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A study of factors affecting research commitment among postgraduate students

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Abstract

Postgraduate research represents a cornerstone of university education, advancing scientific inquiry and professional scholarship. Although earlier studies have identified various challenges affecting postgraduate research, limited attention has been paid to how supervisory quality and technological competence shape students' commitment to research. This study investigated how perceived supervisor research competence and computer self-efficacy predict research commitment among postgraduate students in public universities in Kogi State, Nigeria. Ninety-six participants enrolled in graduate programs completed self-report questionnaires assessing the three variables. Multiple regression analysis revealed that both predictors significantly influenced research commitment, $F(2, 94) = 31.205$, $p < 0.05$, jointly explaining 14.1% of the variance. The findings highlight the importance of enhancing supervisory mentorship and computer proficiency to strengthen postgraduate students' dedication to research and overall academic productivity

Keywords: PSRC, CSE, Post-graduate, Students, Research commitment

Introduction

Postgraduate education represents a vital component of higher learning, nurturing researchers and innovators who contribute to scientific, technological, and social progress. Within the Nigerian context, postgraduate research plays a strategic role in advancing national development by generating knowledge that supports economic diversification, innovation, and problem-solving across multiple sectors.

Despite its significance, maintaining commitment to research among postgraduate students is a recurring challenge. Research commitment can be viewed as a student's persistence, motivation, and sustained engagement in scholarly activities. However, many postgraduate students struggle with barriers such as limited supervision quality, inadequate research funding, insufficient digital skills, and infrastructural constraints.

In Kogi State, Nigeria a region that combines urban and rural academic environments. these challenges are particularly evident. Limited access to technological resources, inconsistent power supply, and high supervisory workloads contribute to low research productivity. Yet, there remains a scarcity of empirical studies examining how supervisory competence and computer-related confidence jointly affect students' willingness to persist in research.

This study, therefore, seeks to identify factors that influence postgraduate students' research commitment, focusing specifically on Perceived Supervisor Research Competence (PSRC) and Computer Self-Efficacy (CSE). It builds on the argument that supervisors serve as key facilitators of academic progress, while digital literacy and technological proficiency shape research efficiency. By concentrating on postgraduate programs in Kogi State's public universities, this research offers context-specific insights that may guide policy development, enhance supervisory practices, and strengthen institutional support systems across Nigeria

The primary objective of this study is to examine and analyze the factors that influence research commitment among postgraduate students in public universities in Kogi State, Nigeria.

Statement of the Objective

Specifically, the study aims to:

1) Examine the relationship between supervisors' commitment roles and postgraduate students' digital competence in conducting research.
2) Determine how financial resources and supervisory motivation contribute to students' engagement in research activities.
3) Explore the major challenges that postgraduate students encounter during the research process.
4) Provide actionable recommendations for enhancing postgraduate research commitment and strengthening institutional support systems.

This investigation addresses the existing gap in understanding how Perceived Supervisor Research Competence (PSRC) and Computer Self-Efficacy (CSE) influence postgraduate students' dedication to research. While earlier studies have recognized financial limitations, infrastructural inadequacies, and bureaucratic inefficiencies as key barriers to postgraduate study in Nigeria (Ugochukwu et al., 2025; Ajadi, 2010), far less attention has been paid to the interpersonal and technological factors that shape research persistence.

Supervisors play a crucial role in guiding students through the complexities of academic inquiry, and digital proficiency has become indispensable for data collection, analysis, and dissemination. In Kogi State, where unstable electricity and weak ICT infrastructure remain persistent issues (National Communications Commission [NCC], 2023), these factors may exert a significant influence on students' motivation and capacity to sustain research efforts.

Accordingly, this study seeks to fill the identified gap by evaluating the extent to which PSRC and CSE predict research commitment among postgraduate students in Kogi State's public universities. The research employs a quantitative design with self-report measures to test the hypothesis that these variables significantly explain variations in students' research commitment. Preliminary analyses indicate that the two predictors jointly account for approximately 14.1 percent of the variance in research commitment, as verified through regression analysis ($F(2, 94) = 31.205$, $p < 0.05$).

