# Operational Practices and Related Issues Regarding Intellectual Property Education and Training at Selected Universities in Zimbabwe

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**Abstract**
The quality of an Intellectual Property (IP) educational programme largely depends on the level of experience and interest of the IP educator. However, in most universities in Zimbabwe there seems to be operational glitches since IP education and training is conducted in different disciplines and mostly by staff without practical skills nor prior technical background in IP. The study sought to investigate the operational practices in relation to IP education and training within the universities. A survey of four universities was carried out with a sample of lecturers (692), research officers (4), IP officer (1), and faculty librarians (4). Questionnaires were administered to the lecturers while interviews were administered to the IP officer, research officers and faculty librarians. The questionnaire response rate was 52.9% (366 lecturers) while all the nine selected participants were interviewed. The results indicated that 147 (40%) lecturers were unaware of departments responsible for IP education and training within their universities. The interview results suggested that the IP office, the library, the research office and teaching departments were responsible for IP education and training in the universities.

**Keywords:** intellectual property education and training; intellectual property awareness; provision of intellectual property information; intellectual property information dissemination; teaching of intellectual property in universities

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The method most used for providing information on IP was Information Literacy Skills training, with a weighted mean of 4 from all the universities. 345 (94.3%) lecturers and all the faculty librarians did not have qualifications in IP, only one research officer and the IP officer had qualifications in IP. Most of the study participants rated their understanding of IP concepts at 3 out of 5 and there was a lack of formalized collaborative efforts among IP educators within and beyond the universities. The study concluded that universities needed to accentuate the interconnectedness of the various departments and professionals that dealt with IP education and training in the universities. The study would contribute to the knowledge base on IP education and training in universities in Zimbabwe and the information could be helpful for those particular institutions lacking in these measures.

**Résumé:** La qualité d'un programme d'enseignement sur la propriété intellectuelle (PI) dépend en grande partie du niveau d'expérience et d'intérêt du formateur en PI. Cependant, dans la plupart des universités du Zimbabwe, il semble y avoir des problèmes opérationnels, car l'enseignement et la formation en matière de PI sont dispensés dans différentes disciplines et principalement par du personnel qui ne possède ni compétences pratiques ni connaissances techniques préalables en PI. L'étude visait à examiner les pratiques opérationnelles liées à l'enseignement et à la formation en matière de PI dans les universités. Une enquête a été menée dans quatre universités auprès d'un échantillon de professeurs (692), de chargés de recherche (4), d'un responsable de la PI (1) et de bibliothécaires universitaires (4). Des questionnaires ont été distribués aux professeurs, tandis que des entretiens ont été menés avec le responsable de la PI, les chargés de recherche et les bibliothécaires universitaires. Le taux de réponse au questionnaire était de 52,9 % (366 professeurs), tandis que les neuf participants sélectionnés ont tous été interrogés. Les résultats ont montré que 147 enseignants (40 %) ne savaient pas quels départements étaient responsables de l'éducation et de la formation en matière de propriété intellectuelle au sein de leur université. Les résultats des entretiens ont suggéré que le bureau de la propriété intellectuelle, la bibliothèque, le bureau de la recherche et les départements d'enseignement étaient responsables de l'éducation et de la formation en matière de propriété intellectuelle dans les universités. La méthode la plus utilisée pour fournir des informations sur la propriété intellectuelle était la formation aux compétences en matière d'information, avec une moyenne pondérée de 4 pour toutes les universités. 345 enseignants (94,3 %) et tous les bibliothécaires universitaires n'avaient pas de qualifications en matière de propriété intellectuelle, seuls un chargé de recherche et le responsable de la propriété intellectuelle avaient des qualifications dans ce domaine. La plupart des participants à l'étude ont évalué leur compréhension des concepts de propriété intellectuelle à 3 sur 5 et il y avait un manque

d'efforts de collaboration formalisés entre les enseignants en propriété intellectuelle au sein et en dehors des universités. L'étude a conclu que les universités devaient mettre l'accent sur l'interconnexion entre les différents départements et professionnels chargés de l'éducation et de la formation en matière de propriété intellectuelle dans les universités. Cette étude contribuerait à la base de connaissances sur l'éducation et la formation en matière de propriété intellectuelle dans les universités du Zimbabwe et les informations pourraient être utiles aux établissements qui ne disposent pas de ces mesures.

