

Lecturers' Perception of Intellectual Property in Polytechnics and Community Colleges and Its Relationship in Increasing Innovation Outcomes

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ABSTRACT: Every product of high-quality innovation and high value must be protected and copyrighted from being plagiarized by irresponsible individuals. Innovation is one of the main modules to develop creativity in teaching and learning processes in both polytechnics and community colleges. Some of the products made by lecturers and students have been recognized on a national and international level. However, some innovation products nowadays are not registered under the Intellectual Property Corporation of Malaysia (MyIPO) as intellectual property that must be protected. Awareness regarding the importance of registering innovation products like intellectual property among lecturers and students is still low, giving room for irresponsible individuals to take advantage of their vulnerable states. Hence, the research objectives would be to identify and study the importance of intellectual property among lecturers to increase innovation quality. This study's findings are taken from the questionnaire distributed to 75 respondents who attended the Intellectual Property Colloquium (KHI) and the Copyright Workshop and Commercialization of Innovation Products. This research shows the lecturers' perception regarding the importance of intellectual property to improve the quality of product innovation in polytechnics and community colleges is at a moderate level. This research can benefit the Ministry of Higher Education (KPT), especially the Polytechnic Education and Community Colleges Department, to plan the direction and strategies to improve the awareness among lecturers more effectively regarding the importance of intellectual property protection.

KEYWORDS: Intellectual property, innovation, polytechnic, and community college lecturers

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I. INTRODUCTION

Innovation products made in developed countries such as Japan, South Korea, and Europe can be sold in their market as part of their national primary income. To ensure that product innovations are not plagiarized and invaded by irresponsible individuals, they have registered their product innovations as their country's intellectual property. Intellectual property is a new source of wealth in transforming the nation's economy. It could generate high returns as we have our monopoly rights to regulate and create, use, sell and export innovation products overseas. A designer creating a new design should be noted that the rapidly changing technological multimedia and the digital era would allow innovation products to be easily plagiarized. A clear understanding is crucial to intervene in the issue of plagiarism of a product innovation that would strip away all the designer's benefits and benefit the one plagiarizing the product innovation instead.

Awareness regarding intellectual property protection is still in the early stages because transfer technology and intellectual property activities are still at the promotional levels. Intellectual Property management practices in universities and organizations need to be studied to determine how well the practice can influence the creation of knowledge resources to drive innovation moving forward (Young et al., 2008). According to Arumugam and Jain (2012), intellectual property management's effectiveness can be achieved by increasing the critical role in the intellectual property management system itself. However, Holmquist and Johansson (2019) state that innovation ideas alone are not enough because organizations need to provide sufficient absorptive capacity to achieve innovation.

1.1 PROBLEM STATEMENT

Modules and syllabuses producing works and innovation products among polytechnic lecturers and community colleges have been around for a long time. Through the Teaching and Learning processes, students under respective lecturers' supervision have developed various innovation products. However, the lack of knowledge on the advantages and benefits of intellectual property being registered and ignorance regarding the importance of protecting intellectual property among inventors in polytechnics and community colleges resulting in works and innovations produced at risk of being entrusted or compromised by any irresponsible individuals. Thus, the Intellectual Property Corporation of Malaysia (MyIPO) has conducted campaigns and promotions to all Departments, Government and Private Agencies, Higher Educational Institutions, and schools so that all innovation products produced are registered under MyIPO. It aims to encourage more innovation products and create a healthy trading competition, attracting foreign investment into our country and indirectly improving its economic development. Based on the preliminary studies conducted, it was found that although campaigns and promotions were conducted throughout the country through various media and forums, awareness and perspective among academics and lecturers on intellectual property remained low. Indirectly, it affects and influences the innovation products being produced.

1.2 OBJECTIVES

Awareness to protect and emphasize innovation among designers in polytechnics and community colleges should exist so that their creativity is protected. Guaranteed protection will enhance the quality of innovation in achieving success to produce and commercialize innovation products to continue striving. Hence, this study's objective focuses on the lecturers' perception of intellectual property in improving the quality of innovation in polytechnics and community colleges.

