse building rules and laws, coordinate schematics with consultants, and convey design thoughts to clients.

Project development & Documentation

When the schematic design has been approved, the next phase begins—acquiring knowledge of generating approval and construction documentation to work with the appropriate authorities to get approval. One will gain expertise with projects in project development and documentation by concentrating on construction documentation and working with regulatory bodies to obtain the required approvals for construction after the schematic design has been authorised.

Construction and evaluation

The project's final phase involves site visits and contractor and client meetings while working with building officials. In Construction and Evaluation, one will participate in the project's post-construction and construction administration phase, which involves visiting the job site, meeting with contractors, clients, and building officials, and creating punch lists that will eventually complete the project.

This research takes these six areas and surveys the architectural students once they complete their internship.



Figure 1: Areas suggested to be covered during the internship period.

Methodology

Participants

A total of 249 students, of which 145 are girls, and 104 are boys, are from different architectural colleges, which cover state government, private colleges, self-supporting colleges, and central government colleges in India. The students participated from all zones: North, East, West, South, North-east, and Central, and the participants ranged from 17.7%, 1.3%, 2.5%, 72.2%, 2.5%, and 5.1%, respectively. The participants' ages range from 21, 22, and 23 in the 9th and 10th semesters, or 24.4% and 75.6%, respectively.

Instrument and Methodology

The questionnaire was administered to conduct the survey among the students who completed the internship. The survey was conducted in a mixed mode, both online and offline. The aim of the survey question was explained to the students, and they were asked to fill out the form based on their experiences. Instructions are also given to keep their personal information private for accurate results. The batches differed according to the regulations of the colleges.

The colleges under government and government aid have the rule of an internship for six months in the ninth semester. The colleges that come under deemed and central government colleges have the regulation for six months in the 8th semester. The questionnaire were asked once they completed their internship period, the 10th semester for government and government-aid colleges and the 9th semester for deemed colleges and central government colleges.

The questionnaire was prepared based on the AXP Internship Experience Programme and previous publications and student reviews. The questionnaire was designed into three segments: the first segment was developed as a percentage interval method divided into six categories taken from the literature study: practise management, project management, programming and analysis, project planning and design, project development and documentation, construction and evaluation, with the interval ranges being 0%, 10-30%, 31-50%, 51-70%, 71-90%, 100%; the second segment is the five-point Likert scale questions focusing on the students' internship experience once they complete their internship. Moreover, the third segment focuses on open-ended questions to learn about their personal experience.

Finding / Results

Practice Management

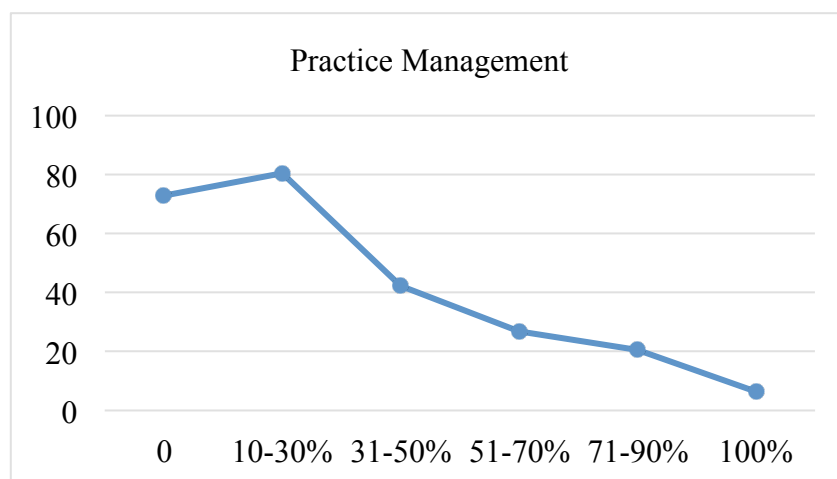


Figure 2. The graph shows the number of people and the percentage of work students covered in Practice Management.