**Mots-clés**: Éducation et formation en matière de propriété intellectuelle ; Sensibilisation à la propriété intellectuelle ; Fourniture d'informations sur la propriété intellectuelle ; Diffusion d'informations sur la propriété intellectuelle ; Enseignement de la propriété intellectuelle dans les universités

## Introduction

The competitiveness of a nation at the global level and the necessary transformation in all state activities is becoming largely driven by its intellectual capital (Vadym et al., 2021). The World Intellectual Property Organisation (WIPO) stated that intellectual property (IP) plays a major role in the development and advancement of nations in the knowledge economy (WIPO 2011, p. 2). Intellectual property is defined as the creations of the mind, that is, inventions, literary and artistic works, and symbols, names and images used in commerce (WIPO 2011, p. 2). The rights to these creations come in different forms comprising, patents, copyright and related rights, trademarks, geographical indications and trade secrets and these forms of IP are significant contributors to enterprise value (WIPO 2011, p. 2). About 40% of the value of a company is not shown in any way on its balance sheet because it is tied up in its intangible assets, that is, IP, also referred to as 'hidden value' (WIPO 2013, p. 7). IP is also a catalyst for economic development and social and cultural well-being. South African case law (Treatment Action Campaign case) and other documents) reiterate the importance of IP and access to medicines in developing countries (Southern Centre, 2013). This indicates that IP has an economic effect outside of jobs and wages and calls for education and training in IP in order to influence attitudes of universities towards IP.

IP education and training, especially in academic institutions, is very crucial because that is where many of society's brightest students first learn about and begin practicing innovation and entrepreneurship (Barrow et al., 2014). Of particular importance to universities is making informed decisions to protect their IP. While the institution may hold the



legal ownership, there are often mechanisms for sharing the benefits of commercialization with the inventor (student), such as royalties or other incentives (WIPO, 2024). Another factor that has necessitated IP education and training in universities has been the availability of digital information from the internet and the online resources that are provided by digital libraries. A study on the effects of IP education on piracy reported that a lack of IP understanding had resulted in one-fifth of middle-schoolers in the US and China believing that they had a right to obtain illegal software (Barrow et al., 2014).

It is unclear which offices or departments are responsible for IP education and training in most universities. Studies show that the approach to IP education and training that focuses on the establishment of law schools is inappropriate as the students in these schools do not major in IP. According to the International Intellectual Property Alliance (IIPA) (2012) in Lebanon the judges were unaware of and/or unsympathetic to the IP laws creating a weak link in the Lebanese IP system and a need for the continuous training of Lebanese prosecutors and judges in IP laws. Japan and China had a similar problem but in Japan, to alleviate it, the government commissioned universities to conduct research to identify the optimum manner of providing such knowledge (Uchida, 2008; Morgan, 2006). Elsewhere, IP education and training is scarcely found in curricula.

Studies have also been conducted to establish the methods and approaches used by particular departments in IP education and training in the universities. In 2004, the European Union (EU) established Own-it, an initiative aimed at embedding IP in the curriculum to ensure that every arts and design student left university with a basic knowledge of IP and a sense of its value for future career and business (European IPR Helpdesk, 2012). According to WIPO (2013, p. 56), the quality of an IP educational programme largely depends on the level of experience and interest of the IP educator and literature indicated that IP educators in most universities lacked deeper knowledge of IP. In some universities around the world, IP law or some aspects of it was a specialty, while in many other universities there was a lack of IP specialists and some professors viewed IP as subsidiary to their main teaching load (WIPO 2013, p. 56).

Gimenez et al., (2012, p. 185), who carried out a study on the professors' training on IP and how they addressed the subject in their disciplines, discovered that most professors lacked training to teach IP and that they often sought assistance from law specialists. In recent years, a new trend has emerged where many experienced IP practitioners leave their practice of law and join full time teaching.

Adopting a collaborative approach in teaching IP would assist universities as it would ensure that academics with theoretical knowledge work with professionals with practical skills and prior technical background in fields related to IP. "Collaboration provides educators with the opportunity to model different ways of teaching, to respond to student needs, and to provide students with the chance to experience two instructors contributing to the instruction" (Harris and Harvey, 2000).

**Contextual Setting**

Science education is critical for Zimbabwe to achieve rapid modernization and HEIs are urged to produce graduates capable of developing transformative innovations (MHTESTD, 2020). Developing transformative innovations depends on graduates fully appreciating and properly exploiting IP. Zimbabwe, which hosts the African Regional Intellectual Property Organisation (ARIPO), the regional WIPO office in Africa, is also involved in the promotion and protection of IP.

