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**Demographic Variables and Research Skills Acquisition among Postgraduate Students in
Public Universities in Cross River State, Nigeria**

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Abstract

The study is aimed at determining the influence of demographic variables on research skills acquisition among postgraduate education students in public universities in Cross River State, Nigeria. To achieve aim of this study, two purpose of the study was stated that were transformed into two research questions. The research question was further transformed into two null hypotheses. Literature review was carried out based on the sub-variables of the study and ex-post facto research design was used for the study. The population for this study was made up of 2,938 Post graduate students from the two public Universities in Cross River State. Stratified sampling technique was adopted for the study to select a sample of 400 post graduate students. The instrument for data collection was a 15-item Questionnaire structured on a four-point rating Likert scale titled “Demographic Variables and Research Skills Acquisition questionnaire (DVRSAQ)”. The instrument was validated by three experts in measurement. While reliability yielded a reliability index of 0.78. One-way analysis of Variance was used to test the null hypotheses at 0.05 level of significant. The result obtained indicated that students’ gender and institution ownership (state and federal) significantly influence research skill acquisition in Universities in Cross River State. Based on the findings, it was concluded that postgraduate students' demographic variables in terms of gender and institution ownership influenced their acquisition of research skills. Based on findings and conclusion, it was recommended among others that Educators are encouraged to focus on identifying effective strategies to enhance research interest and explore the long-term impacts of these strategies on students’ academic and professional success.

Keywords: demographic variables, research skills acquisition, postgraduate students, public and tertiary institutions

Introduction

Research is a vital process that contributes to the advancement of knowledge, informs decision-making, and addresses societal challenges. By employing systematic methodologies, researchers can explore complex questions and develop solutions that enhance our understanding of the world. As we continue to navigate an increasingly complex and interconnected society, the importance of research will only grow, underscoring the need for rigorous inquiry across all disciplines. Research plays a crucial role in addressing societal challenges, such as poverty, education, and environmental sustainability. Through applied research, practical solutions can be developed to tackle these pressing issues (Creswell, 2014).

Ojini *et al* (2026) stated that in every discipline, research remains the process through which knowledge is created for application and advancement of such discipline. It is also a process of creating knowledge that is published and utilized in teaching and learning as well as in community services. Since knowledge is the most empowering of all human possessions, acquiring necessary skills for its creation could be said to be a very important human endowment. This is why acquisition of such skills is imperative for higher education in the development of such skills is also paramount.

According to Ojini *et al.* (2017), “the courses and seminars have the following as their objectives to build research capacity for students:

- i. acquire the knowledge and understanding of the meaning and the several processes of research and its related concepts and operations, as well as have a general idea of the philosophy, paradigms and orientations of educational research;
- ii. have knowledge of the general outline for writing research reports, ability to state and analyze a research problem, and hence derive a topic, state research question and/or hypothesis;
- iii. critically review and summarize literature and justify the need for the study based on the results of the review of literature;

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- iv. determine and describe appropriate research method and design for a study, understand and differentiate among variables, sampling methods, develop or adapt and validate an appropriate instrument for the study;
- v. write a research proposal including referencing and using approved reporting style;
- vi. appreciate the role and usefulness of research as a means of contributing solution to educational problems and as means of creating knowledge in education and thus develop favorable attitude towards research;
- vii. appreciate the place of theoretical background in research and the systematic and logical nature of the research process”.

Engaging in research cultivates critical thinking skills, encouraging individuals to analyze information, evaluate evidence, and construct well-reasoned arguments. These skills are essential in academic and professional settings (Facione, 2015). However, what is obtained among some postgraduate students leaves much to be desired. For instance, Obot (2014), observed that some students go to other universities or tertiary institutions, to obtain copies of already completed research work and present the same topics to their supervisors. This aspect of academic fraud is common among postgraduate students who are being guided by complacent supervisors.

Also, it is common these days to hear some lecturers telling their research students to “write all and submit”. “Write all and submit” instruction gives room to the students to engage in this kind of fraudulent academic practice (Obot, 2014). Furthermore, one of the most grievous of all the practices by students of research is the photocopying of old projects written by other persons either in the same department or in another institution and presenting same to their supervisor as their work (Eze, 2021).