Figure 2 shows that 73 students in 249 samples reported they were not exposed to Practice Management itself, which shows 29.3% of students were not aware of this work, which creates a lack of information about client interaction, ideas of securing projects, marketing the firms, managing the business, and sustaining the professional and positive work environment. They were followed by 80, 42, 27, 20, and 6 students in 10–30%, 31–50%, 51–70%, 71–100%, and 100%, respectively.

Project Management

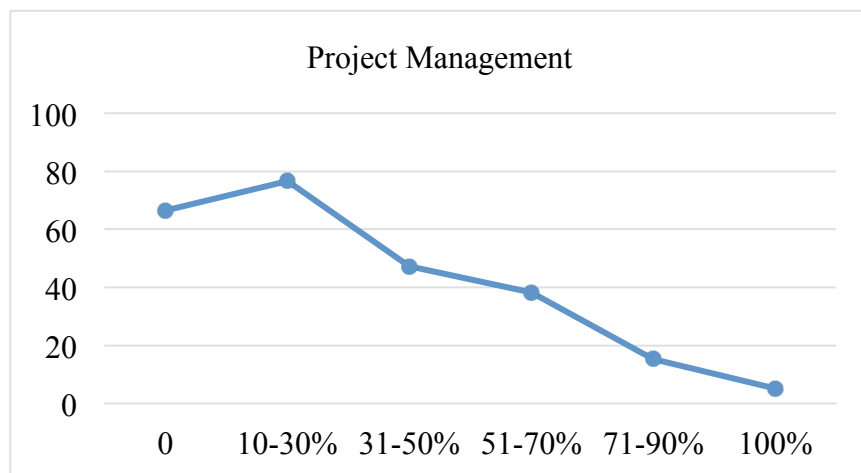


Figure 3. The graph shows the number of people and the percentage of work students covered into Project Management.

Figure 3 shows that the 66 students in 249 samples reported they were not exposed to Project Management itself, which shows 26.50% of students were not aware of this work, which creates a lack of information regarding the preparation of a budget, coordination with the client and team members, how to execute the project, project documentation, contracts, dealing with the roles and responsibilities of the team members, resolving the conflicts during the design and construction process, and other works related to project management. They were followed by 77, 47, 38, 15, and 5 students in 10–30%, 31–50%, 51–70%, 71–100%, and 100%, respectively.

Programming & Analysis

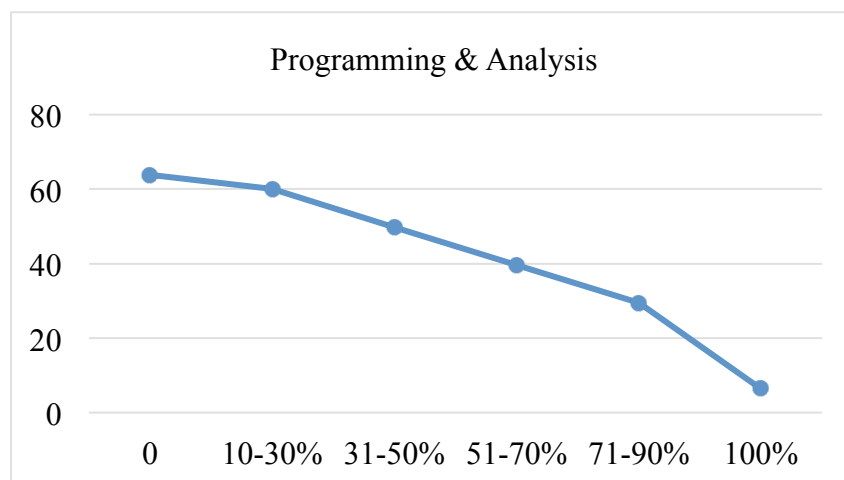


Figure 4. The graph shows the number of people and the percentage of work students covered in Programming & Analysis.

