

"Bridging the Gap: A Comparative Analysis of Intellectual Property Rights Awareness and Institutional Initiatives among Male and Female Engineering College Students" (Major Research Project, funded by TANSCHÉ)

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ABSTRACT

This study employs the t-test statistical method to analyze the awareness of Intellectual Property Rights (IPR) and the effectiveness of institutional initiatives in increasing IPR awareness among male and female participants. By comparing the awareness levels between genders, the research seeks to identify any significant differences and evaluate the impact of institutional efforts in enhancing IPR understanding. The investigation aims to shed light on the existing disparities in IPR awareness and assess the role of educational institutions in addressing these gaps. Understanding these dynamics is crucial for devising targeted strategies to foster a culture of intellectual property protection and innovation. Ultimately, the study contributes to the development of informed policies and educational interventions aimed at promoting greater awareness and appreciation of intellectual property rights.

Keywords: Intellectual Property Rights, IPR Awareness, Gender Differences, Institutional Initiatives, t-test.

Introduction

In today's rapidly evolving knowledge economy, Intellectual Property Rights (IPR) play a pivotal role in safeguarding innovation, creativity, and entrepreneurial endeavors (Arundel & Kabla, 1998). The protection of intellectual assets not only fosters economic growth but also incentivizes individuals and organizations to invest in research and development (R&D), leading to technological advancements and societal progress. However, despite the significance of IPR, there exists a considerable gap in awareness and understanding of these rights, particularly among different demographic groups. This study focuses on analyzing the awareness of IPR among engineering college students and evaluating the effectiveness of institutional initiatives in increasing IPR awareness. With the increasing emphasis on innovation and entrepreneurship in academia, it is imperative to assess the level of awareness and knowledge regarding IPR among students, who represent the future workforce and innovators. By examining gender differences in IPR awareness and the impact of institutional interventions, this research seeks to provide valuable insights into the factors influencing IPR education and awareness. Understanding these factors is essential for educational institutions, policymakers, and stakeholders to develop targeted strategies and initiatives aimed at bridging the knowledge gap and promoting a culture of intellectual property protection. The introduction of this study provides a comprehensive overview of the significance of IPR, the challenges associated with awareness disparities, and the need for empirical research to address these issues. Through systematic analysis and evaluation, this study aims to contribute to the advancement of IPR education and awareness initiatives, ultimately fostering a more innovation-friendly environment conducive to sustainable development and economic prosperity.

Reviews of Literature

1. **IPR Education and Awareness:** Prior research has emphasized the importance of integrating IPR education into academic curricula to enhance students' understanding and appreciation of intellectual property (Arundel & Kabla, 1998). Educational programs focusing on IPR have been shown to significantly

improve knowledge and perceptions of IPR among students, thereby influencing their engagement in entrepreneurial activities.

2. **Gender Differences in IPR Awareness:** While research on gender differences in IPR awareness is limited, studies have suggested that women may have relatively lower awareness and participation in entrepreneurship compared to men (Brush et al., 2009). Understanding gender disparities in IPR awareness is crucial for designing targeted interventions to address the specific needs of different demographic groups.
3. **Institutional Initiatives:** Institutions play a vital role in promoting IPR awareness through various initiatives such as workshops, seminars, and awareness campaigns (Pahuja & Dhar, 2019). These initiatives aim to disseminate information about IPR laws, rights, and best practices, thereby empowering individuals to protect their intellectual assets. Evaluating the effectiveness of institutional initiatives is essential for optimizing resource allocation and maximizing impact.
4. **T-Test Analysis:** The t-test analysis is a statistical tool commonly used to compare the means of two groups and determine if there is a significant difference between them. In the context of this study, the t-test will be employed to assess whether there are gender-based differences in IPR awareness levels among engineering college students and to evaluate the effectiveness of institutional initiatives in bridging these gaps. By reviewing the existing literature, this study aims to build upon prior research and provide empirical insights into the awareness of IPR among engineering college students, with a specific focus on gender differences and the impact of institutional interventions. These insights will inform the development of targeted strategies to enhance IPR education and awareness, ultimately contributing to the promotion of innovation and entrepreneurship in the academic community.

Statement of the Problem

Despite the growing recognition of the importance of Intellectual Property Rights (IPR) in fostering innovation and protecting creative endeavors, there remains a notable gap in understanding the extent of awareness and the effectiveness of institutional initiatives aimed at increasing awareness of IPR among engineering students. Additionally, there is a lack of research exploring potential gender differences in IPR awareness and the impact of institutional efforts on bridging any existing gender gap. This study seeks to address these gaps by examining the awareness levels of IPR among male and female engineering students and evaluating the efficacy of institutional initiatives in enhancing awareness. Specifically, the research aims to identify any significant differences in IPR awareness between male and female students and assess the influence of institutional interventions on narrowing these differences. By elucidating these aspects, the study endeavors to provide insights that can inform the development of more targeted and inclusive strategies for promoting IPR awareness among engineering students.