In another instance, it is observed that some students undertaking research project do hire other persons believed to be more skillful in the art of project writing to write for them upon agreed fees. In this case, another student does the entire work. Such other “researcher” may know next to nothing of what is purportedly written as the content of the work from his/her client (Turner, 2019). In such a case, the supposed research student is concerned with fulfilling the

conditions for graduation and not developing the research skills needed. According to Dien (2017), another act exhibited by some research students which negates the correct practice of research occurs during data collection. Thus, he or she manipulates his or her data to suit his or her purpose.

Despite the above efforts to foster research skills among students especially the postgraduate students in the universities, researchers consider it heartbreaking to still see that postgraduate students are not carrying out researches effectively. Researchers have revealed that, while students perceived their research skills positively, there were inconsistencies between self-reports and external evaluation (Gilmore & Feldon 2010);

In addition, Ibrahim, *et al.* (2021) found out that, many students struggle with various aspects of the research process, including identification of problem, formulating hypothesis, conducting literature reviews, and employing appropriate research methods. This gap in skills not only hampers students' academic progress but also limits their ability to contribute to the body of knowledge in their respective fields. The skills of problem identification, hypothesis formulation, literature review, data collection, data analysis, and research reporting are essential for conducting high-quality research in this technological era. Acquisition of research skills is among the most important skills needed by post-graduate students to function well in contributing to the knowledge in today's dynamic world. On the other hand, the acquisition of research skills among postgraduate students may be influenced by many factors among which are demographic variables such as gender and institutional ownership (federal and state). Each of these factors plays a crucial role in shaping students' engagement in research activities and their overall development of research competencies and application.

Gender influence can impact students' engagement with research activities. Research indicates that female students often face unique social and demographic characteristics compared to their male counterparts (Turner, 2019). For instance, Jung and Lee (2019) found that female students are more likely to be influenced by risk perception and social factors when deciding to engage in research activities, which can affect their confidence and willingness to participate in

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research projects. This suggests that gender dynamics within academic environments can influence mentorship opportunities and peer support, which are critical for developing research skills.

According to Ojini, et al. (2016) and Haris (2004), “the courses and seminars have the following as their objectives to build research capacity for students and lecturers:

- viii. acquire the knowledge and understanding of the meaning and the several processes of research and its related concepts and operations, as well as have a general idea of the philosophy, paradigms and orientations of educational research;
- ix. have knowledge of the general outline for writing research reports, ability to state and analyze a research problem, and hence derive a topic, state research question and/or hypothesis;
- x. critically review and summarize literature and justify the need for the study based on the results of the review of literature;
- xi. determine and describe appropriate research method and design for a study, understand and differentiate among variables, sampling methods, develop or adapt and validate an appropriate instrument for the study;
- xii. write a research proposal including referencing and using approved reporting style;
- xiii. appreciate the role and usefulness of research as a means of contributing solution to educational problems and as means of creating knowledge in education and thus develop favorable attitude towards research.

Keeves, (2019) found that, female teachers showed more favorable research acquisition application research skills than their male counterparts. With a sample of 103 teachers randomly drawn from six schools, the researcher discovered that, while 62 percent of the females showed favorable disposition to testing of students, only 38 percent of the males did. In that study it was concluded that female teachers were likely to apply the skills of testing better than their male counterparts. Research innovation in higher institution include a shift from state fund and TET fund funding as known as Tertiary Education (TET) Fund and a shift library volumes of papers to

Information Technology and communication (ICT) library for research (Hans. 2006; Essien, Ajake & Ojini 2010).

Consequently, Onyeukwu, (2018) working with hospital patients has shown that males are better able to retain new quantitative information than females when testing for immediate recall. That is to say, male students may remember techniques and research skill techniques taught far better than female counterparts. In the study carried out by Aimley and Fullerton, (2020) to see the difference in the performance of teachers with respect to sex, it was found that with regards to the effective teaching of technical studies, 80 percent of students taught by male teachers performed creditably well, while it was 65 percent of enrolment in computer studies, and 67 percent of enrolment in physical education. This is compared to the performance of those students taught by female teachers who in the same subjects scored 60%.

And those taught with male teachers scored 40% percent respectively. From the presentation, the performance of students taught by male teachers was significantly higher than that of those taught by female teachers, except in physical education with performance of 67 and 71 percent in favor of students taught by female teachers. Although this study was not directly on research skills, it provides insight to the present study.

