International Journal of Vocational and Technical Education Research
Vol.11, No.1 pp.15-25, 2025
Print ISSN: ISSN 2059-1187,
Online ISSN: ISSN 2059-1195
Website: https://www.eajournals.org/
Publication of the European Centre for Research Training and Development-UK

Students Factors Predicting Computer Application in Data Analysis among Postgraduate Students in The University of Port Harcourt, Rivers State

A. Amadioha[1] and I.V. Uwah[2]
[1&2]Department of Educational Psychology, Guidance and Counselling, Faculty of Education, University of Port Harcourt, Rivers State Nigeria

doi: https://doi.org/10.37745/ijvter.15/vol11n11525 Published March 16, 2025

Citation: Amadioha A. and Uwah I.V. (2025) Students Factors Predicting Computer Application in Data Analysis among Postgraduate Students in The University of Port Harcourt, Rivers State, *International Journal of Vocational and Technical Education Research*, Vol.11, No.1 pp.15-25

Abstract: *The study focused on "Students factors predicting computer application in data analysis among postgraduate students in the University of Port Harcourt, Rivers State. Three research questions and three corresponding hypotheses guided the study. The correlational research design was adopted for the study. A sample size of 400 PG students was drawn from the population through stratified random sampling technique. Two instruments were used for data collection. They are Predictors of Computer Application in Data Analysis Questionnire (CADAQ) and Computer Application Questionnaire (CAQ). The two Instruments were validated by experts in measurement and evaluation based on face and content validities, CADAQ has three sections of computer attitude, computer knowledge and computer self-efficacy which had a reliability coefficient of 0.67, 0.80 and 0.80 respectively which were determined through Cronbach Alpha technique. CAQ had a reliability coefficient of 0.92 which was also determined through Cronbach Alpha technique. Simple and multiple regression analysis were used in data analysis. The result revealed that computer attitude, computer knowledge and computer self-efficacy significantly predict computer application in data analysis. Based on the result, recommendations were made including which included that the University of Port Harcourt should ensure that the required computer applications for data analysis are provide for all post graduate students. Limitations and suggestions for further studies were also made.*

Keywords: Predictors, Computer Application, Data Analysis, Postgraduate Students

INTRODUCTION

Education is a procedure through which individuals are set up and in addition being prepared with a specific end goal to live well in the general public with the goal for them to have the capacity to

determine fundamental issues. Education through the use of computer has gained recognition worldwide whether it is in the aspect of being used for financing, chatting, emailing, data analysis etc.

There are some levels of agreement among the public and educators that the usability of computer in carrying out educational tasks is appropriate. Subsequently in Nigeria, Post graduate education is seen as a worthy method for enhancing the instructing and learning process. Bada, Adewole, and Olalekan (2009) noticed that "the targets of the Nation's Computer Education program, in addition to other things, includes: to realize a Personal Computer (PC) proficient society in Nigeria inside a short space of time; to empower the present era of school youngsters at all levels welcome the possibilities of the con and to embay them to have the capacity to utilize the PC in different works of life and at occupation". Besides the point of PC training in any educational framework is to guarantee that students are prepared to be able in the use of PC in doing their typical school routine particularly in its application to information investigation. This accounts for why computer and related technologies provide powerful tools to meet the new challenges of designing, structuring and analyzing research data that go beyond the conventional manual practices and facilitate to record a broader repertoire of cognitive skills and knowledge. In the past, manual method was employed in analyzing research data but in recent, the present computer means of analyzing research data in educational institutions in Nigeria has been vastly appreciated. This accounts for why scholars have different conceptualizations and regards about computer.

The term “Computer application” is a combination of program which is aimed at carrying out operations for a specific program. The reason is that this cannot run on itself hence, it relies on computer system to carry out simple to complex instructions. Such programs may include Excel, Word, a Console game, a spreadsheet etc. From this premise, it is evidenced that the systems software will serve the computer application and consequentially serve the end user. This may include programmes like the media players as well as office suites. There are so many application which deals primarily with documents.