Methodology

- The study used descriptive and inferential analysis
 - Study area is the southern regions of the tamilnadu and the engineering colleges in these areas are taken
 - 1384 samples are selected for the study
- Sample size $n = (ZS/E)^2$

Where

Z = Standardized value corresponding to a confidence level of 95% = 1.96

S = Sample SD from Pilot study of 50 sample from (Dev Fac) = 0.9489

E = Acceptable Error = 5% = 0.05

Hence, Sample size = $n = (ZS/E)^2$

= $(1.96 * 0.9489 / 0.05)^2$

= 1383.61

= 1384

- **stratified random sampling** is adopted for the selection of samples
- **per centage, t test** are adopted for analysis

Table 1 Sample selection

Sl.No	District	Sample Size (Engineering College Students)	No of Colleges
1	Dindigul	109	13
2	Madurai	168	20
3	Theni	51	6
4	Virudhunagar	101	12
5	Pudukkottai	92	11
6	Ramanathapuram	33	4

7	Sivaganga	97	8
8	Kanniyakumari,	219	29
9	Tuticorin	113	12
10	Tirunelveli	277	34
11	Thanjavur	124	15
Total		1384	164

Source: Primary Data

Objectives

- To Analysis the Awareness on Intellectual Property Rights and Initiatives of Institution towards increase awareness of IPR between Male and Female

Analysis of the Study

A Comparative Analysis of Awareness on Intellectual Property Rights and Initiatives of Institution towards increase awareness of IPR between Male and Female

The awareness and understanding of Intellectual Property Rights (IPR) are pivotal in today's knowledge-driven economy, particularly within academic institutions fostering innovation and creativity. This study undertakes a comparative analysis to evaluate the awareness levels of IPR among male and female individuals within an academic setting, shedding light on potential gender-based disparities.

H₀: Intellectual Property Rights related Awareness between Male and Female Engineering College Students are same.

Table 2 A Comparative Analysis on Awareness Level on Intellectual Property Rights between Male and Female Engineering College Students using Independent sample t test

S.No	Variables	Gender	N	Mean	Std.Dev	T	P Value
1.	Concept Awareness	Male	943	32.7200	5.71288	1.146	0.252*
		Female	441	32.3311	6.23547		
2.	Filing Related Awareness	Male	943	42.0880	8.32205	1.223	0.222*
		Female	441	41.5034	8.21421		
3.	Patent Publication Related Awareness	Male	943	41.8038	8.55336	1.310	0.190*
		Female	441	41.1655	8.20960		
4.	Industrial Design Related Awareness	Male	943	49.9565	9.72833	2.810	0.005**
		Female	441	48.3810	9.69911		
5.	Trademark Related Awareness	Male	943	38.4846	8.09862	2.031	0.042*
		Female	441	37.5397	7.99681		
6.	Layout Design Related Awareness	Male	943	25.1739	5.34018	2.806	0.005**
		Female	441	24.3197	5.13940		
7.	Trade Secrets Related Awareness	Male	943	24.6161	5.52941	2.329	0.020*
		Female	441	23.8776	5.42666		
8.	Copy Right Related Awareness	Male	943	31.9958	7.17110	1.778	0.076*
		Female	441	31.2676	6.94204		
9.	Geographical Indication Related Awareness	Male	943	38.0764	8.51229	.816	0.414*
		Female	441	37.6780	8.34161		

Source: Computed Data

* denotes significant at 5% level ** denotes significant at 1% level

The comparative analysis on awareness levels of Intellectual Property Rights (IPR) among male and female engineering college students, utilizing independent sample t-tests, reveals nuanced differences across various factors. While concepts like concept awareness, filing related awareness, patent publication, copyright, and geographical indication exhibit no significant gender disparity, notable distinctions emerge in specific areas. Male students demonstrate significantly higher awareness in industrial design ($p = 0.005$), trademark ($p = 0.042$), layout design ($p = 0.005$), and trade secrets ($p = 0.020$) compared to female counterparts, suggesting potential targets for tailored educational interventions to bridge gender-based awareness gaps.

