

FOSTERING ORIGINALITY: EXPLORING INTELLECTUAL PROPERTY RIGHTS AWARENESS AMONG ARCHITECTURE STUDENTS

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ABSTRACT

Today, government and private firms in various sectors like technology, computing, medicine, and genomics need to be aware and careful about protecting their creations. Private businesses in fields such as handloom, garments, and architecture also must stay vigilant about safeguarding their work. This is where the awareness and knowledge about Intellectual property rights (IPR) plays a crucial role. A cross-sectional study was conducted among the undergraduate students of the Architecture Department at Maulana Azad National Institute of Technology, Bhopal. With appropriate sampling, a total of 173 responses were recorded. The data was collected through a self-administered questionnaire. The

questionnaire comprised 35 questions including 5 for demographic details, and 25 questions relevant to awareness of Intellectual Property Rights (IPRs). The data thus obtained was analysed using Smart PLS 4. Descriptive statistics were employed to analyze categorical variables and Welch's t-test was used to compare awareness regarding IPRs among undergraduate students. The findings indicate that Architecture students possess an understanding of IPRs however, there's a notable lack of awareness regarding the complete understanding of how the IPR are Procured, handled and other specific details.

Keywords: *Architecture, Copyrights, patents, trademarks, Design Patent, Contracts and NDAs*

INTRODUCTION

In this rapidly changing world with new advancements in technology, innovations, and shared knowledge among the entire world, “Intellectual property” has become a buzzword. With the increasing necessity for new findings and solutions to complex problems, there comes a need to protect these commodities. In today's scenario govt. and private firms in the sectors, from tech. and computing to medicine and genomic industries, Private entities dealing in handloom, garment sector to architecture, everyone has to be aware and vigilant about the protection of their creation. This is where the awareness and knowledge about Intellectual property rights (IPR) plays a crucial role. Since these assets have great economic and social potential, the demand for careful protection arises so that these resources are exploited fully.

As per WIPO Intellectual property (IP) refers to creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names, and images used in commerce. It is loosely used for legal terms such as copyrights, trademarks, patents, etc. six IP products are available, which include Patents, Trademarks, Industrial Designs, Geographical Indications, Copyrights, and Trade Secrets.

Higher education plays a pivotal role in shaping and bringing trained professionals to the world. Having them informed about intellectual property rights, where to find and how to use the information is of paramount importance. This would enable them to protect their assets, and appropriately commercialize them to gain monetary benefits. The awareness of this topic could be brought about through regular seminars and workshops at the university and college levels. Architecture student in particular need to be made aware of how their designs that tackle real life problems can be protected through patents and copyrights. Trademarks could bring a clear brand identity to their established firms. These provide great value and returns to individuals and firms for developing new technologies.

LITERATURE REVIEW

The role of intellectual property rights (IPR) in fostering innovation and protecting creative output has gained increasing significance in academia and industry alike. Intellectual property (IP) laws not only safeguard the rights of inventors and creators but also encourage knowledge transfer, stimulate entrepreneurial activities, and provide a foundation for academic and professional spin-offs. In

this review, we draw insights from recent studies on IPR awareness in various academic contexts, including universities, health-care professionals, and industry, to explore the state of IPR knowledge and its impact on originality and innovation among architecture students.

Evolution of University IPR Regulations and Academic Patenting (Geuna & Rossi, 2011)

The framework surrounding IPR in universities has undergone significant changes, particularly in Europe. Geuna and Rossi (2011) examined the shifts in university IPR regulations, focusing on how these changes impact academic patenting. They highlight that universities in Europe have increasingly embraced policies that promote patenting and the commercialization of research outcomes. This shift, aimed at making academic knowledge more competitive, directly influences spin-off activities and the translation of research into practical innovations. Architecture students, whose projects often blend creativity with innovation, can greatly benefit from such regulations. Awareness of how patents and copyrights protect their original works could empower students to engage with the commercial aspects of their designs, potentially leading to greater entrepreneurial activity within architecture programs.

