

PERSONAL CHARACTERISTICS AND RESEARCH SKILLS ACQUISITION AMONG GRADUATE STUDENTS OF CURRICULUM AND INSTRUCTIONAL TECHNOLOGY (CIT) IN PUBLIC UNIVERSITIES

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<p>Corresponding Author Emeka Ategwu Ph.D</p> <p>Department of Educational Foundations, University of Cross River State, Cross River State, Nigeria, West Africa.</p> <p>Article History</p> <p>Received: 13/12/2024</p> <p>Accepted: 27 /12/2024</p> <p>Published: 31 / 12 / 2024</p>	<p>Abstract: The study was a survey of personal characteristics and research skills acquisition among graduate students of curriculum and instructional technology in public universities. Three objectives, research questions and null hypotheses were formulated to guide the study. The research design adopted for this study was ex post facto. This design is adopted because, at the time of data collection, the independent (causal) variable had already happened. The study population consists of 2,174 postgraduate students who graduated between the 2022-2024 academic years from universities. The stratified and simple random sampling techniques were adopted in the study. The sample size was determined using Taro Yamane's formula, which gives the minimum sample size. The researchers decided to double the number to obtain 674 subjects. Representing this value as a percentage, which gave 31% of the estimated population. A Draft instrument constructed by the researchers, titled Personal Characteristics and Research Skills Acquisition questionnaires (PCRSAQ), was expert validated by three specialists. To ascertain the reliability of the instrument, a trial test was carried out with 60 respondents who were not part of the sample institutions. The reliability was established using Cronbach alpha reliability of internal consistency, with values ranging between 0.67 to 0.85. The data collected were analysed using descriptive statistics (mean and standard deviation) and inferential statistics (population t-test, independent t-test, and One-way Analysis of Variance. The findings revealed that: The level of research skills by graduate students is not significantly different from the expected; student sex and marital status significantly influence research skills acquisition by graduate students. It was recommended, among others, that graduate students should be made to participate in more research-oriented activities.</p> <p>Keywords: Personal Characteristics, Research, Skills and Acquisition.</p>
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Introduction

Acquired skills are talents and expertise often obtained through education or experience. It can also be defined as a form of training by individuals that can lead to the acquisition of knowledge, or it is the process of acquiring practical knowledge and ability in various domains, such as entrepreneurship, cognitive tasks, motor tasks, and teamwork. Research skills acquisition refers to the ability to search for, locate, extract, organise, evaluate, and use or present information that is relevant to a particular topic. Research skills enable one to locate and utilise information effectively. It includes creating a strategy to gather facts and reach conclusions so that one can answer a question. Research skill acquisition is an important academic task because it enhances knowledge, leads to innovation and success, improves the quality of education and life, helps find truth, and allows for continuous improvement.

To this end, research is one of the core tripartite mandates of university education all over the world. Apart from
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teaching responsibility (knowledge transmission), research and community service are integral parts of the university's responsibility. Research constitutes the bedrock of a universities core functions because it is vested with the onus of knowledge generation, of course, without generated knowledge, there will be no knowledge transmission (teaching) and knowledge application in the community through service. It is the quantum and quality of knowledge generated that determines the effectiveness of transmission and application.

Also, most students depend on their colleagues in the collection and interpretation of statistical data analysis, which is an important focus of research. This is not supposed to be so, since research results in general are the pillars on which new knowledge can be discovered and upheld, therefore, students are supposed to be conversant with the expected research skills during and after graduation to be able to impact on society.

Many researchers have been put forth as reasons responsible for observed variation as students' character, sex and marital status, in their research work. Some of the reasons include instability in tertiary institutions, non-availability of research facilities, compromise on the part of the supervisors in research supervision, lack of research skills in students themselves, incompetence in lecturers of research methodology courses, and so on. Furthermore, as individuals, they remain unfulfilled if they do not have those skills that will make them attain their lifelong dreams as individuals, communities and country. This situation is unacceptable given that the importance of research today cannot be overemphasised in the growth and development of the nation. Aside from this, the place of research in students' learning in universities has long been recognised. Creative enquiry is the key to effective learning because knowledge generated through research is used to enhance academic performance and solve life problems. Therefore, students' learning is incomplete without research. This underscores the premium attached to it in higher educational institutions. It is within the context of this thoughtful background that the study seeks to examine personal characteristics and research skills acquisition in public universities.