H₀: Initiatives of Institution towards increase awareness of IPR between Male and Female Engineering College Students are same

Table 3 Initiatives of Institution towards increase awareness of IPR between Male and Female Engineering College Students using Independent sample t test

S.No	Variables	Gender	N	Mean	Std.Dev	t	P Value
1.	Curriculum	Male	94 3	24.015 9	7.8813 4	1.59 0	0.112*
		Female	44 1	24.741 5	7.9756 1		
2.	Respondents' Sought Resource Usage.	Male	94 3	21.478 3	6.7879 1	3.135	0.002**
		Female	44 1	22.709 8	6.8571 2		
3.	New Delivery of IPR	Male	94 3	16.473 0	5.3280 0	3.01 1	.0003**
		Female	44 1	17.4172	5.6599 1		
4.	Incentives Policy and Strategic Support	Male	94 3	10.1941	3.7356 2	3.067	0.002**
		Female	44 1	10.873 0	4.0454 5		
5.	Attitude to IPR	Male	94 3	19.324 5	6.4420 2	3.025	0.003**
		Female	44 1	20.458 0	6.6118 8		

Source: Computed from Primary Data

The initiatives of the institution aimed at enhancing awareness of Intellectual Property Rights (IPR) among male and female engineering college students were subjected to scrutiny using independent sample t-tests. While the curriculum's impact on awareness displayed no significant gender disparity ($p = 0.112$), notable differences emerged in other areas. Female students exhibited a higher mean in respondents' sought resource usage ($p = 0.002$), new delivery of IPR ($p = 0.0003$), incentives policy and strategic support ($p = 0.002$), and attitude towards IPR ($p = 0.003$) compared to male.

Suggestion

Based on the comparative analysis of awareness levels on Intellectual Property Rights (IPR) and institutional initiatives among male and female engineering college students, several suggestions can be proposed to address the identified gender-based disparities and enhance overall awareness:

- 1. Tailored Educational Interventions:** Develop targeted educational programs focusing on industrial design, trademark, layout design, and trade secrets to bridge the awareness gap observed between male and female students in these areas. These programs can include workshops, seminars, and practical exercises to improve understanding and appreciation of specific IPR concepts.
- 2. Resource Utilization Enhancement:** Encourage female students to leverage available resources effectively by providing additional support and guidance in accessing IPR-related databases, online tools, and research materials. Facilitating resource utilization workshops and providing easy access to relevant resources can empower female students to enhance their awareness levels.
- 3. Innovative Delivery Methods:** Explore innovative delivery methods for disseminating information on IPR, catering to the diverse learning styles and preferences of male and female students. Utilize interactive learning platforms, multimedia resources, and experiential learning activities to make IPR education more engaging and accessible to all students.
- 4. Policy Support and Incentives:** Advocate for gender-inclusive policies and initiatives aimed at promoting IPR awareness and entrepreneurship among engineering students. Lobby for increased institutional support, scholarships, and grants specifically targeting female students to encourage their participation in IPR-related activities and initiatives.
- 5. Foster Positive Attitudes:** Promote a culture of inclusivity and gender equality within academic institutions by fostering positive attitudes towards IPR among both male and female students. Organize awareness campaigns, guest lectures, and panel discussions highlighting the importance of gender diversity in innovation and entrepreneurship.

By implementing these suggestions, academic institutions can foster a more equitable and inclusive environment for IPR education, ensuring that both male and female engineering students have equal opportunities to enhance their awareness levels and actively participate in intellectual property-related initiatives.

Conclusion

In conclusion, the comparative analysis of awareness levels on Intellectual Property Rights (IPR) and institutional initiatives among male and female engineering college students has provided valuable insights into the existing gender-based disparities and areas for improvement. While the study revealed no significant differences in concept awareness, filing related awareness, patent publication, copyright, and geographical indication, notable distinctions were observed in industrial design, trademark, layout design, and trade secrets awareness.

Additionally, the analysis highlighted differences in the impact of institutional initiatives on awareness levels, with female students exhibiting higher mean scores in respondents' sought resource usage, new delivery of IPR, incentives policy and strategic support, and attitude towards IPR compared to male students. These findings underscore the importance of tailored educational interventions, resource utilization enhancement, innovative delivery methods, and policy support to address gender-based disparities and foster equitable awareness levels among engineering students.

Moving forward, it is imperative for academic institutions to prioritize gender-inclusive strategies and initiatives aimed at promoting IPR awareness and entrepreneurship among all students. By implementing targeted interventions and fostering a culture of inclusivity and gender equality, institutions can create a supportive environment conducive to the development of innovative ideas and entrepreneurial ventures.

Overall, the comparative analysis serves as a valuable foundation for future research and policy formulation aimed at promoting gender equity and enhancing awareness levels on Intellectual Property Rights among engineering college students. By addressing the identified disparities and implementing proactive measures, institutions can play a pivotal role in nurturing a diverse and inclusive ecosystem for innovation and creativity.

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