Intellectual Property Rights and Academic Spin-Offs (Teixeira & Ferreira, 2019)

In their work on academic spin-offs, Teixeira and Ferreira (2019) emphasize the relationship between IPR and competitiveness. They argue that clear understanding and application of IPR laws are essential for academic spin-offs to thrive. This insight is particularly relevant for architecture students, as the discipline often involves the

creation of novel design solutions. By being knowledgeable about IPR, architecture students can better protect their work and contribute to the commercialization of innovative design ideas. Spin-offs from architecture schools can lead to cutting-edge architectural practices and the development of sustainable, forward-thinking projects. Consequently, incorporating IPR education into the curriculum becomes crucial to ensure that students can navigate the legal landscape associated with their intellectual creations.

Awareness of IPR Among University Faculty and Students (Balahadia, et al., 2022)

One of the most significant challenges in fostering innovation is the low level of IPR awareness among students and faculty. Tinao et al. (2017) conducted a study tracking the changing attitudes toward IPR awareness within university environments. Their findings suggest that although there is a growing recognition of the importance of IPR, students and faculty often lack a comprehensive understanding of how intellectual property laws operate. This knowledge gap can be particularly detrimental to architecture students, whose creative outputs—designs, models, and artistic works—are vulnerable to imitation and theft without adequate legal protection. The authors emphasize the need for more systematic IPR education across disciplines to safeguard originality and encourage responsible academic and professional conduct.

University Students' Awareness of IPR

Building on the findings of Tinao et al. (2017), Balahadia et al. (2022) investigated the awareness of IPR among university students. Their research, conducted across different academic fields, shows that IPR

education remains underdeveloped in many university programs. The study found that students often associate IPR solely with technological inventions, neglecting the importance of protecting non-technical intellectual outputs such as architectural designs. This limited perspective restricts students' ability to fully engage with the opportunities provided by IPR, particularly in creative disciplines. For architecture students, who routinely produce innovative design solutions, it is crucial to understand how copyright, trademarks, and patents can protect their intellectual contributions.

IPR Knowledge Among Health-Care Professionals (Deshpande, et al., 2022)

While focusing on a different domain, the work by Deshpande et al. (2022) offers valuable insights into the importance of IPR awareness in professional fields. Their cross-sectional study assessed the knowledge of IPR among health-care professionals in India. The study revealed a similar trend of inadequate IPR education and the consequent underutilization of legal protections available to professionals. Although health-care professionals and architecture students operate in distinct fields, both groups share a common need for IPR knowledge to protect their innovations—whether medical or design-related. This study reinforces the argument that formal IPR education should be integral to professional training, preparing individuals to navigate the complex legal landscape that governs their intellectual work.

RESEARCH GAPS

The reviewed literature highlights a consistent theme: IPR awareness is essential for fostering innovation and protecting creative work

across disciplines. However, current levels of awareness among students, including those in architecture, remain insufficient. Architecture students, in particular, face a unique challenge, as their work straddles the intersection of creativity, technology, and business. As such, it is vital that universities provide comprehensive IPR education, equipping architecture students with the knowledge needed to safeguard their original designs and maximize the commercial and professional potential of their work. As IPR becomes increasingly relevant to academia and industry, fostering an understanding of these rights among architecture students will contribute to a culture of originality and innovation, ensuring that their contributions to the built environment are protected and celebrated.

OBJECTIVES

The objective of this Cross-sectional study was to understand the Awareness on Intellectual Property Rights among Architecture students.

- To find awareness level of architecture students about the type of IPR
- To investigate the understanding of architecture students about respecting others IPR
- To determine the impact of General awareness on the awareness about copyrights,
- To determine the impact of General awareness on the awareness about patents,
- To determine the impact of General awareness on the awareness about design patents.

- To determine the impact of General awareness on the awareness about trademarks.
- To determine the impact of General awareness on the awareness about Contracts & NDAs.