Theoretical framework of the study

The study is anchored on the Educational Productivity Theory by Walberg's 1998

Walberg's Theory of Educational Productivity

Walberg's (1998) theory of educational productivity was propounded by Helber J Walberg's who stated that schools are the focal point for the positive influence on a student academic success. There are many more factors in achieving success outside the realm of curriculum, and instructional strategies and practices. Community support, parental involvement and the psychological characteristics of pupils also play a critical role in skill acquisition of all students.

Walberg's theory is useful in determining the different factors that affect skills achievement (Walberg, 2003). Walberg stated that the most important factor of academic success for students from low socioeconomic status is the home environment (Sun, Bradley & Akers, 2012). It is more crucial than other factors affecting skills achievement, such as parental education and working with parents. Walberg opines that families of high socio-economic background are more involved in the educational process than those of a low socio-economic background.

The theory assumed that nine factors influence academic achievement: grades, motivation, age, prior achievement, home environment, support from peers, classroom environment, quality of instruction and quantity of instruction. that students reaching their goals and productive learning involve students taking an active role in shaping their outcomes.

The psychological characteristics of individual students and their immediate psychological environments affect the effective learning of students. The student's academic performance depends on several socio-economic factors like student's presence of trained teachers in schools, teacher teacher-student ratio, attendance in the class, the sex of the student, family income, the mother's and father's education and the distance of the school.

The relevance of the theory to the present study is that

the success of a student in skill acquisition is dependent on factors, just as Walberg asserted that success depends on parental involvement. These individuals need to have parental involvement in their academic work may result in higher grades and test scores, long-term skills achievement, positive attitudes and behaviour, more successful programs, and more effective schools. From Walberg's theory, it is evident that there is a strong linkage between students' research skills and their socio-economic background.

Statement of the problem

Research is an investigation undertaken to discover new facts and get additional information. It is a requirement that every postgraduate student needs to fulfil before graduating, but most students in most graduate schools find it difficult. While some do not complete their academic programmes in time, even after completion of coursework, many more manage to complete late as spill-overs. Yet others simply drop out owing to inadequacies in research skill acquisition. The acquisition of research skills is the pivot of capacity building and problem-solving in the academic community. Regrettably, these research skills are observably lacking among most postgraduate students, evidenced by poor achievement scores in research method courses, poor theses/dissertations reportage, and presentation. The National University Commission (NUC) is aware of this problem and has consequently introduced curriculum inclusion of courses in Research methods, statistics, seminars, workshops and conferences to beef up skill acquisition. Yet, despite all these, it is doubtful whether the research skill acquisition level has reached an acceptable level. Furthermore, it is imperative to know that the extent of application of research skills concerning formulation of testable hypothesis is not concise and literature review organisation is not very impressive due to poor problem articulation, literature search, poor formulation of research questions and hypotheses, referencing and poor reporting skills undermines the attitude towards research skills.

The researcher also observed that graduates' choice of statistical analysis method is most cases, inappropriate, thus affecting the interpretation of results and conclusions in spite of the government and school management in support for research skills delivery among postgraduate students. The study, therefore, focuses on personal characteristics and research skills acquisition among graduate students of curriculum and instructional technology in public universities.

Research objectives

The main purpose of the study is to examine the extent to which personal characteristics and research skills acquisition among graduate students of curriculum and instructional technology in public universities. Specifically, the study sought to:

1. Examine the extent of research skills acquisition by graduate students.
2. Investigate the extent to which graduate students' sex influences research skills acquisition.
3. Ascertain the extent to which students' marital status influence research skills acquisition.

Research questions

The following research questions serve as a guide to the study

1. What is the extent of the research skills of the graduate students?
2. To what extent does sex influence research skills acquisition of graduate students?
3. What is the extent to which marital status influence research skills acquisition of graduate students?

Statement of hypotheses

The following null hypotheses were formulated to guide this study

1. The level of research skills by graduate students is not significantly different from the expected.
2. There is no significant influence of student gender on research skills acquisition of graduate students.
3. There is no significant influence of marital status on research skills acquisition of graduate students.

