

## Conference Paper

# Taking Intellectual Property Rights Seriously: Are We In or Out? (Phase 1: Intellectual Property Awareness Among Students and Faculty: Tracking Changing Attitudes and Awareness)

Eduardo S. Tino, Arlene D. Ibañez, Cristina G. Rivera, Aaron Paul Rivera,  
Charity S. Enriquez, and Andrea O. de Jesus

Bataan Peninsula State University

## Abstract

The study was conducted to assess the intellectual property awareness among students and faculty was undertaken to determine attitudes, existing IP delivery, drivers seeking information, aspirations, identify unmet needs and generate suggestions to improve the IP system.

A mixed method approach using both quantitative and qualitative methodologies were carried out to a prospective group of students and faculty. Data were analyzed and descriptive statistics were used and further analysis using inferential statistics were calculated to compare results.

For the students, the most important and relevant topics to the study of Intellectual Property includes knowing where to find and use patent information and the most common method of delivering IP lessons was through briefing workshop on IP, followed by modules and integrating issues in the course. In order to improve IP Delivery, students noted that they prefer to give more emphasis on the overview of IP, patents, copyright, design right and plagiarism. However, students considered that they know some things about Intellectual Property but there were gaps to be filled in. Findings revealed from faculty respondents showed association of the inclusion of the understanding of disclosure and confidentiality to gender, program of students handled by faculty, and cluster where faculty belongs. Moreover, recognition for collaborative work has significant impact on program of students and academic level of faculty. Similarly, other relevant topics like exploiting ideas commercially was found to be associated also with the program of students handled by faculty. Tenure classification was indicated to be associated with understanding health and safety regulations. Results of the focus group discussion with faculty members included improvement of IP delivery and services, curriculum development to include IP education, problems on IP processing, preparation of documents for application

**Keywords:** intellectual property awareness, IP rights, IP perspectives and insights

Corresponding Author:  
Eduardo S. Tino  
ehdz\_tino@yahoo.com

Received: 23 April 2018  
Accepted: 8 May 2018  
Published: 4 June 2018

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the IRCHE 2017 Conference Committee.

## OPEN ACCESS

## 1. Introduction

Intellectual Property assets are valuable commercial products which need to be carefully protected in order to exploit their full economic potential. It is acknowledged that the protection and economic utilization of Intellectual property Rights (IPR's) is one of the key factors in bringing economic success for the developed world. However, IPR's have not adequately explored the issues governing its importance.

The role of the Higher Education sector in uplifting Research and Development in the Philippines cannot be taken for granted. It is in the Higher Education sector that potential sources of economically viable research outputs are generated. The Philippine Council for Agriculture and Resources Research & development (PCAARD) has 132 agricultural R & D agencies all over the country collectively called the National Agricultural and Resources Resource and development Network (NARRDN) as well as fourteen (14) regional consortia, in-charge with the regional capacity for managing researches through R & D Centers based in HEIs and conduct basic and applied research on a wide range of economically important commodities and disciplines (Stads, Faylon & Buendia, 2007). It is for this reason that with the help of intensive R & D in agriculture, the Philippines has become the world's leading exporter of Cavendish bananas and the second largest producer of coconut products after Indonesia. However, Universities and research institutions have not been aggressive in their efforts production of IPR protected technologies for effective exploitation and to be recognized as property of high economic value.

With increasing R & D outputs produced in Universities and R & D Consortia in the Philippines, such pieces of "information" should be adequately and effectively protected for effective exploitation and also to be recognized as property of high economic value. Difficulties also exist when they transfer their technology to the private sector.

The strong need to assess intellectual property awareness among students and faculty and those in the workplace results from the challenges of promoting and protecting IP in universities and technology companies. There is a need for universities to increase their efforts to educate students, faculty and the community on what IP is and why it matters. Many legal and practical problems relating to protection of IPR are yet fully understood and addressed. IPR is primarily business oriented and focuses on the nature and extent of the rights to protect intellectual property (Monngakgotla, 2007).