Figure 4 shows that the 64 students in 249 samples reported they were not exposed to Programming & Analysis itself, which shows 25.70% of students were not aware of this work, which creates a lack of information towards evaluating and researching the client's requirements, understanding about the building codes and zoning regulations, and developing site analysis diagrams in order to document the existing site condition, regulatory

requirements, reviewing the legal documents which related to the site, and analysing the constraints of the project in developing the conceptual budget and assessing the environmental impact to formulate the design decision. Other results are followed by 60, 50, 40, 29, and 6 students in 10–30%, 31–50%, 51–70%, 71–100%, and 100%, respectively.

Project Planning & Design

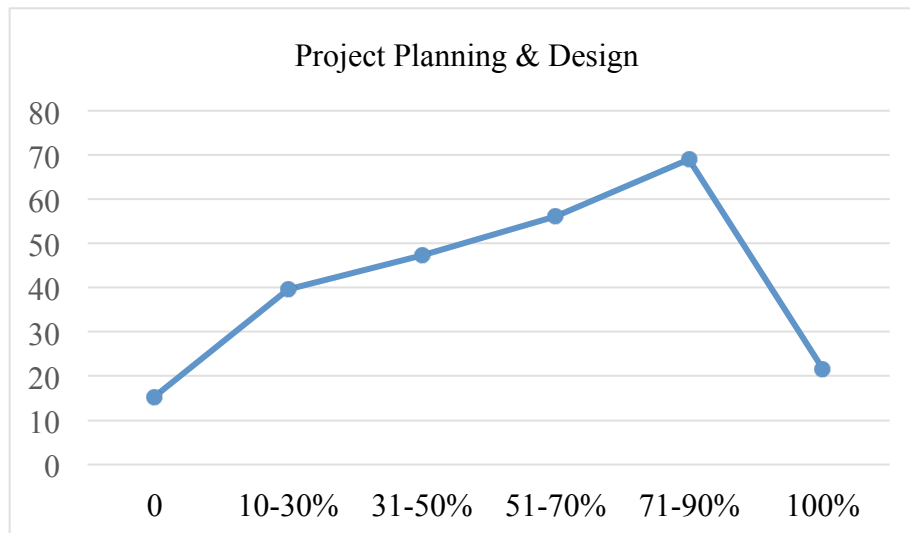


Figure 5. The graph shows the number of people and the percentage of work students covered in Project Planning & Design.

Figure 5 shows that 69 students did 71–90% of the Project Planning & Design work, indicating that 27.7% were working in this stage. This stage focuses on the layout of the building design, reviewing the building codes and regulations, preparing the design alternatives for the client's review, overseeing the design integration of building components and systems, preparing cost estimates for the work, designing the landscape elements for the site, and other works related to project planning and design. Other results are followed by 15, 40, 47, 56, and 22 students in 0%, 10%–30%, 31–50%, 51–70%, and 100%, respectively.

Project Development & Documentation

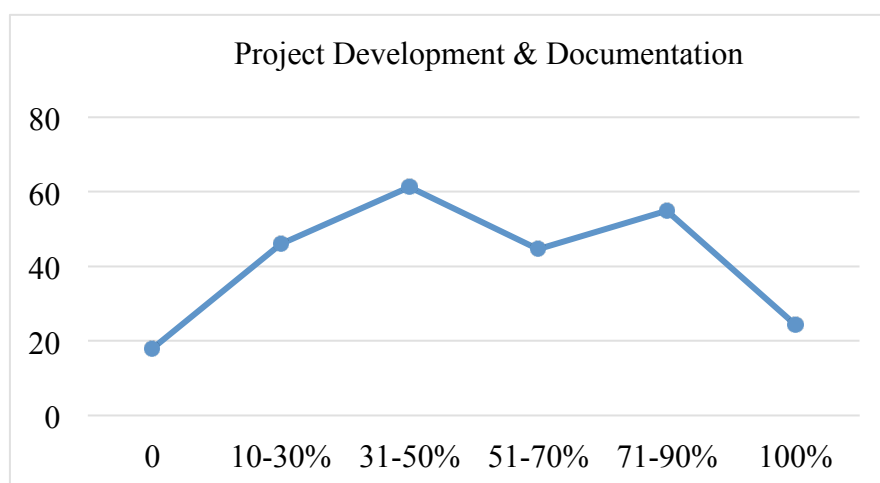


Figure 6. The graph shows the number of people and the percentage of work students covered in Project Development & Documentation.

