ASSESSMENT OF POST GRADUATE STUDENTS LEVEL OF COMPUTER LITERACY, ACCESS AND UTILIZATION OF STATISTICS PRODUCT AND SERVICE SOLUTIONS (SPSS) PACKAGE

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Abstract
Determining the percentage of computer literacy; knowledge (experience) on application of SPSS among Post Graduate (PG) Students from faculty of technology education Abubakar Tafawa Balewa University Bauchi, were among the objectives of the study. Descriptive research design was used. The population of the study constitute of 85 PG students selected from 4 departments of the faculty. Stratified random sampling was used to select 85 PG students (54 male and 15 female). Post Graduate Student Access and Utilization of Statistical Product and Service Solutions (SPSS) software package Learning was developed, validated and used. A coefficient of 0.71 was established for the stability of the items. The data was analyzed using percentages, pie chart and bar chart. Findings from the study showed that 73.9% of the sampled population had computer literacy but only 39.1% had certificate; 84.1% have no knowledge (experience) on SPSS. Monthly refreshers seminar on computer basic with emphasis on Excel to be organize by PG school; introducing SPSS package as a non-credit were among some of the recommendations made from the study.

Keywords: Post graduate student, computer literacy, access and utilization

Introduction
It is generally acknowledged that most important changes in statistics in the last 50 years are derived by technology (Leeuw, 2009) through the use of computers. Statistics software has been developed. Adams, Infeld and Wulff (2011) observed that students have been taught statistics using various computer packages such as Statistical Analysis System (SAS), Statistics Product and Service Solutions (SPSS), Statistics and data (STATA) and modern statistics textbooks carried along chapters on technology materials (minitab, T1-83, excel for windows, SPSS, Comma-Delimited ASCII) (Bluman 2010).

Adams et tal. (2011) observed that statistics software strengthen student statistical literacy and provide skills that will be of practical value. The uses of statistics software for the purpose of quantitative analysis can provide tangible benefit that can shorten analysis, timeframes, provide more through and rigorous reservoirs which could enhance data management (Jones, 2007). Naidenov (2014) observed that statistics software provides opportunities for basic quality control. In fact, the greatest benefit of statistics software is its ability of assisting student to make accurate data analysis in research.

Of the developed statistics softwares Statistics Product and Service Solutions (SPSS) is the most widely available and used. It is quantitative analysis software (Jones, 2007). It is Adams et al. (2011) observed that most of introductory statistics courses often use SPSS. SPSS consists of integrated series of computer programs that facilitate the user to understand data from questionnaire, survey and other sources. (Gaur and, Gaur 2009). Pallant (2010) observed that SPSS is an enormously power data analysis package that can handle very complex
statistics procedures. Kent (2016) observed that SPSS is a software program for statistical data analysis whose commands can be executed using the menu system or command syntax.

The original version of SPSS was written in the 1960’s. It was first released in the United State of America (USA) in 1968 and arrived in the United Kingdom (UK) in 1970 after being developed by Norman, Nie & Hull (Gaur & Gaur 2009). the SPSS program package can be installed in a computer using a CD or from the network and once installed, SPSS can be opened like any other windows-based application (Gaur & Gaur 2009). And to effectively use SPSS students need some basic computer skills (Pallant, 2010).

Efforts made by scholars in the field of SPSS such as guide to students SPSS manual (Pallant, 2001); practical application statistics software packages in statistics textbook (Bluman, 2010) and Online SPSS tutorials Gibbs, (2000) are acknowledge. Adams et al. (2011) observed little published research that can help inform student confidence in the uses of SPSS. However, student confidence on the uses of SPSS depends on factors such as student level of computer literacy, computer skills (Pallant, 2001), access, (online tutorials lectures, CIT centers, SPSS manual guide, SPSS package) and utilization (uses of the package by student) of SPSS.

It is in line with this, that the study seek to assess by determine the Post Graduate (PG) students from faculty of Technology Education, ATBU, Bauchi, level of computer literacy, Access and utilization of SPSS. Specifically, the study is to assess by determining percentages of PG students:

- that have computer literacy.
- with knowledge(experience) on application of SPSS package.
- sources of access to SPSS package.
- most prevalent SPSS skill
- who are willing to use SPSS package on theses analysis.
- opinion on the introducing SPSS package as a non-credit course.

Research questions
The following research questions guided the study:

- what percentage of PG students had computer literacy?
- what percentage of PG students had knowledge (experience) application of SPSS package?
- what are the sources PG students access to SPSS package?
- what is the percentage of the most prevailing SPSS skill for PG students?
- what percentage of PG students are willing to use SPSS package on thesis analysis?
- what is the percentage opinion of PG students on introducing SPSS package as a non-credit course?