ARIPO lamented that most of the institutions of higher learning lack IP policies and incentives for academics to put more effort in innovation and registration of their creation, resulting in the shelving of the great ideas following their publication. As a result, Zimbabwe has not been able to fully benefit from the exploitation of its IP assets. According to WIPO (2018, p. 2), Zimbabwe continued to benefit from the WIPO Academy training programmes by offering Masters in Intellectual Property (MIP) programme at a University. This programme has produced a critical mass of IP personnel with required skills in government and other key institutions. WIPO (2019, p. 2) reported that the 11th Cohort of the Masters in Intellectual Property (MIP) programme in Zimbabwe had a total of 38 students including 5 from Zimbabwe mostly coming from the private sector, signaling for more focus in the public sector.

**Statement of the Problem**

IP education and training in universities remains vague as clarity in terms of responsibilities of departments is lacking as duties lie with multiple entities including the IP officer, teaching departments, faculties of law and technology, patent offices and even international organisations (Albitz,2013, p. 429; ; Erdenechimeg, 2006; WIPO, 2013, p. 23). Although all these departments deal with IP issues, they do not seem to be working together in the provision of IP education and training in universities in Zimbabwe. There is a need to unravel the operational practices surrounding IP education and training within the departments to demonstrate their linkages and for IP programmes to be effective.



**Purpose and Objectives of the Study**

This study investigates the operational practices of various departments in providing IP education and training within the universities. The objectives include:

i. to establish the departments that are responsible for IP education and training;
ii. to identify the methods and approaches used by particular departments in IP education and training;
iii. to ascertain the competencies of those involved in IP education and training; and,
iv. to determine the professionals that IP educators collaborate with in providing IP education and training.

**Research Methodology**

This study was guided by the post-positivist paradigm. Data collected was largely quantitative although qualitative data collection and analysis techniques were also used. The survey research design was applied since the researchers intended to gather data from IP officers, research officers, faculty librarians and lecturers in universities. It also assisted the researchers to identify attributes of many universities in the country yet dealing with a reasonable group of individuals.

The study included four universities, out of 24 in the country, and targeted IP officer (1), lecturers (1,305), research officers (10) and faculty librarians (22). A total of 692 lecturers were sampled using multi-stage cluster sampling and after dividing them according to their institutions, they were then randomly selected. The purposive sampling technique was applied to the IP officer, faculty librarians and research officers, as the researchers presumed that they offer rich information for interviewing. The preferred interviewees were those that were involved in programmes and activities related to IP education and training in the universities. The researchers selected one participant from each group, that is the IP officer, one research officer and one faculty librarian in each university. Questionnaires were administered to the lecturers while interviews were administered to the IP officer, research officers and faculty librarians. Data analysis for quantitative data comprised the use of Google forms and Microsoft Excel software and for qualitative data content analysis was applied.

**Ethical Considerations**

This study was cleared by the Department of Information Science Ethics Review Committee at the University of South Africa, with an approval number 2019-DIS-0024. Measures taken to maintain the confidentiality

of data included providing the participants with an informed consent form which they signed prior to participating in the study. Research data was retained without identifiers as names were substituted with codes so that the participants remained anonymous and the data collected could not be linked to the participants. Interview scripts were stored in locked cabinets in the researchers' offices and electronic records of data were secured with password.

## Results

The researchers received responses from 366 lecturers, giving the questionnaires a response rate of 52.9%. The researchers interviewed all the nine selected participants that included IP officers, faculty librarians (FLs) and research officers (ROs). The results were organised thematically according to the research objectives. The data from the questionnaires were presented in a form of tables and charts; and some narrative extracts were presented from the interviews.

### *The Departments Responsible for Teaching IP*

Lecturers were asked to identify responsible departments for IP education and training within their universities. Results are shown in Figure 1.

