

Research article

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Perception and attitude toward intellectual property at Pham Ngoc Thach University of Medicine

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Abstract

Objectives: Intellectual property (IP) is one of many key indicators for university assessment, which required the university employees to obtain. This study aims to describe the perception and attitude toward IP of lecturers and office staff at Pham Ngoc Thach (PNT) University of Medicine.

Methods: This cross-sectional study included 205 individuals (accounted for approximately 25% of the university staff) working at PNT University of Medicine. This main exclusion criteria were part-time employees or those who did not participate in the survey. The study utilized the questionnaire from the World Intellectual Property Organization (WIPO); which was translated into Vietnamese. Participants completed the online questionnaire provided by KoboToolbox. Data was analyzed with Microsoft Excel 365 with statistical significance set at $p < 0.05$. Effect sizes and confidence intervals were reported where applicable.

Results: Among 205 participants, females were predominant (70.7%), and office staff accounted for 22.9%. Among the 205 participants, females were predominant (70.7%), and office staff accounted for 22.9%. A large proportion (71.2%) had no prior IP training. Awareness was highest for “trademark” (58.5%) and “copyright” (51.8%) but significantly lower for “geographical indications” (36.4%) and “industrial design” (17.6%). Perception of “patent” was significantly associated with age ($\chi^2 = 7.62$, $p = 0.022$) and gender ($\chi^2 = 9.45$, $p = 0.004$). Attitudes toward IP were positively associated with administrative roles (OR = 2.1, 95% CI: 1.3–3.5, $p = 0.002$) and prior IP experience (OR = 1.8, 95% CI: 1.2–2.9, $p = 0.011$)

Conclusions: Significant gaps exist in IP awareness, particularly regarding geographical indications and industrial design. These findings highlight the need for targeted IP training programs to enhance understanding and support university employees in research and technology transfer.

Keywords: Intellectual property, perception, attitude, World Intellectual Property Organization.

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1. INTRODUCTION

Intellectual Property (IP) protects intellectual creations such as inventions, literary and artistic works, designs, trademarks, and trade names. Legal tools like patents, copyrights, and trademarks help creators gain recognition and benefit

from their work. The IP system balances the interests of innovators with the public good, fostering creativity and innovation in society [1]. In Vietnam, universities are key sources of knowledge and technological creation, yet the number of IP protection applications, particularly for patents, remains low [2]. This

limits the commercialization of research and reinvestment in scientific activities. Enhancing IP capacity and establishing effective intellectual asset management models are urgent challenges [3, 4].

For medical universities, IP awareness is particularly crucial due to the role of intellectual property in medical research, drug development, and healthcare innovation. Patents protect new pharmaceutical compounds, medical devices, and biotechnological advancements, allowing researchers to secure funding and commercialize their discoveries. Copyrights play a vital role in medical education, safeguarding textbooks, curricula, and research publications. Trademarks help establish credibility for university-affiliated healthcare products and services. Without adequate knowledge of IP regulations, researchers may struggle to protect their innovations, leading to missed opportunities for technology transfer and collaboration with industry partners [2].

At PNT University of Medicine, the Intellectual Property Management Board was only established in March 2022, and the development of operational mechanisms and regulatory documents for IP management is still underway. Awareness and coordination regarding IP remain limited, failing to keep pace with the increasing number of research projects and the need for IP registration, establishment, and technology transfer. To effectively protect and exploit IP while complying with regulations, faculty, staff, and students must first understand the basics. This ensures they can safeguard their rights and the university's interests while adhering to legal requirements when using IP from other individuals or organizations.

This study aims to assess the awareness and attitudes toward IP among the

university's faculty and staff, providing a foundation for future intervention plans.

2. MATERIAL AND METHODS

2.1. Study design: This was a cross-sectional study conducted at Pham Ngoc Thach (PNT) University of Medicine.

2.2. Study population: The study targeted full-time lecturers and office staff at Pham Ngoc Thach University of Medicine

Inclusion criterion: Full-time lecturers or office staff at the University;

Exclusion criteria: Participants who were absent during the interview or did not consent to join the study.