Empirical review

Level of research skills

In a study by Ikiroma (2024) conducted an empirical study on research work that assessed research skills application among graduate students in Ignatius Ajuru University of Education, Rivers State, Nigeria. The study adopted a survey research design in assessing the following skills: problem identification, purposes of the study, research questions and hypotheses formulation, literature review, instrument development, report writing and communication, data collection and analysis and reference. A research question and a null hypothesis guided the study. The population of the study comprised theses/dissertations in the university. The sample used for the study consisted of 210 theses/dissertations for the 2022/2023 session (110 theses and 100 dissertations) selected using stratified and simple random sampling techniques. The instrument used for the study was a 73-item, 5-point checklist tagged Graduate Students Application of Research Skills Inventory (GSARSI), which had an overall reliability coefficient of 0.73 via Inter-rater agreement reliability with Kappa statistic. The data collected from the sample were subjected to statistical analysis using mean, standard deviation and population t-tests. The results obtained revealed that the application of research skills among graduate students in Ignatius Ajuru University of Education, Rivers State, Nigeria is significantly high. It was therefore recommended among others that Deans and Heads of Departments or school administrators should organise regular retraining for academic staff and graduate students on different dimensions of research skills.

Also, Buen (2017) study was designed to determine the research skills of graduate professors based on the Expected Performance Standards (EPS) set by a private Higher Education Institution (HEI) as input to training and development. The descriptive-cross-sectional design and descriptive statistical analysis were used. The teaching outcomes were based on the average performance from the three assessments conducted by the Dean among the professors during the academic year 2014-2015. The results exposed that the faculty were outstanding in achieving the objectives of the graduate program by showing mastery of subject matter, relating current issues and community needs, and participating the activities of professional organizations. However, they were just satisfactory in demonstrating mastery of research skills in relation to research output, assisting graduate students in

developing research competencies, and showing professional growth through research activities and publications. These are essential inputs to training and development program to continually upgrade the professorial lecturers' research preparation, dissemination and utilization.

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Again, Idika (2021) study focused on the extent to which institutional variables such as university ownership and location influenced research skills of academic staff in public universities in Akwa Ibom and Cross River States, Nigeria. Six research questions and six null hypotheses guided the study. The study adopted ex-post facto research design. The sampling technique adopted for this study was proportionate and simple random sampling techniques to select 525 (323 males and 202 females) academic staff from the two states out of a population of about 1591. The instrument used for data collection was a questionnaire titled "Lecturers' Research Skills Questionnaire" (LRSQ). Data collected for the study was analysed using Two-way Analysis of Variance, tested at .05 level of significance. The result revealed that university ownership does not have a significant influence on academics' staff research skills in literature research, instrument construction and validation, data collection and analysis, referencing and reporting, as well as overall research skills. The result further revealed that the university location as well as the interaction effect of university ownership and location significantly influence all the various dimensions and overall research skills among the academic staff of universities in Cross River and Akwa Ibom States. It was recommended that the government should adequately support universities, provide research facilities, funds and a general conducive environment for research to bridge the disparity in activities among academics

Gender and skills acquisition

The need for research skills cannot be compromised, irrespective of gender differences. This underscores an empirical

study by Molokwu, Ajagbe, Yekinni and Molokwu (2024), study investigated gender differences in research skills developed by university students. The study adopted a descriptive survey research design. Two hypotheses were tested at .05 level of significance. A sample of 100 students was drawn from university students at Nigerian universities. Data was collected using the Questionnaire on University Students' Research Skills (QUSRS), with a reliability coefficient of 0.79. The data collected were analysed using frequency count, percentage, Pearson Moment Correlation, and an independent t-test. The finding shows no significant difference between male students ($= 65.00$, $SD = 11.08$) and female students ($= 55.48$, $SD = 9.71$) in terms of research skills with a t-test ($t = 3.441$, $df = 98$). The study also found a significant difference ($t = 5.024$, $df = 79$) between postgraduate students ($= 68.71$, $SD = 8.84$) and undergraduate students ($= 65.84$, $SD = 10.29$), as postgraduate students performed better. Based on the findings, it was recommended that gender should not be used as a criterion for determining research capabilities in academic settings and that more attention should be given to developing research skills for undergraduate students. The study also recommended that a more equitable and inclusive learning environment that supports the development of research skills among all students, regardless of gender or academic level, be promoted.