The outcome from the study could assist PG lecturers in educational statistics in integrating learning of SPSS package for the benefit of students. It would also give direction to researchers and open opportunity for seminars and workshops on SPSS software package.

Methodology
Descriptive research design was adopted for the study. The population of the study comprised of 85 Post Graduate (PG) Students 2015/2016 Academic session from the Faculty of Technology Education Abubakar Tafawa Balewa University, Bauchi (ATBU). The faculty comprised of three departments (Education Foundations, Science education, and Vocational & Technology Education). Stratified random sampling was used to select sample of 69 PG Students in Education (54 male and 15 female) drawn from the three departments of the faculty.
Table 1: The number of PG students selected from each department based on gender.

<table>
<thead>
<tr>
<th>Department</th>
<th>Education Foundations</th>
<th>Science Education</th>
<th>Vocational &amp; Technology Education</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13</td>
<td>24</td>
<td>17</td>
<td>54</td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>2</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>26</td>
<td>21</td>
<td>69</td>
</tr>
</tbody>
</table>

Questionnaire on Post Graduate Student Access and Utilization of SPSS software package was developed, validated and used. The questionnaire has two sections A and B. section A focused on students bio data while section B consisted of eight items based on Yes/No (items, I, iii, vi, and vii); open-ended (items, ii, and viii); are multiple choice (items, iv and v) on which students are required to tick/fill in the most appropriate item. At initial stage, 9 items were constructed. However, the items were reduced to eight as a result of face validity of the questionnaire obtained from senior colleagues in measurement and evaluation. Thirty students were selected at random for pilot testing the stability of the items on the questionnaire. A coefficient of 0.71 was established. Item v was modified to include 5 options, a, b, c, d, and e due to its poor response from the results of pilot testing. Post Graduate Diploma in Education (PGDE) students from department of education foundation assisted in the administration and collection of the questionnaire. The data was analyzed using percentages, pie chart and bar chart respectively.

**Result**

Results obtained from the data were tabulated in frequency tables, percentages pie chart and bar chart. In determining the percentage of PG Students from faculty of technology education that had computer literacy, the result was tabulated in table 2 below.

Table 2: Shows the percentages of PG students from sample population level of computer literacy based on departments.

<table>
<thead>
<tr>
<th>Department</th>
<th>Education Foundations</th>
<th>Science Education</th>
<th>Vocational &amp; Technology Education</th>
<th>Total Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp-Literacy</td>
<td>20</td>
<td>20</td>
<td>11</td>
<td>51(73.9%)</td>
</tr>
<tr>
<td>Non-comp-Literacy</td>
<td>2</td>
<td>6</td>
<td>10</td>
<td>18(26.1%)</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>26</td>
<td>21</td>
<td>69(100%)</td>
</tr>
</tbody>
</table>

Figure 1 reveals the nature of certificate obtained.
Figure 1: Pie chart showing summary of PG Students classification of computer certificate obtained

Objective 2 of the study that seek to determine the percentage of PG students who had knowledge (experience) on application of SPSS package, from the result obtained, it shows that only 11 (15.9 %) of the students had an experience on how to use SPSS while 58 (84.1 %) having no experience on the use of SPSS.

Table 2 revealed the result obtained for achieving objective 3 of the study in determining in percentages the sources of PG student’s access to SPSS software package.

Table 3: PG Students sources access to SPSS package

<table>
<thead>
<tr>
<th>Department</th>
<th>Education Foundations</th>
<th>Science Education</th>
<th>Vocational &amp;Technology Education</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Laboratory</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>8</td>
<td>(11.6%)</td>
</tr>
<tr>
<td>Purchase a personal copy</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>(11.6%)</td>
</tr>
<tr>
<td>University ICT Centers</td>
<td>7</td>
<td>-</td>
<td>3</td>
<td>10</td>
<td>(14.5%)</td>
</tr>
<tr>
<td>Training/Workshops</td>
<td>1</td>
<td>-</td>
<td>3</td>
<td>4</td>
<td>(5.8%)</td>
</tr>
<tr>
<td>No Access</td>
<td>8</td>
<td>20</td>
<td>11</td>
<td>39</td>
<td>(56.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>26</td>
<td>21</td>
<td>69</td>
<td>(100%)</td>
</tr>
</tbody>
</table>

The research question which states what is the most prevalent skill PG students could do with SPSS package was answered to achieve objective 4 from the study. And the result was tabulated on table 4 below.
Table 4: shows in percentages skills PG students could do with SPSS package

<table>
<thead>
<tr>
<th>Department</th>
<th>Education Foundations</th>
<th>Science Education</th>
<th>Vocational &amp; Technology Education</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computation</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>9</td>
<td>13.0%</td>
</tr>
<tr>
<td>Interpretation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>8.7%</td>
</tr>
<tr>
<td>Charts</td>
<td>8</td>
<td>-</td>
<td>3</td>
<td>11</td>
<td>15.9%</td>
</tr>
<tr>
<td>All of the above</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>14.5%</td>
</tr>
<tr>
<td>None of the above</td>
<td>3</td>
<td>19</td>
<td>11</td>
<td>33</td>
<td>47.8%</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>26</td>
<td>21</td>
<td>69</td>
<td>100%</td>
</tr>
</tbody>
</table>

The result from data analyzed on the research question which states what percentage of PG students are willing to use SPSS package on thesis analysis was tabulated and the figure 2 gives the summary of result obtained.