Universities are recognized as bastions of learning that researches are carried out to advance knowledge for public good. Thus, the principle of "publish or perish" prevails

and so the expected result of scientific research study is the publication to disseminate results to the public so that desired outcomes from the research are utilized. However, the challenge is to move from this orientation to recognition that Intellectual Property (IP) is an asset which should be maximized for the benefit of the University (Vilchez, 2008)

Recognizing IPR system as an effective tool to assist R & D activities, the University should exploit the system thoroughly. To achieve this, it must strengthen IPR protection and facilitate techno-transfer to the private sector. Moreover, the University has to transmit knowledge on IPR through collaboration with various organizations, public and private as it transcends its existence to the community by facilitating comprehensive infrastructure for IPR among the University's community networks.

One of the constraints to technology transfer in the Philippines identified by the Department of Science and Technology is the weak Intellectual Property Rights (IPR) culture. Because of weak IPR culture, there are scientists who do not want to negotiate or part ways with the technology believing that it would be disadvantageous to them. Others believe that technologies are public goods and should be free to prospective users. Still, there are those who oppose granting exclusive license to a technology especially if it is generated out of public funds because current government accounting and auditing system deem it is government property (Valdez, 2008).

One of the measures of success in universities are the research outputs in terms of publications and Intellectual Property registrations. However, universities can do better in preparing their graduates by developing them to become productive citizens of the knowledge economy by giving more attention on Intellectual Property education. This is a challenge confronting many universities all over the globe. Although research activities are engaged in the form of research collaborations, research paper presentations, reports, publications, very few researches are translated into IP registrations. Higher Education Institutions (HEIs) serve as avenue for implementing IP education due to their being equipped with human resources and strength in scientific and technological research, they are mostly troubled by such problems as lack of initiatives in intellectual property rights creation, weak management, students' weak awareness of intellectual Rights. Further, he stressed that the focus of strengthening the strategy of intellectual rights of higher education lies in deepening the reform of the management mechanism. Thus, the need for IP awareness. IP awareness is critical to running an efficient IP system, it is important to define what awareness is and thus what needs to be promoted for an IP system to succeed (Pickethly, 2010).

An informal survey of the Intellectual Property awareness among Engineering students at University of California in Los Angeles (UCLA) emphasized the challenges of promoting and protecting IP in American universities and technology companies showed that there is a need to increase efforts to educate students on what IP is and why it matters (Villaseñor, 2012). The survey showed that of the sixty graduate engineering students who completed the survey, 68% stated that they did not know enough to answer the question "what is trade secret?", 21% stated that they did not know enough to answer the question "what is a patent?" while the percentages of students unable to provide an answer to "what is copyright?" and "what is a trademark?" were 32% and 51%, respectively. However, an interesting finding by Trencheva, et. al (2012) indicated that students were interested in a small degree of copyright materials used for educational purposes. For the students, copyright material on the internet are of great interest among them particularly in Intellectual Property protection.

There is clearly an important role for library and information services in supporting students in video aspects of IP as well as in educating them about how to avoid plagiarism. Research has demonstrated that students believe a knowledge of IP is important, not only to their education, but to their future careers. However, they are more focused on their immediate goal of completing their course successfully, they do not appear to see a link between IP and commercial success and many lack confidence in using external resources and engaging in IP issues beyond the immediate confines of their course and their institution (Mc Nicol, 2013).

In a study conducted by Bansi and Reddy (2015) at Durban University of Technology indicated that majority of the respondents did not understand or agree with the ownership provisions of the IP Act to be reasonable and were unaware that their research could result to an IP. However, there was a strong positive response on IP registration and services offered by the institution as well as the support systems that do exist. Moreover, there was a general agreement that the IP Act and the University's IP Policy, could impact negatively by decreasing IP registration. Other significant findings noted that majority of the respondents did not understand the process and procedure for IP registration. Also, a large number of respondents reported that the lack of funding was a reason for disinterest in IP registration.

The radical evolution of social and technological changes would lead to new course delivery and assessment formats in the academe since the ways in which individual students and faculty and has changed accordingly, leading to a rich field of outputs each with its own unique implication for IP

## 2. Objectives of the Study

This research investigates attitudes, awareness of and aspirations for Intellectual Property among students and faculty and seeks to understand how the continued journey of students and faculty affects demand for IP information such as patents, copyright, trademarks, designs and confidentiality. Specifically, findings of the study identified students' and faculty members' attitudes and awareness of Intellectual property (IP), tracked how the students and faculty members' journey to IP awareness affects demand for IP information and described what aspirations students and faculty have, if any, to learn more about IP

## 3. Research Methodology

The study adopts the mixed method approach using both the quantitative and qualitative methodologies through survey questionnaires, interviews and focus group discussions. With survey questionnaires, the study investigated the individual perspectives/insights on Intellectual Property Rights (IPR) among faculty and students, implications and usage of Intellectual Property (IP), attitudes and aspirations about intellectual creation.

