RESEARCH SKILLS AS PREDICTORS OF CAREER DEVELOPMENT OF OFFICE TECHNOLOGY AND MANAGEMENT LECTURERS IN POLYTECHNICS IN SOUTH-EAST, NIGERIA

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Abstract
The study focused on research skills as predictors of career development of Office Technology and Management (OTM) lecturers in polytechnics in South East, Nigeria. The study was guided by two research questions and two hypotheses. The study adopted a predictive correlation research design. The population of the study comprised 72 OTM lecturers in six federal and state-owned polytechnics in South-East, Nigeria. Sample was not drawn for the study due to the relatively small size of the population. In other words, the study used a census survey. Data for the study were collected using two structured questionnaires developed by the researcher titled "Research Skills Survey (RSS) and Career Development Questionnaire" (CDQ). Cronbach Alpha Reliability co-efficient values of overall index for RSS was 0.96. An index of 0.83 was obtained for CDQ. The collected data were analysed using multiple regression. Research questions were answered using Unstandardized (B) coefficient, standardized regression weight (beta coefficient), and adjusted R square, while the hypotheses were tested at .05 level of significance using F-test and t-test of beta coefficient. The researcher found out that all six research skill components positively predict career development. The regression equation model for predicting Career Development using research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South-East, Nigeria was significant. Based on the findings, it was recommended among others, that institutions should organize specialized workshops on research question formulation and data collection, and senior academics and research experts should mentor early-career lecturers to enhance their research skills, particularly in areas such as formulating quality research questions, identifying funding opportunities, and publishing in reputable journals.

Keywords: *Research Skills, Career Development, Office Technology, polytechnics, Management*

Introduction

Research is widely acknowledged as the cornerstone of higher education and a crucial driver of academic and professional advancement. In tertiary institutions, it functions as a mechanism for generating knowledge, improving teaching and learning, and addressing emerging societal and industrial challenges (Nwosu and Nwogbo, 2021). For lecturers, particularly in professionally oriented disciplines such as Office Technology and Management (OTM), research competence signifies intellectual maturity, enhances credibility, and strengthens their ability to contribute to both academic discourse and workplace innovation (Okoye and Ezeani, 2020). Within the Nigerian polytechnic system, which emphasizes technological education and applied research, lecturers' research capacities are vital for curriculum relevance, institutional development, and personal career progression.

The OTM discipline, which integrates business education, information technology, and administrative management, requires lecturers to stay abreast of technological and pedagogical innovations through ongoing research. Yet, despite its centrality, many OTM lecturers in Nigerian polytechnics exhibit low research productivity and weak methodological competence (Azih, 2016; Mohammed, 2023). These shortcomings have been linked to limited training in research design, poor access to scholarly resources, and insufficient mastery of modern analytical tools (Arikwandu, 2024). Consequently, many lecturers struggle to produce quality research outputs, publish in reputable journals, or secure research grants—factors that directly influence their promotion prospects and professional recognition (Edeh and Ugwu, 2022).

Career development, particularly in academia, is a dynamic process encompassing self-assessment, goal setting, skill acquisition, and continuous professional growth (Smith, Johnson and

Williams, 2020). It reflects an individual's progression within the institutional structure, often determined by performance in teaching, research, and community service. In polytechnics, where promotion criteria place strong emphasis on research productivity and scholarly publications, the possession of advanced research skills becomes indispensable (National Board for Technical Education [NBTE], 2021). Lecturers who demonstrate competence in the full range of research activities—from problem identification to the communication of findings—are more likely to experience accelerated career advancement and professional fulfillment (Ibrahim and Bello, 2021).