Figure 2. Showing Bar chart on PG students willing to use SPSS package on thesis analysis

While the research question which states what is the percentage opinion of PG students on introduction of SPSS package as a non-credit course, was equally answered to determine objective 6 from the study. The result was given in table 5 below.
Table 5: Showing the percentages opinion of PG students on introducing SPSS software as a non-credit course

<table>
<thead>
<tr>
<th>Department</th>
<th>Education Foundations</th>
<th>Science Education</th>
<th>Vocational &amp; Technology Education</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>Yes</td>
<td>16</td>
<td>14</td>
<td>13</td>
<td>43(62.3%)</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>4</td>
<td>12</td>
<td>8</td>
<td>24(34.8%)</td>
</tr>
<tr>
<td>No Response</td>
<td></td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2(2.9%)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>22</td>
<td>26</td>
<td>21</td>
<td>69(100%)</td>
</tr>
</tbody>
</table>
Discussion and findings
The result from the study revealed PG students’ level of computer literacy, access and utilization of SPSS package. In discussion the results of the study, certain limitation on gender difference on level of computer literacy, access and utilization of SPSS package must be acknowledged. Result from table 1, indicated the percentages of PG students level of computer literacy. From the result, 73.9% had computer literacy with only 26.1 % having no computer literacy. However, figure 1 indicated only 39.1 % (computer certificate 17.4 %, diploma certificate 21.7 %) had the computer certificate while 60.9 % have no certificate. This finding is closely related to the percentage of PG students (15.9 %) who had knowledge (experience ) , on the application of SPSS package and those having no knowledge (84.1 %) as shown from the result obtained from achieving objective 2. Simple analysis on these revealed that computer literacy is an aid to understanding of SPSS application which agreed with the findings of Pallant, (2010) .

Result from table 2, indicated various source for PG students access to SPSS package. From the result, the most prevalent source for PG student’s access to SPSS package is university ICT center which had the highest percentage of 14.5 % while 56.5 % having no access. Finding from this , in comparison with the result from achieving objective 2 of the study indicated having access to SPSS package is not a guarantee for having knowledge on its application (43.5 % had access ; 84.1 % had no knowledge on SPSS application).

Result from table 3, showed that only 14.5 % had required skills to effectively use SPSS package while 85.4 % does not possess the required skills. Result from figure 2 showed 71% of the PG students from all the three departments of the faculty of technology education are willing to use SPSS, 18.9 % are not while 10.2 % did not respond. Result from table 4 indicated 62.3 % of PG students are of the opinion of introducing SPSS as a known credit course with 34.8 % having contrary opinion while 2.9 % did not respond. The 71% of PG students who are willing to use SPSS when compare with 62.3% of the PG students who are of the opinion that SPSS to be of introduce as non-credit course, indicates that PG students are willing to learn and use SPSS in statistical data analysis if training on it would be given.

Summary of the findings
- Of 73.9 % of PG students who had computer literacy only 39.1% had certificate.
- 84.1 % of the PG students have no knowledge (experience) on SPSS package.
- 56.5 % of the PG students had no access to SPSS package.
- Only 14.5% of the PG students had the required skills to effectively use SPSS package.
- 71 % of the PG students are willing to use SPSS package.
- 62.3 % of the PG students are of the opinion SPSS package to be introduced as a non-credit course.
- Computer literacy is an aid to understanding SPSS package
Having access to SPSS package is not a guarantee for having knowledge on its application.

**Conclusion**
The study assessed PG students’ level of computer literacy, access and utilization of SPSS package. Computer literacy is basic for student to effectively understand and apply SPSS package especially on data analysis. However, having knowledge on computer operation alone is not enough for one to understand application of SPSS package. As such, there is need for PG student to learn SPSS package to effectively use it on data analysis.

**Recommendations**
The following recommendations were made from the study.

- Monthly refreshers seminar on computer basic with emphasis on Excel to be organize by PG school.
- Introducing SPSS package as a non-credit course.
- PG school or Faculty to provide access to Soft copy of SPSS package to PG students.

**Reference**

Kent, R. (2016). Statistical and quantitative data analysis. Retrieve from libguides.library.kent.edu/sta consulting/SPSS. on 13/05/2016