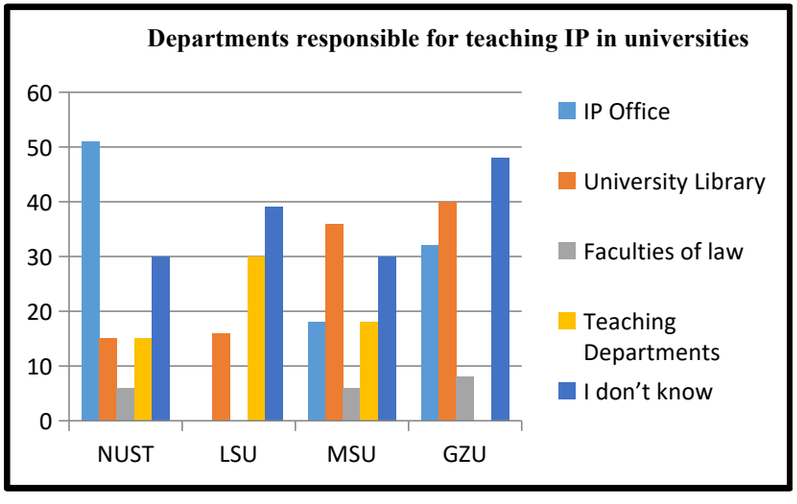


**Figure 1: Offices Responsible for Teaching IP in Universities**
Source: Field Data, 2021

Figure 1 shows that, across the universities, 147 (40%) lecturers were unaware of the particular departments responsible for IP education and training within their universities. A similar question was posed on the



interviewees where all the faculty librarians (FLs) advocated for the library to be responsible, with a FL at NUST stating that, "the library should be the sole diffuser of IP knowledge to avoid the disintegration and duplication of information if there are many offices involved." However, the FLs also suggested the Research Office, which has different titles in different universities, including Research and Innovation Office, the Research and Postgraduate Studies Office and the Research and Postgraduate Centre, to be responsible. The research officers (ROs), in their part suggested multiple units including the IP office, faculties or the deans' offices, the Library and the Research and Innovation Office and the Quality Assurance Office. All these suggestions were harmonised by the RO at MSU who stated that, "all departments should be responsible for the provision of IP information in the university and there should be a committee to bring awareness."

All the FLs bemoaned the absence of a lawyer or IP expert in the libraries. To ensure that departments worked together in IP education and training in the university, the FLs suggested a formalized collaboration among departments. They also advised to hire knowledgeable experts in IP and a policy document that stipulates the roles of each department. They also advocated that departments should carryout regular workshops and seminars on IP for their members. The FL at GZU stated that, "Maybe there is need for training first on what is IP and then a decision is made on who is responsible after everyone has understood what is IP."

According to the IP officer, universities in Zimbabwe were developing innovation hubs and suggested that these be the responsible units for IP education and training in the universities after capacitated to provide the service. The FLs indicated that university IP offices had to ensure that IP education and training was provided in the universities by populating the university web sites, such as the Innovation Hub section, with IP information. They further indicated that the IP offices in their respective universities worked with the research office to provide IP education and training to lecturers and students.

### Approaches and Methods That Are Critical in Teaching IP

Lecturers were asked to measure the extent to which the approaches suggested in teaching IP were critical based on six categories: Not at all (1); To a small extent (2); To some extent (3); To a great extent (4); To a very great extent (5). The responses for all the approaches were calculated from all the universities as shown in Figure 2.

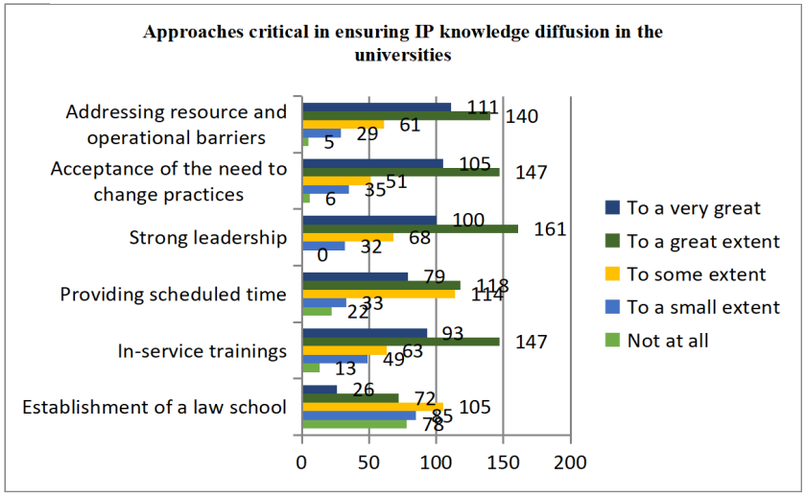


**Figure 2: Lecturers' Responses on Approaches That Are Critical in Teaching IP**
Source: Field Data, 2021

Data collected showed that lecturers viewed most of the approaches for IP education and training in the universities as critical, i.e., 'To a great extent', except for, 'the establishment of a law school, which was mainly rated at, 'To some extent'.

The researchers also asked lecturers to rate the given methods of providing IP information in the universities, on a scale of 1 to 5. The weighted means of responses were calculated as shown in Table 1.