Research skills are multidimensional, encompassing competencies such as question formulation, literature review, research design, data collection, data analysis, and the communication of findings (Creswell and Creswell, 2018; Kumar, 2019). Each of these components contributes uniquely to academic effectiveness and career outcomes. For instance, the ability to formulate researchable problems reveals intellectual curiosity and analytical strength, while proficiency in literature review fosters theoretical depth and contextual understanding (Ogunleye and Adetayo, 2020). Likewise, sound methodological knowledge and analytical proficiency underpin the credibility of research findings, and effective communication skills enable dissemination through conferences, journals, and professional networks—activities that enhance visibility and reputation (Eze, 2021). Collectively, these skills define a lecturer's research identity and academic influence, which are key determinants of career progression in the tertiary education sector.

Despite the established importance of research skills, limited empirical evidence exists on how these competencies predict career development among OTM lecturers in Nigerian polytechnics. Much of the existing literature focuses on university academics or treats research performance in generalized terms, thereby overlooking the unique structural and professional realities of polytechnic education (Arikwandu, 2024; Eze, 2021). The polytechnic environment, characterized by a practice-oriented curriculum and limited research funding, demands a distinctive understanding of how research proficiency translates into career advancement. Given the strategic role of polytechnics in Nigeria's technological and vocational education landscape, understanding the influence of research skills on lecturers' career development is essential for improving academic quality, promoting staff motivation, and enhancing institutional productivity.

The findings of this study will be beneficial in several ways. Firstly, for OTM lecturers, it will provide evidence-based insight into how specific research skills contribute to their career progression, helping them identify and strengthen the competencies that most enhance professional growth. Secondly, for polytechnic management and human resource departments, the study will guide the design of targeted training programs and staff development initiatives that emphasize practical research competencies crucial for promotion and institutional performance. Thirdly, for policymakers and educational planners, especially the National Board for Technical Education (NBTE) and state education ministries, the study will offer empirical data to inform the formulation of policies that encourage research productivity and academic excellence within polytechnics. Furthermore, for researchers and scholars, the study will fill a gap in empirical literature by providing a model for understanding the predictive relationship between research skills and career development in practice-based disciplines such as OTM. Ultimately, the study will contribute to the overall improvement of research culture, academic productivity, and career satisfaction among lecturers in Nigerian polytechnics, particularly within the South-East region.

In essence, research skills remain central to the professional growth of OTM lecturers. Their ability to conduct, interpret, and communicate meaningful research not only enhances pedagogical effectiveness but also determines their academic visibility, promotion, and long-term career fulfillment. Understanding how research skills predict career development will therefore contribute to improving both individual and institutional performance within the Nigerian polytechnic system.
The following research questions were answered in the study:

1. What is the regression equation model for predicting Career Development using research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South-East, Nigeria?
2. Which research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) predict career development OTM lecturers in polytechnics in South-East, Nigeria better?
3. What is the collective predictive influence of research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) on career development of OTM lecturers in polytechnics in South-East, Nigeria?

The following null hypotheses were tested at .05 level of significance:

1. The regression equation model for predicting Career Development using research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria is not statistically significant.
2. The research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria do not significantly predict their career development individually.
3. The research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria collectively do not significantly predict their career development

Methods

The study adopted a predictive correlation research design. The population of the study comprised 72 OTM lecturers in six federal and state-owned polytechnics in South-East, Nigeria. The study used a census survey. Data for the study were collected using two structured questionnaires developed by the researcher titled "Research Skills Survey (RSS) and Career Development Questionnaire" (CDQ). The overall index for RSS was 0.96. An index of 0.83 was obtained for CDQ. Univariate outliers of the data were checked by examination of the boxplot value of each variable in the regression equation model. An examination of the boxplot of the scores suggests no potential outliers in the scores in any of the variables.