In addition, the studies carried out by Fredrick, (2016) on acquisition of research skills in department of medicine, Harvard medical school, Boston, it was revealed that gender influence existed in the application of research skills in articulating research problems, and formulating testable hypothesis. The study further highlighted significant influences of male students' acquisition of research skills. Similarly a recent study on grant applications and funding outcomes across institutions at Harvard medical school showed that female faculty members, particularly those at the lowest ranks, submitted fewer grant application than men. In both studies, women in the faculty requested less support and received less funding. Although, the percentage of requested funding received was similar to men.

Similarly, Falaye, (2021) examined the sex difference and research skills acquisition among University students in North-East region in Nigeria. The research design used was survey

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method. The sample of 450 students which include 250 females and 200 males were randomly drawn from undergraduate students using simple and stratified random sampling techniques. The instrument used for data collection was questionnaire. The research questions and research hypotheses were formulated. Data collected were analyzed using independent t-test and tested at 0.05 level of significant. The result revealed that there is a significant difference between sex and research skills acquisition in universities in South East Nigeria. Although this study was not directly on research skills, it provides insight to the present study.

From the review, there is a significant differences between male and female student in acquisition of research skills and these differences are related to previous training, adequate usage of internet and high level of scholarly abilities in term of paper writing. Women are more significantly less likely than men to indicate strong research career intentions and skills in research work.

Ownership of university and acquisition of research skills

This second variable under review was empirical studies that explore how university ownership affects the acquisition of research skills among postgraduate students, particularly in the context of public universities in Cross River State, Nigeria. A study by Oduwole *et al.*, (2018) was on assessing research skills among postgraduate students in Federal and State Universities in Nigeria. Oduwole employed a comparative survey design in his study using a sample of 500 postgraduate students from both federal and state universities in Nigeria. A structured questionnaire was used to assess students' research skills and descriptive and inferential statistics were applied. From the study, it was found that postgraduate students in federal universities demonstrated significantly higher research skills compared to their counterparts in state universities. Factors such as access to research facilities and mentorship were cited as key contributors.

We can summarize from the above study that a key determinant of research skill development is access to academic resources, which varies between state and federal universities. Federal universities often have better funding, infrastructure, and library facilities, enabling

students to engage in research more effectively. Oduwole *et al.* (2018) found that postgraduate students in federal universities reported higher levels of access to research materials, which significantly correlated with their research skill acquisition. In contrast, students in state universities often face limitations that hinder their ability to develop these skills.

Similarly, Nwafor and Eze, (2020) carried out a research on the role of university ownership in the development of research competencies among graduate students. A mixed-methods approach combining qualitative and quantitative data was employed in their study. They used purposive sampling and 300 postgraduate students and 20 faculty members as sample for the study. Data were collected using surveys and in-depth interviews. Data were analyzed using statistical analysis for quantitative data and thematic analysis for qualitative data. Ojini *et al.* (2016) conducted research on university ownership in term federal, state and private and application of research skills among college of education lecturers in Akwa Ibom and Cross River States Nigeria.

The population of the study was 921 lecturers in three colleges of education. Ex-post facto design was used, while stratified sampling technique was deployed to select 550 lecturers in three colleges of education. Data was collected using research trends and Application of Research Skills Questionnaire (RCBARSQ). Data was collected using research trends and Application of Research Skills Questionnaire (RCBARSQ). Two hypotheses were tested at .05 alpha level using One Way Analysis of Variance (ANOVA).

The result reveal that 04, 31.945, 110.872, 57.743, 3.805 and 47.670 were each higher than the critical F-ratio 2.61 at .05 level of significance with 3 and 546 first degree of freedom. This implies that the F-ratio of problem identification skill (F=26.605), literature review skill (F=22.729) research questions/hypotheses formulation skill (F=14.057) sampling technique skill (F=10.339), instrumentation development skill (F=10.204), use of statistical tools skill (F=31.945), computer application in data analysis skill (F=110.872), referencing skill (F=57.743), reporting skill (F=3.805) and overall component of application of research skills (F=47.670) where each higher than 2.61 at .05 level of significant with 3 and 546 degree of freedom.

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Based on this result, the null hypothesis is rejected for problem identification skill, question/hypothesis formulation skill, literature review skill, sampling technique skill, instrumentation development skill, use of statistical tools skill, computer application in data analysis, referencing skill, reporting writing skill and overall application of research, since the overall F-ratio of 47.670 is higher than the critical F-ratio of 2.61 value at 0.05 level of significance with 3 and 546 degree of freedom. It means that there is a significant influence of university ownership (federal, state and private) on research on application of research skills.