As noted by Shamoo and Resnik (2003), data analysis is "the procedure of methodically applying factual dry/or legitimate systems to portray and show, gather and recap, and assess information utilizing different expository strategies, and giving a method for drawing inductive surmising from information parched recognizing the flag (the wonder of enthusiasm) from the clamor (measurable variances) display in the information". The most important way of dealing with data accurately in terms of research findings is the aspect of computer application. Very importantly, one should note that an inappropriate analyses erupts an objective empirical investigations, confuse the layman which in turn create some negative or bias inference on their part.

Hence, a lot of issues abound in which researchers should be aware of when it comes to data. He noticed that there is a move in accentuation from the learning of ascertaining measurable tests to

knowing an ideal opportunity to apply which, how to translate and additionally how to utilize PC application to break down research information and create yield. Perceptibly, breaking down information is a standout amongst the most troublesome parts of the examination procedure. However considering the investigation as just a part of the entire procedure without considering it to be an end is a decent method for defeating this barrier. During the accumulation of quantitative information, this regularly requires recording a few measures on an examination instrument (a survey or timetable) and after that entering them into a PC program like the Statistical Packages for the Social Sciences (SPSS), STATA, Statistical Analysis System (SAS), MINITAB, and so on.

Data analysis involves the process of carrying out an evaluation making use of some analytical and logical reasoning in determining each of components of the data provided. There are a variety of specific data analysis method, some of which include data mining, text analytics, business intelligence, and data visualizations (Business Dictionary, 2014). In the light of this, it could be seen that this involves the process of applying in a systematical manner the idea of describing, illustrating, condensing and recapping, as well as evaluating the data. According to Shamoo and Resnik (2003) “various analytic procedures provide a way of drawing inductive inferences from data and distinguishing the signal (the phenomenon of interest) from the noise (statistical fluctuations) present in the data”. The use of data analysis in a qualitative research may include some statistical procedures. Most times, some researchers do analyze patterns in observations through the entire data collection phase (Savenyes and Robinson, 2004).

According to Murphy and Newcomb (2002) an attitude is "a method for being "set" for or not in agreement with something". This may include motivation or cognition. An attitude has to do with internal state that influences ones behavior which can be inferred from an individual’s actions and words. In relating disposition as component that partners with the definition incorporates both a motivational point of view (e.g., a condition of status to act or react).

Computer knowledge or literacy is another factor that associates with the use of computer application. It is also the level of comfort that an individual has in the process of making use of the computer system. Another important part of PC literacy is to see how PCs function and work regarding investigating information. The level of expertise and familiarity someone has with computers. PC literacy generally refers to the ability to use PC applications.

In discussing the factors that associate with the use of computer application, Kinzie, Delcourt, and. Powers (1994) pointed out that self-efficacy is an important one. Self-efficacy according to them involves an individual’s ability or inability to have confidence in the process of carrying out any specific task which will yield positive result. Hence, the idea of self-efficacy is relative to the individual involved. Self-efficacy as stated by Bandura (1986) is a way of executing game-plan & assessment of individuals capacities to sort out strategies necessary to achieve assigned sorts of exhibition. This alludes to one’s confidence and capacity to carryout assignment which reflects

ones capacity to see his past experience, yet it likewise frames a vital impact on future expectations. Self -efficacy is not linked or associated with abilities of an individual rather an assessment of whatever attitude that individual has towards something. According to Pretz (2015), self-efficacy judgments could impact an individual's desires in light of the fact that the results one expects get to a great extent from judgments with reference to how well one can execute the imperative conduct (Bandura, 1978).

Tengkulin (2011) conducted a study to examine the status of computer use, self-efficacy and attitudes among secondary school students. It also identifies the relationships among the variables and the predictors of computer attitudes. External variables (snob as computer experience and frequency of use), perceived usefulness one confidence are included as potential antecedents of attitudes and self-efficacy toward computer. Data was collected among 293 secondary school students in Kedah, Malaysia. It was found that there exist moderate to strong relationships between all the variables studied, with r-value ranging from 17 to 69. Regression analyses have identified confidence in using computers as the strongest predictors of computer attitudes, with $R^2 = 0.48$. Other variables, computer experience, perceived usefulness and frequency of use also entered the equation, but turned out to be poor predictor of altitude toward computers.
Torkzadeh and Chang (2006) conducted a research on the concept of computer self-efficacy in order to understand computer user behavior and system use. This article reports on the development and examination of a contingency model of computer and Internet self-efficacy. User attitude and computer anxiety were assumed to influence the development of computer arid internet self-efficacy. Measures of user attitude, computer anxiety, computer self-efficacy, and Internet self-efficacy were used in a university environment to collect 347 responses at both the beginning and end of an introductory computer course. Data analyses suggested that there was an interaction between user attitude and computer anxiety and the effect of that interaction on computer self-efficacy but not on Internet self-efficacy.