HYPOTHESIS

- H1- General Awareness has Positive & significant impact on awareness about copyright
- H2- General Awareness has a positive and significant impact on awareness about patents.
- H3- General Awareness has a positive and significant impact on awareness about design patents.
- H4- General Awareness positively and significantly influences awareness about trademarks.
- H5- General Awareness positively and significantly influences awareness about nondisclosure agreements (NDAs).

RESEARCH METHODOLOGY

This paper aims to provide a descriptive cross-sectional study conducted between November 26, 2023, and January 5, 2024. The study was done to analyze the awareness of IPR among students pursuing B. Arch, from 1st year to 5th year, in Maulana Azad National Institute of Technology (MANIT), Bhopal, Madhya Pradesh.

Table No 1. Constructs and Sources

Variable Type	Constructs	Source
Independent Variables	Awareness about significance of Copyrights among architecture students	Self-constructed
	Awareness about significance of Copyrights among architecture students	Self-constructed
	Awareness about significance of Copyrights among architecture students	Self-constructed
	Awareness about significance of Copyrights among architecture students	Self-constructed
	Awareness about significance of Copyrights among architecture students	Self-constructed
	Knowledge of IPR awareness programs	Self-constructed
	Knowledge of legal aspects of IPR	Self-constructed
	Providing respect to others IPR	Self-constructed
Dependent Variables	Level of architecture students awareness about Copyrights	Amparado and Miro (2020) cited by Francis et all
	Level of architecture students awareness about Patent	Amparado and Miro (2020) cited by Francis et all
	Level of architecture students awareness about Design Patent	Amparado and Miro (2020) cited by Francis et all
	Level of architecture students awareness about Trademark	Amparado and Miro (2020) cited by Francis et all
	Level of architecture students awareness about Contracts & NDAs	Amparado and Miro (2020) cited by Francis et all

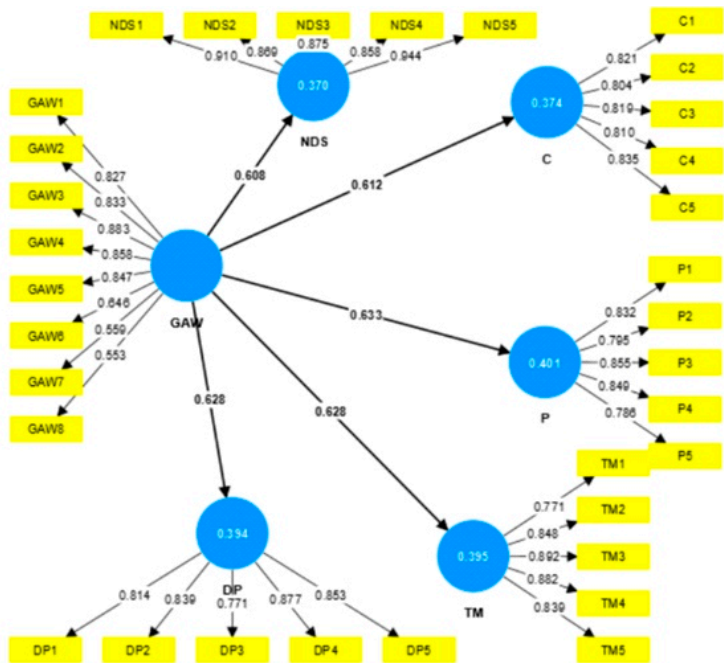
Source: Developed for the purpose of the study

DATA ANALYSIS

Descriptive Analysis

The data presents descriptive statistics for various variables, including Gender & Year the students are currently in. The sample size (N) is consistent across all categories. The Percentage values for Gender are 58.7%, 39.5%, 1.8% for Male, Female & Prefer not to say. Year the students' are currently in are around 38.3 %, 25.7 %, 31.7 %, 2.4 % & 1.8 %, from first to fifth year respectively.

