

# Digital Competence and Career Progression of Female Academics in Universities in Rivers State

Patience Ogechi Owen-Amadi

Department of Educational Management, Faculty of Education, University of Port Harcourt, Rivers State – Nigeria.

Corresponding Author: Patience Ogechi Owen-Amadi

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## ABSTRACT

The study investigated digital competence and career progression of female academics in universities in Rivers State. Three research questions were answered and three hypotheses tested in the study. The study adopted a correlation survey design targeting all 1,806 female lecturers in Rivers State's three public universities. A stratified random sample of 327 lecturers was selected, with 317 valid responses collected via two structured questionnaires: the "Digital Competence Questionnaire" (15 items) and the "Career Progression Questionnaire" (10 items), using a four-point Likert scale. Instruments were validated by three Measurement and Evaluation experts and demonstrated high reliability (DCQ = 0.88, CPQ = 0.81). Data were analyzed using Pearson Product Moment Correlation and t-tests associated with simple regression at a 0.05 significance level. Digital literacy showed a moderate positive correlation with career progression ( $r = 0.447$ ), digital communication a strong positive correlation ( $r = 0.676$ ), and digital creativity a very strong positive correlation ( $r = 0.855$ ). Hypothesis testing confirmed that all relationships were statistically significant ( $p < 0.05$ ). The results indicate that while foundational digital skills support professional growth, digital communication facilitates visibility and networking, and digital creativity most powerfully predicts

career advancement through innovative teaching, research output, and leadership attainment. It was concluded that digital competencies significantly influence female academics' career progression, with creativity being the most decisive factor. The study recommended that universities should provide targeted digital skills training, mentorship, and resources to enhance female lecturers' digital creativity, communication, and literacy, thereby promoting equitable academic advancement.

**Keywords:** Digital Competence, Career Progression, Females, Lecturers, Universities

## INTRODUCTION

Female academics constitute a cornerstone of the workforce within Higher Education Institutions (HEIs), playing a pivotal role in research, teaching, and administrative leadership. However, the contemporary academic landscape is undergoing a profound technological revolution, driven by the rapid integration of ICT and digital tools into every facet of university's operations. For female lecturers, this digital shift presents a pathway to global visibility and a potential barrier to professional advancement (Bond et al., 2020).

Central to navigating this landscape is the level of the teacher's digital competence which is defined as the optimal and strategic use of digital technology to achieve

professional goals. On the other hand, career progression represents the upward trajectory of an individual's professional life which encompasses promotions to increased influence as well as the mechanisms by which digital mastery facilitates this growth which remains complex (Basilotta-Gómez-Pablos et al., 2022). As universities transition into technology-driven workspaces, understanding how digital proficiency translates into tangible career milestones for women has become a priority for educational stakeholders.

Despite the increasing presence of women in university education, persistent barriers often hinder their ascent to senior professorial and administrative roles. In the current era of digital transformation, it remains unclear how the varying levels of digital proficiency among female academics specifically impact their career trajectories. It is believed that technological adeptness enhances productivity, but the empirical link between specific digital skills and professional promotion is insufficiently captured in research (Viberg et al., 2020).

Furthermore, the extent to which digital competence contributes to overcoming systemic barriers for female lecturers remains an underexplored issue. If female academics lack the necessary digital support or skills, they risk being marginalized in an increasingly automated and data-driven university environment (Maderick et al., 2022). There is, therefore, a critical need to investigate how digital literacy, communication, and creativity serve as catalysts for or impediments to the career progression of female academics in the university system.

### **PURPOSE OF THE STUDY**

The aim of the study was to investigate digital competence and career progression of female academics in Universities in Rivers State. The specific objectives of the study were to:

1. find out the relationship between digital literacy and career progression of female

academics in Universities in Rivers State

2. examine the relationship between digital communication and career progression of female academics in Universities in Rivers State
3. determine the relationship between digital creativity and career progression of female academics in Universities in Rivers State

### **RESEARCH QUESTIONS**

The following research questions were answered in the study:

1. What is the relationship between digital literacy and career progression of female academics in Universities in Rivers State?
2. What is the relationship between digital communication and career progression of female academics in Universities in Rivers State?
3. What is the relationship between digital creativity and career progression of female academics in Universities in Rivers State?