II. LITERATURE STUDY

Various previous studies have been conducted about innovation and its relationship to intellectual property. However, this study will focus on three main aspects: innovations in Technical and Vocational Education and Training (TVET) education, intellectual property, and polytechnics and community colleges.

2.1 INNOVATIONS IN TVET EDUCATION

An essential and useful priority in a successful invention and innovation competition is that the competition organized should gain cooperation between the industry and higher education institutions (Winfred Ebner et al.,2009). The competition will encourage more inclusion among industry practitioners and academic experts directly. Based on the competitions' participation, it will produce new ideas or new products that can be contributed to the community. Every year, institutions under the Technical and Vocational Education and Training (TVET) in Malaysia conduct various innovation activities to highlight individual creativity in producing an idea (Mohamad Irwan Md Sagir, Ahmad Rosli Mohd Nor and Azlan Muharam, 2019). Nevertheless, most of the resulting innovation products are based on competition and ideas and are not developed and continued to ensure its development potential (Ibrahim Komoo, 2017).

Many innovation competitions were implemented for lecturers and students to highlight their creativity. Lecturers who participate in innovation competitions nationally and internationally, locally or overseas, are strongly encouraged to register their copyrights. By registering, they intend to protect their inventions from being plagiarised and to add value to an innovation product created.

2.2 INTELLECTUAL PROPERTY

Intellectual property is all the tangible and intangible inventions resulting from the creativity of human thoughts that are not limited to ideas, inventions, designs, sketches, drawings, writing, and artwork. Computer programs, integrated circuit layout designs, and databases are also intellectual property. Intellectual property protections made by legal provisions will allow intellectual property owners to exercise exclusive control, overexploiting such ownership rights.

According to Philips (1990), who defined intellectual property from a language standpoint, all items stemming from human intellectual training such as ideas, inventions, poetry, design, and others while legally means something that can be claimed on human intellectual products. Annie Chu (2003) defines intellectual property as a product or an idea obtained from creative processes, studies, or designs.

Based on the definition of the current laws and regulations, according to the World Intellectual Property Organization (WIPO), intellectual property is all rights resulting from any intellectual activity in the field of industry, science, literature, and arts. However, according to the Japan Patent Office (JPO), intellectual property refers to human creativity and management techniques. In other words, the result of human intellectual activity is presented not only in the form of new inventions, utility design, or unique design but also in the form

of music, novels, drawings, or artwork. The work is protected by the law and expands within a new sphere of intellectual property.

2.3 POLYTECHNICS AND COMMUNITY COLLEGES

Polytechnics and Community Colleges are public institutions of higher education that is more focused on TVET Education. This institution is established under Act 550 of the Laws of Malaysia. It includes the recipient of the assignment and his/her appointed representative/agent or staff to delegate/act on his/her behalf. There are 36 polytechnics and 104 Community Colleges in Malaysia that run an industrial-driven TVET curriculum. This institution conducts a TVET Education curriculum in line with the premier education provider to provide a knowledgeable and competent workforce in TVET through quality education and training system to support the nation's economic development. Polytechnics and Community Colleges also produce holistic and competent TVET graduates who can contribute to their progress.

In line with this institution, the institution often implements various innovation competitions nationally and internationally to provide opportunities for lecturers and students to produce new products or innovation designs that can be highlighted. The production or design of this innovation is the cornerstone of the creative ideas, and their innovation outcomes need to be protected under intellectual property. This intellectual property protection is vital because it can provide complete protection and rights to Polytechnic and Community College officers with legal guarantees. The purpose of this action is so that innovation product generated that has been re-copied, imitated, or confiscated without consent can be taken appropriate action under the law. The intellectual property protection system will grant exclusive rights to their owners to control and exploit their intellectual property. The rights include the right to make, use, distribute, and sell.

III. METHODOLOGY

This study used a quantitative approach. The selection of quantitative methods is to the objectives of this research. This quantitative approach aims to solve problems related to instruments, samples, and analysis. Justification for the selection of quantitative approaches is to understand and explain a phenomenon or scenario.

