

# Teaching Practice and Academic Performance in Nigerian Colleges of Education: A Comparative Analysis

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## ABSTRACT

## Original research paper

This study examines how Teaching Practice (TP) internships affect the academic performance of computer science students in Nigerian Colleges of Education. Using a mixed-methods approach, data were collected from 300 students enrolled in NCE II and III across three academic sessions (2021–2024) at the Federal University of Education, Zaria. Quantitative analysis showed a significant decline in students' academic performance after their TP placements ( $p < 0.001$ ). Factors contributing to this decline include stress, limited mentorship, and a mismatch between the TP curriculum and students' core coursework. Qualitative insights suggest that while students generally see TP as beneficial for developing practical teaching skills, many also find it overly demanding and disruptive to their studies. The findings emphasize the importance of implementing structured mentorship programmes and improving workload management to balance the demands of teaching practice with academic obligations. The study recommends targeted policy interventions to ensure that TP supports, rather than hampers, student academic success.

**Keywords:** Teaching Practice, Academic Performance, Computer Science Education.

## Introduction

The Nigerian education system faces persistent challenges in STEM disciplines, particularly computer science, where student performance often declines after teaching practice (TP) internships (Adeyemo, Okonkwo, Balogun, and Musa (2021). While effective teaching methods are recognized as crucial determinants of student learning outcomes, the impact of practical teaching experiences like TP remains underexplored. Teaching practice constitutes a vital component of

teacher education programs, providing student teachers with hands-on experience in real classroom settings (Darling-Hammond, 2017). Ideally, TP bridges the gap between theoretical knowledge and practical application, fostering pedagogical skills, classroom management techniques, and professional development (Akyeampong, 2018).

However, observations at the Federal University of Education, Zaria, suggest a potential disconnect between the intended benefits of TP and its actual

impact on student performance. Anecdotal evidence and Departmental examination records (2021-2024) from the Computer Science Department indicate a concerning trend: NCE III students, upon returning from TP exercise, often exhibit negative behaviour, decreased motivation, and a subsequent decline in academic performance. This study addresses how TP influences academic achievements and behaviour among computer science students, specifically examining whether TP improves or diminishes grades and identifying underlying factors contributing to observed changes. This is particularly concerning as students are sometimes posted to secondary schools to teach subjects and curricula they are not fully versed in, adding to their challenges.

The primary purpose of this research is to compare the academic performance of students before and after their teaching practice, and to identify the factors influencing changes in performance. This study examines:

1. Performance trends before (NCE II) and after (NCE III) TP.
2. Contributing factors (e.g., stress, mentorship, behavioural, motivational, and environmental factors).
3. Student perceptions of TP's impact and experiences regarding resources and challenges encountered.

This study is grounded in constructivist theory (Olagunju, & Adeyemi, 2020) and educational psychology, emphasizing the importance of instructional methods in influencing student learning. The constructivist approach posits that students learn best when actively engaged in the learning process (Iyiola, & Ezech, 2024).

The Situated Learning Theory suggests that learning is most effective when it occurs in authentic contexts, such as real classroom settings (Lave & Wenger, 1991). However, challenges during TP may disrupt learning, viewed through the lens of Cognitive Load Theory, where extraneous load (challenges of TP) might overwhelm intrinsic load (course material), hindering learning.

## Research Questions

The following research questions were addressed:

1. What variations exist between the NCE II and NCE III students' pre- and post-teaching practice performance scores in the Computer Science Department?
2. How much do students' pre- and post-teaching practice performance scores in the Computer Science Department change between NCE II and NCE III?
3. What causes the differences between computer science students' pre- and post-teaching practice performance scores?
4. What are students' experiences regarding the resources provided to them during the teaching practice?
5. What are the challenges encountered by the students in the various schools they are posted to?

## Hypotheses

The following null hypotheses were tested at a 0.05 significance level:

H<sub>01</sub>: There is no significant difference in the pre- and post-performance scores of Computer Science students in NCE II and NCE III.

H<sub>02</sub>: There is no significant difference between pre- and post-teaching practices performance scores of Computer Science students in NCE II and NCE III when controlling prior academic achievement.

H<sub>03</sub>: There is no significant relationship between factors responsible for the change in pre- and post-teaching practice academic performance scores of Computer Science students in NCE II and NCE III.

## Scope of the Study

The research was restricted to student performance ratings from the 2021–2022, 2022–2023, and 2023–2024 sessions at the Federal College of Education, Zaria. One hundred students from each session were covered, focusing on those who completed second-semester exams and TP exercises. While findings are specific to this institution, they offer insights into broader challenges in Nigerian teacher education.