The target population for the study were students and faculty from the College of Engineering and Architecture, College of Communications and Information Technology, College of Industrial Technology, College of Agriculture, College of Business Administration, Natural Sciences, faculty members with on-going researches. A purposive sample of faculty members and students constitute samples from the University.

The questionnaires were developed and guided by the purpose of the study and the works and findings from the literatures and studies on Intellectual Property Rights gathered by the authors. Concepts relevant for the purpose were integrated to focus on the following issues: views and knowledge about Intellectual Property (IP), influence on students' course programs, faculty development, perceptions on IP ownership, registration, commercialization and IP usage among the business sector.

Focus group discussions and interviews were conducted to capture thinking and feelings on Intellectual Property Rights (IPR) and generate opinions and needs for future action among faculty members. Responses in focus groups are typically spoken, open-ended, relatively broad and qualitative and have more depth, nuance and variety.

Specifically, the explanatory design of the mixed-methods approach as defined by Creswell (1998) as cited by Fraenkel and Wallen (2006) was adopted in this study. This design involves the collection and analysis of quantitative data and then uses these findings to obtain qualitative data to follow up and refine the quantitative findings.

The responses were analyzed to provide summary statistics to each question. These are presented using table, descriptive charts, and percentages. In addition, inferential statistics were calculated by comparing results by program. The results of this analysis were reported and noted where differences existed between programs of study. Tests for association between variables were calculated using chi-squared test for nominal/categorical data.

## 4. Research Findings

One hundred twenty four (124) responses were received based on the survey questionnaire forwarded to one hundred seventy-five (175) students. 51% (63) of the students were female and 49% (61) were male. The mean age was 20 years. The majority of the students were from the fourth and fifth year (34% and 25%, respectively) of which 94% were regular students and the rest, 6%, were irregular students. The students were grouped into four clusters: Agriculture, Engineering, Information and Communications Technology and Technology which came from the nine (9) programs: Agricultural Engineering(39%), Architecture (2%), Civil Engineering (1%), Electronics and Communications Engineering (9%), Mechanical Engineering (2%), Electrical Engineering (3%), Computer Science (16%), Industrial Technology (9%) and Management and Information System (19%) as shown in the following chart:

## 5. Students' Views and Knowledge of Intellectual Property

### 5.1. Topics relevant to intellectual property

Students were given a list of topics they consider relevant in their study of Intellectual Property.

The most important and relevant to the understanding of Intellectual Property were concerned with knowing where to find and use patent information (91%) and ensuring that everyone receives recognition for collaborative work and ideas (74%). They also found understanding the implications of disclosure and confidentiality. However, accessing and using other people's work as well as ensuring recognition for their ideas

were rated the least with only 51%. Interestingly, the use of patent information was found to be rated the greatest with at least 90% looking for existing Intellectual Property Rights (IPRs) as bases for their respective researches.

## 5.2. Confidence in performing IP tasks

### 5.2.1. Understanding the implications of disclosure and confidentiality

Differences in the understanding of the implications of disclosure and confidentiality were found to be related with the Course Program at  $P < .001$  (Chi-square) indicating a highly significant relationship of understanding implications of disclosure and confidentiality with Course Program. Note that Agricultural Engineering students felt more confidence in performing this IP task. Similarly, the Computer Science Management and Information Systems students were also confident in this aspect of IP task. Architecture and Civil Engineering students were the least confident in this IP task. However, 64% of the students were found to be confident in understanding the implications of disclosure and confidentiality.