In this study, the respondents selected were 75 lecturers from both polytechnic and community colleges who were the supervisors of student innovation in the teaching and learning processes. They attended intellectual property-related programs. The study population can be broken down into 50 respondents among lecturers attending the Intellectual Property Colloquium (KHI) organized by the Centre for Research and Innovation and 25 respondents attending the Copyright Workshop and Commercialization of Innovation Products. The instrument used in the quantitative approach is a questionnaire.

Questionnaire is an effective data collection mechanism to measure the constructs that involve larger samples. This study questionnaire has brief demographic information and the extent of the respondents' involvement in managing innovation and intellectual property in institutions. The instruments in this study were developed based on the extent of the respondents' involvement in knowledge and management involving innovation and intellectual property. The type of structured questionnaire contains closed questions by providing preferred answers to respondents, and there are also open questions that require respondents' prior knowledge related to intellectual property. The questionnaire's total number of questions was 15, but not all were used by the researchers. Eight items are related to respondents' involvement and knowledge in intellectual property management, while the remaining seven items used for this study relate to the views and consent of respondents to intellectual property in improving the quality of innovation of lecturers.

IV. ANALYSIS AND FINDINGS

Lecturer's experience as an instructor at the institution and the involvement as a supervisor to student innovation projects are divided according to the range shown in Figure 1. The findings showed that 20 lecturers had more than 15 years of experience, 18 lecturers had experience teaching between 10-15 years, seven lecturers had 5-10 years of teaching experience, and only five lecturers had 1-5 years of teaching experience.

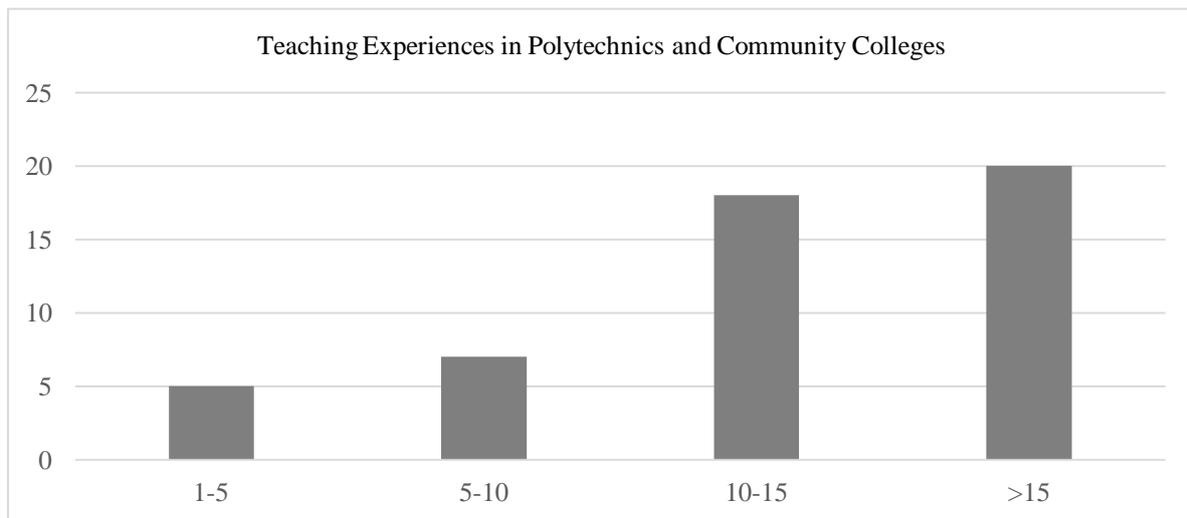


Figure 1: Teaching Experiences in Polytechnics and Community Colleges

For the involvement of lecturers in innovation and intellectual property management in polytechnics and community colleges, the findings showed that 46 lecturers were involved in innovation and intellectual property management. In comparison, 29 lecturers were never involved in innovative and intellectual property management such as Figure 2.