**Table 1: Weighted Mean of Responses from Lecturers on Methods of Providing IP Information**

| Method | University | 1 | 2 | 3 | 4 | 5 | Weighted Mean |
|---|---|---|---|---|---|---|---|
| Institution Offered Training | NUST | 15 | 30 | 33 | 16 | 8 | 3 |
| | LSU | 6 | 9 | 13 | 16 | 25 | 4 |
| | MSU | 4 | 7 | 43 | 31 | 6 | 3 |
| | GZU | 43 | 31 | 18 | 9 | 3 | 2 |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Blended Learning | NUST | 13 | 23 | 40 | 17 | 9 | 3 |
| | LSU | 9 | 7 | 11 | 16 | 26 | 4 |
| | MSU | 28 | 13 | 37 | 8 | 5 | 2 |
| | GZU | 22 | 50 | 21 | 6 | 5 | 2 |
| Dissertation publication | NUST | 11 | 14 | 45 | 25 | 7 | 3 |
| | LSU | 7 | 8 | 26 | 15 | 13 | 3 |
| | MSU | 18 | 19 | 17 | 29 | 8 | 3 |
| | GZU | 30 | 37 | 19 | 11 | 7 | 2 |
| Information Publication | NUST | 13 | 27 | 43 | 12 | 7 | 3 |
| | LSU | 10 | 23 | 20 | 11 | 5 | 3 |
| | MSU | 9 | 22 | 27 | 25 | 8 | 3 |
| | GZU | 32 | 37 | 21 | 10 | 4 | 2 |
| Information literacy programmes | NUST | 10 | 10 | 13 | 16 | 37 | 4 |
| | LSU | 0 | 2 | 11 | 25 | 31 | 4 |
| | MSU | 5 | 25 | 14 | 18 | 29 | 4 |
| | GZU | 25 | 7 | 21 | 12 | 39 | 3 |

Source: Field Data, 2021

The findings revealed that information literacy programmes had the highest weighted mean (4) from all the universities. This could imply that these programmes may be the most employed method for providing information on IP in the universities. Responding to the same question during the interviews, the FLs lamented that the libraries were mostly involved only in offering modules in information literacy and providing institutional repository on IP. The FLs further lamented that mainly information on copyright and very little on other types of IP are provided.

The IP officer lamented the lack of involvement of senior managers in IP education and training programmes and indicated that only deans were interested in teaching IP while administrators were largely unaware of it. They also indicated that the university lacked an IP lawyer/attorney among the staff or an IP committee although there was a legal officer who however, was not an IP specialist/ expert. The IP officer also explained that, at national level, IP falls under the Ministry of Justice, and not the Ministry of Higher and Tertiary Education Science and Technology Development (MHTESTD) implying that this was an anomaly from an educational perspective since the Ministry of Justice was not directly involved in academic and research activities in universities.

Responding to the question on how the research office was involved in IP education and training in the universities, the ROs explained that the research offices were at the centre of research in the university and were responsible for creating IP awareness of researchers. They expounded that IP information was provided by the research office through workshops, awareness campaigns and presentations at senate meetings. However, some ROs pointed out that though each research workshop had a section on IP, workshops specifically on IP were lacking. One RO indicated that they were not an IP attorney or IP expert but identified members within the university who were knowledgeable in IP such as the IP educator.

**Competencies in IP Education and Training**

The researchers requested those involved in IP education and training to disclose their qualifications in IP (formally trained or taught IP to possess certification in IP); the number of IP training sessions, workshops or seminars attended; and the duration of involvement in IP education and training. The data collected showed that 345 (94.3%) lecturers had lacked any qualifications in IP, 199 (54.4%) had only attended 1-5 IP training workshops or seminars and 156 (42.6%) had never attended any IP training workshops or seminars. The responses also indicated that the highest number of lecturers totaling 170 (46.5%) had only been involved in IP for less than 5 years, closely followed by 141 (38.5%) who had never been involved. Only 3 lecturers indicated that they had been involved for more than 15 years.

Data from the FLs showed that none of them had a qualification in IP, and only had attended not more than one IP training events. Some FLs had never been involved in IP education and training; only one indicated five years and another one 9 years, even then not specifically on IP. Findings from the ROs indicated that only one had a qualification in IP, while all others had attended less than 10 training events; only 1 had been involved in IP activities for more than 10 years. Data collected from the IP officers showed that they held a qualification in IP, had attended more than 10 IP training events and had been involved in IP activities for more than 10 years. All the interviews however indicated lack of adequate expertise in IP within the universities.

The survey further requested lecturers to indicate their understanding of the given key concepts or topics in IP, on a scale of 1 to 5, where 1 stood for poor and 5 stood for excellent. These responses are demonstrated in Figure 3.