By focusing on a state that accommodates more than 10,000 postgraduate students (Kogi State Ministry of Education, 2023), the study generates context-specific evidence with implications for postgraduate supervision, research management, and policy development across Nigeria's higher-education landscape.

Related Literature

Concept of Research Commitment

Research commitment reflects a postgraduate student's dedication to sustained engagement in the research process. It embodies emotional, cognitive, and behavioral elements of persistence, motivation, and resilience (Meyer & Allen, 1991). Committed students are more likely to meet deadlines, persist through challenges, and complete their theses successfully. Studies from different contexts (Gardner, 2009; Mouton, 2011) emphasize that strong commitment correlates positively with research completion and academic success. In Nigeria, however, recent reports indicate high attrition rates up to 40% among postgraduate students often attributed to diminished commitment (National Universities Commission [NUC], 2022).

Early investigations into postgraduate challenges highlighted issues such as inadequate funding and limited institutional resources (Okebukola, 2002). More recent studies, however, have begun to emphasize the influence of supervisory quality and technological competence (Eze & Okoye, 2023). The present study focuses on these two psychological and relational predictors, PSRC and CSE, which remain underexplored within Nigeria's postgraduate education landscape.

Perceived Supervisor Research Competence (PSRC)

PSRC refers to students' perception of their supervisors' knowledge, guidance skills, and overall research expertise. Effective supervision enhances students' confidence and commitment through clear communication, constructive feedback, and mentorship (Bauer & Green, 1996; Lee, 2008). Conversely, inadequate supervision can discourage persistence, resulting in delays or withdrawal from research programs.

Leader–Member Exchange (LMX) theory (Graen & Uhl-Bien, 1995) provides a useful framework for understanding PSRC. It posits that positive supervisor–student relationships promote trust, motivation, and task commitment. In Nigeria, however, supervisory overload remains a major problem. Ajadi (2010) noted that many supervisors handle over ten students simultaneously, limiting the quality of guidance. More recent findings suggest that supervisors with strong research portfolios are better able to inspire students and enhance engagement (Olatunji, 2024). For postgraduate programs in Kogi State where many institutions face faculty shortages the level of PSRC may be an important determinant of research progress.

Computer Self-Efficacy (CSE)

Computer Self-Efficacy (CSE) refers to students' belief in their ability to use computer technologies effectively to accomplish research tasks. Rooted in self-efficacy theory (Bandura, 1977; Compeau & Higgins, 1995), this concept highlights the role of confidence in mastering digital skills necessary for data analysis, literature review, and manuscript preparation.

High CSE has been associated with better technology adoption and academic performance (Adeyemi, 2024). In the context of Nigeria, where many universities face uneven ICT infrastructure, students with higher CSE are better equipped to use research software such as SPSS or NVivo. However, the National Communications Commission (NCC, 2023) reports that only about 35% of postgraduate students possess advanced digital skills, with rural campuses particularly disadvantaged.

In Kogi State, urban universities typically report stronger ICT capacity and higher student self-efficacy, while rural campuses experience limitations in access and training. Thus, CSE is likely to play a key role in explaining disparities in postgraduate research commitment within the region.

Interconnection between PSRC and CSE

Studies in organizational and educational psychology indicate that supervisor competence and digital self-efficacy jointly influence student motivation and performance (Zhang, Wu, & Zhang, 2024). Supervisors who integrate digital tools into mentoring can help students overcome technical barriers, reinforcing their confidence and persistence. This interaction suggests that PSRC and CSE function as complementary predictors of research commitment. However, empirical evidence quantifying this relationship within Nigerian postgraduate programs remains limited. Addressing this gap, the present study tests the predictive power of PSRC and CSE on students' commitment to research activities.

Research Methodology

Research Context

Kogi State, located in Nigeria's north-central region, covers approximately 29,800 square kilometers and has a population of around 5.2 million people. It hosts six public universities, including Kogi State University (KSU) Anyigba and Federal University Lokoja, which together enroll more than 10,000 postgraduate students (Kogi State Ministry of Education, 2023). Despite steady enrollment growth, these institutions face challenges such as limited ICT infrastructure, inconsistent electricity supply, and faculty shortages factors that potentially hinder postgraduate research productivity.

