**CHAPTER THREE**

**METHODOLOGY**

**3.1. Introduction**

This chapter presents the methods and procedures used in the study. The research methodology that was used for this study will be discussed under the following sub – headings:

* 1. Research design
  2. Population of the study
  3. Sampling technique and sample size
  4. Data collection instrument
  5. Validity and reliability of the instruments
  6. Data collection procedure
  7. Method of data analysis

**3.2. Research design**

The study adopted the descriptive research design of the correlational type. Correlational design is considered suitable because it will enable the researcher to critically examine the relationship between the independent variables (perception, policy and management styles) and the dependent variable (IP creation) in the study. According to Kerlinger(1973) correlational research design is a systematic empirical inquiry in which the scientists establish relationships between the independent variables and the dependent variable. If there is any relationship between the independent and dependent variables inferences about the variables will be drawn.

**3.3. Population of the study**

Three categories of population were involved in the study. These are the lecturers; management members (i.e. the Vice Chancellors, Deputy Vice Chancellor, Registrar, Bursar and University Librarian); and Intellectual Property and Technology Transfer Office (IPTTO) staff in the selected universities in South-west, Nigeria.

There are 141approved universities in South-west, Nigeria. They include 40 federal universities, 40 state universities and 61 privately owned universities (NUC, 2015). The South-west consists of six states. The states are Ekiti, Lagos, Ogun, Ondo, Osun and Oyo States. In South-west zone, there are 7federal universities, 8 state universities and 21 private universities making a total of 36 universities with a population of 11,759lecturers. All the lecturers in the 36 universities in South-west, Nigeria constituted the population of lecturers in the study as presented in Table 3.1a and Table 3.1b.

**Table 3.1a: Population of lecturers in universities in South-west, Nigeria**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/N** | **Universities** | **State** | **Year Estab.** | **Ownership** | **Lecturers’ Population** |
| 1 | University of Ibadan, Ibadan (UI) | Oyo | 1948 | Federal | 1,416 |
| 2 | Obafemi Awolowo University, (OAU), | Osun | 1962 | Federal | 1072 |
| 3 | University of Lagos, Lagos (UNILAG) | Lagos | 1962 | Federal | 1,420 |
| 4 | Federal Univ. Of Tech., Akure (FUTA) | Ondo | 1981 | Federal | 570 |
| 5 | Federal Univ. of Agriculture, Abeokuta | Ogun | 1985 | Federal | 500 |
| 6 | National Open University, NOUN | Lagos | 2002 | Federal | 194 |
| 7 | Federal University, Oye-Ekiti | Ekiti | 2011 | Federal | 441 |
| 8 | Olabisi Onabanjo University, Ago-Iwoye | Ogun | 1982 | State | 556 |
| 9 | Lagos State University (LASU), Ojo | Lagos | 1983 | State | 880 |
| 10 | Ekiti State University, Ado-Ekiti (ESU) | Ekiti | 1988 | State | 418 |
| 11 | Ladoke Akintola Univ. of Tech., Ogbomoso | Osun | 1990 | State | 412 |
| 12 | Adekune Ajasin University, Akungba | Ondo | 1999 | State | 400 |
| 13 | Tai Solarin University, Ijebu-Ode | Ogun | 2005 | State | 286 |
| 14 | Osun State University, Oshogbo | Osun | 2006 | State | 400 |
| 15 | Ondo State University of Science & Tech., Okitikpupa | Ondo | 2008 | State | 400 |
|  | **Total** |  |  |  | **9,365** |

**Source: NUC website and Idris (2014)**

**Table 3.1b: Population of lecturers in private universities in South-west Nigeria**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/N** | **Universities** | **State** | **Year Estab.** | **Ownership** | **Lecturers’ Population** |
| 16 | Babcock University, Ilisan-Remo | Ogun | 1999 | Private | 225 |
| 17 | Bowen University, Iwo | Osun | 2001 | Private | 165 |
| 18 | Covenant University, Ota | Ogun | 2002 | Private | 419 |
| 19 | Pan-African University, Lagos | Lagos | 2002 | Private | 125 |
| 20 | Ajayi Crowther University, Oyo | Oyo | 2005 | Private | 149 |
| 21 | Bells University of Technology, Otta | Ogun | 2005 | Private | 56 |
| 22 | Crawford University | Ogun | 2005 | Private | 46 |
| 23 | Crescent University | Ogun | 2005 | Private | 158 |
| 24 | Redeemer’s University, Mowe | Ogun | 2005 | Private | 159 |
| 25 | Lead City University, Ibadan | Oyo | 2005 | Private | 107 |
| 26 | Joseph Ayo Babalola University | Osun | 2006 | Private | 205 |
| 27 | Achievers University, Ondo | Ondo | 2007 | Private | 48 |
| 28 | Caleb University, Lagos | Lagos | 2007 | Private | 44 |
| 29 | Fountain University | Osun | 2007 | Private | 50 |
| 30 | Wesley University of Sci & Tech., Ondo | Ondo | 2007 | Private | 27 |
| 31 | Afe Babalola University, Ado-Ekiti | Ekiti | 2009 | Private | 120 |
| 32 | Oduduwa University | Ekiti | 2009 | Private | 75 |
| 33 | Adeleke University, Ede | Osun | 2011 | Private | 57 |
| 34 | Elizade University, Ondo | Ondo | 2012 | Private | 40 |
| 35 | McPherson University, Ajebe | Oyo | 2012 | Private | 47 |
| 36 | South Western University, Ijebu.ode | Ogun | 2012 | Private | 72 |
|  | **Total** |  |  |  | **2,394** |
|  | **Grand Total** |  |  |  | **11,759** |