Ojini et al. (2016) study on university sponsored conference training for research on lecturers' application of research skills. The independent variable in this hypothesis is conference trainings for research, categorized into 4 groups as none, between 1-5 times, between 6-10 times and 11 times and above. The dependent variables are the nine dimensions of application of research skills of colleges of education lecturers which has nine dimensions namely; problem identification skill, literature review skill, sampling technique skill, instrumentation skill, use of statistical skill, computer application in data analysis skill, referencing skill, reporting skill and overall components of application of research skills. The statistical technique used to test this hypothesis is one-way analysis of variance (ANOVA). The result of the analysis was reveal that five F-ratio of 1.248, .721, 1.251, 1.922, 2.543, .523, .862, 1.481, 1.461 and 1.556 were each less than the critical F-ratio 2.61 at .05 level of significance with 3 and 546 first degree of freedom.

These implied that the F-ratio of problem identification skill (F=1.248), literature review skill (F=.721) research questions/hypotheses formulation skill (F=2.323) sampling technique skill (F=1.251), instrumentation development skill (F=1.922), use of statistical tools skill (F=2.543), computer application in data analysis skill (F=.523), referencing skill (F=.862), reporting skill (F=1.461) and overall component of application of research skills (F=1.556) where each less than F-ratio of 2.61 at .05 level of significant with 3 and 546 first degree of freedom. Based on this result, the null hypothesis was retained for problem identification skill, question/hypothesis formulation skill, literature review skill, sampling technique skill, instrumentation development skill, use of statistical tools skill, computer application in data analysis, referencing skill, reporting

writing skill and overall application of research. The overall F-ratio of 1.556 is less than the critical F-ratio of 2.61 value at 0.05 level of significance with 3 and 546 first degree of freedom. This means that there is no significant influence of school base conference training on application of research skills.

Nwafor and Eze, (2020) highlighted that federal universities tend to offer more structured mentorship programs, guiding students through the research process than the state. These programs often include workshops, seminars, and one-on-one guidance from experienced faculty, allowing students to develop their research capabilities more fully. State universities, however, often lack such comprehensive support, leading to disparities in research competencies among students.

Another research was carried out by Akpan *et al.*, (2021) on comparative analysis of research skills among postgraduate students in federal and state universities in Cross River State. They employed a cross-sectional study design using a cluster sampling technique. The sample size for the study was 400 postgraduate students. Data were collected using self-administered questionnaires. ANOVA was used to compare means between groups. The study revealed a significant disparity in research skills, with students from federal universities scoring higher on research-related tasks. Access to resources such as libraries and research funding was identified as a major differentiator.

The curriculum offered at different ownerships of universities can also influence research skill development. Akpan, *et al.*, (2021) found that federal universities often incorporate more rigorous research methodologies and statistical analysis training into their curricula. This exposure equips students with essential skills for conducting independent research. Conversely, state universities may have less emphasis on research-oriented coursework, resulting in students feeling less prepared for research tasks.

Still on the influence of ownership of university on research skill acquisition among postgraduate students, a study was carried out by Effiom and Ojong, (2022) on exploring the impact of university ownership on the research Skillsets of postgraduate students in Cross River State. Effiong and Ojong (2022) employed a descriptive correlational study using random

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sampling technique. They sampled 250 postgraduate students. Data were collected using questionnaires complemented by focus group discussions. Correlation analysis and content analysis for qualitative data were used for data analysis. The study concluded that university ownership significantly influenced the research skillsets of students, with federal universities providing more opportunities for hands-on research experience and collaboration.

Practical experience is vital for developing research skills. Effiom and Ojong, (2022), from their study indicated that students in federal universities had more opportunities for hands-on research experiences, such as internships and collaborative projects. These experiences are crucial for applying theoretical knowledge and enhancing research competencies. In contrast, students in state universities often miss out on such opportunities, further widening the skill gap

In summary, the reviewed studies collectively indicate that the ownership of university plays a critical role in shaping the research skills of postgraduate students. Federal universities tend to offer better resources, structured training, and mentorship opportunities that enhance students' research competencies. In contrast, state universities face challenges such as limited access to resources, which negatively impacts students' research skill development. These findings underscore the need for targeted interventions to improve research training in state universities to ensure equitable skill development among postgraduate students in Cross River State.