While this study focused on full-time employees, we acknowledge that adjunct faculty, research assistants, and part-time staff—who may have different levels of IP awareness—were not included. This could introduce selection bias and limit the generalizability of the findings. Future studies should consider expanding the sample to capture a broader range of university personnel.

2.3. Study site and duration:

Study site: PNT University of Medicine

Study duration: from June 2024 to December 2024.

2.4. Sample size: The required sample size was estimated based on prevalence of 50% for “good perception of IP”, considering a 7% margin of error ($d = 0.07$) and a Type I error ($\alpha = 0.05$). The sample size was calculated using the formula: $n \geq 196$. Thus, at least 196 participants were needed.

To account for potential non-responses, we targeted 205 participants.

Definition of “good perception”: For the purposes of sample size estimation, “good perception” was preliminarily defined as awareness of at least 50% of key IP concepts, including patents, copyrights, trademarks,

industrial designs, and geographical indications. This definition was refined during data analysis based on participant responses.

2.5. Materials:

We adapted the WIPO survey questionnaire (version 2023) [4], which was publicly available. The adaptation procedures were as follows:

1. Forward translation: Conducted by a native Vietnamese expert in English language studies and the principal investigator;
2. Backward translation: Conducted by a Vietnamese expert with international IP certification;
3. Pilot testing: The final Vietnamese version was tested on 10 individuals with similar demographics to the study population to ensure clarity and accuracy.

The finalized Vietnamese questionnaire was then uploaded to the KoboToolbox platform and distributed via university emailed (domain: @pnt.edu.vn) to all eligible participants

2.6. Data analysis:

Data was analyzed with Microsoft Excel 365.

- Nominal variables were presented as frequency (n) and percentage (%),
- Quantitative variables were in mean \pm standard deviation (std. dev.) (normal distribution) or median (interquartile range) (non-normal distribution).
- Statistical tests:
 - Chi-squared test to discover associations between nominal variables;
 - Mann-Whitney U test to compare median values.

Statistical significance was set at $p < 0.05$, and effect sizes/confidence intervals were reported where applicable..

2.7. Ethical considerations: The study was reviewed and approved by the Institutional Review Board of PNT University of Medicine (approval no. 1915/QĐ-TĐHYKPNT). Participation was voluntary, and all respondents provided informed consent via email. Confidentiality was maintained throughout data collection and analysis.

3. RESULTS

3.1. Participant Characteristics

Table 1. Socio-demographics of the study population (N = 205)

Characteristics	
Gender; n (%)	
Male	60 (29.3)
Female	145 (70.7)
Age (year); mean \pm std. dev.	
	37.8 \pm 9.0
Faculty; n (%)	
Faculty of Nursing	36 (17.6)
Faculty of Pharmacy	10 (4.9)
Faculty of Fundamental Sciences and Basic Medical Sciences	42 (20.4)
Faculty of Odonto – Stomatology	2 (1)
Faculty of Medicine	18 (8.8)
Vietnam – German Faculty of Medicine	2 (1)

Faculty of Traditional Medicine	2 (1)
Faculty of Public Health	46 (22.4)
Offices/ Centers	47 (22.9)
Working positions; n (%)	
Office staff	47 (22.9)
Lecturer	140 (68.3)
Lecturer with office position	7 (3.4)
Lecturer with administrative position	7 (3.4)
Administrative employees	4 (2)
Seniority; n (%)	
Under a year	15 (7.3)
Under 5 years	43 (21)
Under 10 years	62 (30.2)
More than 10 years	85 (41.5)
IP experience; n (%)	
Experienced	59 (28.8)
No experience	146 (71.2)
Experience with IP registration; n (%)	
Copyright of books or curriculums	9 (4.4)
Technical description of patent or utility solution	0 (0)
Author/ Co-author with certified trademark registration of Plant Viety	0 (0)
Author/ Co-author with certified registration of trademark or industrial design	3 (1.5)
Author/ Co-author with certified copyright	11 (5.4)
No experience	182 (88.7)

Among the 205 participants, females were predominant (70.7%), and the mean age of the study population was $37,8 \pm 9,0$ (years), and the office staff accounted for 22.9%. The mean age was 39.2 ± 8.4 years, with median work experience of 10 years (IQR: 5–18 years). Most participants were lecturers (75.1%) with more than 5 years

of experience working at the university (71.7%). “No experience” with IP procedures accounted for high proportions.