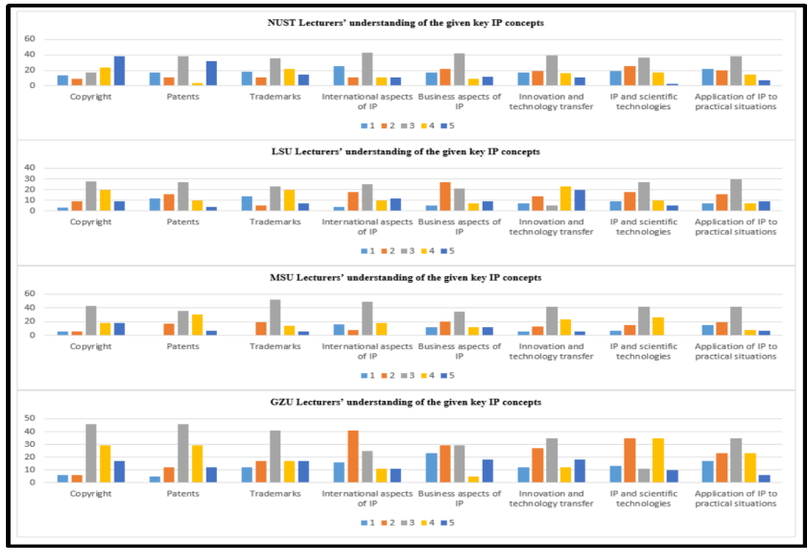


**Figure 3: Lecturers' Understanding of the Given Key Concepts or Topics in IP**

Source: Field Data, 2021

Lecturers in all the universities overall rated their understanding of the given concepts as 3 implying that their understanding was limited. Similar observations were evident from the interviews with FLs and ROs. Various definitions were pronounced by the FLs in describing IP, though it was used with copyright interchangeably. On the other hand, all the ROs were able to define the term IP.

The survey also asked lecturers to indicate their familiarity with the given legal requirements of IP. They had to select between extremely familiar, very familiar, somewhat familiar, not so familiar, and not at all familiar. These results are provided in Figure 4.


**Figure 4: Lecturers' Familiarity with the Given Legal Requirements of IP**
Source: Field Data, 2021

The dominant response in terms of familiarity with the given legal requirements of IP was "somewhat familiar" while "extremely familiar" was a rare occurrence which may imply that the lecturers had limited exposure to IP legal requirements. To solicit similar information from the FLs, ROs and IP officers, they were asked to suggest the legal requirements related to IP that they are aware, and they mentioned the following:

i. The library policy;
ii. National law (Copyright Act, Patents Act);
iii. Guide lines on Research Projects;
iv. Institutional Repository policy;
v. Research and Innovation policy;
vi. IP Policy;
vii. International IP Conventions (The Paris protocol, The Madrid protocol); and
viii. Anti-plagiarism- Turnitin

These responses showed that the FLs, ROs and IP Officer were knowledgeable of some legal requirements related to IP.

***Collaboration among IP Educators in Providing IP Education and Training***
Lecturers were asked to specify the frequency in which they shared IP knowledge and collaborated with the given professionals to provide accurate and reliable information for IP education and training. The findings are shown in Figure 5.