The researcher noted that none of the studies was carried out among the postgraduate students in public universities in Cross River State and none of the scholars assessed the extent of acquisition of the core research skills used in this study, (identification of problems, formulation of hypothesis, literature review, data collection, data analysis and research reporting) which are imperative for a successful and meaningful research work by the postgraduate students. This research therefore, is focused on assessing the extent of acquisition of these research skills among postgraduate education students in public universities in Cross River State filling the gap identified in the study.

The researcher observed that there is no research work carried out to investigate the influence of demographic variables on research skills acquisition among postgraduate education

students in public universities in Cross River State in recent years. This study calls for investigation into the extent of acquisition of research skills among postgraduate education students and the demographic variables influencing it in federal and state universities in Cross River State. Therefore, it is against this background of the prevailing situation that the researcher conceived the idea to assess the demographic variables and research skills among postgraduate education students in public universities in Cross River State, Nigeria.

Purpose of the study

The purpose of this study is to:

1. To determine if there is any difference between male and female students in the research skill acquisition
2. To determine if there is any difference between federal and state own university students in the research acquisition

Research questions

Two research questions were formulated to guide the study:

1. To what extent do male students differ in the search skill acquisition from the female counterpart?
2. To what extent do post graduate students in federal university differ in the acquisition of research skills from the counterparts in state University?

Statement of hypotheses

1. There is no significant difference between male and female postgraduate students' acquisition of research skills.
2. There is no significant difference between federal and state own universities on post graduate students' acquisition of research skills.

Research design and Methods

The research design adopted for this study was the ex post facto. According to Fowler, (2018), ex post facto design is a non-experimental research method, also called "after-the-effect" research, where researchers investigate existing conditions or events to identify potential causes or

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relationships without manipulating any variables beforehand. The area of this study is Cross River State. Cross River State is one of the thirty-six (36) states of the Federal Republic of Nigeria with the state capital at Calabar. It lies between latitudes $5^{\circ} 32^1$ and $4^{\circ} 27^1$ north of Equator, and longitudes $7^{\circ} 50^1$ and $9^{\circ} 28^1$ East of the Greenwich Meridian.

The population of the study was made up of 2,938 postgraduate students in Faculties of Education in public universities- University of Calabar, Calabar (UNICAL) and University of Cross River State (UNICROSS). This was made up of 1,852 postgraduate students in UNICAL and 816 postgraduate students in UNICROSS. The sampling of this study was stratified random sampling technique and approximately 15% of the postgraduate students from the departments in all the faculties in education using random sampling technique where 278 males and 222 females that gave a total of 400 post graduate students of 2024/2025.

The instrument used for data collection was developed by the researchers titled: “Demographic Variables and Research Skills Acquisition Questionnaire” (PDVRSQAQ). The instrument was sub-divided into two sections, section A and Section B. Section A elicited responses on personal information namely: gender and institution ownership. Gender and institutional ownership were measured categorically. Section B elicited information on assessment of research skill acquisition among postgraduate students in public universities in Cross River state. It consisted of six parts: namely, problem identification, formulation of hypothesis, literature review, data collection, data analysis and research reporting, with each section consisting of five (5) items, giving a total of thirty (30) items. The questionnaire included the instructions on what the respondents were expected to indicate the extent of research skills they felt they have acquired using the following 4-point scale; Very High Extent (VHE) = 4, High Extent (HE) = 3, Low Extent (LE) = 2, Very Low Extent = 1. For negatively worded questions, the scoring was reversed.

The Demographic Variables and Research Skills Acquisition Questionnaire” (PDVRSQAQ) was subjected to face validity. The instrument was given to three experts in Educational Measurement and Evaluation for their criticism and thorough scrutiny, in terms of relevance, appropriateness of words, and representativeness of the items. Their observations and suggestions

helped in the validation of the instrument, hence, the face validity was ensured. To ensure the reliability of the instrument, the internal consistency of the instrument was determined through a trial test using fifty (50) respondents randomly drawn from two departments in the faculty science Education that were in college of education, who were not part of the study.