Figure 6 shows that 61 students did 31–50% of the work in Project Development & Documentation, and 55 students did 71–90% of the work, which means that 24.5% and 22.08% were working at this stage. This stage focuses on the project after the schematic design has been approved. This stage focuses on creating the construction documents, preparing the drawings for regulatory approval, selecting the fixtures and furniture, another requirement that meets the client's requirement, preparing views (3-D drawings), preparing detailed drawings (2-D drawings), and updating the work estimate cost. Other results are followed by 18, 46, 45, and 24 students in 0%, 10%–30%, 51–70%, and 100%, respectively.

Construction & Evaluation

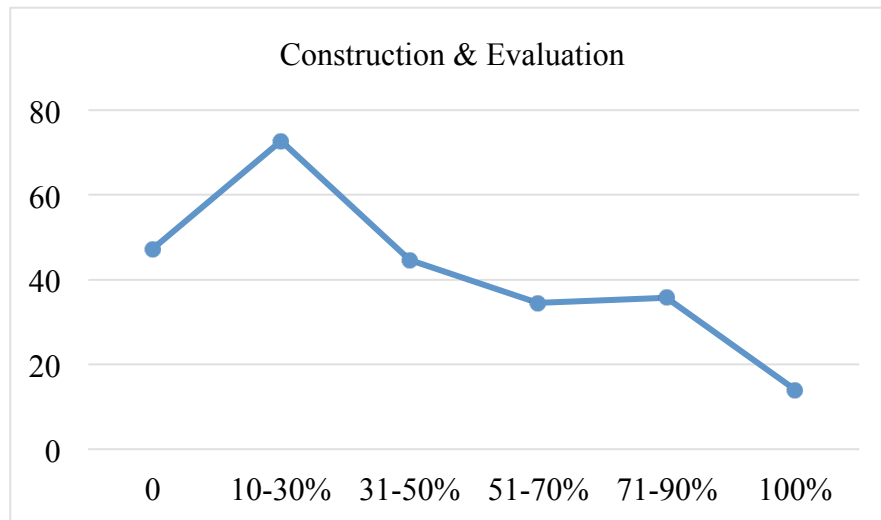


Figure 7. The graph shows the number of people and the percentage of work students covered in Construction & Evaluation.

Figure 7 shows that 73 students did 10–30% of the work in Construction & Evaluation, and 47 students never worked in this stage (0%). The results say that 29.31% of students worked in 10–30% of the construction and evaluation stage, and 18.87% never worked in this stage. This stage focuses on Post—the project's construction phases, which include site work, meetings with the contractors, clients, and building officials, reviewing the shop drawings and submittals during construction, and managing the project close-out procedures and documentation. Other results are followed by 45, 34, 36, and 14 students in 31–50%, 51–70%, 71–100%, and 100%, respectively.