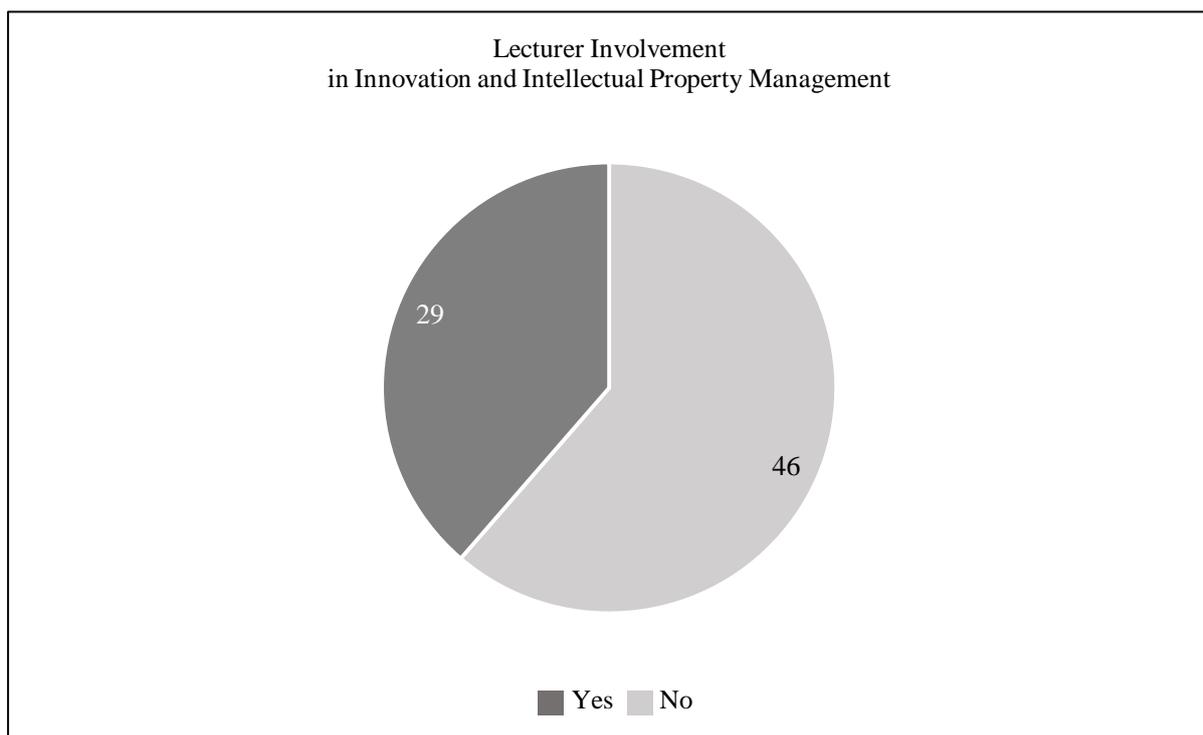


Figure 2: Lecturer Involvement in Innovation and Intellectual Property Management

Meanwhile, for intellectual property protection procedures and processes, the findings showed that 43 lecturers were aware of the procedure and intellectual property process. In comparison, 32 lecturers were not aware of the intellectual property procedures and processes, as in Figure 3. Figure 4 shows that 63 lecturers know the impact if they do not register and protect the invention with intellectual property. However, only 12 lecturers are less aware of what will happen if they do not register and protect the invention with intellectual property. This finding indicates that the level of awareness of the need to register and protect the invention of the products or designs they produce is relatively high.