Data from copies of the instrument were collected to determine the internal consistency of the instrument, Cronbach Alpha reliability was used and the coefficients range from .72 to .81 respectively which were considered high enough to make the instrument reliable for use in the study. With the help of the research assistant, the instruments were administered to the respondents and the completed copies of the questionnaire were all collected. For ease of scoring, a coding schedule was developed, reflecting all items and their response options for each retrieved questionnaire

Results and discussions

Hypothesis one

There is no significant gender difference in the extent of acquisition of research skills among postgraduate students in public universities in Cross River State. The independent variable in this hypothesis is gender which is categorized into two (male and female), while the dependent variable is acquisition of research skills in terms of problem identification, hypothesis formulation, literature review, data collection, data analysis, research reporting and overall acquisition of research skills

To test this hypothesis, each of the two categories of gender was compared with the seven dimensions of acquisition of research skills in terms of problem identification, hypothesis formulation, literature review, data collection, data analysis, research reporting and overall acquisition of research skills using Independent t-test research reporting. The result is presented in Table 1.

The results in Table 1 revealed that the influence of gender on overall acquisition of research skills to be; male – mean of 95.8776 and female 89.9608, t-value of 4.295, $P > .05$; This revealed that gender has a significant influence on the overall acquisition of research skills. On the

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contribution of the influence of gender on the acquisition of relative research skills, the following values were obtained; Problem identification – mean for male 16.3878, and female 15.8235; t-value of 2.494, $P < .05$.

Table 1: Independent t-test research reporting of the gender difference in the acquisition of research skills (N=400)

Acquisition of research skills	Gender	N	Mean	Std. Deviation	t-value	p-value
Problem identification	Male	196	16.3878	2.31664	2.494	.013
	Female	204	15.8235	2.20796		
Hypothesis formulation	Male	196	16.5102	2.26566	4.456	.000
	Female	204	15.3725	2.80015		
Literature review	Male	196	16.1429	2.55403	3.657	.000
	Female	204	15.1373	2.92447		
Data collection	Male	196	15.7755	2.65071	3.726	.000
	Female	204	14.6471	3.35031		
Data analysis	Male	196	15.0612	3.46356	2.297	.022
	Female	204	14.2353	3.71703		
Research reporting	Male	196	16.0000	2.88586	4.210	.000
	Female	204	14.7451	3.06799		
Overall acquisition of research skills	Male	196	95.8776	12.12014	4.295	.000
	Female	204	89.9608	15.19004		

*Significant at .05 level, P-value = .000, df = 398

Hypothesis formulation: mean for male 16.5102 and female 15.3725; t-value of 4.456, $P < .05$.

Literature review mean for male 16.1429, and female 15.1373; t-value of 3.657, $P < .05$. Data

collection mean for male 15.7755, and female 14.6471; t-value of 3.726, $P < .05$. Data analysis

mean for male 15.0612, and female 14.2353; t-value of 2.297 $P < .05$. Research reporting mean for

male 16.0000, and female 14.7451; t-value of 4.210, $P < .05$. Then the null hypothesis is rejected.

Therefore, there is significant influence of gender on the extent of acquisition of research skills

among postgraduate students in public universities in Cross River State.

Hypothesis two

The ownership of university (ownership) does not have significant influence the extent of acquisition of research skills (problem identification, hypothesis formulation, literature review, data collection, data analysis, research reporting and overall acquisition of research skills) among postgraduate students in public universities in Cross River State. The independent variable in this

hypothesis is ownership of university which is categorized into two (Federal and State), while the dependent variable is acquisition of research skills in terms of problem identification, hypothesis formulation, literature review, data collection, data analysis, research reporting and overall acquisition of research skills.

To test this hypothesis, each of the two categories of ownership of university was compared with the seven dimensions of acquisition of research skills in terms of problem identification, hypothesis formulation, literature review, data collection, data analysis, research reporting and overall acquisition of research skills using Independent t-test research reporting. The result is presented in Table 2.

The results in Table 2 revealed that the influence of university ownership on overall acquisition of research skills to be; Federal university – mean of 91.55 and State university 96.80, t-value of -4.205, $P < .05$; The negative t-value means that mean of the former is less than the latter and that, this difference was significant. On the contribution of the influence of ownership of university on the acquisition of relative research skills, the following values were obtained; Problem identification – mean for Federal university 16.01, and State university 16.36; t-value of -1.592, $P > .05$. Hypothesis formulation Federal university 15.90 and State university 16.00; t-value of -.187, $P > .05$.