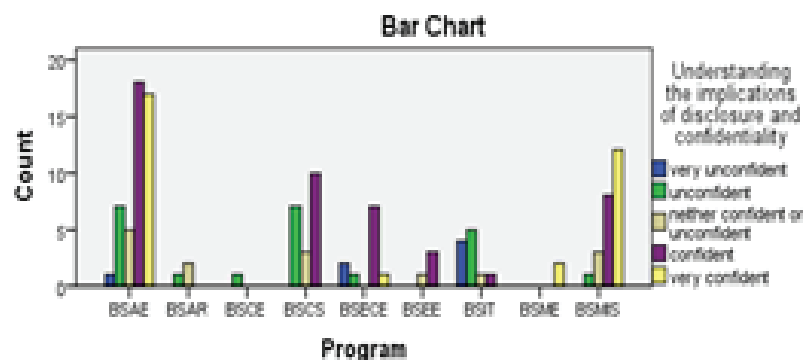


Figure 1: Understanding the implications of disclosure and confidentiality.

### 5.2.2. Importance of intellectual property to education and career

The students considered that knowing intellectual property during their education is very important. No significant association of their responses with their program was identified (Chi-square at  $P < 0.102$ ) Thus, regardless of their course program, students considered intellectual property as an important issue in their education

The students considered that knowing intellectual property in their future is very important. There is a significant association of their responses with their program (Chi-square at  $P < 0.001$ ) Thus, with regards to their course program, students considered intellectual property as an important issue in their career.

## 6. Existing Knowledge of Intellectual Property

### 6.1. Prior knowledge of IP

More than half (63%) of the students who responded to the survey said they had never learned about IP issues before their current place of study while 39% learned about IP issues during their secondary level. When students were asked which IP topics had been included as part of their current course, getting advice on IP (85%), so far was the most common response. This could be attributed that students in deed would like to seek advice form IP experts in terms of their research projects. This was followed by plagiarism (76%), followed by Trademarks (73%) and Confidentiality (71%) and Performing Arts (71%).

Further, Chi-square showed significant association of course programs in all areas of Intellectual Property: Overview of IP, patents, trademarks, copyright, confidentiality, design right, performing rights, publishing and IP, and plagiarism.

### 6.2. IP delivery

77% of students who received IP education said that IP issues were delivered through a briefing workshop on Intellectual Property. The other common ways for IP to be taught were through modules in IP (64%) as well as integrating issues in the course (60%). Teaching methods may vary depending on the discipline. For example, a briefing on IP will most likely to be appealing among engineering and technology students.

Where courses included some aspects of IP, these were usually delivered within the students department (47%), by an outside speaker (27) such as from the Intellectual Property Office (IPO), or from University Research Staff, Innovations and Technology Support Office (22%). The use of module tutor was considered to be the least method used to impart IP issues.

Seminars were the most common resource students used to learn about IP (73%), followed by lectures (56%). However, evidence also showed other learning resources