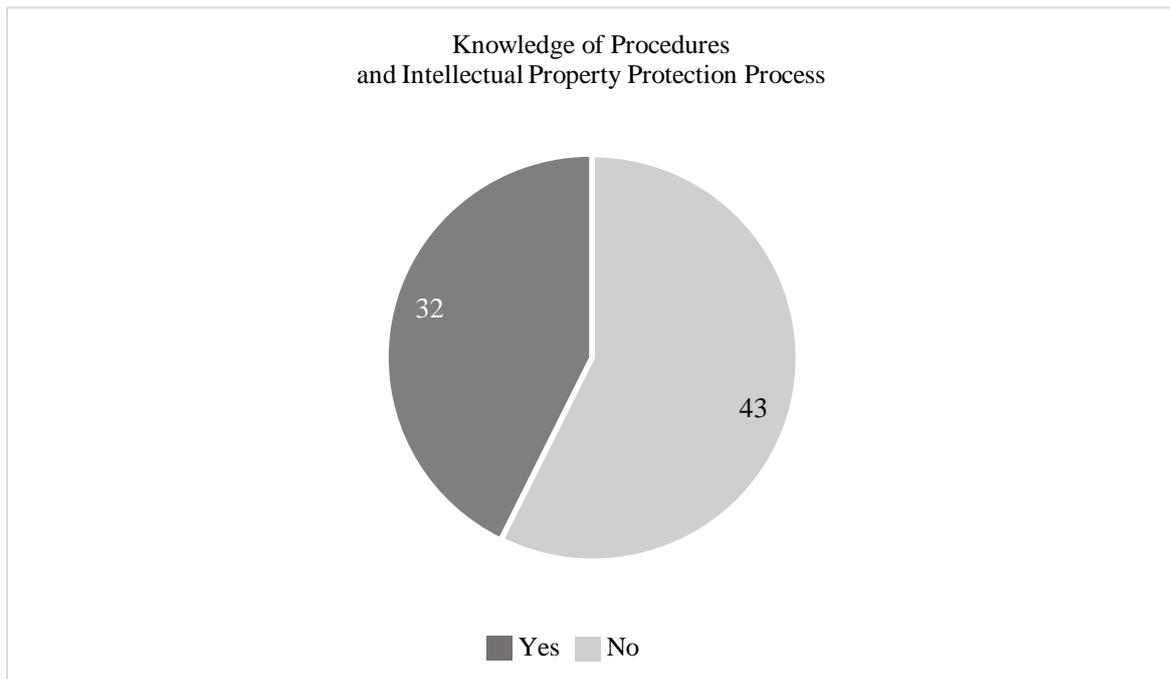


Figure 3: Knowledge of Procedures and Intellectual Property Protection Process

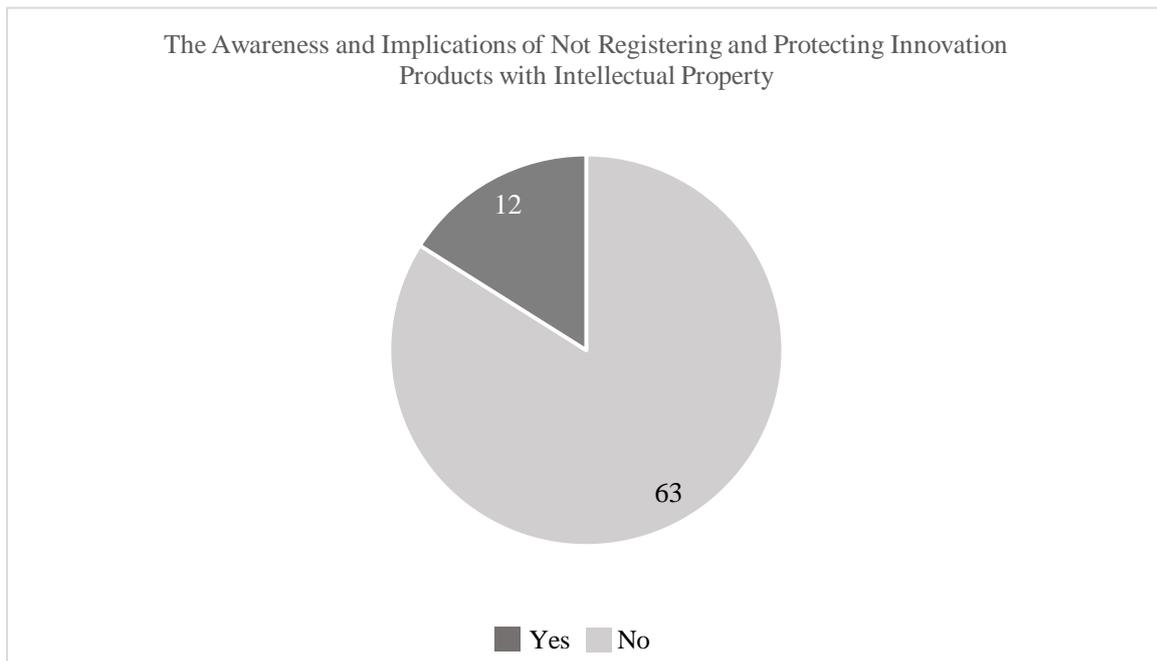


Figure 4: The Awareness and Implications of Not Registering and Protecting Innovation Products with Intellectual Property