Figure 01. Structural model of the study



Source: Developed for the purpose of the study

Validity and Reliability

Table 02. Construct Reliability and Validity

	Cronbach's alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Contracts & NDAs	0.915	0.919	0.937	0.748
Copyright	0.826	0.838	0.877	0.589
Design Patent	0.869	0.87	0.905	0.656
IV	0.932	0.934	0.948	0.785
Patent	0.872	0.874	0.907	0.661
Trademark	0.874	0.879	0.908	0.664

Source: Developed for the purpose of the study

Validity Table 2 presents the construct reliability and validity measures for different constructs in the study. The Cronbach's Alpha values are indicators of internal consistency. For the construct "Awareness about copyright among architecture students." Cronbach's Alpha is 0.826, suggesting high internal reliability. The Average Variance Extracted (AVE) for this construct is 0.589, indicating acceptable convergent validity.

Similarly, for the construct "Awareness about Patent among architecture students." the Cronbach's Alpha is 0.872, demonstrating a high level of internal consistency. The AVE is 0.661, indicating good convergent validity.

The construct "Awareness about Design Patent among architecture students." also exhibits strong internal reliability with a Cronbach's

Alpha of 0.869. The AVE for this construct is 0.656, suggesting good convergent validity.

The construct "Awareness about Trademark among architecture students." also exhibits strong internal reliability with a Cronbach's Alpha of 0.874. The AVE for this construct is 0.664, suggesting good convergent validity.

Finally, for the "Awareness about Contracts & NDAs among architecture students." construct, Cronbach's Alpha is 0.915, indicating high internal consistency. The AVE is 0.748, reflecting good convergent validity. Overall, these results suggest that the measurement items within each construct are reliable and valid for assessing the intended concepts in the study.

Hypothesis Testing

Table 03. Total Effect

Hypothesis	Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
H1	General Awareness> Copyright	0.612	0.621	0.062	9.904	0.0000	Accepted
H2	General Awareness> Design Patent	0.628	0.636	0.06	10.482	0.0000	Accepted
H3	General Awareness> Contracts & NDAs	0.608	0.613	0.063	9.605	0.0000	Accepted
H4	General Awareness> Patent	0.633	0.641	0.057	11.119	0.0000	Accepted
H5	General Awareness> Trademark	0.628	0.635	0.061	10.275	0.0000	Accepted

Source: Developed for the purpose of the study

In Table 2, the hypothesis testing results are presented, focusing on the mean (M), standard deviation (STDEV), t statistics (O/STDEV), and p values for various relationships. For the association between General Awareness and Awareness About Copyright, the sample mean is 0.621, with a standard deviation of 0.062. The t statistic is

9.904, resulting in a p value of 0.000, indicating significant relationship.

In the case of General Awareness of IPR and Awareness about Patent, the sample mean is 0.641, with a standard deviation of 0.057. The t statistic is 11.119, yielding a p value of 0.000, suggesting a significant association.

The relationship between General Awareness of IPR and Awareness about Design Patent, the sample mean is 0.636, with a standard deviation of 0.06. The t statistic is 10.482, resulting in a p value of 0.000, indicating a significant positive relationship.

In the case of General Awareness of IPR and Awareness about Trademark, the sample mean is 0.635, with a standard deviation of 0.061. The t statistic is 10.275, yielding a p value of 0.000, suggesting a significant association.

For the association between General Awareness and Awareness About Contracts & NDAs the sample mean is 0.613, with a standard deviation of 0.063. The t statistic is 9.605, resulting in a p value of 0.000, indicating significant relationship.

These findings suggest that awareness of Intellectual Property Rights (IPR) is associated with higher intentions for IPR protection.

CONCLUSION

The findings indicate that Architecture students possess an understanding of copyrights, patents, trademarks, Design Patent, and Contracts and NDAs. However, there's a notable lack of awareness regarding the complete understanding of how the IPR are Procured,

handled and other specific details. Given the potential implications of improper use leading to infringement, it is imperative for the Institutes to develop strategies, such as an intellectual property rights manual, for broader dissemination.

To enhance awareness, the university should implement initiatives like seminars, conferences, and training programs. These efforts not only benefit the students but also contribute to the overall awareness of the Institute's academic community.

SCOPE

Further studies can be performed by analyzing the impact of Demographic data on Awareness of IPR.

Studies can also be conducted with participants from postgraduate and PhD courses.

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