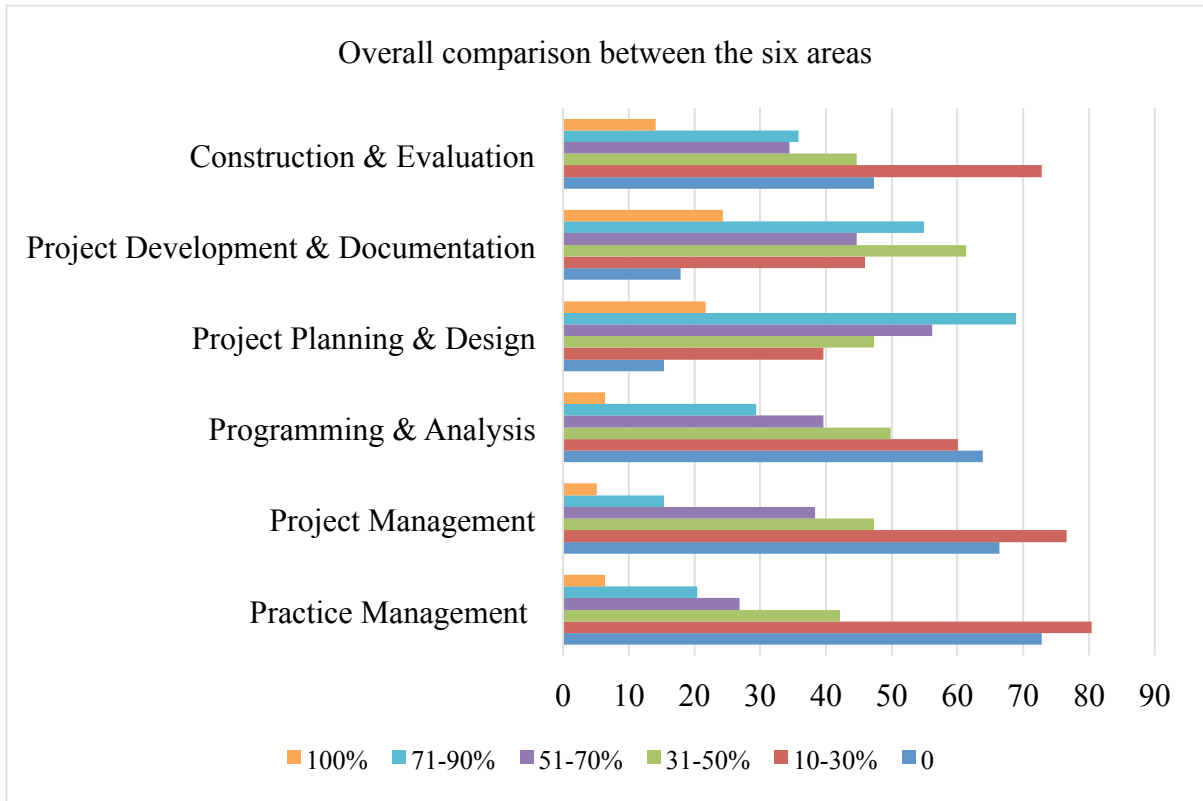


Figure 8. The bar chart shows the overall comparison between the six areas.

Figure 8 shows that the students spent the maximum time working on Project Development & Documentation and Project Planning & Design during their internship.

Typical tasks that students performed throughout their internships

Students were asked about the work that they were doing most often during the internship period in the divisions of model making, drafting, estimation, concept development, site visits, sheet presentation, and 3D works.