**Source: NUC website,Oweghoro, Adeleke, Mshelia, Ogundiran, Yusuf and Adeoti (2015) and Idris (2014).**

The second and third groups of respondents for the study were the management members and IPTTO staff in the 12 selected universities. There are 60 management members in the selected universities, while the staff in IPTTO involved were 48 in number making a total of 108 as shown in Table 3.2.

**Table 3.2: Population of management and IPTTO staff in universities in South-west, Nigeria**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Faculty** | **UI** | **OAU** | **UNILAG** | **FUTA** | **OOU** | **LASU** | **EKSU** | **LAUTECH** | **BAU** | **BU** | **CU** | **PAU** | **Total** |
| VC | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 12 |
| DVC | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 24 |
| Registrar | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 12 |
| UL | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 12 |
| IPTTO staff | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 48 |
| **Total** | **9** | **9** | **9** | **9** | **9** | **9** | **9** | **9** | **9** | **9** | **9** | **9** | **108** |

**3.4. Sampling technique and sample size**

Owing to the large number of lecturers and the number of universities involved, the study adopted a multi-stage sampling technique to determine the sample size of the study. First, using equal allocation sampling method, four universities were selected from each of the three categories of federal, state and private universities in South-west, Nigeria. This gives a total of 12universities to be studied based on the age of the universities. This choice is sequel to the fact that the older universities would have more experience, structures and accumulation of IP than the recently established ones. The total number of lecturers in the twelve selected universities is 7,678 as shown in Table 3.3. The expected minimum qualification of the academics was a master’s degree. This will ensure that the lecturers involved in the study have the capacity to publish and create intellectual property.

**Table 3.3: Population of lecturers in the selected universities**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Universities** | **State** | **Year Established** | **Lecturers’ Population** |
| 1 | University of Ibadan, Ibadan (UI) | Oyo | 1948 | 1,416 |
| 2 | Obafemi Awolowo University, Ile-Ife (OAU) | Osun | 1962 | 1072 |
| 3 | University of Lagos, Lagos (UNILAG) | Lagos | 1962 | 1,420 |
| 4 | Federal Univ. Of Tech., Akure (FUTA) | Ondo | 1981 | 570 |
| 5 | Olabisi Onabanjo University, Ago-Iwoye (OOU) | Ogun | 1982 | 556 |
| 6 | Lagos State University, Lagos (LASU)01 | Lagos | 1983 | 880 |
| 7 | Ekiti State University, Ado-Ekiti (EKSU) | Ekiti | 1988 | 418 |
| 8 | Ladoke Akintola Univ. of Tech., Ogbomoso (LAUTECH) | Osun | 1990 | 412 |
| 9 | Babcock University, Ilisan-Remo (BAU) | Ogun | 1999 | 225 |
| 10 | Bowen University, Iwo (BU) | Osun | 2001 | 165 |
| 11 | Covenant University, Ota (CU) | Ogun | 2002 | 419 |
| 12 | Pan-African University, Lagos (PAU) | Lagos | 2002 | 125 |
|  | **TOTAL** |  |  | **7,678** |

In order to arrive at a manageable number of lecturers to be used for the study within the limited time available for the work, equal allocation sampling techniques was further used to select864lecturers by cadre in the twelve selected universities as presented in Table 3.4.This number consists of 12lecturers per cadre and 72 lecturers per university. The selected sample representing 11.3 % of the entire population of faculty would adequately represent the entire population of lecturers in universities in South-west, Nigeria.

**Table 3.4: Sample size of the lecturers in the selected universities**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Faculty** | **UI** | **OAU** | **UNILAG** | **FUTA** | **OOU** | **LASU** | **ESU** | **LAUTECH** | **BAU** | **BU** | **CU** | **PAU** | **Total** |
| Professor | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 144 |
| Asso. Professor | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 144 |
| Snr. Lecturer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 144 |
| Lecturer I | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 144 |
| Lecturer II | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 144 |
| Asst. Lecturer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 144 |
| **Total** | **72** | **72** | **72** | **72** | **72** | **72** | **72** | **72** | **72** | **72** | **72** | **72** | **864** |

For the second and third groups of respondents, total enumeration of the management and IPTTO staff in the 12 selected universities was carried out as presented in Table 3.2.Total enumeration was adopted because the population was not large.

