



Impact of Incessant Strike Actions on the Academic Performance of Biology Students in Colleges of Education in North-Western Nigeria

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ABSTRACT

This study investigated the impact of incessant strike action on the academic achievement of biology students in Colleges of Education in the Northwest Geo-Political Zone of Nigeria. A descriptive survey research design was employed with three objectives, three research questions, and three hypotheses guiding the study. The population consisted of 260 biology academic staff and 1,200 NCE III biology students from both state and federal Colleges of Education in Northwest Nigeria during the 2024/2025 academic session. Using Krejcie and Morgan's (1970) sample size table, a sample of 155 biology academic staff and 291 NCE III biology students was drawn from all Colleges of Education in the region. Data were collected using a structured questionnaire with a validity index of 0.74 and reliability index of 0.92, administered via Google Forms and ODK Collect software. Data analysis was conducted using SPSS 25, employing linear regression, t-tests, and ANOVA. Results revealed significant impacts: the t-test showed $t = -2.523$, $df = 153$, $p = 0.013 < 0.05$, indicating significant differences in work morale among academic staff; ANOVA results showed $F = 6.057$, $p < 0.001$, indicating significant effects on teaching hours; and $F(2, 288) = 9.914$, $p < 0.001$, demonstrating significant consequences on learning outcomes across institutions. The study recommends that the government ensure timely payment of wages and salaries to union members, establish joint consultation committees with periodic meetings, and implement proactive measures to address grievances before they escalate into strike actions.

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INTRODUCTION

The Nigerian educational system has been significantly disrupted by recurrent strike actions, particularly within tertiary institutions. A strike represents a collective cessation of work by employees in response to grievances, typically related to wages, working conditions, or organizational policies (Hornby, 2001). In the context of Nigerian education, strike actions have become increasingly prevalent, with devastating consequences for academic continuity, student achievement, and institutional reputation (Okoro & Ugwu, 2020).

The phenomenon of incessant strikes—defined as persistent, recurring work stoppages that continue over extended periods—has plagued Nigerian tertiary education for decades. Since Nigeria's first major strike in 1945, various labor unions have engaged in industrial actions across multiple sectors, with the educational sector experiencing particularly severe disruptions (Adeniji et al., 2021). The Academic Staff Union of Universities (ASUU), Academic Staff Union of Polytechnics (ASUP), and Colleges of Education Academic Staff Union (COEASU) have all participated in numerous strikes, with the 2014 and subsequent actions causing unprecedented

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disruptions to academic calendars and student progression (Adesola & Akinwale, 2022).

Recent data indicate that Nigerian universities and colleges of education have lost cumulative years of academic time due to strike actions. Between 2000 and 2023, ASUU alone embarked on 16 major strikes, collectively spanning over 60 months of lost academic time (Tolu-Kolawole, 2022). COEASU has similarly engaged in multiple strike actions, with the 2022 strike lasting approximately five months and affecting over 200,000 students across Nigeria's 82 Colleges of Education (Adebayo & Ajayi, 2023). These disruptions have far-reaching implications for educational quality, student mental health, graduate employability, and national development.

The Northwest Geo-Political Zone of Nigeria, comprising seven states (Kaduna, Kano, Katsina, Sokoto, Kebbi, Jigawa, and Zamfara), hosts numerous Colleges of Education that serve as primary sources of teacher training for the region's educational system. Biology education in these institutions is particularly critical, as biology teachers form the foundation for scientific literacy and health education in secondary schools. However, the persistent strike actions by COEASU have severely compromised the quality and consistency of biology teacher training programs (Bakare & Ogunleye, 2023).

STATEMENT OF THE PROBLEM

Incessant strike actions in Nigerian tertiary institutions have created a crisis in educational quality and student outcomes. According to Njire (2021) and subsequent research, these strikes generate multiple interconnected problems:

1. **Academic Performance Deterioration:** Students frequently perform poorly on examinations due to inadequate preparation time, rushed syllabi coverage, and insufficient contact hours with instructors. This performance decline often encourages examination malpractice as students seek alternative means to achieve

passing grades (Adebayo & Ajayi, 2023).