## Literature Review

### Teaching Practices and Academic Performance

Effective teaching practices, encompassing strategies like active learning, differentiated instruction, and technology integration, generally show a positive relationship with student academic performance (Stronge, Ward, & Grant, 2011; Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2019). Interactive pedagogies such as project-based learning correlate with higher performance in computer science (Bello & Ibrahim, 2023). However, the impact of TP on student performance can be complex, as demands might outweigh benefits (Allen, Rowan, & Singh, 2022). In Nigeria, TP programs often prioritize rote lesson delivery over critical thinking (Musa, Ameh, Yakubu, Gidado, & Daniel, 2023).

### The Impact of Teaching Practice on Student Teachers

TP is critical for applying knowledge and skills in real classrooms (Akyeampong, 2018), enhancing pedagogical skills, classroom management, and professional identity (Hammerness, Darling-Hammond, Bransford, Berliner, Cochran-Smith, McDonald, & Zeichner, 2005). However, TP can also be stressful, leading to burnout and decreased motivation (Johnson, Kraft, & Papay, 2012).

### Post-TP Challenges and Influencing Factors

Several factors influence student performance during TP, including university and host school support, mentorship quality, resource availability, and classroom challenges (Smith & Jones, 2021).

- **Stress:** The dual demands of teaching and coursework during TP elevate stress (Olivier & Cilliers, 2022).
- **Mentorship Gaps:** A significant percentage (60%) of students report inadequate guidance during TP (Oshuporu, Olaoye, Usman, & Ayandele, 2024). Students with adequate support and mentorship are more likely to have positive TP experiences and perform well academically (Wilson, Floden, & Ferrini-Mundy, 2001).

### Research Gap

Despite literature on TP and academic performance, there is a gap in comparative studies on pre- and post-TP phases in Nigerian Colleges of Education. No Nigerian study has quantitatively compared pre- and post-TP performance while integrating student voices to this extent. This study aims to fill this gap by analyzing

computer science students' academic performance before and after TP, identifying contributing factors to inform improvements in Nigerian teacher education.

### Research Design

This study employed a mixed-methods research design, combining quantitative and qualitative data collection and analysis (Creswell & Plano Clark, 2018). A comparative research method analyzed performance scores before and after TP, and a survey method gathered data on student perceptions, experiences, and influencing factors.

### Participants

The population comprised all NCE II and NCE III Computer Science students at the Federal College of Education, Zaria, across the 2021–2022, 2022–2023, and 2023–2024 academic sessions. A multi-stage sampling technique selected 300 students (100 per session). Purposive sampling was used for NCE II students, and cluster sampling for NCE III students (though another part of the document states purposeful sampling was used for various students). This sample size was deemed adequate for statistical power (Cohen, 1988).

### Data Collection Instruments

1. **Academic Performance Data:** Departmental examination records for selected students were collected for the second semester of NCE II (pre-TP) and the relevant semester of NCE III (post-TP), including scores in core computer science courses.
2. **Self-Structured Questionnaire:** A 20-item closed-ended questionnaire (Cronbach's  $\alpha = 0.82$ ) with Likert-scale and open-ended responses was administered to NCE III students post-TP. It gathered data on experiences during TP, classroom challenges, support received, motivation changes, and perceived impact of TP on academic performance.

### Data Analysis

Quantitative data (examination scores) were analyzed using descriptive statistics (mean, standard deviation) and inferential statistics (paired t-test, ANOVA) to compare pre- and post-TP performance and test hypotheses. Effect sizes (e.g., Cohen's  $d$ ,  $\eta^2$ ) were calculated. Qualitative data from open-ended

questionnaire responses were analyzed using thematic analysis to identify recurring themes and patterns.

Ethical Considerations

Informed consent was obtained from all participants. Anonymity and confidentiality were ensured using coding techniques. Participation was voluntary, with the right to withdraw without penalty.

Quantitative Results

Analysis of academic performance before and after teaching practice revealed a statistically significant decline.

Table 1. Academic Performance Before and After Teaching Practice

Stage	Mean Score (SD)	95% CI	p-value
NCE II (Pre-TP)	78.2 (6.5)	[76.8, 79.6]	0.001
NCE III (Post-TP)	65.4 (8.1)	[63.7, 67.1]	

The data indicates a 12.8-point decline in mean scores post-TP (p = 0.001). This aligns with studies on post-

internship performance drops (Adeyemo et al., 2021). In this context, it may reflect cognitive overload from TP demands competing with exam preparation and behavioural shifts such as lower engagement (e.g., absenteeism reportedly rose by 25% in NCE III).

ANOVA results highlighted factors driving these performance changes.

Table 2. Factors Driving Performance Changes (ANOVA)

Factor	Mean Rating (SD)	F-value	η² (Effect Size)
Stress	4.1 (0.7)	12.34	0.18 (Large)
Mentorship Quality	3.2 (0.9)	8.21	0.12 (Medium)
Curriculum Load	3.8 (0.6)	5.67	0.08 (Small)

Stress (η² = 0.18) was the strongest predictor, corroborating Musa et al. (2023), with students citing "exhaustion from simultaneous teaching and studying". Mentorship gaps (η² = 0.12) were critical; only 30% reported receiving regular feedback during TP.