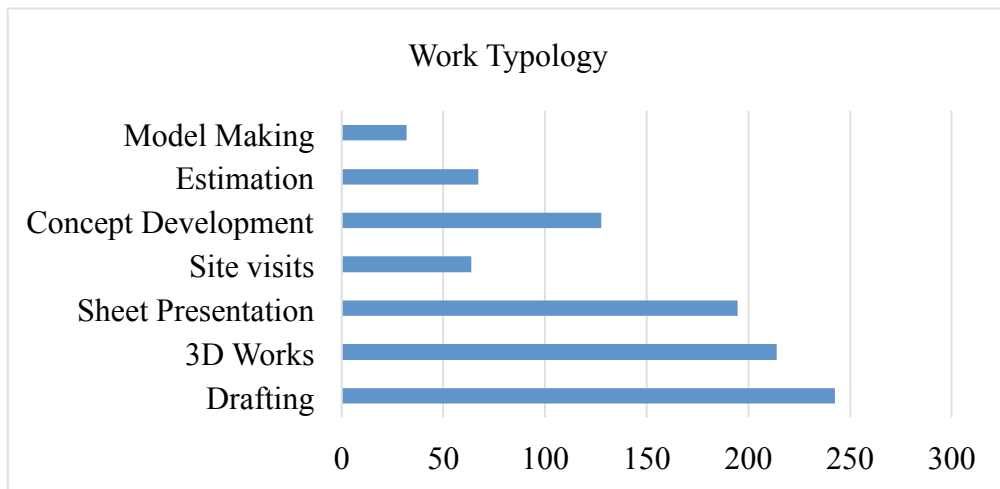


Figure 9. The bar chart shows the types of work exposed by the students in their internship period.

From the result, it is more evident that 97.59% of the students were exposed only to the drafting work, which is followed by 85.64% for 3D works, 78.31% for sheet presentation, 25.70% for site visits, 51.40% for concept development, 26.90% for estimation, and 12.85% for model making. These results show that more interns worked in drafting and 3D work.

Maximum amount of time spent in

Maximum Amount Of Time Spent

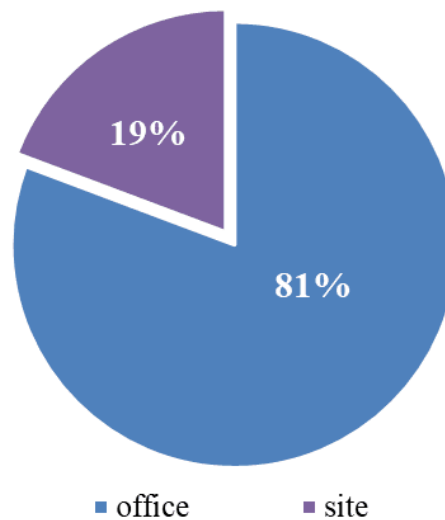


Figure 10. The Pie chart shows the comparison between office and site in terms of duration.

81% of the students said they had spent only the maximum time in the office. Moreover, only 19% of the students have proper site exposure. In the architecture intern journey, it must be taken into consideration that the practical experience needs to be focused on since this is the only place the students can learn practical knowledge before getting into the practise. One of the interns shares his experience, saying there were too few site visits.

“Since the major project in my office was a residential project, Hence, I got to learn planning, a small part of building services, e.g., plumbing and electrical drawing. However, I did not get much exposure to construction parts or site visits.”

This practise will help the intern understand the drawings on paper, but they must learn how they work out practically.

Table 1. General experience of internship from 249 students

Survey questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Throughout my architectural office internship, I was fully involved as the drafting person.	30	29	41	101	48
I was motivated to visit the site to understand the execution of work.	126	59	17	36	15
I was mainly assigned with the same type of works.	28	43	66	53	60
During my internship, I have acquired adequate knowledge in structural design.	28	53	74	60	34
I have been involved in the design development process during my internship program.	15	32	55	85	62
I was happy in doing work, beyond my regular working time in my internship office.	36	30	57	53	72
During my internship, I feel I am exploited beyond my structured office working hours.	51	34	49	45	70
Design development has improved after the internship.	15	11	70	70	83
I have been involved in the design development process during my internship program.	15	32	55	85	62
The nature of my work in the internship has improved my Decision-making skills	15	4	51	104	72
Practical knowledge of the design approach has improved after the internship program.	4	6	30	102	106
During my internship, I was motivated to coordinate work with other consultants.	26	45	70	57	51
I was treated as a supportive hand instead of a professional staff.	23	40	74	62	49

Table 1 shows 13 five-point Likert scale survey question, which shows the students' experience in the internship period on a scale of 1-5 from strongly disagree to Strongly agree. From the results, the everyday things that must be considered are the students' work typology, office timing, site visits, nature of work, and office environment.