In another empirical study by Okwilagwe (2022) on gender, previous qualification and postgraduate students' knowledge of research, interpretation of computer-processed data and reportage in South-West geo-political zone of Nigeria was investigated in this study. The sample consisted of 746 participants selected from six departments in three faculties from three federal, three states and two private universities in the zone. A valid and reliable instrument titled: 'Challenges of Application of the knowledge of Research and Computer Processed Data in Research' $\alpha = 0.86$ was used. Being an ex-post-factor research, statistics like t-test, ANOVA and multiple regression were used. Males were found to have significantly better in interpretation of analysed research data, males $M = 16.38$; $SD = 4.43$ and females $M = 17.03$; $S.D = 4.25$; $t(2, 727) = -1.96$; $df = 727$; $p < 0.05$. Previous degree obtained by postgraduate students with a ($\beta = 0.18$) was found to account for 3.2% variance in computer literacy with a contribution of an R of 0.18, R^2 of 0.03, Adjusted R^2 of 0.03, significant at $F(1, 722) = 24.51$, $p < 0.05$. Previous degree obtained by postgraduate students with a ($\beta = 0.08$), also accounted for 1% variance in students' interpretation of analysed data with a contribution of an R of 0.08, R^2 of 0.01 and Adjusted R^2 of 0.01 significant at $F(1, 719) = 4.84$, $p < 0.05$. Study has potential for course review in research methodology and statistical methods at undergraduate level that allow for the designing of better approaches for developing adequate and sustainable research skills at postgraduate level for enhanced and timely research completion process by postgraduate students.

Similarly, study Ekpoto, Bassey and Odiong (2018) analysed the influence of academic discipline and sex on the research skills application of graduate students in Cross River State, Nigeria. To achieve the purpose of the study, one null hypothesis was formulated to guide the study. The descriptive survey design was adopted using a sample of 60 vetted M.Ed. theses from the Faculties of Education at University of Calabar and Cross River State University of Technology in 2017/2018 session, through a purposive sampling technique. The instrument used for

collecting data for the study was a 36-item postgraduate students' research skills analysis rating scale (PGSRSARS) on six major research skills (problem articulation, literature search, instrument construction and validation, data collection and analysis, reporting and referencing). Two-way analysis of variance (ANOVA) was used to test the hypothesis at the .05 level of significance. The results of the study revealed that: the interaction of graduate students' sex and academic discipline does not significantly influence their application of research skills in terms of the six major skills considered in the study. Based on this finding, the study concluded that on an individual basis, graduate students' academic discipline significantly influences their application of research skills, while their sex does not. The study recommended that regular seminars and workshops should be organised for graduate students of all academic disciplines to sharpen their skills in research

Finally, Eze, Adie, Abang and Beshel, (2012) the study assessed student gender and the application of research skills of students in Cross River State Health Training Institutions. The study adopted a survey research design using a sample of 230 finished National Certificate, Higher National Diploma research projects of Health Technology, Health Information Management, Nursing and Midwifery programmes from Health Training Institutions in Cross River State from 2007/2008 and 2008/2009 sessions, through a stratified random sampling technique. The instrument used for collecting data for the study was a 16-item Assessment Rating Scale on four major research skills (problem articulation, hypothesis formulation, literature review and statistical analysis). The population t-test analysis, Independent t-test analysis and Analysis of variance (ANOVA) were used to test the hypotheses at a 0.05 alpha level. The results of the study revealed that: (i) the Application of research skills of students in terms of problem articulation, literature review, formulation of hypotheses and statistical analysis is significantly high. (ii) Students' gender significantly influenced students' application of research skills in terms of problem articulation and hypothesis formulation, but not in literature review and statistical analysis. The study recommended, among others, that workshops and seminars should be organised regularly for students to improve and consolidate their inefficiencies in research skills application.

Marital status and research skills acquisition.

The study sought to examine Aguboshim (2021) study was to identify how parents' marital status (married and living together or divorced and geographically separated) influences the academic performance of their in-school adolescents in subjects in Nigeria. Enugu State of Nigeria was used as a case study. The Epstein Model (1987) was adopted as the theoretical framework for this study. Data were collected from 720 senior secondary school students. Half (360) of the participants came from parents married and living together while the other half came from divorced or geographically separated parents. Results show that the mean academic performance in IT subjects among in-school adolescents from parents who married and living together was significantly higher than those from divorced or geographically separated couples, ($t = 9.924$; $p < 0.05$). The findings in this study provide direction for future ways to close these gaps created by divorced or geographically separated homes.

A study by Oluwatola and Akingbade (2022) study investigates information retrieval skills as a correlate of scholarly research among postgraduate students in selected Universities in Oyo and Lagos States, Nigeria. The survey research methodology was used with a total sample size of 379, using a single 1 random sampling technique to select postgraduate students. Data was collected mainly through a questionnaire and analysed using frequency distribution and regression analysis run on SPSS (2.0). The result revealed the types of information retrieval skills, The study revealed that information retrieval skills highly influence the postgraduate students' scholarly research, as it allowed them to easily recognise their needed information. The study showed that the majority, 532(95.4%) of postgraduate students claimed that information retrieval skills were important.