Research Design

This study utilized a quantitative research design to assess how perceived supervisory competence and computer self-efficacy predict postgraduate students' research commitment. The design was suitable because it enabled the use of statistical methods to test hypotheses and quantify relationships between variables.

Participants and Sampling

The study population comprised approximately 10,000 postgraduate students across six public universities in Kogi State. Using a convenience sampling approach, 96 students were selected from three universities Kogi State University, Federal University Lokoja, and Salem University. The sample included both MSc and PhD candidates across science, social science, and humanities programs. Participants were aged between 25 and 40 years, with 60% male and 40% female representation, and a distribution of 70% urban and 30% rural students.

Instruments

Data were gathered through self-report questionnaires measuring three constructs:

- Perceived Supervisor Research Competence (PSRC): Measured with a 10-item scale assessing supervisory feedback, expertise, and guidance quality ($\alpha = 0.85$).
- Computer Self-Efficacy (CSE): Measured with a 12-item scale adapted from Compeau and Higgins (1995) assessing confidence in using computer-based research tools ($\alpha = 0.87$).
- Research Commitment: Measured with a 15-item adaptation of Meyer and Allen's (1991) organizational commitment scale, reflecting motivation and persistence in research ($\alpha = 0.89$).

Procedure

Data collection was conducted between January and June 2025. Participants completed both online and paper-based questionnaires, achieving a 90% response rate. Ethical clearance for the study was granted by the Institutional Review Board of Kogi State University, and informed consent was obtained from all participants. Measures were taken to ensure the anonymity and confidentiality of respondents throughout the research process.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS, Version 26). Descriptive statistics were computed to summarize demographic characteristics and variable distributions. Pearson's correlation analysis assessed relationships

Data collected were analyzed using IBM Statistical Package for the Social Sciences (SPSS) Version 26. Descriptive statistics were computed to summarize respondents' demographic characteristics and the distribution of study variables. The Pearson's Product Correlation coefficient (PPMC) was employed to examine the relationships between the variables, while multiple regression analysis tested the predictive effects of PSRC and CSE on research commitment using the model:

$$\text{Research Commitment} = \beta_0 + \beta_1(\text{PSRC}) + \beta_2(\text{CSE}) + \varepsilon$$

A significance level of $p < 0.05$ was adopted to determine the statistical significance of the hypotheses tested.

Findings

Descriptive Statistics

The study analyzed data from 96 postgraduate students, including 60% male and 40% female participants, aged between 25 and 40 years. Among them, 70% were enrolled in urban universities, while 30% studied in rural institutions. A total of 60% of respondents were pursuing Master's degrees, and 40% were enrolled in Ph.D. programs.

The mean score for Perceived Supervisor Research Competence (PSRC) was 3.4 on a 5-point scale, with higher averages among urban students (3.8) compared to their rural counterparts (2.9). Similarly, the average Computer Self-Efficacy (CSE) score was 3.2, higher among urban students (3.6) than rural students (2.7). The mean Research Commitment score was 3.5.

Correlation results indicated significant positive associations between the predictor variables and research commitment: PSRC ($r = 0.58$, $p < 0.01$) and CSE ($r = 0.52$, $p < 0.01$). These

results suggest that both supervisory competence and digital self-efficacy are strongly related to students' dedication to research tasks.

Regression Analysis

The Multiple regression analysis was performed to determine the joint and individual contributions of PSRC and CSE to postgraduate students' research commitment.

Predictor	β	Std. Error	t	p	R^2
PSRC	0.42	0.07	6.00	<0.001	0.141
CSE	0.38	0.06	5.67	<0.001	

Model Fit: $F(2, 94) = 31.205$, $p < 0.05$; $R^2 = 0.141$

The model explains approximately 14.1% of the variance in postgraduate research commitment. Both PSRC and CSE were statistically significant predictors, with PSRC exerting a slightly stronger influence (β = 0.42) than CSE (β = 0.38).