### **HYPOTHESES**

The following hypotheses were tested at 5% level of significance:

**H<sub>01</sub>:** There is no significant relationship between digital literacy and career progression of female academics in Universities in Rivers State

**H<sub>02</sub>:** There is no significant relationship between digital communication and career progression of female academics in Universities in Rivers State

**H<sub>03</sub>:** There is no significant relationship between digital creativity and career progression of female academics in Universities in Rivers State

### **LITERATURE REVIEW**

Existing literature surrounding academic advancement increasingly identifies digital competence as a multidimensional construct essential for institutional success. Digital literacy serves as the fundamental layer of

competence, encompassing the ability to find, evaluate, and compose information through various digital platforms. For female academics, digital literacy is no longer an optional skill but a prerequisite for research efficiency and data management. Scholars argue that lecturers who possess high levels of digital literacy are better equipped to navigate global research databases and utilize complex analytical software, thereby increasing their publication output as a primary metric for career advancement (Spante et al., 2018).

Beyond basic literacy, digital communication facilitates the networking and collaborative efforts essential for modern scholarship. In an era where "publish or perish" is supplemented by "network or vanish," the ability to use digital tools for global collaboration, social media dissemination, and virtual conferencing is vital. For female academics, who may often face domestic time poverty, digital communication tools offer a flexible means to maintain professional visibility and engage in international research communities, directly influencing their opportunities for mentorship and promotion (Skaalvik & Skaalvik, 2017).

Furthermore, the connection between digital creativity and career progression is becoming increasingly essential for the success of university education. Digital creativity involves the ability to design innovative digital content, from multimedia instructional materials to novel digital research methodologies. As HEIs transition toward hybrid and innovative learning models, female lecturers who demonstrate digital creativity often distinguish themselves as leaders in pedagogical innovation (He & Li, 2023). This creative edge not only improves student outcomes but also positions the academic as an indispensable asset to the university's strategic digital goals, ultimately smoothing the path toward senior leadership roles.

Empirically, different scholars have reported differently about the connection between digital competencies and university

administration in different ways. The study by Owo and Ajie (2020) investigated the perception of educational stakeholders on utilization of e-learning technology for quality instructional delivery in universities in Rivers State, Nigeria. The study adopted a descriptive survey research design. The population consisted of all lecturers and students in three selected universities in Rivers State, with a sample of 300 lecturers selected using a stratified random sampling technique. The instrument for data collection was a structured 4-point Likert scale questionnaire titled "E-learning Utilization and Instructional Delivery Questionnaire (EUIDQ)." Data were analyzed using Mean and Standard Deviation for research questions and z-test for hypotheses. The findings revealed that digital literacy skills significantly enhance the ability of lecturers to deliver quality instruction and engage in research, which are critical precursors to career promotion and academic progression.

The study by Wordu and Akpomie (2021) focused on digital skills development and job performance of university lecturers in South-South, Nigeria. The study utilized an ex-post facto research design. The population included 7,107 academics across federal universities in the region, with a sample size of 710 lecturers selected through multi-stage sampling. Data were collected using a validated instrument, the "Digital Skills and Academic Performance Questionnaire (DSAPQ)." Analysis was conducted using Pearson Product Moment Correlation (PPMC). The findings indicated a strong positive relationship between digital literacy and academic productivity. Specifically for female academics, proficiency in digital research tools directly correlated with higher publication rates and faster career advancement.

On the other hand, Falola et al., (2022) conducted an empirical investigation of e-learning opportunities and faculty engagement in Nigerian universities focusing on the moderating role of demographic characteristics. The study

employed a descriptive survey design. The population comprised faculty members across various Nigerian universities, including those in the South-South (Rivers State), with a sample of 422 academics. Data were collected via an electronic questionnaire and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings established that digital communication tools such as virtual collaboration platforms significantly moderate the relationship between faculty effort and administrative success. For female academics, these tools were found to bridge the gap in research collaboration, leading to increased visibility and improved chances of promotion.

On the other hand, Nwosu and Adedokun (2021) investigated the impact of gender and teaching experience on lecturers' competence in the use of learning management systems in higher education in Nigeria. The research adopted a correlational research design. The study sampled 341 lecturers from Nigerian universities using a stratified sampling technique to ensure gender representation. The instrument used was the "Lecturers' Digital Competence Scale (LDCS)." Data were analyzed using Independent Samples t-test and ANOVA. The results showed that while male lecturers initially showed higher usage rates, female lecturers who effectively utilized digital communication tools for student-faculty interaction and peer collaboration experienced higher levels of job satisfaction and professional recognition, which are essential for career upward mobility.