Faridah, Radin and Wan (2021) study intended to explore the benefits of research collaboration activities regarding young academics' knowledge, skills, and personal development. A total of 15 young academics from one Research University with each having less than five years of work experience selected using purposive sampling. In-depth interviews were used to collect data. The data was transcribed and analysed using thematic analysis. The findings revealed that research collaboration activities substantially impact young academics in updating their research knowledge and skills, which subsequently causes them to be more confident in their ability to manage research independently. Collaboration activities also have a remarkable impact on young academics' generic skills development and psychological well-being, increase young academics' self-confidence, reduce isolation as well and overcome the problem of low performance. Based on the findings, it is suggested that a collaborative working culture is promoted and enhanced by universities as a practical platform for young academics to continue upgrading their knowledge and skills.

RESEARCH METHOD

Research design

The research design adopted for this study was an ex-post facto design. Ex-post facto means (after the fact), this design is adopted because at the time of data collection, the independent (causal) variable had already happened. According to Kelinger and Lee (2004), ex-post facto design is a means of undertaking studies in which the independent variables among the subjects already exist and cannot be manipulated or controlled. Since no direct manipulation will be carried out on the independent and dependent variables, respectively, in the study, an ex-post facto design becomes the most appropriate for use in the study. This design was considered most appropriate because the researcher had no direct control over the independent variables.

Population of the study

The population of the study consists of 2174 graduate students between 2022-2024 academic year among the public universities in Cross River State, with specific reference to the University of Calabar and University of Cross River State, Nigeria (Field Survey, 2024). **Sampling Technique**

The stratified and simple random sampling techniques were adopted in the study.

The first stage was to stratify the University of Calabar and the University of Cross River State based on departments in the different faculties. The second stage was to select the respondents on the basis of gender (male and female). The final stage was to use simple random sampling to select the total respondents from the institutions. In using the simple random sampling technique, the researcher utilised the hat and draw method, where pieces of paper were put in the hat, comprising Yes and No. Only the one drawn with the inscription of Yes was used in the study, while the one with the inscription of No was not considered in the study.

Sample

The sample size was determined using Yaro Yamane's formula

$$n = \frac{N}{1 + N(e)^2}$$

Thus,

$$n = \frac{2174}{1 + 2174(0.0025)^2}$$

$$n = \frac{2174}{1 + 5.435}$$

$$= 2174/6.435$$

$$= \underline{\underline{337}}$$

Since the Taro Yamane estimation gives the minimum simple size, the researcher decides to multiply that number (337) by 2 (Joshua 2009). Hence, 337x2 =674. Representing this percentage value will give 31% of the estimated population. The simple distribution is presented in Table 2.

Construction of instrumentation

An instrument titled Personal Characteristics and Research Skill Questionnaire was designed by the researchers, a 60-item Likert agreement scale of four-point response options measuring the levels of the dependent variable. The categorical biographical variables measured were sex and marital status of the respondent used in the study.

Validity of the instrument

The validation of the instrument was established after consultation and discussion with three experts in curriculum and instructional technology and Measurement and Evaluation Department on the items in the questionnaire. The discussion covered the relevance of items to the objectives and the hypotheses of the study, and the language of the instrument. The final items in the questionnaire have been scrutinised by the thesis supervisor and clarified to be suitable for use as a data collection instrument for the study.

Reliability of the instrument

To ascertain the reliability of the instrument, a trial test was carried out with 40 respondents who were not part of the sample institutions. The reliability was established using Cronbach alpha reliability of internal consistency. After the administration, the reliability was calculated and the index ranged between 0.67 and 0.83 as accordingly, this is shown in Table 1.

Table 1***Cronbach alpha reliability coefficient in trial-test (N = 40)***

S/N	VARIABLE	K	$\sum S_I^2$	SX^2	\bar{X}	SD	∞
1	Level of research skills	10	1.33	9.54	18.05	3.09	.83
2	Research skills acquisition in problem articulation,	10	1.42	4.45	19.67	2.11	.78
3	Research skills acquisition in literature review.	10	1.76	5.15	20.98	2.27	.67
4	Research skills acquisition in methodology.	10	1.30	9.61	22.32	3.10	.70
5	Research skills acquisition in referencing	10	1.47	4.12	21.30	2.03	.82
6	Research reporting	10	1.58	4.13	22.04	2.10	.83

Procedure for data analysis

The data was analysed using descriptive (mean and standard deviation) and inferential statistics (population t-test and One-way ANOVA). The breakdown is as shown below.

Hypothesis one

The level of research skills is not significantly different from the expected.