The assumption of absence of univariate and multivariate normality was also examined. Univariate normality was tested by calculating the skewness and kurtosis value of each variable. A skewness and kurtosis value that is less than 2.00 indicates that the assumption of normality has been met. The skewness statistics of the variables in this study are within the range of −.176 to .204 and kurtosis are within the range of -.244 to -1.207, all within the range of an absolute value below 2.0 suggesting evidence of normality. Multivariate normality was examined using Mardia test for Standardized Kurtosis. A Standardized Multivariate Kurtosis (Std-MK) -1.6179 was found. Therefore, the univariate and multivariate normality was met. To test if the assumption of absence of multicollinearity among the variables was violated, Variance Inflated Factor (VIF) and Tolerance (T) statistics were used. There was no presence of multicollinearity and singularity among the variables in the regression equation model.

Durbin Watson statistics was used to test if the assumption of independent errors was violated; the results showed that the value of Durbin Watson statistics is 2.266 less than 4 but greater than zero. Hence the assumption of independent error of observation was met. The assumption of normal distribution error was checked using histogram and normal P-P plot of standardized residuals. Histogram of standardized residuals shows that the assumption of normal distribution of error was met. Furthermore, the Normal P-P plot of standardized residuals data points were not completely off the line, but close. Hence, the errors were normally distributed. The scatter plot of standardized predicted values shows that the data met the assumptions of homogeneity of variance and linearity as the data were distributed above zero in both dimensions and do not show any pattern.

The collected data were analysed using multiple regression. Research questions were answered using Unstandardized (B) coefficient, standardized regression weight (beta coefficient), adjusted R square

and R change, while the hypotheses were tested at .05 level of significance using F test and t-test of beta coefficient.

Results

Research question 1: what is the regression equation model for predicting Career Development using research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria?

To answer research question 1, career development was regress on questions formulation, literature review, methodology design, data collection, data analysis and communication of findings research skills of OTM lecturers in polytechnics in South East, Nigeria lecturers through multiple regression via standard method. The unstandardized estimate from the analysis was used to build regression model for the study.

The regression model (Y= a + bX1 +cX2 + dX3 + eX4 + fX3 + gX4) for the prediction of Career Development using research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria can be derived using unstandardized estimate coefficients from Table 1. From the regression model Y represent the dependent variable (career development), X1 to X4 represents the various research skills(questions formulation, literature review, methodology design, data collection, data analysis and communication of findings), letter a represent constant, while letter b to g represent the slope (unstandardized beta co-efficient).

The regression equation model is:

Career Development = 1.324 + .322 (Questions Formulation skill) + 2.485 (literature Review skill) + .379 (methodology design skill) + .314 (data collection skill) + 3.830 (data analysis skill) + .301 (communication of findings skill).

The regression equation model shows that a unit change in questions formulation skill will results to .322 increases in career development, a unit change in literature review skill will results to 2.485 increases in career development of OTM lecturers in polytechnics in South East, a unit change in methodology design skill will results to .379 increases in career development, a unit change in data collection skill will results to .314 increases in career development, a unit change in data analysis skill will results to 3.830 increases in career development, while a unit change in communication of finding will results to .301 increase in career development.

Table 1. Predictive influence of research skills on career development of OTM lecturers in polytechnics in South East, Nigeria.

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
(Constant)	1.324	4.611		.287	.775		
Questions formulation	.322	.091	.344	3.530	.001	.530	1.887
Literature review	2.485	2.118	.087	1.173	.245	.924	1.082
Methodology Design	.379	.205	.135	1.851	.069	.949	1.054
Data Collection	.314	.101	.323	3.116	.003	.467	2.141
Data Analysis	3.830	1.563	.201	2.450	.017	.749	1.335
Communication Findings	.301	.110	.269	2.730	.008	.516	1.936

a. Dependent Variable: Career Development. R=.827 , R^2 =.683, Adjusted R^2= .653, F (6, 63)= 22.66, p<.001,Std. Error of Estimate=5.648, Durbin Watson=2.266.

Hypothesis 1: the regression equation model for predicting Career Development using research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria is not statistically significant.

To test hypothesis 1, the F test obtained from regressing career development on questions formulation, literature review, methodology design, data collection, data analysis and communication of findings research skills of OTM lecturers in polytechnics in South East, Nigeria through multiple regression was used. Predictive influence of research skills on career development of OTM lecturers in polytechnics in South East, Nigeria Table 1.