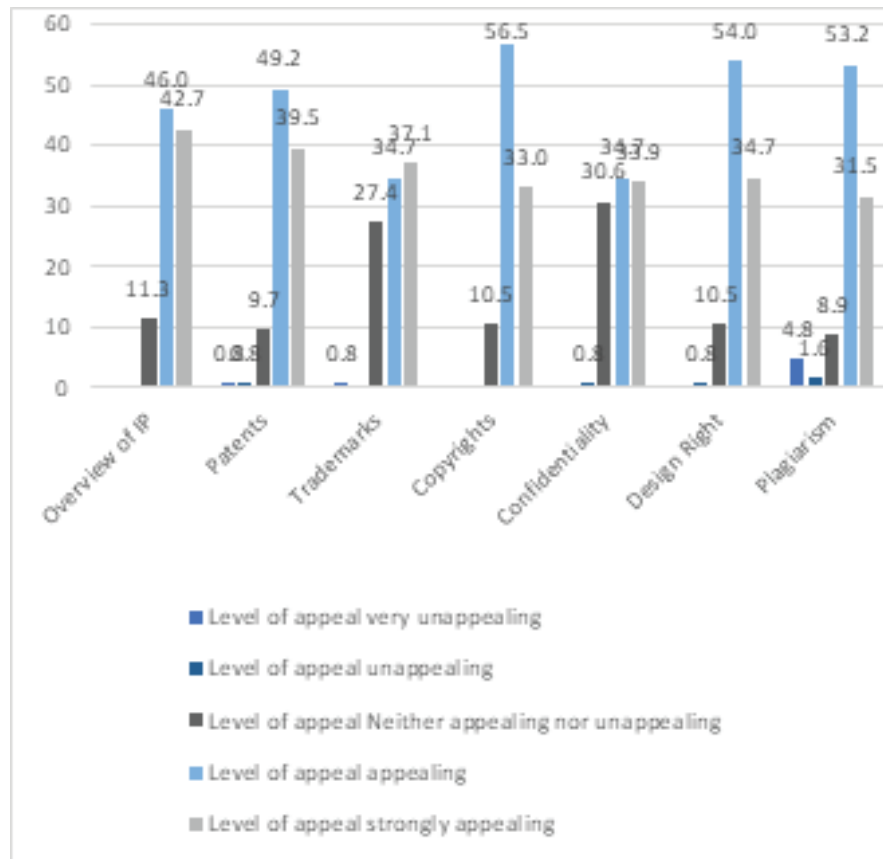


Figure 2: Level of Appeal for topics to be Included I the course/programs.

being used as 25% said they learned through group presentation while others emphasized that web resources such a IPO database (22%) were also utilized.

Sixty percent (60%) of the respondents who had learned about IP said that Intellectual Property knowledge were assessed as a group work task, followed by individual work task (32%).

### 6.3. Improvements to IP delivery

Students were asked which topics they felt were appealing to be included as part of their course. The topics with the widest appeal were those which would be relevant to the majority of the students, such as overview of IP, patents, copyright, design right, and plagiarism. These topics seem to be relevant for the Engineering, Technology, Architecture, Computer Science and Management Information System.

### 6.4. Faculty perspectives on intellectual property

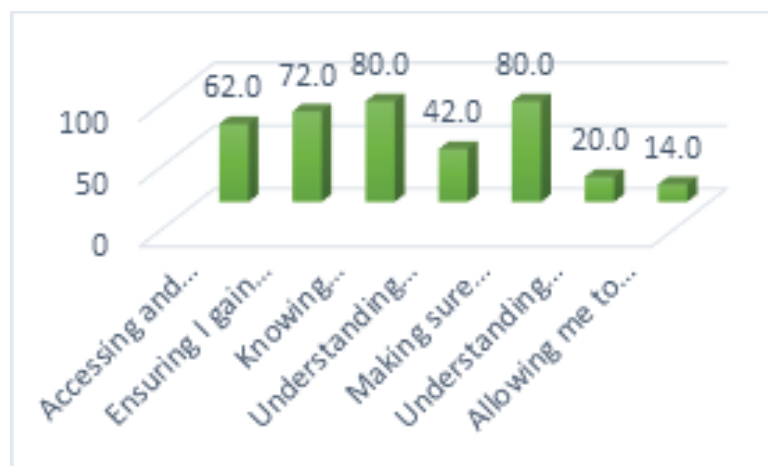
### 6.4.1. Faculty demographics

Faculty respondents were distributed by college affiliation, students' program handled, cluster membership, position held and academic level. Majority of faculty respondents came from the College of Engineering and Architecture (56%) and handling BS Agricultural Engineering (22%), Civil Engineering (12%), Electrical Engineering (10%), Mechanical Engineering (12%). Faculty respondents were also classified by cluster: Engineering, Agriculture, Technology, Teacher Education, Information and Communication Technology, Science, English of which those coming from the Engineering and Agriculture clusters were most numbered with 36% and 22%, respectively. In terms of positions held, most of the faculty respondents were Instructors (Instructor 1) constituting 70%. Further, the chart also presents that 32% of the faculty respondents were in the BS degree level while 24% were master's degree holders.

## 7. Views and Knowledge of Intellectual Property

### 7.1. Topics relevant to intellectual property

Similarly, faculty members were given a list of topics they consider relevant in their study of Intellectual Property. Most faculty members considered knowing where to find and use the patent information (80%) and ensuring that everyone receives recognition for collaborative work and ideas (80%). They also found ensuring they gain recognition to their ideas substantial in understanding IP (72%). However, understanding the implication of disclosure and confidentiality and allowing to exploit ideas commercially the least with 20% and 14%, respectively.