Furthermore, Ogegbo and Tijani (2021) carried out an assessment of female university students' and staff digital competence focusing on the potential implications for higher education in Africa. The study adopted a descriptive survey design. The sample included 100 female participants from Nigerian universities. The research instrument was a modified "Digital Competence Assessment Tool" that measured content creation and digital

innovation. Data analysis was performed using Chi-square and descriptive statistics. The study found that female academics with high levels of digital creativity, specifically in digital content creation and innovative pedagogy which were more likely to achieve expert status in their fields, leading to leadership roles such as Deanship and Head of Department positions.

On the other hand, Adebayo and Onuoha (2023) investigated digital content creation skills and job performance of academics in federal universities in South-South, Nigeria. The study utilized an ex-post facto research design. The population consisted of all 7,107 academics in the region, with a focus on gender-based differences. A sample of 700 lecturers was used. The data collection instrument was the "Digital Content Creation and Performance Scale (DCCPS)." Data were analyzed using Independent Samples t-test. The findings revealed that digital creativity significantly predicts job performance. It concluded that female academics who possess the skills to create and modify digital research content are better positioned to meet the global standards required for professorial promotion in the 21st-century university system. These studies established the important role that digital technology plays in the process of teaching and learning and the improvement of service delivery for different university stakeholders.

## **METHODS**

This study employed a correlation survey design as the study sought to investigate the relationship between the dependent and independent variables of the study. Population of the study was all the 1,806 female lecturers in the three public universities in Rivers State and using the Taro Yamane minimum sample size determination formula, a sample size of 327 female lecturers were sampled for the study and a stratified random sampling technique across universities and departments was employed to select the respondents accordingly. The research instrument

utilized for data collection was a 15-item questionnaire titled “Digital Competence Questionnaire” (DCQ) which was used to collect data on the independent variable of the study and another instrument named “Career Progression Questionnaire” (CPQ) which contained 10 questionnaire items and was used to gather data on the dependent variable of the study. The instruments were structured into Section A, for demographic information collection, and Section B, which contained the items organized on a four-point modified Likert scale (Strongly Agree = 4, Agree = 3, Disagree = 2, and Strongly Disagree = 1). The questionnaires were subjected to face and content validation by three experts in Measurement and Evaluation at the University of Port

Harcourt, while the reliability of DCQ was 0.88 and that of CPQ was 0.81 which showed that the instruments were reliable. Out of the 327 copies of questionnaire administered, 317 copies were successfully retrieved and found usable for analysis, representing a 97% retrieval rate. The research questions raised were answered using Pearson Product Moment Correlation Coefficient while the hypotheses were tested at 0.05 level of significance using t-test associated with simple regression.

## RESULTS

**Research Question One:** What is the relationship between digital literacy and career progression of female academics in Universities in Rivers State?

**Table 1: Pearson Product Moment Correlation on the relationship between digital literacy and career progression of female academics in Universities in Rivers State**

		Digital Literacy	Career Progression
<b>Digital Literacy</b>	Pearson Correlation	1	0.447
	Sig. (2-tailed)		0.000
	N	317	317
<b>Career Progression</b>	Pearson Correlation	0.447	1
	Sig. (2-tailed)	0.000	
	N	317	317

Table 1 reveals that there is a moderate positive relationship between digital literacy and the career progression of female academics in Universities in Rivers State. With a Pearson Correlation coefficient (r) of 0.447, the results suggest that as the digital literacy levels of these female academics improve, there is a corresponding steady increase in their career advancement. This indicates that while digital literacy is a

helpful factor in professional growth, it works alongside other institutional and personal variables to determine the career trajectory of female staff in the region.

**Research Question Two:** What is the relationship between digital communication and career progression of female academics in Universities in Rivers State?