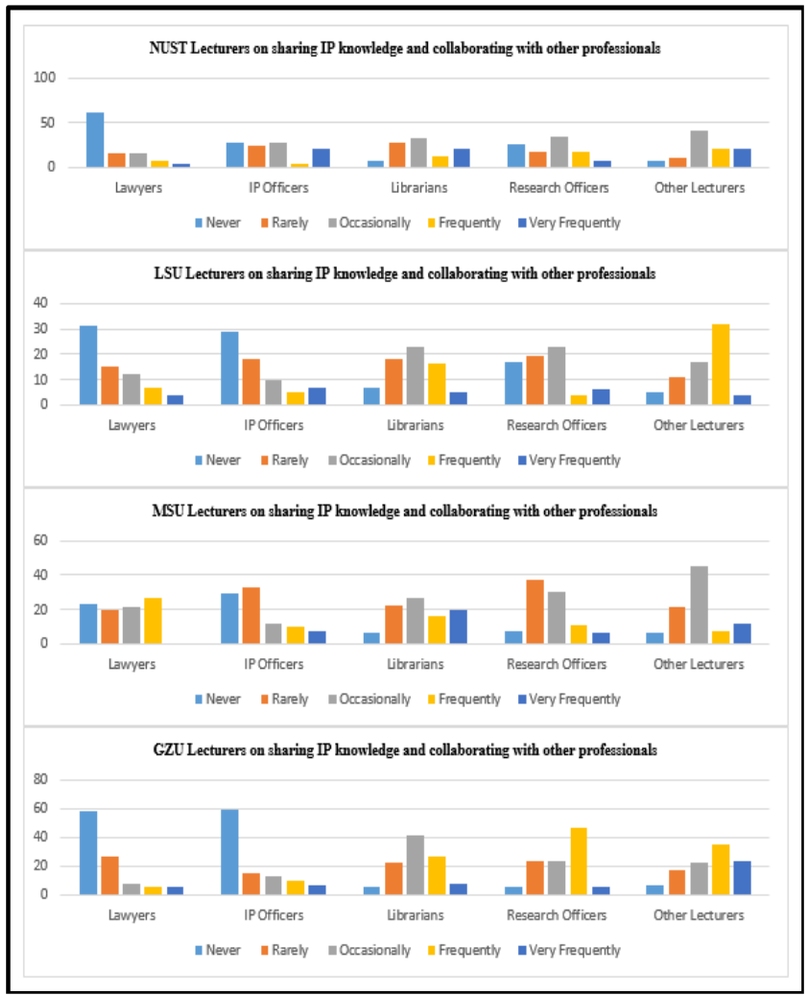


**Figure 5: Frequency of Lecturers Sharing IP Knowledge and Collaborating with Other Professionals**
Source: Field Data, 2021

The data revealed that the highest number of lecturers in all the universities 'never' collaborated with lawyers or IP officers but sometimes worked with librarians and research officers. From the interviews, the lack of formalized collaborative initiative was evident, as one FL lamented that teaching departments and faculties made arrangements with the IP office outside the library. Furthermore, the library did not work directly with

the IP Office with reference to IP queries from staff and students. The IP officer suggested the need for collaboration instead of competition among departments within the universities. Interview data revealed informal collaborations among lecturers, librarians and researchers, IP officers from Zimbabwe Intellectual Property Office (ZIPO), African Regional Intellectual Property Office (ARIPO), World Intellectual Property Office (WIPO), the university Quality Assurance Office and the Higher Degrees Registrar. The interviewees proposed that all departments should work together and all universities should create a post for an IP expert.

**Discussion of the Findings**

The findings showed that various departments were considered to have a role in IP education and training in universities such as the IP office, the library, research office and teaching departments. The role of the particular departments or units in IP education and training was also cited by the WIPO (2013, p. 23) which revealed many teaching courses in the field of IP established by patent offices in countries in transition, educational institutions and international organisations. Teaching of IP courses by patent offices indicated that so much value was placed on IP information provision for university students across the world although this role seemed to be fulfilled by departments outside universities. The Information Branch of the Canadian Intellectual Property Office (CIPO) indicated that it was responsible for providing information on IP to its clients and to the Canadian public (MacDougall, 2003, p. 11). CIPO further expounded that its approach centered around basic IP information, awareness/promotion, education/training and value-added information.

The findings also revealed that universities lacked IP experts among their staff although they had legal offices. This challenge was also identified by Solleiro and Lopez (2009) who stated that, the ACeITe [Spanish initials for the Department of Knowledge Management and Competitive Intelligence] services could not expand because there were "few personnel for the mass attention of users" (p. 10) However, they and Monotti (2000, p. 23) emphasised the importance of an IP Office within the universities such as a unit responsible for filing applications, advising researchers with respect to writing up applications and, occasionally giving introductory talks on the subject and also disseminate the terms of IP Statutes and Regulations.

The study indicates the library as the most proper department for IP education and training in the universities. This was also suggested by Nilsson (2016, p. 81) who noted that libraries could embed IP information into other training sessions, such as instructions regarding blended learning, dissertation publication and information retrieval. Further, very few lecturers suggested placing IP education and training within teaching departments. This implied that they did not see it appropriate to assume the responsibility of IP education and training as they lacked the necessary competencies and qualifications.



According to Mawire (2014, p. 6) only two universities in Zimbabwe, University of Zimbabwe and Midlands State University, offered degrees in law but their curriculum lacked adequate courses on IP and none of the two universities had students that specialised in the subject. Similar findings by the International Intellectual Property Alliance (IIPA) (2012), Uchida (2008) and Morgan (2006) showed that judges in Lebanon and Japan were unaware of and/or unsympathetic towards the IP laws creating a weak link in the IP system necessitating continuous training of prosecutors and judges in these laws. To alleviate this problem, the Japanese government commissioned universities, including Tokai University, to conduct research to identify the optimum manner of providing such knowledge.