The result in Table 1 shows that the regression equation was significant F (6, 63) =22.66, p<.05. This implies that at least one of the research skills significantly predicted the career development of OTM lecturers in polytechnics in South East, Nigeria. In other words, the regression equation model for predicting Career Development using research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria was adequate and satisfactory.

Research Question 2: which of the research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) predict career development OTM lecturers in polytechnics in South East, Nigeria better?

To answer research question 2, standardized estimate of regressing career development on questions formulation, literature review, methodology design, data collection, data analysis and communication of findings research skills of OTM lecturers in polytechnics in South East, Nigeria lecturers through multiple regression was used. Looking at the result in Table 1, it is observed that the beta coefficient for questions formulation skill score is .344, thus for every one standard deviation increase in questions formulation skill scores, career development score increases by .344 standard deviation. On the other hand, the standardized beta coefficients for literature review is .087, indicating that for every one standard deviation increase in literature review score, career development score increases by .087 standard deviation, a standardized beta coefficients for methodology design is .135, indicating that for every one standard deviation increase in peer-assessment score, career development score increases by .135 standard deviation, a standardized beta coefficients for data collection is .325, indicating that for every one standard deviation increase in data collection score, career development score increases by .325 standard deviation, a standardized beta coefficients for data analysis skill is .201, indicating that for every one standard deviation increase in data analysis score, career development score increases by .201 standard deviation, while a standardized beta coefficients for communication of findings skill is .269 , indicating that for every one standard deviation increase in communication of findings skill, career development score increases by .269 standard deviation. From the result, it is seen that questions formulation skill is most responsible for the prediction of career development scores followed by data collection skill, communication finding skill, data analysis skill, methodology design skill and literature review skill based on standardized beta coefficients of the model.

Hypothesis 2: The research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria do not significantly predict their career development individually.

To test the significant predictive influence of each research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) on career development of OTM lecturers in Polytechnics in South East, the t-test of beta coefficient' was used. Again the results in Table 1 shows that questions formulation skill is a significant predictor of career development scores of OTM lecturers in polytechnics in South East, t(2, 68) = 3.530, p < .05; data collection skill is a significant predictor of career development scores of OTM lecturers in polytechnics in South East, t(2, 68) = 3.116, p < .05; data analysis skill is a significant predictor of career development scores of OTM lecturers in polytechnics in South East, t(2, 68) = 2.450, p < .05; Communication finding skill is a significant predictor of career development scores of OTM lecturers

in polytechnics in South East, t(2, 68) = 4.329, p < .05; However, literature review skill is not a significant predictor of career development scores of OTM lecturers in polytechnics in South East, t(2, 68) = 1.173, p >.05; and Methodology design skill is not a significant predictor of career development scores of OTM lecturers in polytechnics in South East, t(2, 68) = 2.730, p >.05;

Research Question 3: What is the collective predictive influence of research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) on career development of OTM lecturers in polytechnics in South East, Nigeria?

To answer research 3, career development was regressed on questions formulation, literature review, methodology design, data collection, data analysis and communication of findings research skills of OTM lecturers in polytechnics in South East, Nigeria. The adjusted R square of regression model was used to answer research 3. Table shows that using questions formulation, literature review, methodology design, data collection, data analysis and communication of findings research skills of OTM lecturers in polytechnics in South East, Nigeria as predictors of career development scores yielded an adjusted R square of .653, Standard Error of 5.648 and Durbin Watson of 2.266. This shows that the six predictors accounted for 65.3% of the variance career development scores. According to Cohen d (1988) guidelines, this indicate large effect.

Hypothesis 3: The research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria collectively do not significantly predict their career development.