Duration of the Architectural Internship period

According to survey data from students who have completed internships, they preferred one-year internship terms. They state that depending on the individual, it takes 2-3 months to become accustomed to office norms and tasks; once they begin working, they feel like their internship has ended.

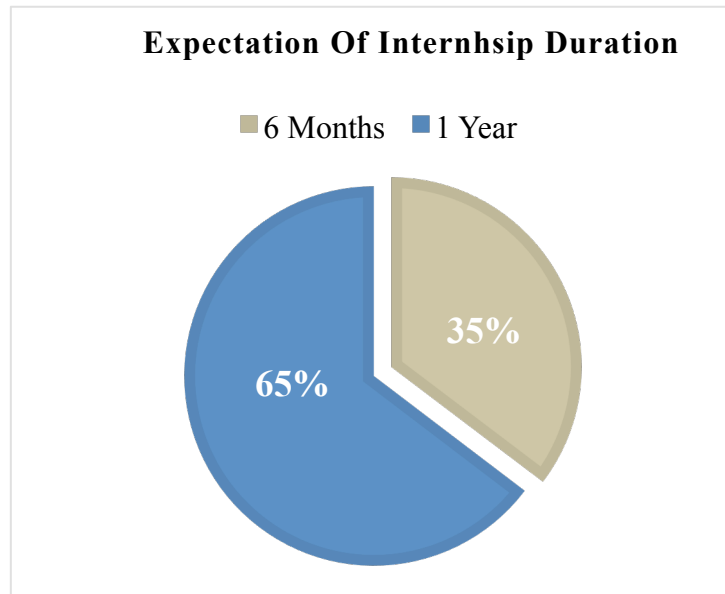


Figure 11. The Pie chart shows the expectation of internship duration by the students.

Discussion

Architectural internships are essential to students' journey with an architecture background. It bridges the gap between theoretical and professional knowledge, which must be structured so that the students get knowledge from all types of work in the office and on the job. It further helps them understand the work environment, work culture, how to deal with projects, clients, documents, approvals, and more. This is where they learn about the practical world and take their first step toward their entire professional life. It must be planned, organized, and monitored correctly to get the actual professionals in the field. The crucial part of India is that it is not as properly structured as in other countries. There is a 6-month internship rule that is followed throughout the state depending on the institution type and semester as 8 or 9th semester. But the outcome from these 6 months differs from person to person in the same class as per their firm selection, work type, and location. The knowledge gained from the internship has a lot of variances, even within the class, which can be high or low. The unstructured internship guidelines and regulations are the cause of this discrepancy. The COA, or Council of Architecture, is the board for architects. Which governs and regulates the architectural field. Before 2021, the rules were only about the total number of days to work. In 2021, they introduced the work that has to be done during an internship, but it is not followed and monitored properly. There must be detailed, structured rules and regulations that must be framed and monitored properly. From the open-ended questions, the students shared their experience and their issues. One intern has mentioned the stipend as,

“I think internships should at least have some sort of reward system, such as stipends or bonuses for individual project completion, as it will keep us going with determination.”

Some of the responses to the open-ended questions are given below.

“As an experience, I really learned a lot, and I was also given training in two new software programmes as well.”

“I learned more about working drawings and 3D visualisation during my internship.”

“Gained knowledge of structural details and estimation.”

“Good but could have been better in terms of exposure to approaching project tenders and bidding processes for large-scale projects.”

“Since the major project in my office was a residential project, Hence, I got the opportunity to learn planning and a small part of building services, e.g., plumbing and electrical drawing, etc. But I didn't get much exposure from construction parts or site visits.”

“I have worked on manual sheets for conceptual sketches, and also, we interns made ammonia sheets in the machine by ourselves and coloured them.”