**3.5. Data collection instrument**

The data collection instrument used in this study was the questionnaire. The questionnaire was used to collect data from lecturers who are the main respondents in the study. The instrument was considered appropriate because of the large number of respondents that will be sampled and it will also facilitate quick collection of data in a relatively short period of time. The questionnaire for lecturers has five sections A - E. Section A elicits the demographic information of the respondents and their organisations. Section B elicits data on Creation of Intellectual Property by lecturers. Section C elicits information on Perception of Intellectual Property. Section D elicits information on Intellectual Property Policy in universities. Section E elicits information on Management Style in universities. The questionnaire is based on a four point scale, ranging from strongly agree to strongly disagree. With the use of a four-point scale, the expected average (mean) response per item should be 2.50 (either in favour or disfavour of what is being measured

Some questions on autocratic, democratic and laissez-faire management styles were adapted from the work of Abu Manson, Choon, Mohamed and Shah (2010); while some questions on autocratic and democratic were adapted from Ogunola, Kalejaiye and Adrifor, (2013) Supervisory Behaviour Descriptive Questionnaire (SBDQ). The SBDQ was developed by Fleishman (1953) which is a 48-item inventory designed to assess the kinds of leadership/management that exist at the workplace. It involves the employees’ description of their managers, leaders, supervisors, or bosses on the style of management he/she adopts in directing the affairs of the organisation. The assessment is from the perspective of the workers, that is, how workers perceive their leaders’ behaviour or their manager/ supervisor at work. The questionnaire measures two management styles: autocratic and democratic management styles.Some questions on MBO were adapted from Ezeakalue (2010) instrument for investigating MBO in banks in Nigeria while some questions were adapted from Ofojebe and Olibie (2014). Other questions were developed by the researcher.

To complement the responses from the lecturers, some management staff and Intellectual Property and Technology Transfer Office (IPTTO) staff were involved in the study. Adapted questions from the main questionnaire were used to elicit their responses. The questionnaire for management members consists of three sections A – C. Section A is on demographic information of management members; Section B elicitsdata on intellectual property policy; Section C collects data on management styles in universities. The questionnaire was equally based on a four-point scale, ranging from strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD).

Questionnaire for IPTTO staff also has three sections A – C. Section A is on demographic information; Section B elicits information on IP policy; Section C was on IP management strategies using a 4 point scale of strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD).

**3.5. Validity and reliability of the instruments**

Reliability is the consistency with which an instrument measures what it purports to be measuring. Therefore, reliability of a measuring instrument reflects consistency, stability, accuracy, dependability and trustworthiness of the measuring instruments. On the other hand, the purpose of validity is to determine the extent to which a test or instrument measures what it intends to measure.

In order to test the validity of the instrument for the study, the designed questionnaire was given to the thesis supervisor and four (4) other experts within the Faculty and the Department of Library, Archival and Information Studies to assess the face and content validity. In establishing the reliability of the instruments, the researcher pre-tested the questionnaire on 30lecturers of McPherson University, Ajebe who were notpart of thestudy. The reliability of the questionnaire for lecturers was assessed using the Cronbach Coefficient Alpha method. All the items in the questionnaire were tested. The reliability coefficient of each item in the questionnaires was measured and their reliability value obtained. Reliability value was obtained for the whole questionnaire as well as relevant sections of the questionnaire. The reliability coefficient for the whole questionnaire was 0.87 alpha while the values obtained for the various sections are: Section B, Dependent variable **(**IP creation) was 0.83 alpha; Section C, perception of intellectual property was 0.79 alpha; Section D, intellectual property policy was 0.92 alpha; and Section E, management styles in universities was 0.91.These results are considered adequate for the study as they are above the acceptable value.

**3.6. Data collection procedure**

A cover letter of introduction of the researcher to the various universities under the study as a doctoral research student was collected from the Head of the Department of Library, Archival and Information Studies would help to drive the process of data collection. This ensured that, both the researcher and his representatives were not only properly identified, they were also given due attention by the respondents. By implication, there will be inbuilt respondents’ confidence and likely favourable responses.

The researcher personally visited the universities to administer the questionnaire with the assistance of some librarians in the selected universities. The librarians were briefed on how they could handle the exercise in order to ensure that there is a collection of very high number of questionnaire from the proposed respondents in the universities. The librarians helped to administer the questionnaire to the lecturers while the researcher concentrated on the management staff, and IPTTO staff. The questionnaires were collected after 24hours to give the lecturers ample time to fill them.

**3.7. Method of data analysis**

The data collected in the course of the study were analysed using descriptive and inferential statistics. In the case of the descriptive tools, the percentage, frequency tables, histograms, pie charts and bar charts were used to analyse he demographic variables. The researcher made use of correlation and regression analysis at 0.05 level of significance to test hypotheses 1 - 4.The SPSS (Statistical Package for Social Science) was used to analyse the collected data for this study.