**Table 2: Pearson Product Moment Correlation on the relationship between digital communication and career progression of female academics in Universities in Rivers State**

		Digital Communication	Career Progression
<b>Digital Communication</b>	Pearson Correlation	1	0.676
	Sig. (2-tailed)		0.000
	N	317	317
<b>Career Progression</b>	Pearson Correlation	0.676	1
	Sig. (2-tailed)	0.000	
	N	317	317

Table 2 indicates a strong positive relationship between digital communication

and the career progression of female academics. The correlation coefficient (r) of

0.676 shows a robust link, implying that the ability to effectively share information, collaborate online, and manage digital interactions plays a significant role in how female academics move up the professional ladder. This suggests that communication skills in the digital age are a vital asset for female scholars seeking leadership or

higher-ranking positions in Rivers State universities.

**Research Question Three:** What is the relationship between digital creativity and career progression of female academics in Universities in Rivers State?

**Table 3: Pearson Product Moment Correlation on the relationship between digital creativity and career progression of female academics in Universities in Rivers State**

		Digital Creativity	Career Progression
<b>Digital Creativity</b>	Pearson Correlation	1	0.855
	Sig. (2-tailed)		0.000
	N	317	317
<b>Career Progression</b>	Pearson Correlation	0.855	1
	Sig. (2-tailed)	0.000	
	N	317	317

The findings in Table 3 demonstrate a very strong positive relationship between digital creativity and career progression among female academics. The high correlation coefficient (r) of 0.855 signifies that digital creativity which refers to the ability to innovate, design, and produce original digital content is the most influential of the three variables studied. This implies that female academics who excel in creative

digital problem-solving and content creation are significantly more likely to experience rapid and substantial career growth within their respective institutions.

**Hypothesis One:** There is no significant relationship between digital literacy and career progression of female academics in Universities in Rivers State

**Table 4: t-test associated with simple regression of no significant relationship between digital literacy and career progression of female academics in Universities in Rivers State**

Variable	n	r	t-value	df	Sig. (2-tailed)	Decision
Digital Literacy & Career Progression	317	.447	8.851	315	.000	Reject

Table 4 show that the null hypothesis is rejected. The analysis yielded a t-value of 8.851 with a significance level (p-value) of .000, which is less than the alpha level of 0.05. This confirms that there is indeed a significant relationship between digital literacy and the career progression of female academics in Universities in Rivers State. Consequently, it was concluded that the

influence of digital literacy on career advancement is not due to chance but is a statistically verified reality for the study group.

**Hypothesis Two:** There is no significant relationship between digital communication and career progression of female academics in Universities in Rivers State

**Table 5: t-test associated with simple regression of no significant relationship between digital communication and career progression of female academics in Universities in Rivers State**

Variable	n	r	t-value	df	Sig. (2-tailed)	Decision
Digital Communication & Career Progression	317	.676	16.324	315	.000	Reject

The results in Table 5 lead to the rejection of the null hypothesis. The calculated t-

value of 16.324 and a significance level of .000 indicate that the relationship between

digital communication and career progression is statistically significant. This result provides strong evidence that the digital communication skills of female academics in Rivers State are meaningful predictors of their professional success, making it clear that these skills are essential

for institutional growth and individual promotion.

**Hypothesis Three:** There is no significant relationship between digital creativity and career progression of female academics in Universities in Rivers State

**Table 6: t-test associated with simple regression of no significant relationship between digital creativity and career progression of female academics in Universities in Rivers State**

Variable	n	r	t-value	df	Sig. (2-tailed)	Decision
Digital Creativity & Career Progression	317	.855	29.352	315	.000	Reject

Table 6 shows that the null hypothesis is rejected because the significance level of .000 is well below the 0.05 threshold. With a very high t-value of 29.352, the data proves there is a highly significant relationship between digital creativity and career progression. This confirms that digital creativity is a powerful driver of professional advancement for female academics, and the strength of this statistical evidence supports the prioritization of creative digital training in universities.

## DISCUSSION

The study reveals that digital competencies play a decisive role in shaping the career progression of female academics in universities in Rivers State. The analysis of the three key dimensions which are digital literacy, digital communication, and digital creativity shows varying degrees of influence, but all point to a consistent conclusion that digital competence is no longer optional but central to academic advancement in contemporary university systems. With respect to digital literacy, the findings indicated a moderate positive relationship between digital literacy and career progression. This suggests that as female academics improve their ability to use digital tools for teaching, research, and general academic tasks, their chances of career advancement increase steadily. However, the moderate strength of the relationship implies that digital literacy alone is not sufficient to guarantee rapid career progression; it operates alongside other institutional and personal factors such

as experience, research opportunities, mentorship, and organizational support. The result of the hypothesis test further strengthens this position, as the significant confirms that the relationship is statistically meaningful and not due to chance.