Test statistics: Population t-test

Hypothesis two

Sex does not significantly influence research skills acquisition.

Independent variable: Sex (male and female)

Dependent variable: Research skills acquisition

Test statistics: Independent t-test

Hypothesis three

There is no significant influence of marital status on research skills acquisition by graduate students.

Independent variable: Marital status (married, single, divorced, separated, widowed/widow)

Dependent variable: Research skills acquisition

Test statistic: One-way ANOVA

The research study is on the general description of the research variables and the results of the data analyses in line with the eight null hypotheses that were tested in the study. The results of the data analysis were discussed under the following subheadings:

General description of research variables

The major independent variables of this study are graduate students' characteristics categorised in terms of the level of research skills acquired, sex and marital status, while the dependent variable in this study is research skills acquisition, measured continuously. The descriptive statistics of the demographic characteristics and the subscales are presented in Table 2.

Table 2**Demographic characteristics of the respondents in the study (n=653)**

s/n	Variables	Sub variables	n	%
1	Gender	Male	397	60.80
		Female	256	39.20
2	Marital status	Single	95	14.55
		Married	390	59.72
		Divorced	53	8.12
		Separated	78	11.94
		Widow/widower	37	5.67
3.	Socio-economic status	High	377	57.73
		Moderate	144	22.05
		Low	132	20.21

The demographic data analysis in Table 2 revealed that, concerning gender, males dominated the study with 397 (60.80%). For marital status, married students dominated the study, 390 (59.72%),

followed by single, 95 (14.55%) and the least were widowed/widower.

Table 3

Descriptive statistics of personal characteristics, Research skills acquisition (n=653)				
S/no	Variable	\bar{X}	SD	SEM
1	Level of research skills acquired	16.3874	4.35590	.52224
2	Sex	17.1562	4.10040	.80806
3	Marital status	14.9368	4.39974	.45140
4	Research skills acquisition	62.7856	14.67417	.56120

The result in Table 3 shows the descriptive statistics for the research variable, revealing that the highest mean for the independent variable is sex, 17.1562, followed by the level of research skills acquired, with a mean of 16.3874, while the lowest is marital status, 14.9368.

Presentation of results

The results of the data analysed are presented hypothesis by hypothesis as follows:

Hypothesis one

The level of research skills by graduate students is not significantly. The variable in this null hypothesis is the level of research skill acquired, which was measured continuously. To test the null hypothesis, the one-sample t-test was used to compare the observed and expected levels of research skills acquired, with results as presented in Table 4.

Table 4

One Sample T-Test Analysis of the level of research skills acquired					
Variable	\bar{X}_{obs}	$\bar{X}_{exp.}$	Std. D	t- value	p-value
level of research skills	86.3874	2.50	4.35590	1.037	.780

$p > .05$

From Table 4, the p-value (.780) associated with the calculated t-value (1.037) is greater than .05. Thus, the null hypothesis is accepted.

Hypothesis one

There is no significant influence of sex on research skills acquisition. The independent variable in this hypothesis is sex,

categorised as male and female. The dependent variable is research skills acquisition. To test this hypothesis, an independent t-test analysis was employed. The choice of the independent t-test is because the independent variable has two categories measured on continuous dependent variables. The results of the analysis are presented in Table 5.

Table 5

Independent t-test analysis of sex and research skills application							
Sex	n	\bar{X}	Std. D	Std error	df	t-value	p-value
Male	397	51.16	4.10	.81	651	.186	.853
Female	256	56.96	4.00	.25			
Total	653	54.06					

$p > .05$

The results in Table 5 show that, since the p- p-value of .853 is greater than the .05 level required for significance, it follows that there is no significant difference between the research skills acquired by male and female respondents($t=.186, p=.853, p > .05$). Thus, the null hypothesis is accepted.

Hypothesis three

There is no significant influence of marital status on research skills acquisition by graduate students, categorised in terms of single,

married, divorced, separated and widowed/widower. The dependent variable is research skills acquisition, while the independent variable is marital status. To test this hypothesis, a one-way analysis of variance was employed. The choice of one-way ANOVA is because the independent variables have more than two categories, measured on continuous dependent variables. The results of the analysis are presented in Table 6.