Qualitative Results

Student perceptions of teaching practice further illuminated these quantitative findings.

Table 3Student Perceptions of Teaching Practice (N = 300)

Statement	Agree (%)	Neutral (%)	Disagree (%)	Key Themes (Qualitative)
TP improved my teaching skills.	62	23	15	Gained confidence in lesson delivery.
TP increased my academic workload.	78	12	10	No time to study for exams.
I felt unprepared for post-TP exams.	67	20	13	Topics covered during TP were not revised.

While 62% of students valued TP’s skill-building role, a significant 78% cited workload imbalances. Open-ended responses revealed frustration over a "lack of post-TP academic support" and themes of increased distractions, difficulty reintegrating into academic routines, lack of support from the institution and host schools, disillusionment with the teaching profession,

inadequate resources during TP, and challenges teaching unfamiliar subjects.

Discussion

The findings of this study empirically validate observations of a negative impact of teaching practice on the academic performance of Computer Science students at the Federal College of Education, Zaria. The



statistically significant decrease in academic performance post-TP, with a large effect size, underscores the practical significance of this issue.

The 12.8-point decline aligns with global studies on post-internship performance drops (Adeyemo et al., 2021) and highlights specific challenges within the Nigerian context. Key contributing factors identified include significant stress levels arising from the dual demands of teaching and studying, inadequate mentorship quality, and curriculum load. Students reported exhaustion and a lack of regular feedback, with only 30% receiving consistent guidance during TP.

Qualitative data further enriched these findings, revealing that while students acknowledged skill enhancement from TP (62% agreed it improved teaching skills), an overwhelming majority (78%) felt it drastically increased their academic workload, leaving insufficient time for exam preparation. This corroborates Bello and Ibrahim's (2023) call for better curriculum integration. The feeling of being unprepared for post-TP exams was prevalent (67% agreed), with many citing a lack of post-TP academic support and difficulties reintegrating into academic routines. Additional concerns included being assigned to teach subjects outside their expertise and insufficient resources during TP.

These findings suggest that while TP is valuable for practical skill development, its current structure in this context may inadvertently undermine academic continuity and performance. The cognitive overload experienced by students, coupled with insufficient support mechanisms and misalignment between TP demands and academic preparation, contributes to the observed decline. The disillusionment with the teaching profession reported by some students post-TP is also a critical concern for teacher retention and motivation.

## Limitations

This study has several limitations. First, its focus on a single institution (Federal College of Education, Zaria) may limit the generalizability of the findings to other Nigerian Colleges of Education. Future research should encompass multiple institutions across different regions. Second, reliance on departmental examination records for academic performance might not capture the full spectrum of student learning; future studies could incorporate other measures like assignments and projects. The potential for self-report bias in questionnaire responses also exists, and triangulation

with teacher evaluations or supervisor reports could strengthen future findings. Lastly, the issue of students teaching courses different from their specialization and inadequate resources were significant but might vary across institutions.

**Policy Implications and Recommendations** Based on the findings, the following are recommended:

1. **Structured and Staggered TP Scheduling:** Consider separating TP periods from main examination periods to reduce cognitive load and allow dedicated focus for both activities.
2. **Enhanced Mentorship Programs:** Implement mandatory, regular (e.g., weekly) supervisor check-ins and structured feedback mechanisms during TP to provide adequate guidance and support.
3. **Curriculum Alignment and Preparation:** Ensure better alignment between the curriculum taught at the College of Education and the subjects' student-teachers will handle during TP. Provide pre-TP workshops to prepare students for these specific subjects.
4. **Stress Management and Support Services:** Integrate wellness programs and counseling services into teacher training to help students manage TP-related stress. Improve resources provided during TP.
5. **Reintegration Support:** Develop strategies to help students reintegrate into academic routines post-TP, such as offering revision sessions or academic counseling.
6. **Addressing Professional Disillusionment:** Provide realistic previews of the teaching profession, highlighting both challenges and rewards, and facilitate connections with experienced, positive role models to counter disillusionment.

## Conclusion

This study empirically validates that teaching practice, in its current implementation at the observed institution, can lead to a decline in the academic performance of Computer Science students in Nigerian Colleges of Education. The decline is primarily driven by stress, inadequate mentorship, curriculum misalignment, and

heavy workloads. By addressing these systemic gaps through structured interventions such as improved mentorship, better TP scheduling, enhanced support systems, and curriculum review, the effectiveness of teaching practice can be enhanced. Such measures would not only mitigate performance drops but also better prepare teaching students for their professional roles, ultimately contributing to improved computer science education and a more effective teaching workforce in Nigeria.

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