To test the collective significant predictive influence of research skills on career development of OTM lecturers in polytechnics in South East, the F test of the regression model was used. Again, results in Table 1 shows that collective predictive influence of research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria was statistically significant F (6,63) =22.66, p<.05.

Discussions

The study revealed that the regression equation model is statistically significant. The regression model for the study is expressed as: **Career Development = 1.324 + 0.322(Question Formulation Skill) + 2.485(Literature Review Skill) + 0.379(Methodology Design Skill) + 0.314(Data Collection Skill) + 3.830(Data Analysis Skill) + 0.301(Communication of Findings Skill**). This model revealed the predictive power of various research skills on the career development of Office Technology and Management (OTM) lecturers in South East Nigeria. Each coefficient represents the contribution of a specific research skill to the overall career development of lecturers, holding other factors constant. The positive intercept value of **1.324** implies that even in the absence of measurable research skills, OTM lecturers still experience a minimal baseline level of career development. This may reflect institutional promotions based on years of service, teaching performance, or administrative duties. However, the coefficients of the predictor variables show that improvements in research competencies significantly enhance career advancement beyond this baseline. The positive coefficients of all six predictors show that improvements in any research skill substantially enhance career growth. This aligns with the findings of **Arikwandu (2024),** who reported that research competence is a significant determinant of academic career mobility in Nigerian polytechnics. The probable reasons for similar findings could be attributed to use of similar method of data analysis and target population in the studies

The findings indicate that all six research skill components positively predict career development, suggesting that lecturers who demonstrate greater competence in any of these areas are more likely to advance in their academic careers. **Question Formulation Skill (β = 0.322) show a** modest yet positive contribution of question formulation skills suggests that lecturers who can identify researchable problems are more likely to initiate meaningful studies that contribute to their

professional visibility. As noted by **Adebayo and Ojo (2021),** clarity in defining research problems fosters originality and enhances the potential for publication, which is a major career progression criterion. However, the relatively low coefficient implies that question formulation must be supported by other competencies such as data analysis and writing to yield tangible career outcomes.

Literature Review Skill (β = 2.485) shows a strong positive relationship with career development, indicating that mastery in reviewing existing literature is one of the most crucial skills for OTM lecturers. A well-conducted literature review helps identify knowledge gaps, strengthen theoretical frameworks, and improve the overall quality of academic writing. According to **Azih (2016)** and **Eze and Okeke (2022)**, lecturers with strong literature review competence tend to produce higher-quality research and secure promotions faster. The large coefficient also supports the human capital perspective that investments in analytical and cognitive skills yield measurable professional returns. The probable reasons for similar could be that the studies were conducted in the same geopolitical zone.

Methodology Design Skill (β = 0.379) which is the ability to design robust research methods contributes moderately to career development. Lecturers who understand methodological principles can design studies that are credible and publishable, thereby enhancing their academic visibility. **Mohammed (2023)** observed that poor methodological design is a major reason for the rejection of manuscripts from Nigerian scholars. However, the relatively smaller coefficient compared to other skills suggests that methodology functions as a necessary but not sufficient condition for career progression.

Data Collection Skill (β = 0.314) although shows a smaller effect, it remains positively linked to career growth. The result implies that lecturers who can gather accurate and reliable data are better positioned to produce empirical research outputs. The modest influence may reflect structural challenges such as inadequate funding, limited fieldwork support, or insufficient institutional facilities, as documented by **Enyi and Nwosu (2022)**. Nonetheless, effective data collection underpins all other stages of research and remains vital for research credibility.

Data Analysis Skill (β = 3.830) is the **strongest predictor** of career development in this model. The large coefficient indicates that proficiency in using analytical tools such as SPSS, Excel, and Access significantly increase lecturers' research output and visibility. This finding corroborates **Mohammed (2023)** and **Nwafor and Chukwuma (2021)**, who reported that data analysis competence strongly correlates with research productivity and promotion among Nigerian polytechnic lecturers. It also supports the **Social Cognitive Theory (Bandura, 1986)**, which posits that individuals perceived self-efficacy—such as confidence in data analysis—drives persistent engagement and successful outcomes in research activities. The probable reasons for similar findings could be the use of similar method of data collection and analysis in the studies.