Table 6

One-way ANOVA of marital status on research skills acquisition					
Marital status	n	\bar{X}	Std. D	Std. Error	
Single	95	14.9368	4.39974	.45140	
Married	390	16.3436	4.61582	.23373	
Divorced	53	18.5660	2.59073	.35586	
Separated	78	17.8590	3.25027	.36802	
Widower/widowed	37	14.6757	2.83876	.46669	
Total	653	16.4058	4.34153	.16990	
Sources of variation	Sum of Squares	df	Mean Square	F-value	p-value
Between Groups	729.302	4	182.326	10.220	.000
Within Groups	11560.156	648	17.840		
Total	12289.458	652			

* $p < .05$

Table 6 showed that since the p-value (.000) is less than the .05 minimum level required for significance, with 4 and 648 degrees of freedom and an F-value of 10.220, it follows that there is significance. The null hypothesis of no significant difference is therefore rejected and the alternative hypothesis upheld.

Furthermore, the post-hoc pairwise comparison showed that specific significant group differences exist between the single and married, single and divorced, single and separated, married and divorced, married and separated, married and widowed, divorced and widowed, as well as separated and widowed.

Table 6

LSD Pair-wise comparison of marital status and research skills acquisition

Marital status	Research skills acquisition	Mean Difference (I-J)	Std. Error	p-value
Single	Married	-1.40675*	.48325	.004
	Divorced	-3.62920*	.72414	.000
	Separated	-2.92213*	.64537	.000
	Widowed/Widower	.26117	.81850	.750
Married	Single	1.40675*	.48325	.004
	Divorced	-2.22245*	.61834	.000
	Separated	-1.51538*	.52389	.004
	Widowed/Widower	1.66791*	.72657	.022
Divorced	Single	3.62920*	.72414	.000
	Married	2.22245*	.61834	.000
	Separated	.70706	.75187	.347
	Widowed/Widower	3.89036*	.90485	.000
Separated	Single	2.92213*	.64537	.000
	Married	1.51538*	.52389	.004
	Divorced	-.70706	.75187	.347
	Widowed/Widower	3.18330*	.84313	.000
Widowed/Widower	Single	-.26117	.81850	.750
	Married	-1.66791*	.72657	.022
	Divorced	-3.89036*	.90485	.000
	Separated	-3.18330*	.84313	.000

Summary of findings

The summary of the findings is presented as thus

- The level of research skills acquired by graduate students is not significantly different from the expected.
- There is no significant influence of student sex on research skills acquisition of graduate students.
- There is a significant influence of marital status on research skills acquisition of graduate students.

Discussion of findings

The results of the findings are discussed based on the hypothesis of the study, as shown below.

The level of research skills acquired by graduate students

The findings revealed that the level of research skills acquired by graduate students is significantly different from the expected. This means there is a problem as the expected does not happen. This may be true because of the corruption that has

pervaded the fabric of the nation and beyond. Hypocrisy and window dressing are seen in Nigerian universities where the federal, state and other proprietors of Universities shy away from responsibility in education funding to the extent of sometimes borrowing equipment to show clearing accreditation, learning the universities impoverished and deficient. This implies that research skills empower individuals to effectively identify, analyse, and resolve complex problems in the workplace. By conducting thorough research, professionals can gather relevant information, explore various perspectives, and propose well-informed solutions. Thus, high level of research skills enables researchers to gather information, analyse data, and draw meaningful conclusions. Beyond academics, strong research skills foster critical thinking and problem-solving abilities, which are invaluable in everyday life and future careers. Having strong research skills enhances your understanding of various subjects. However, the present findings are in line with Ikiroma (2024) results, obtained revealed that the application of research skills among graduate students in Ignatius Ajuru University of Education Rivers State, Nigeria is significantly high. It was therefore recommended among others that Deans and Head of Departments or school administrators should organize regular retraining for academic staff and graduate students on different dimensions of research skills. Also, Buen (2017) results exposed that the faculty were outstanding in achieving the objectives of the graduate program by showing mastery of the subject matter, relating current issues and community needs, and participating in the activities of professional organizations. Finally, Study Ikiroma (2014). Results obtained revealed that the application of research skills among graduate students in Ignatius Ajuru University of Education Rivers State, Nigeria is significantly high. It was therefore recommended among others that Deans and Head of Departments or school administrators should organize regular retraining for academic staff and graduate students on different dimensions of research skills.