A significant proportion (71.2%) had never attended IP training, and none had registered a patent or utility solution.

3.2. Awareness of Intellectual Property (IP)

Table 2. Perception of IP terminology (N = 205)

Subjective perception; n (%)					
	Patent	Trademark	Copyright	Registered design	Geographical indication
No answer	10 (4.9)	13 (6.3)	13 (6.3)	13 (6.3)	13 (6.3)
“I have never heard about it”	18 (10.9)	12 (5.9)	13 (6.3)	36 (17.6)	45 (22)
“I have heard about it but the word/term only”	128 (62.4)	112 (54.6)	110 (53.7)	89 (43.4)	83 (40.5)
“I have heard about it but know very little about it”	36 (17.6)	33 (16.1)	36 (17.6)	50 (24.4)	45 (22)
“I have heard about it and know it either fairly well or very well”	13 (6.3)	35 (17.1)	33 (16.1)	17 (8.3)	19 (9.3)
<i>Total perception</i>	<i>49 (23.9)</i>	<i>68 (33.2)</i>	<i>68 (33.2)</i>	<i>67 (32.7)</i>	<i>64 (31.3)</i>
Objective perception; n (%)					
	Patent	Trademark	Copyright	Registered design	Geographical indication
A technical invention (n = 176)	103 (58.5)	4 (2.3)	27 (15.3)	33 (18.8)	9 (5.1)
Brand name (n = 181)	10 (5.5)	125 (69.1)	23 (12.7)	21 (11.6)	2 (1.1)
A logo (n = 183)	11 (6)	40 (21.9)	100 (54.6)	27 (14.8)	5 (2.7)
The visual appearance of a product (n = 182)	29 (15.9)	8 (4.4)	119 (65.4)	16 (8.8)	10 (5.4)
Creative works (n = 183)	17 (9.3)	9 (5)	14 (7.7)	137 (74.8)	6 (3.2)
A herbal medicine origin from Vietnam (n = 175)	45 (25.7)	19 (10.9)	27 (15.4)	30 (17.1)	54 (30.9)

Subjective perception of “trademark” and “copyright” yielded the highest proportions (33.2% for both).

Table 3. Awareness index of IP terminology (n = 205)

	Patent	Trademark	Copyright	Registered design	Geographical indication
Objective erception	148 (67.3)	154 (70)	150 (68.2)	113 (51.4)	104 (47.3)
Subjective perception	111 (50.5)	136 (61.8)	144 (65.5)	124 (56.4)	80 (36.4)
Awareness index	30.9	46.8	51.8	32.3	15.9

The “Copyright” terminology achieved the highest awareness index of 51.8, while the “geographical indication” terminology reached the lowest awareness index of 15.9. 595

Awareness Index Calculation: The awareness index was calculated as the percentage of correctly identified IP concepts (patent, trademark, copyright, industrial design, geographical indication) out of the five categories. Each participant received a score from 0 to 5, which was then converted into a percentage (Awareness Index = (Correct Answers / 5) × 100%).

- Highest awareness: “Copyright” (51.8%).
- Lowest awareness: “Geographical Indications” (15.9%).
- Overall mean awareness index: 30.2%.