Abdullah (2008) assessed the knowledge and usage of computer and internet among medical students of Hadremout University. He investigated the medical applications for which they used internet and the factors that encourage the students to us computer and internet. In the study data were collected from 102 randomly selected students using structured questionnaire of 23 items. In the result it was found that out of the 102 questionnaires posted, a total of 101 questionnaires returned with a full response of the 101 respondents 54% were male while 46% were female students. The means age of the sample was 22.95 years (SD 1.92). It was found that incorporating computer in medical studies help improve the skill of students in research (Ghouth reported in Wokorna, 2012).

Using computer in the analysis of data especially in education has been seen to be appropriate because of its effectiveness and efficiency in processing output. The advantages of computer application in research data analysis have gained support in the area of speed, flexibility, time

economy, handling of large amount of information (data), making feasible complex analytical processes, sophisticating and increasing the status and credibility of research projects. These advantages have in no small way made computer programmes very useful in carrying out research projects. However, in the midst of these advantages of computer in educational research data analysis, one would have thought that its usage in analyzing research data would have been appreciated. But, what is observed in the higher educational institutions is that researchers who could use computer to perform various tasks hardly use it for the analysis of data. In this context, scholars such as Wokoma (2012) and Omolara (2008) reported that over 60% of students do not have the capability of using computer in data analysis.

Aim and Objectives of the Study

This study aims at examining students factors predicting computer application in data analysis among postgraduate students in the University of Port Harcourt, Rivers State. Specifically, the objectives of the study were to:

1. "Determine the extent to which computer attitude predict postgraduate student's use of computer applications in data analysis in the University of Port Harcourt".
2. "Determine the extent computer knowledge predict postgraduate student's use of computer applications in data analysis in the University of Port Harcourt".
3. Determine the extent to which computer self-efficacy of postgraduate students predict their use of computer applications in data analysis in the University of Port Harcourt.

Research Questions

The following research questions guided this study.

1. "To what extent does computer attitude of postgraduate students predict their use of computer applications in data analysis in the University of Port Harcourt?
2. "To what extent does computer knowledge of postgraduate students predict their use of computer applications in data analysis in the University of Port Harcourt"?
3. "To what extent does computer self-efficacy of postgraduate students predict their use of computer applications in data analysis in the University of Port Harcourt?

Hypotheses

The following hypotheses tested at 0.05 alpha level were formulated to guide this research.

1. Computer attitude of post-graduate students does not significantly predict their use of computer applications in data analysis in the University of Port Harcourt.
2. Computer Knowledge of post-graduate students does not significantly predict their use of computer applications in data analysis in the University of Port Harcourt.
3. Computer self-efficacy of postgraduate students does not significantly predict their use of computer applications in data analysis in the University of Port Harcourt.

METHODOLOGY

The study uses the correlational research design. According to Nwankwo (2006), correlational research design is "that study that seek to find out whether there is any relationship between two or more variable". The choice of this research design is useful following the nature of this study.
The population of this study consisted of all the PG students of University of Port Harcourt admitted from 2011 to 2013 academic sessions for Ph.D programme, 2012 to 2013 academic session for Master's programme and 2012 to 2013 academic session for PGD programme, which summed up to 4077. A sample of four hundred (400) Post Graduate Students of University of Port Harcourt were used for the study. The researcher adopted the stratified simple random technique where the population of the study is divided into their modes of study, that is, Ph.D. (427), Masters (2274) and Postgraduate Diploma (PGD, 1376). This however gave a total of 4,077. The instruments for data collection in this study were questionnaires known as FACADAQ. This acronym represents Factors Associated with the Use of Computer Application in Data Analysis Questionnaire. And Use of Computer Application Questionnaire (CAQ). After developing the instruments, the validity of both the FACADAQ and CAQ was determined by giving duplicates of the instrument to the supervisor and two experts in the area of measurement and assessment for vetting. They also helped in ascertaining that the instrument was in accordance with the reason for the study, research inquires and hypotheses. After their inputs, the adjustments were made in the last duplicates of the instruments. Cronbach alpha technique was utilized to decide the reliability of the instruments. Thirty (30) copies were given out to respondents that are not included in the main sample. After their response, the instruments were subjected to Cronbach reliability test. A reliability coefficient of 0.67 was obtained for computer attitude scale; 0.84 for computer knowledge scale; 0.74 for computer self-efficacy. Furthermore, the Computer Application Questionnaire had a reliability of 0.94. This implies the instruments were reliably dependable, and in this way were utilized for information accumulation as a part of this study. Simple regression was used to analyze the data generated.