**Figure 3:** Relevant Topics to the Study of Intellectual Property.

## 7.2. Choice of relevant topic in relation to demographic profile of faculty

Chi-square test was carried to using SPSS (Statistical Package for the Social Sciences) to assert whether the choice of relevant topics was associated with demographic characteristics. The foregoing table shows the significant relationship of faculty profile to identified topics relevant to the study of Intellectual Property (IP):

TABLE 1: Chi-square test for significance of choice of Relevant Topics by Demographic Profile.

Factors	Value	df	Asymp. Sig (2-sided)*
Gender*Understanding the implication of disclosure and confidentiality	5.094	1	.024
Program*Making sure everyone receives recognition for collaborative work	19.631	10	.033
Program*Understanding the implication of disclosure and confidentiality	31.116	10	.001
Program*Allowing me to exploit my ideas commercially	33.651	10	.029
Cluster*Understanding the implication of disclosure and confidentiality	26.978	7	.000
Academic Level*Making sure everyone receives recognition for collaborative work	14.106	5	.015
Tenure classification*Understanding the implication of health and safety regulation	10.068	3	.018
<b>*significant at P&lt;.05</b>			

The table indicates significant association of the choice of faculty for understanding the implication of disclosure and confidentiality with gender, program of students being taught, and cluster membership. Making sure everyone receives recognition for collaborative work and allowing ideas to be exploited commercially were significantly related to the program held or taught by faculty. Similarly, academic level was found to be associated with making sure everyone receives recognition for collaborative work.

### 7.3. Focus group discussion with BPSU faculty

The BPSU Innovation and Technology Support Office initiated a focus group discussion on Intellectual Property Rights on May 17, 2016 at the BPSU Conference Room 2 and was attended by Faculty members who has submitted IP applications and those who had attended previous IP trainings. The purpose of the said activity was to gain insights and identify perspectives on IP services, problems on IP application, preparation of documents for submission, other related issues encountered by faculty and their students during the course of their Intellectual Property processing.

The highlights of the said activity focused on the issues and concerns to improve ITSO services, trainings and processing of IP applications. These includes problems on submission of responses on IP evaluation reports, availability of ITSO facilities/data bases, IP registration, benefits of IPR trainings and registration to students, delays in the post office of IP evaluation reports, procurement of display room for students projects, integration of IPR as a requirement in Thesis or Research subject, compulsory registration of projects, training on patent search so that faculty and students would not be submitting existing projects. Part of the discussion also touched on IP commercialization, royalty on registered IP, revision of syllabus in Research to include Intellectual Property Rights as one of the topics as well as management of commercialized IP s or entrepreneurship to replace irrelevant topics in order to develop research outputs that can be commercialized.

The discussion was considered fruitful as inputs generated from the faculty would serve as recommendation to improve the services not only of the Innovation and Technology Support Office (ITSO) but also the Instruction and further boost BPSU's technopreneurship programs and therefore gain recognition in terms of productivity, innovation and advancement in research.

## 8. Conclusions and Recommendation

The quantitative survey of the college students and faculty of the Bataan peninsula State University provided a number of important insights into the current attitudes toward awareness of Intellectual Property and highlights valuable lessons for academics, institutional support services and professional organizations from different sectors of the society. It also raises a number of complex issues which are worthy of further research.

A very overwhelming finding regarding Intellectual Property was the belief that students' knowledge of IP would not only benefits students' education but also their future career. Although the extent of IP teaching is limited at present, once exposed to IP, students feel more confident about it and express a desire to know more. Students want to intensify the integration of various aspects of Intellectual Property, Patents, Copyright, Design Right and Plagiarism in their current course.

Evidence showed that IP teaching earlier in their education motivates greater interest at the higher Education level particularly in the Applied Sciences and Research Methodology subjects. Briefing workshop and modules were seen as key sources of information about IP issues. Moreover, the students would appreciate the integration of IP issues in their lesson. Moreover, students wanted the relevance of the IP for their studies and future career to be more clearly set out and integrated into their courses since they want IP issues to be more closely related to their course.

Faculty members so far, would like to improve IP services, IP processing and application so that would make IP system in University more efficient and productive. Thus, based on the results of the study, focus on patents, copyrights, plagiarism, design rights should be given emphasis to improve awareness on aspects of IP delivery. Where courses do have IP component, assessment is currently limited. Therefore, there is a need for further guidance about appropriate assessment of IP as part of their course program.

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