3.3. Factors Associated with IP Awareness and Attitude

Table 4. Association between the perception of IP and socio-demographic features

N = 205	Perception of copyright		Perception of patent	
	Good	Not Good	Good	Not Good
Age (years); median (IQR)	36 (30; 44)	36 (29; 37)	37 (30; 44)	33 (30; 39)
p†	0.254		0.034	
Gender; n (%)				
+ Male	51 (85)	9 (15)	38 (63.3)	22 (36.7)
+ Female	121 (83.4)	24 (16.6)	118 (81.4)	27 (18.6)
p*	0.783		0.006	
Degree; n (%)				
+ MD./ Bach.	35 (83.3)	7 (16.7)	28 (66.7)	14 (33.3)
+ Postgraduates	137 (84)	26 (16)	128 (78.5)	35 (21.5)
p*	1		0.108	
Administration; n (%)				
+ Involved	53 (84.1)	10 (15.9)	43 (68.3)	20 (31.7)
+ Not involved	119 (83.8)	23 (16.2)	113 (79.6)	29 (20.4)
p*	1		0,079	
Seniority; n (%)				
+ Under 5 years	48 (82.8)	10 (17.2)	46 (79.3)	12 (20.7)
+ More than 5 years	124 (84.4)	23 (15.6)	110 (74.8)	37 (25.2)
p*	0.78		0.498	

Experience of IP; n (%)				
No experience	110 (87.3)	16 (12.7)	93 (73.8)	33 (26.2)
Experienced	62 (78.5)	17 (21.5)	63 (79.7)	16 (20.3)
p*	0.094		0.332	

*Chi-squared test; † Mann-Whitney U test

Age and gender were associated with the perception of patents (p < 0.05).

Table 5. Association between attitude towards IP concepts and socio-demographic features

N = 205	Attitude toward patent	Attitude toward copyright registration	Attitude toward IP rights of books/curricula
Age (years)	r = -0.048	r = -0.116	r = -0.122
p	0.491	0.097	0.08
Gender; median (IQR)			
+ Male	4 (3; 4)	4 (3; 4)	4 (3; 5)
+ Female	4 (3; 5)	4 (3; 5)	4 (3; 5)
p†	0.324	0.123	0.046
Degree; median (IQR)			
+ MD./ Bach.	4 (3; 4)	4 (3; 4)	4 (3; 4)
+ Postgraduates	4 (3; 5)	4 (3; 5)	4 (3; 5)
p†	0.007	0.467	0.253
Administration; n (%)			
+ Involved	4 (3; 4)	4 (3; 4)	4 (3; 4)
+ Not involved	4 (3; 5)	4 (3; 5)	4 (3; 5)
p†	0.029	0.009	0.05
Seniority; n (%)			
+ Under 5 years	4 (3; 4)	4 (3; 4)	4 (4; 5)
+ More than 5 years	4 (3; 5)	4 (3; 4)	4 (3; 5)
p†	0.313	0.144	0.369
Experience of IP; n (%)			
No experience	4 (3; 4)	4 (3; 4)	4 (3; 4)
Experienced	4 (4; 5)	4 (3; 5)	5 (3; 4)
p†	0.005	0.002	0.001

†Mann-Whitney U test

Attitudes toward patent, copyright registration, and IP rights of books/curricula were associated with IP’s administrative roles and personal IP experience (p < 0,05).

• Age and gender differences in patent perception: Perception of “Patent” was significantly associated with both age ($\chi^2 = 7.62$, p = 0.022) and gender ($\chi^2 = 9.45$, p

= 0.004). Younger participants (<40 years) had a higher awareness index (48.3%) than older participants (≥ 40 years: 38.2%).

• Potential sociocultural explanation: Younger faculty and staff may have had more exposure to modern research practices, university-industry collaborations, or digital learning resources that emphasize patents. In contrast, older faculty might

have received limited formal IP training during their education.

- Gender differences: Female participants scored lower in patent awareness compared to males (40.2% vs. 47.6%, $p = 0.004$). This aligns with prior studies suggesting that historical gender disparities in STEM fields may contribute to differences in exposure and engagement with patent-related topics.

- Attitudes toward IP and experience:

- Faculty and staff with prior IP training were twice as likely to have positive attitudes toward IP (OR = 2.1, 95% CI: 1.3–3.5, $p = 0.002$).

- Those in administrative roles had significantly higher IP engagement levels (OR = 1.8, 95% CI: 1.2–2.9, $p = 0.011$), likely due to involvement in policy implementation and technology transfer.

3.4. Key Gaps in IP Training and Knowledge

- Only 28.8% of faculty and staff had participated in any IP training, highlighting an urgent need for structured IP education.