Establishing a law school, department or faculty within the universities to provide IP education and training was not welcomed by most study participants. However, surveys carried out by WIPO (2004) indicated that teaching IP was still mainly related to law courses, especially Commercial Law, but lacked educators and teaching materials which resulted in very limited discussion and reflection on the subject. In the United States, IP was still studied and researched, most frequently in law schools where the teaching perspective adopted a predominantly legal approach. According to Riccheri (2009), some of the main reasons for the absence of IP teaching included the lack of IP awareness, the challenge of introducing an IP branch into the already intense university curriculum and the lack of preparation to teach IP by academics.

Findings in this study indicated poor methods of providing IP education and training as very little was being done by the various departments. Further, universities were unable to explore other methods, becoming over reliant on Information Literacy Skills programmes. Poor methods of teaching IP were also identified by Hill (2014), who cited that although students studying at the School of Design at Victoria University created new IP, the school did not play an active role in providing IP information to its students. Another successful method was reported by Adedeji (2010) in Nigeria, where the Nigerian Copyright Council set up school and youth projects to engrain the basic tenets of copyright in Nigerian youth. Universities, thus, need to incorporate other vibrant methods of providing information and also create special events to timely present IP issues more exhaustively.

The responses on IP showed a lack of a comprehensive understanding of key concepts or topics of IP. This was also revealed by Sulekha and Singh (2018, p. 197) where 46% of researchers stated IP as a right and 34% expressed it as an ownership. Similarly, the IPAN study by Brachmann (2019, p. 4) revealed that only one-third of the 250 (33%) academic and tutorial staff were confident to handle student questions on IP matters. The findings also showed that most of the participants in this study exhibited low levels of familiarity to IP knowledge. Such low levels of familiarity with IP were also highlighted by WIPO (2013, p. 42) who reported the absence of a "systematic approach and methodological recommendations in providing the IP teaching process with necessary teaching aids and a lack of practical training... and this had an adverse impact on the teaching and formation of professional skills." Gimenez, et al. (2012, p. 180) in a study on 'The Challenges of Teaching and Training in Intellectual Property' reported that some interviewees lamented the lack of more specific or deeper knowledge of and approach to IP in their disciplines. Variances in levels of awareness and familiarity with IP concepts were also found at the University of California, Los Angeles (UCLA) where the failure of faculty members to discuss even the basics of IP resulted in the low levels of its awareness among the students (Brachmann, 2019, p. 7).

Similarly, Sulekha and Singh (2018, p. 197) also reported that out of 50 respondents, 14 (28%) stated that the IP issue was related to the author of the work; 17 (34%) said it was related to both the author of the work and the owner, while 4 (8%) said that they had no idea about the issue of IP. These findings implied that universities needed to address the lack of IP knowledge among their staff, if they were to effectively teach IP.

The findings also revealed a lack of formalized collaboration among the IP educators and that very few of these sought legal advice from IP experts outside the universities. Ronfeldt et al., (2015) expounded that collaboration had positive effects on teachers and their students as their study revealed that the majority of teachers surveyed (84%) indicated that they were a part of a team of colleagues that worked together on instruction, and nearly all (90%) reported collaboration as helpful. According to Baguma et al. (2019), "Collaborative teaching enables teachers to learn from one another, share ideas and resources, and develop their teaching skills." IP education and training does not solely depend on resources within the institutions; but external support and links could be sought from law firms, pharmaceutical companies, publishers, among others. There are multiple implications for this study and include that IP educators within universities need to identify key departments, obtain wide-ranging knowledge on IP and collaborate in



delivering IP education and training—if universities are to benefit from the IP generated in their institutions.

## Conclusions

The study concluded that IP education and training in universities did not belong to a single department but distributed across the library, research office, IP office and teaching departments mentioned. While various methods and approaches viewed as critical for IP education and training exist, universities were too reliant on Information Literacy Skills programmes. The study further concluded that there was a lack of knowledge of IP among the educators who also lacked formalized collaboration among themselves and IP experts outside the universities. The study concludes that universities need to foster collaboration between their various departments that deal with IP matters, if they are to advance IP competence among students and staff.

## Recommendations

The study recommends the following:

i, universities establish an IP office/ unit that integrates and facilitates collaboration on IP education and training;

ii, universities employ diverse methods and approaches for IP education and training; and

iii, IP educators acquire adequate IP knowledge and establish formalised collaboration with IP experts outside the universities.

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