The responses show that most of the students were happy about the work they have been doing in their internships and that they got good exposure to different areas. By analysing the open-ended questions, the five-point Likert scale, and the interval scale question, it is clear that all other responses are positive except for some factors like stipend, site visits, and duration of the internship. But while asking questions by covering all six areas related to their fields, the responses are very low, which shows that the students themselves are unaware of the areas they must cover during their internship and what all must be learned for the profession. Some recommendations are formed by considering the student's future endeavours by addressing these issues.

Recommendations for Guidelines

Duration of the Internship Period

The internship period must be one year; in the fourth year, after completing the internship, they must complete their fifth year. This one-year professional experience will make them understand the actual meaning of all the inputs they are making in the design. Since the students feel that the timeframe of 6 months is significantly less, two to three months are spent getting adapted in the office. When they start to learn, the intern period gets over, which shows that the aim of the internship is not fully satisfied. Therefore, revising the internship period from 6 months to one year is desirable.

Stipend

In the current practice, the stipend varies from firm to firm, and in some firms, the stipend is not paid. The rules must be implemented to get paid; the worksheet must be submitted at the end of each month. The worksheet should include the project name and the duration of the work done on each part of the project. This type of practice will ensure the student's work, the area they have covered, and the area that needs to be covered. Moreover, the working hours can be calculated by following this, and the stipend can be given accordingly. This practice will ensure the interns will get the stipend; this will make the motivation to do work and waste of time during an internship can be avoided, and the type of work they work can be monitored by themselves and by the mentor. Additionally, architectural firms can inform interns about the stipend and work culture on their website, which motivates them.

Area of Exposure

From the responses, the internship provides good exposure to the respected field. However, the lag is created when exposed to different types of work. Of the target group, 72% say they used to perform the same type of work. They are unaware of some work and how to handle or approach it. The areas that are divided by IDP must be implemented and should be monitored accordingly. The hours should be divided as per the recommendations and appropriately implemented.

Hours Division

The six areas were divided, and the work hours should be fixed. As per the division, total working hours can be 1440 in one year, of which practice management can be 40 hours, project management can be 138 hours, programming and analysis can be 100 hours, project planning and design can be 416 hours, project development and documentation can be 585 hours, and construction and evaluation can be 161 hours. By dividing these, all types of areas can be learned.

Table 2. Shows the area of work and hours to be covered in the internship period.

Area of work	Hours to be followed
Practice Management	40
Project Management	138
Programming & Analysis	100
Project Planning & Design	416
Project Development & Documentation	585
Construction & Evaluation	161
Total	1440 hours (Minimum)

Exposure towards site

The internship is planned so the students get exposure to the office and site environments to gain theoretical and practical knowledge. Only 4% of the students were satisfied with the site visits, which shows a significant drawback since the practical experience can be fulfilled only by direct site exposure.

Table 3. Requirements for the internship that must be adhered to.

Before internship	During internship	After internship
Before going to the internship, they must be introduced to all types of work, and the institution has to make sure that they have some general knowledge about the work and are instructed to engage in all types of work they are assigned.	During the internship, a monthly report must be sent to the respective coordinator, showing the type of work.	The portfolio must be submitted according to six area divisions made by the collaboration with IDP rules, along with proof of the work they have done during their internship.

Conclusion

The internship is the essential stage in the architectural student's journey, which must be appropriately structured. As per the implications of the areas from the background study of IDP, the students will understand all the areas and get exposed to different types of work. Rules must be followed strictly as per the recommendations. The monthly report must be submitted to the coordinator of the internship at the college and have to be submitted to the firm to get the stipend and to know which work the students get exposed to; by following this, no intern can waste time, and it will benefit the student and the firm. This stipend calculation method motivates the students to do their work; unknowingly, they will learn about all the areas. Site exposure is another central point that must be considered since the exposure to the site is significantly less, resulting in a lack of practical knowledge for the students even after the office exposure.

Limitations / Further research

The present study focuses on analysing the architectural internship and the issues faced by the students in their internship period, which can be added by focusing on the social and cultural background of the students and how it impacts the students learning part in the internship.

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