The statements prepared in the questionnaire are following Scale 5 Likert. Scale 5 Likert was used in this study as it has good reliability and accuracy level of 85% (Mohamad Najib, 1999). The use of the Likert scale in this study is as per Table 1.

Table 1: Demonstration of The Use of a Likert Scale

Likert Scale	Statements	Abbreviations
1	Strongly Disagree	SD
2	Disagree	D
3	Unsure	U
4	Agree	A
5	Strongly Agree	SA

Table 2: Analysis of the level of awareness regarding Intellectual Property Protection.

Bil	Item	1	2	3	4	5
1	The filing of intellectual property is essential after an invention such as an innovation product being produced	(0) -	(0) -	(1) 1%	(21) 28%	(53) 71%
2	The filing of intellectual property can protect all tangible and intangible inventions	(0) -	(0) -	(6) 8%	(25) 33%	(44) 59%
3	Inventions covered by intellectual property can improve the quality of an innovation-designed invention.	(0) -	(2) 3%	(1) 1%	(22) 29%	(50) 67%

Table 2 shows the level of awareness regarding intellectual property protection. Based on this table, 71% of lecturers strongly agree, and 28% agree that the filing of intellectual property is essential after an invention such as an innovation product being produced, 59% strongly agreed, and 33% agreed that the filing of intellectual property could protect all tangible and intangible inventions. While 67% strongly agreed and 29% agreed that the inventions covered with intellectual property could improve the quality of an innovation-designed invention.

For all the three items above, the 'unsure or 'disagree' answer is seen to have a low percentage. The level of awareness regarding the protection of the intellectual property is seen to be at a reasonable level but still needs to be increased so that lecturers can maintain the quality of innovation produced and increase their inventions and creations' commercialized level. Intellectual property protection will ensure that what is designed will not be copied, exploited, or manipulated by others. In turn, the aspirants strive to improve the quality of their innovation products as there is awareness of its importance in ensuring innovation owners' exclusive rights.

V. CONCLUSION

Based on the research that has been done, there are several aspects identified in assessing the perception of lecturers on intellectual property in improving the quality of innovation in polytechnics and community colleges. Lecturers have been involved in at least one (1) type of intellectual property protection. Among the six (6) types of intellectual property that can be used to protect creativity outcomes, most lecturers have registered their copyrights in protecting their creativity outcomes. Lecturers agree on the importance of registration of intellectual property but still, need continuous exposure to produce an innovation product. They must take into consideration the need to register their inventions with intellectual property protection.

This study proves that the quality of innovation can be improved if granted exclusive ownership rights to the owner. This intellectual property is becoming significant now. There are numerous incidents of determination of an innovation product or industry produced. The benefits are not obtained by the original designer but the profitable designer who mimics the original designs. Thus, lecturers and polytechnic students and the Malaysian Community Colleges need to be aware of protecting their intellectual property. This

awareness is crucial so that their rights are more secure as owners of the following products to ensure that no party steals their ideas and products indiscriminately. Organizations also play an essential role to support the efforts of intellectual property protection so that the innovations produced can achieve good quality.

Efforts to raise awareness of intellectual property protection are also essential to change the public's stereotype to respect and recognize others' inventions. The quality of innovation is also crucial so that the innovation products created can compete globally, be applied, and benefit the community and the nation. The creation of high-quality and impactful innovation should be given appropriate protection, and it might also be capable of increasing investment and trade activities. Intellectual property is a new source of wealth in transforming the country's economy. It can generate high income as we gain monopoly rights to control and create, use, sell, and export abroad.

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