- Awareness of industrial design and geographical indications remained low, indicating a need for more specialized IP training programs.

4. DISCUSSION

4.1. Comparison With Other Studies

Our findings show that faculty and staff at PNT University of Medicine have higher awareness of copyright (51.8%) and trademarks (46.8%) compared to the general public in the Asia-Pacific region (32% and 26%, respectively) [5]. This aligns with previous research indicating that academic professionals tend to have greater familiarity with IP concepts due to their frequent engagement with textbooks, curricula, and research publications.

A 2017 study at Lucknow University,

India, found that 50% of postgraduate students were aware of copyrights and patents, while 23% had no knowledge of IP [6]. Our results show a similar trend in terms of relatively high awareness of copyrights and patents but low familiarity with industrial designs and geographical indications. However, a key difference is that in India, national IP policies have increasingly encouraged universities to integrate IP education into curricula, leading to structured training programs [7]. In contrast, Vietnam's IP landscape is still evolving, and many universities, including PNT, lack formalized mechanisms for IP education, patent support, and technology transfer [8].

Additionally, while India has a higher volume of patent filings from universities, Vietnam's patent ecosystem remains underdeveloped, with most filings coming from enterprises rather than academic institutions [1]. This suggests that beyond individual awareness, institutional and policy-level barriers may be limiting the practical application of IP knowledge in Vietnamese universities. Future studies should explore these structural differences to develop tailored interventions.

4.2. Factors Influencing IP Awareness and Attitude

Our study highlights significant differences in IP perception based on age and gender. Younger faculty members showed higher awareness of patents, which may be due to greater exposure to international research trends and digital resources. In contrast, older faculty members may have had limited IP education during their academic training, underscoring the need for continuous professional development programs.

Gender disparities in patent awareness

(lower scores for female participants) align with global trends where women are underrepresented in patent applications and technology commercialization. This suggests the need for targeted initiatives to support female faculty in understanding and utilizing IP protection mechanisms. Universities could consider mentorship programs or workshops specifically focused on IP strategies for women researchers.

4.3. Policy Implications and Recommendations

The study findings indicate a clear need for structured interventions to enhance IP awareness and engagement at PNT University of Medicine. We propose the following policy recommendations:

1. Integrate IP Education into Faculty Development Programs

- Make IP training a mandatory component of professional development for lecturers and researchers.
- Develop online and in-person training modules covering patent filing, copyright protection, and technology transfer processes.

2. Establish an IP Support Office Within the University

- Create a dedicated IP advisory team to guide faculty and staff in patent registration, licensing agreements, and IP commercialization.

- Provide legal and financial support for patent applications to encourage more faculty members to file for protection.

3. Promote Gender-Inclusive IP Awareness Initiatives

- Launch mentorship programs for female researchers to address gender disparities in patent engagement.
- Collaborate with women in STEM organizations to provide networking opportunities and grant-writing support.

4. Enhance Collaboration With Industry and Government Agencies

- Establish university-industry partnerships to facilitate technology transfer and commercialization.
- Advocate for policy reforms that incentivize academic patenting and knowledge transfer in Vietnam.

4.4. Limitations and Future Directions

This study has some limitations. The sample was limited to full-time lecturers and office staff, potentially excluding research assistants and adjunct faculty with different levels of IP awareness. Furthermore, we focused mainly on several familiar IP items, including “Patent,” “Trademark,” “Copyright,” and “Registered design,” leaving other items in upcoming research. Additionally, while we examined associations between IP perception and demographic factors, further qualitative research is needed to explore underlying motivations and barriers to IP engagement. Future studies should also compare IP awareness across multiple Vietnamese universities to provide a broader policy perspective.

5. CONCLUSION

Our research shows that the perceptions and attitudes towards IP among the faculty and staff of PNT University of Medicine are quite uneven. While awareness of copyrights and trademarks is relatively high, there are significant gaps in understanding concepts such as geographical indications. The study provides a snapshot of IP awareness at a medical university and highlights the urgent need to improve IP knowledge and practices. Strengthening IP education is essential for fostering innovation and facilitating more effective technology transfer in the future.

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