Communication of Findings Skill (β = 0.301) which is the ability to communicate research findings through publications, conferences, and workshops also positively predicts career advancement. Lecturers who can disseminate research outputs effectively gain recognition, visibility, and opportunities for collaboration. However, its modest coefficient implies that while communication is important, its effect depends on the quality of underlying research work. **Eze (2020)** similarly emphasized that effective dissemination amplifies the career impact of research productivity. The probable reasons for similar could be that the studies were conducted in the same geopolitical zone.

The collective predictive roles of research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) on career development of OTM lecturers in polytechnics in South East, Nigeria is statistically significant. The statistical significance implies that the collective contribution of the independent variables (research skills) to career development is not due to chance. It suggests a genuine, positive relationship between research competence and professional advancement. The significance level (typically $p < .05$) confirms that research skills as a group have a meaningful predictive power over lecturers' career outcomes. This result reinforces the conceptual expectation that research competence serves as a key determinant of professional growth in higher education institutions.

The statistical significance of the regression model means that the six research skill components jointly account for a substantial proportion of the variance in career development among

OTM lecturers. This demonstrates that these skills do not operate in isolation but interact synergistically to shape lecturers' professional outcomes. When lecturers possess strong abilities in identifying researchable problems, reviewing relevant literature, designing sound methodologies, collecting and analyzing data, and effectively communicating findings, they are more likely to excel academically and professionally. This pattern of results suggests that career development in the polytechnic system is increasingly research-driven. While teaching and administrative duties remain important, career advancement is largely tied to research output and publication performance. Therefore, lecturers with well-rounded research competence are better positioned to meet institutional promotion criteria and gain professional recognition.

The result of a statistically significant regression model corresponds with findings from prior Nigerian studies. Adebayo and Ojo (2021) found that research competence significantly predicted lecturers' career progression and publication output in universities. Eze and Okeke (2022) similarly reported that research training and methodological proficiency were strong predictors of professional advancement among lecturers in vocational disciplines. In the context of polytechnics, Mohammed (2023) observed that research capability was the most important factor distinguishing between promoted and non-promoted staff. These consistent findings confirm that research competence is a universal driver of academic career growth, not limited by discipline or institutional type. The probable reasons for similar findings could be that the studies were conducted in the same country. Also, it could be as a result of similar method of data collection and data analysis from similar target population.

Moreover, Azih (2016) emphasized that lecturers' inability to conduct high-quality research due to skill gaps in data analysis and communication limits their publication success and consequently slows their promotions. Thus, the current study's significant model further validates the argument that the development of comprehensive research skills directly impacts lecturers' ability to meet institutional benchmarks for career advancement.

Conclusion

The study revealed that research skills (questions formulation, literature review, methodology design, data collection, data analysis and communication of findings) of OTM lecturers in polytechnics in South East, Nigeria collectively significantly predict their career development. The six predictors accounted for 65.3% of the variance career development scores.

The study supports Social Cognitive Career Theory (SCCT) by demonstrating that lecturers' skill acquisition and research competence significantly influence their career progression. Based on these findings, it is evident that targeted training, institutional support, and mentorship programs are essential in enhancing OTM lecturers' research capabilities and their career success.

Recommendations

The following recommendations are made:

1. Management of polytechnics should organize specialized workshops on research question formulation and data collection, as these were the most significant predictors of career development.
2. Senior academics and research experts in polytechnics should serve as mentors to early-career lecturers to enhance their research skills, particularly in areas such as formulating quality research questions, identifying funding opportunities, and publishing in reputable journals.
3. Polytechnic management should provide financial incentives, research grants and reduced teaching workloads, and to encourage lecturers to engage in quality research.

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