RESULT

Research Question One: To what extent does computer attitude of postgraduate students predict their use of computer applications in data analysis in the University of Port Harcourt.

Hypothesis One: Computer attitude of Postgraduate students does not significantly predict their use of computer applications in data analysis in the University of Port Harcourt.

Table 1: Shows simple linear regression of the prediction of computer attitude and use of computerized analysis by PG students.

R	R^2	Adj. R^2	Std. Error		Unstandardized B.		
0.209	0.044	0.041	7.064		-0.625		
	Sum of sq.	**d.f**	**Mean sq.**	**∝**	**F**	**Sig.**	**Result**
Regression	907.245	1	907.245				Significant
Residual	19857.795	398	49.894	0.05	18.18	0.000	(Reject Ho)
Total	20765.40	399					

From the analysis above R was 0.209, R^2 = 0.044, Adjusted R^2 = 0.041 while the standard error is 7.064. From the R^2 value, one can see that computer attitude predicts only about 0.44% of student usage of computerized analysis in their studies. The analysis of variance also reveals sum of squares for regression and residual to be 907.245 and 19857.795 respectively. Mean square was 907.245 and 49.894 respectively. F was 18.18 while an unstandardized B was – 0.625. This value indicates that for every one unit increase or decrease in the computer attitude values, there is a corresponding one -0.625 increase or decrease in the applications in data analysis scale sig value was 0.000. Therefore, since sig value (p= 0.000 < 0.05) is less than 0.05 alpha, the null hypothesis was rejected meaning that computer attitude of students predicts their usage of computer applications in data analysis.

Research Question Two: To what extent does computer knowledge of PG students predicts their computer applications in data analysis in the University of Port Harcourt.
Hypothesis Two: Computer knowledge of Postgraduate students does not predicts significantly their use of computer applications in data analysis in University of Port Harcourt.

Table 2: Shows Linear regression of the prediction of computer knowledge on computer application in data analysis by PG students.

R	R^2	Adj. R^2	Std. Error		Unstandardized B.		
0.11	0.012	0.010	7.178		0.420		
	Sum of sq.	**d.f**	**Mean sq.**	**∝**	**F**	**Sig.**	**Result**
Regression	257.815	1	257.815				Significant
Residual	20507.225	398	51.526	0.05	5.004	0.026	(Reject Ho)
Total	20765.040	399					

The analysis as shown in table 4.2 reveals R= 0.012, Adjusted R^2 = 0.010, Standard error = 7.178 and unstandardized B value is 0.420. From these values it could be seen that computer knowledge predict about 0.1% of computer application in data analysis among postgraduate students. The unstandardized B also reveals that for every one unit increase or decrease in computer knowledge, there is a corresponding 0.420 increase or decrease in computer application scores or values. The

analysis of variance also reveals sum of squares and mean square of regression and residual to be 257.815, 257.85 and 20507.225, 51.526 respectively. Calculated F was 5.004 while sig value was 0.026. Hence, since sig (p= 0.026< 0.05) is less than 0.05 alpha, the null hypothesis was rejected meaning that computer knowledge predicts significantly the computer application in data analysis among postgraduate students in the University of Port Harcourt.