Literature review mean for Federal university 15.36, and State university 16.44; t-value of -4.444, $P < .05$. Data collection mean for Federal university 14.88, and State university 16.16; t-value of -4.942, $P < .05$. Data analysis mean for Federal university 14.28, and State university 15.72; t-value of 6.596, $P < .05$. Research reporting mean for Federal university 15.10, and State university 16.12; t-value of -3.878, $P < .05$. Relatively, compositely it revealed that there was a significant influence of ownership of university (Federal and State) on overall acquisition of research skills. Then the null hypothesis is rejected. Therefore, the ownership of university has significant influence on the extent of acquisition of research skills among post graduate students in public universities in Cross River State.

Table 8: Independent t-test research reporting of the influence university ownership on the acquisition of research skills (N=400)

Acquisition of research skills	Ownership of university	N	Mean	Std. Deviation	t-value	p-value
Problem identification	Federal	278	16.01	2.25168	-1.592	.188
	State	222	16.36	2.34206		
Hypothesis formulation	Federal	278	15.90	2.68863	-0.187	.757
	State	222	16.00	2.37835		
Literature review	Federal	278	15.36	2.79818	-4.444	.001
	State	222	16.44	2.62205		
Data collection	Federal	278	14.88	3.15470	-4.942	.000
	State	222	16.16	2.61588		
Data analysis	Federal	278	14.28	3.52937	6.596	.000
	State	222	15.72	3.66826		
Research reporting	Federal	278	15.10	3.08876	-3.878	.001
	State	222	16.12	2.77536		
Overall acquisition of research skills	Federal	278	91.54	13.90584	-4.205	.000
	State	222	96.80	13.88844		

*Significant at .05 level, P-value =.000, df = 398

Discussion of findings

The results of the first hypothesis revealed that, gender significantly influences acquisition of research skills. The result can be justified by the view of Asim, *et al.*, (2005), who assert that more females than were found competent in STM assessment even though they found themselves in large classes and were generalist teachers like the males. The findings of this study are in line with the following research carried out by Fredrick, (2016) and Falaye (2021) whose studies reveal that there is significant difference between male and female students in acquisition of research skills. This means that the women are more significantly less likely than men to indicate strong research skills in research work.

However, from the study, the gender differences are related to previous training, adequate usage of internet and high level of scholarly abilities in term of paper writing. Women are more

significantly less likely than me to indicate strong research career intentions and skills in research work. The result of the second hypothesis revealed that ownership of university significantly influence acquisition of research skills among postgraduate students in public universities in Cross River State. This finding is upheld because postgraduate students in federal universities have higher levels of access to research materials in contrast with students in state universities who often face such as limited access to resources, which negatively impacts students' research skill development and leads them to limitations that hinder their ability to develop research skills.

The finding of this study is in agreement with the findings of the following researchers: Nwafor and Eze, (2020), Akpan *et al.*, (2021) and Effiom and Ojong (2022) that revealed influence of ownership of university on research acquisition among postgraduate students in tertiary institution. Similarly, Nwafor and Eze, (2020) study revealed that federal university students benefit from more structured research training programs, leading to better research competencies. Conversely, state university students reported feeling less prepared for research tasks. Furthermore, they found out that students in federal universities had more opportunities for hands-on research experiences, such as internships and collaborative projects. These experiences are crucial for applying theoretical knowledge and enhancing research competencies. In contrast, students in state universities often miss out on such opportunities, further widening the skill gap.

In summary, a key determinant of research skill development is access to academic resources, which varies between state and federal universities. Federal university often have better funding, infrastructure and library facilities, enabling students to engage in research more effectively. These findings underscore the need for targeted interventions to improve research training in state universities to ensure equitable skill development among postgraduate students.

Conclusion

This study assessed the influence of demographic variables on research skills acquisition among postgraduate education students in public universities in Cross River State, Nigeria. The study also found that postgraduate students' gender and ownership of university influenced their acquisition of research skills. These findings revealed that students' demographic variables play a

crucial role in shaping their research skills. The high acquisition of research skills among students in the study area is a positive development, as research skills are essential for academic and professional success. The influence of gender and ownership of university in research skills acquisition highlights the need for educators and policymakers to develop targeted strategies to support students from diverse backgrounds and promote skills acquisition in research skills.

Recommendations

Based on the findings of this study, the following recommendations are made to enhance the acquisition of research skills among students in public universities in Cross River State, Nigeria:

1. Educators should prioritize research skills training and provide students with hands-on experience in research design, data collection, and analysis.
2. Educators are encouraged to focus on identifying effective strategies to enhance research interest and explore the long-term impacts of these strategies on students' academic and professional success.

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