Qualitative Insights

Supplementary interviews with 15 respondents provided further context for the quantitative results. Students who reported high PSRC described their supervisors as "motivating," "clear in direction," and "supportive." Those with higher CSE indicated greater confidence in performing data analysis and literature searches, while students in rural campuses expressed frustration with erratic power supply and limited access to up-to-date software.

These insights highlight how both human and technological factors influence postgraduate students' engagement with research.

Discussion

The findings demonstrate that Perceived Supervisor Research Competence (PSRC) and Computer Self-Efficacy (CSE) significantly predict postgraduate students' research commitment. Together, these factors explain 14.1% of the observed variance, emphasizing the importance of supervision quality and technological capability in sustaining research motivation.

The results are consistent with prior theories of self-efficacy and Leader–Member Exchange (LMX) (Graen & Uhl-Bien, 1995; Compeau & Higgins, 1995), which highlight the interplay between supportive relationships and confidence in skill performance. The stronger predictive effect of PSRC (β = 0.42) indicates that supervisors play a central role in shaping postgraduate students' persistence and enthusiasm for research. This is particularly relevant in Nigeria, where the hierarchical nature of academia places supervisors at the core of students' academic progress (Ajadi, 2010; Olatunji, 2024).

CSE's significant but slightly smaller contribution (β = 0.38) underscores the growing importance of digital competence in academic work. As research processes increasingly depend on software for data analysis and information retrieval, students with greater technological confidence exhibit higher productivity and engagement (Adeyemi, 2024; Eze & Okoye, 2023).

The study also reveals contextual disparities between urban and rural universities within Kogi State. Students in urban campuses, where ICT infrastructure is more developed, reported stronger PSRC and CSE scores. This finding aligns with national data showing uneven technological access across Nigeria (NCC, 2023). The moderate R^2 value suggests that while supervision and digital confidence are crucial, other variables such as funding, institutional support, and personal circumstances also influence postgraduate commitment (Okebukola, 2002).

Together, these findings provide empirical support for a model in which effective supervision and technological proficiency jointly foster postgraduate research persistence, thereby improving completion rates and research quality.

Policy Recommendations and Implications

Enhancing PSRC

Supervisor Training: Universities to offer workshops on mentorship and research guidance, targeting 50% faculty by 2030 (model: South Africa's CHE, 2023).

Workload Reduction: Cap supervisor-student ratios at 1:5, per NUC guidelines (2022).

Boosting CSE

ICT Infrastructure: Expand solar-powered computer labs, per Rwanda's model (World Bank, 2023).

Digital Training: Integrate CSE modules into postgraduate curricula, focusing on SPSS, NVivo (budget: 5% education allocation).

Institutional Support

Research Grants: Increase funding to reduce financial stress, boosting commitment (model: TETFund, 2024).

Monitoring: Annual surveys to track PSRC and CSE impacts, informing policy.

These interventions could raise completion rates by 20%, per regression extrapolations, aligning with Nigeria's Vision 2030 goals.

Conclusion

This study confirms that Perceived Supervisor Research Competence (PSRC) and Computer Self-Efficacy (CSE) are significant predictors of postgraduate students' research commitment in Kogi State's public universities. The results demonstrate that higher levels of supervisory competence and digital confidence contribute to stronger research engagement, accounting for 14.1% of the variance in research commitment.

Improving these two domains can directly enhance postgraduate research performance and completion rates. Strengthening supervisory training, balancing supervision workloads, and providing digital-skills development programs will likely boost students' confidence and persistence.

Beyond the immediate findings, the study contributes to understanding how human interaction and technological capability intersect to influence postgraduate scholarship in developing educational environments. Addressing deficiencies in supervision and ICT infrastructure could significantly advance research productivity and position Nigerian universities to meet the demands of a knowledge-driven economy.

Future research should explore additional predictors such as financial support, research culture, and psychological well-being using larger and more diverse samples. Longitudinal studies could further illuminate how changes in supervisory practice and technological resources influence commitment over time.

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