Research Question Three: To what extent does self-efficacy of Post graduate students predicts their use of computer in data analysis in university of Port Harcourt.
Hypothesis Three: Computer self-efficacy of Postgraduate students does not significantly predict the use of computer applications in data analysis.
Table 3: Shows simple Linear regression of the prediction of computer self-efficacy on computer applications in data analysis among P.G students.

R	**R^2**	**Adj. R^2**	**Std. Error**		**Unstandardized B.**		
0.418	0.175	0.173	6.561		1.211		
	Sum of sq.	**d.f**	**Mean sq.**	**∝**	**F**	**Sig.**	**Result**
Regression	3634.319	1	3634.319				Significant
Residual	17130.721	398	43.042	0.05	84.43	0.000	(Reject Ho)
Total	20765.040	399					

From the analysis, R= 0.418, R^2 = 0.175, Adjusted R^2 = 0.173, Standard error = 6.561 while unstandardized B= 1.211. The R^2 value indicates that about 17.5% computer self-efficacy predicts the use of computer in data analysis among postgraduate students in the University of Port Harcourt. The unstandardized value indicates that for every one unit increase or decrease in computer self-efficacy, there is a corresponding 1.211 increase or decrease in computer application scores. From the analysis of variance (ANOVA), it could be seen that sum of squares for regression and residual was 3634.319 and 17130.721 respectively. Mean square values were 3634.319 and 43.042 respectively. F value was 84.43 while sig value was 0.000. Therefore since sig (P= 0.000 <0.05) is less than 0.05 choosen alpha, the null hypothesis is rejected meaning that computer self-efficacy of students has significant predictive power on computer applications in data analysis among Postgraduate students.

DISCUSSIONS OF FINDINGS

Finding one revealed a significant predictive power of computer attitude and computer application in data analysis. This suggests that the higher the computer attitude of post graduate students, the higher their ability to use computer application in data analysis, but in a low magnitude. This positive and low relationship between computer attitude of post graduate students and their use of computer application was informed by their responses to the questionnaire items. The reaction of the post graduate students in the questionnaire items revealed that the students are not afraid to get

involved with computer application for data analysis, they trust themselves in the matter of analyzing data using computer application, they use computer to correct any human error that may be arise in data analysis, they feel comfortable using computer application in data analysis, they are satisfied with how easy it is to use computer application in data analysis, it is always good to use statistical software for data analysis and they are able to efficiently complete their studies using statistical software and they have the ability to recover data easily and quickly when they use computer application in data analysis. The finding of the study under this research question is supported by Dike (2010). In the views of Dike (2010)"positive attitude towards computer application ensures a systematic arrangement and facilitates learning; helps the learner to interact individually or in group for learning to take place; easy delivery of assignment through the use of computer, helps learners to learn faster and better; broaden students and researchers knowledge and level of understanding in the activities of research in education". This is because research data analysis acts as the constructive phase of evaluating an academic project, thesis or dissertation. There are a variety of specific data analysis method, some of which include data mining, text analytics, business intelligence, and data visualizations (Business Dictionary, 2014). This is the reason Shamoo and Resnik (2003) reports" an observational discoveries that different diagnostic systems give a method for drawing inductive surmising from information and recognizing the signal (the marvel of enthusiasm) from the commotion (measurable variances) display in the information require a relentless uplifting state of mind for a superior direction conveyance". In such manner, information examination in subjective research can incorporate factual techniques. Numerous a period, investigation turns into a progressing iterative process where information are constantly gathered and dissected all the while. In fact

Finding two show that computer knowledge has significant relationship with utilization of computer application in data analysis. This implies the relationship between PC information is synonymous despite the fact that it was to a low degree. The ramifications of this outcome is that, as PC information of the post graduate understudy's expands, their capacity to utilize copier applications in information examination similarly increments. This esteem is not exactly the picked 0.05 alpha level henceforth, the option theory was acknowledged implying that PC proficiency of post graduate understudies altogether identify with their utilization of PC application in information investigation in University of Port Harcourt. This additionally recommend coordinate relationship exists between PC education of post graduate understudies and their utilization of PC application in information investigation, so the higher PC proficiency the higher the utilization of PC application in the examination of information for research. The positive and moderate relationship between computer literacy and computer application is informed by the facts that post graduate students are positive about certain facts that they know how to boot computer, can solve inferential problems using computer application, perform descriptive statistics using computer statistical software's, input data into computer and retrieve, print data and analyzed results with computer. In buttressing the result above, the reports of empirical studies of Rosen and Weil (2000), Mauer, Toradi, and Whitäker, (1987) and (Shepherd, 2004) are in support of the findings.