Sex and research skills acquisition of the graduate students

The results showed that there is no significant influence of student sex on research skills acquisition of the graduate students. The present finding are in line with Molokwu, Ajagbe, Yekinni and Molokwu (2024) finding shows no significant difference between male students ($= 65.00$, $SD = 11.08$) and female students ($= 55.48$, $SD = 9.71$) in terms of research skills with a t-test ($t = 3.441$, $df = 98$). The study also found a significant difference ($t = 5.024$, $df = 79$) between postgraduate students ($=68.71$, $SD = 8.84$) and undergraduate students ($=65.84$, $SD = 10.29$), as postgraduate students performed better. In another empirical study by Okwilagwe (2022), males were found to have significantly better interpretation of analysed research data, males $M = 16.38$; $SD = 4.43$ and females $M = 17.03$; $S.D = 4.25$; $t(2, 727) = -1.96$; $df = 727$; $p < 0.05$. Previous degree obtained by postgraduate students with a ($\beta = 0.18$) was found to account for 3.2% variance in computer literacy with a contribution of an R of 0.18, R^2 of 0.03, Adjusted R^2 of 0.03, significant at $F(1, 722) = 24.51$, $p < 0.05$. Previous degree obtained by postgraduate students with a ($\beta = 0.08$), also accounted for 1% variance in students' interpretation of analysed data with a contribution of an R of 0.08, R^2 of 0.01 and Adjusted R^2 of 0.01, significant at $F(1, 719) = 4.84$, $p < 0.05$. Again, Ekpoto, Bassey and Odiong (2018) results of the study revealed that: the interaction of graduate students' sex and academic discipline does not significantly influence their

application of research skills in terms of the six major skills considered in the study.

Marital status and research skills acquisition of the graduate students

The results showed that there is a significant influence of marital status on the acquisition of research skills the graduate students. The present study agrees with Oluwatola and Akingbade (2022) result revealed the types of information retrieval skills. The study revealed that information retrieval skills highly influence postgraduate students' scholarly research, as it allows them to easily recognise their needed information. The study showed that the majority, 532(95.4%) of postgraduate students claimed that information retrieval skills were important. Also, Faridah, Radin and Wan (2021) findings revealed that research collaboration activities substantially impact young academics in updating their research knowledge and skills, which subsequently causes them to be more confident in their ability to manage research independently.

Conclusion

Research skills are an essential that can help a student to make better decisions, solve problems, innovate, establish credibility, and keep up with new developments in their organisation. Research skills foster a mindset of curiosity and continuous learning, encouraging individuals to seek out new information and adapt to changes throughout their lives. Overall, these skills are essential for personal development, professional advancement, and societal contribution. From the outcome of this study, it could be concluded that graduate students have most graduate students lack the appropriate research skills. Even though graduate programmes throw up opportunities for students to acquire research skills, students in the two universities studied have not utilised such opportunities maximally to enhance their research capabilities, and so are poorly prepared and equipped to face the challenges of life.

In conclusion, effective research skills contribute to improved communication and collaboration within teams and across departments. Thus, students who possess research skills can articulate their findings concisely, present complex information in a simplified manner, and support their arguments with credible evidence.

Recommendations

From the results of this study, the following recommendations are put forward.

1. Graduate students should develop a more positive attitude toward participating in more research-oriented activities. This may enable them to sharpen their research skills and develop and embrace research as an avenue to develop themselves into total men and women. By this, they may be enabled to fit into society credibly by contributing meaningfully towards their well-being and development.
2. Graduate students should channel more energy and resources to other research skills, other than reading, oral presentation/communication and information gathering. This may enable them to develop such research skills adequately and so become all-round researchers, instead of being masters of infinitesimal aspects of research, while

largely becoming handicapped in other equally important research skills. Acquiring all-around research skills may help them to be exposed to the world and the realities of the present. This may enable them to fit it adequately.

Implications of the study for educational stakeholders

Findings of the study may be of help to the following education stakeholders: for instance, the findings may help the Dean of the Postgraduate School to use personal characteristics of the Academic staff to constitute a teaching crew that will foster Research and Development in consonance with international standards.

The findings of this study may help the teaching staff to cultivate positive personal characteristics that will boost research skill acquisition. The results will point to attitudes and characteristics that make for the development of skill acquisition. To the curriculum planners, the findings may help them curriculum planners to come to terms with the factors that will enhance the attainment of research skills and use this knowledge to curriculum innovation of Nigerian universities.

The finding of this study may be of immense benefit to parents, as it is believed that the result of this study may potentially useful to parents to equip them with information on their role and attitudes in enhancing meritorious academic performance of their children, parents may also find this study worthy as it may enable them understand how their positions and roles in the home have been influencing their children academic performance positively or negatively.

The educational policy makers may benefit from this study by using its gainful insight into the home attributes and students' performance to plan an educational programme that may cater to all categories of students irrespective of their home factors. There could be through improved teaching methods and subsidised funding for the equipping of schools.

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