This finding aligns with the study by Owo and Ajie (2020), which established that digital literacy enhances instructional delivery and research engagement among lecturers. Their conclusion that digital skills serve as a foundation for academic productivity supports the present result that digital literacy contributes to career progression. Similarly, Wordu and Akpomie (2021) found a strong positive relationship between digital literacy and academic productivity, particularly highlighting its role in research output and promotion. However, while their study suggests a stronger influence of digital literacy, the current finding presents a more moderate effect, thereby slightly moderating their claim by showing that digital literacy is important but not the sole determinant of career advancement. This difference may be attributed to contextual variations or the inclusion of other stronger digital variables such as communication and creativity in the present study.

In terms of digital communication, the study reveals a strong positive relationship with career progression. This indicates that the ability of female academics to effectively communicate, collaborate, and engage through digital platforms significantly enhances their professional visibility and advancement. The high t-value further

confirms that this relationship is statistically significant. This result suggests that beyond basic digital literacy, the interactive and collaborative aspects of digital engagement are more directly linked to career growth. This finding strongly supports the work of Falola et al. (2022), who found that digital communication tools such as virtual collaboration platforms significantly enhance faculty engagement and administrative success. Their conclusion that such tools improve research collaboration and visibility among female academics is consistent with the present study's finding that digital communication has a strong influence on career progression. In the same vein, Nwosu and Adedokun (2021) observed that female lecturers who effectively utilized digital communication tools experienced higher job satisfaction and professional recognition. This corroborates the current result by showing that digital communication not only improves performance but also enhances recognition, which is a critical factor in promotion and career advancement. Therefore, the present study reinforces existing empirical evidence by demonstrating that digital communication serves as a key driver of academic mobility and leadership opportunities.

More importantly, the findings on digital creativity presents the most striking outcome of this study. With a very strong positive correlation, digital creativity emerges as the most influential factor in determining the career progression of female academics. The extremely high t-value further confirms the robustness of this relationship. This implies that female academics who are able to innovate, create digital content, and apply creative problem-solving in their academic work are significantly more likely to experience rapid and substantial career growth. This result is strongly supported by Ogegbo and Tijani (2021), who found that female academics with high levels of digital creativity were more likely to attain expert status and occupy leadership positions such as Head of

Department and Dean. Their emphasis on digital content creation and innovation as pathways to academic leadership directly aligns with the present finding. Similarly, Adebayo and Onuoha (2023) concluded that digital content creation skills significantly predict job performance and position academics for global competitiveness and professorial promotion. The current study not only supports these findings but extends them by demonstrating that digital creativity has a stronger influence on career progression than both digital literacy and digital communication.

The implication of this hierarchy of influence is quite significant. While digital literacy provides the foundational skills and digital communication enhances collaboration and visibility, digital creativity represents the highest level of competence that directly translates into measurable academic outputs such as innovative research, high-quality publications, and impactful teaching methods. These outputs are critical criteria for promotion in university systems, thereby explaining the very strong relationship observed in this study. The findings of this study are in strong agreement with the broader body of empirical literature, although they provide a more nuanced understanding of the relative importance of different dimensions of digital competence. While previous studies have largely treated digital skills as a unified construct, the present study disaggregates these competencies and demonstrates that their effects on career progression are not equal, particularly for female academics. Digital creativity stands out as the most powerful predictor, followed by digital communication, and then digital literacy.

## **CONCLUSION**

The study concluded that digital competencies significantly influence the career progression of female academics in Rivers State, with each dimension contributing differently. The shows that digital literacy is important but

foundational, digital communication is strategic and highly impactful, while digital creativity is transformative and serves as the strongest driver of academic advancement.

### Recommendations

The following recommendations are based on the findings of this study, therefore:

1. There is need for university administrators to provide adequate training on the use of digital tools for female academics in these universities in order to promote their academic growth
2. Adequate digital tools should be provided at subsidized rate by the government for female academics in order to increase their chances of career progression in these universities.
3. Heads of Departments should ensure that digital mentorship is provided for female academics across different areas of specialization so that junior lecturers can learn contemporary digital competencies from their superior and apply same for their career progression.

### Declaration by Authors

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