There seems to be an inversely proportional relationship between computer literacy and compositional literacy among computer users.

From finding three, it is uncovered that Post graduate students self -efficacy has a huge prescient energy, all things considered, with the utilization of PC applications in information investigation among PG students in in the Uniport. This findings means that students who have the inner belief and motivation that they can actually handle computer will feel eased and relax to adopt it for data analysis in whatever empirical study they are working on. This outcome may come since all postgraduate understudy might know about the significance of utilizing PCs as a part of breaking down information. They may be certain on the fact that usage of computerized analysis is easy at accurate hence producing the required result. The discoveries of this study is however not astonishing in light of the fact that to the best of the specialists learning, people self-efficacy in anything is a sufficient compel that impels such people towards accomplishing more noteworthy things. This findings is in line with that of Wilfong, (2006), (Frechette, 2013); Webster and Martocchio (1992) assert that self-efficacy as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. The term self-efficacy was soon extended to particular domains, including the use of computers.

Recommendations

Based on the implications of the results, the following recommendations are advanced for policy actions to be taken by government and other stakeholders.

1. University of Port Harcourt through the school of Graduate Studies should ensure that the required computer applications for data analysis are provided for postgraduate students, as this will instill in the students the right attitude towards the use of computer for analysis of data.
2. In sustaining the positive and strong relationship between computer literacy and computer application them government through the federal and state ministries of education should ensure that knowledge of computer is incorporated in admission requirement of post graduate students.
3. The government should make conscious effort to empower post graduate students with the requisite skills for the application of computer software for data analysis. This will go a long way to reduce the level or anxiety among the post graduate students.

Contributions to Knowledge

The study has unfold the predictive powers of computer attitude, knowledge, self-efficacy, accessibility as well as computer anxiety on computerized analysis.

REFERENCES

Abdulla., G. (2008). *Generation digital: politics, commerce, and childhood in the age of the Internet*. Cambridge, MA: MIT Press.

Bandura, A. (1986). *Self-efficacy: The exercise of control*. New York: Freeman Publishing Company.

Barak, J. U, Lipson, D. S. & Lerman, W. A. (2006). *Coding system for laptop behavior comments*, Retrieved August 2009, fromhuip://faciilty. uoit. ca/kay/papers/bc/AppendixB .pdf

Murphy, M. & Newcomeiller, L. W. (2002). Computer integration by vocational teacher educators. *Journal of Vocational and Technical Education,14(1,), 145-153.*

Nwankwo, O. C. (2011). *A practical guide to research writing for students of research enterprise* (revised fourth edition). Pam Unique Publishers Co. Ltd

Omolara, B. (2008). An empirical study of the impact of user involvement on system usage and information satisfaction. *Journal of Communications of the ACM, 29(.), 232-238.*

Pretz, S (2015). *Have Computers Robbed Us of Basic Thinking Skills*? Hartford Courant Publishers.

Savenye, C. & Robinson, J. C. (2004). Decision support systems for 111-structured problems: an empirical study. *Journal of Management Information Systems3(1), 65-80.*

Shamoo, C. & Resnik, M. J. (2003). Exploring a word processor. *Journal of Human-Computer Interaction, 5(7,).283-3(1) 7.*

Tengku, F. (2011).*What predicts attitudes toward computer?* University Utara Malaysia (Ed.), The handbook of attitude (pp. 173-222). Mahwah, NJ: Lawrence Erlbaum Associates, Inc

Torkzadeh, G. & Chang, J. C. (2006). *A contingency model of computer and Internet self-efficac*y. Department of MIS, College of Business and Economics, University of Nevada, Las Vegas, USA

Wokoma, T. A. (2012). *Availability and computer usage in data analysis in tertiary institutions.* A thesis submitted to the Department of Educational Psychology, Guidance and Counselling, Faculty of Education, University of Port Harcourt, Port Harcourt, Rivers State.