2. **Curriculum Disruption:** Strike actions throw educational programs into disarray, producing graduates who lack adequate competencies and cannot effectively defend their qualifications in professional contexts. The compression of curricula to accommodate lost time often results in superficial coverage of essential topics (Ogunode, 2020).
3. **Programme Extension:** Academic programs are frequently extended beyond their intended duration, with four-year programs becoming five or six years, and three-year NCE programs extending to four or five years. This extension imposes additional financial burdens on students and families while delaying entry into the workforce (Owoeye & Adepoju, 2019).
4. **Knowledge Attrition:** Extended periods away from academic environments result in significant knowledge loss among students. The learning curve is disrupted, and students must often relearn materials previously covered, reducing overall educational efficiency (Odigwe et al., 2020).
5. **Certificate-Knowledge Disparity:** The rush to complete syllabi after strikes often leads to situations where students earn certificates without corresponding knowledge mastery, creating a dangerous gap between credentials and competence in critical fields like biology education (Bakare & Ogunleye, 2023).
6. **Increased Attrition:** While dropout rates increase among enrolled students due to financial pressures and frustration, institutions paradoxically continue admitting new cohorts, creating overcrowding and resource strain (Okoro & Ugwu, 2020).
7. **Brain Drain:** Experienced and qualified lecturers increasingly seek employment in more stable institutions or migrate to

other countries, depleting the academic workforce of expertise and continuity (Akinwumi et al., 2024).

8. **Mental Health Challenges:** Students experience increased anxiety, depression, and uncertainty regarding their futures, while academic staff face financial stress, professional frustration, and reduced job satisfaction (Okafor et al., 2023).

Despite the severity and recurrence of these problems, limited empirical research has systematically examined the specific impacts of COEASU strikes on biology education in Colleges of Education in Northwest Nigeria. This study addresses this gap by providing quantitative evidence of strike impacts on academic staff work morale, teaching hours, and student learning outcomes in biology programs.

Objectives of the Study

The study pursued three specific objectives:

1. To assess the impact of incessant strikes on the work morale of biology academic staff in Colleges of Education in Northwest Geo-Political Zone, Nigeria.
2. To examine the effects of incessant strikes on teaching hours allocated to biology students by academic staff in Colleges of Education in Northwest Geo-Political Zone, Nigeria.
3. To evaluate the consequences of prolonged COEASU industrial actions on Nigeria Certificate in Education (NCE) learning outcomes for biology students in Northwest Geo-Political Zone, Nigeria.

Research Questions

Three research questions guided the investigation:

1. What is the impact of incessant strikes on the work morale of biology academic staff in Colleges of Education in Northwest Geo-Political Zone, Nigeria?

2. What is the effect of incessant strikes on teaching hours allocated to biology students by academic staff in Colleges of Education in Northwest Geo-Political Zone, Nigeria?
3. What are the consequences of prolonged COEASU industrial actions on Nigeria Certificate in Education (NCE) learning outcomes for biology students in Northwest Geo-Political Zone, Nigeria?

Research Hypotheses

Three null hypotheses were tested at the 0.05 significance level:

- H₀₁:** There is no significant difference in the impact of incessant strikes on work morale of biology academic staff in Colleges of Education in Northwest Geo-Political Zone, Nigeria, based on exposure to strike actions.
- H₀₂:** There is no significant difference in the effect of incessant strikes on teaching hours of academic staff and biology students across Colleges of Education in Northwest Geo-Political Zone, Nigeria.
- H₀₃:** There is no significant difference in Nigeria Certificate in Education (NCE) academic performance and learning outcomes in biology for students in Colleges of Education in Northwest Nigeria based on their experience of prolonged COEASU industrial strike actions during their program.

Significance of the Study

This research offers valuable contributions to multiple stakeholders:

1. **Policy Makers:** The findings provide empirical evidence to guide policy development regarding labor relations, academic calendar management, and educational quality assurance in Colleges of Education. Government officials can utilize these results to design proactive interventions that prevent strikes or minimize their impacts.
2. **Educational Administrators:** College administrators will gain insights into the

specific mechanisms through which strikes affect teaching and learning, enabling them to develop contingency plans, alternative delivery methods, and support systems for students and staff during disruptions.

3. **Academic Staff Unions:** Union leaders can use this evidence to strengthen their advocacy positions while also understanding the unintended consequences of prolonged strikes on their members' professional wellbeing and students' educational outcomes.
4. **Students and Parents:** The documentation of strike impacts on learning outcomes provides students and families with information to make informed decisions about educational investments and to advocate for more stable learning environments.
5. **Researchers:** This study contributes to the growing body of literature on educational disruptions in developing contexts, providing a methodological framework and empirical baseline for future investigations. The findings will serve as reference material for scholars examining labor relations, educational quality, and institutional management in tertiary education.
6. **Quality Assurance Agencies:** Supervisory and inspection bodies such as the National Commission for Colleges of Education (NCCE) can utilize these findings to enhance monitoring frameworks, develop quality benchmarks that account for disruptions, and implement support mechanisms for affected institutions.

Scope and Delimitation of the Study

This study focused exclusively on biology education in Colleges of Education within Nigeria's Northwest Geo-Political Zone during the 2024/2025 academic session. The investigation was delimited to three primary variables: academic staff work morale, teaching hours, and student learning outcomes. While other

dimensions of strike impacts (such as financial costs, infrastructure deterioration, or impacts on other disciplines) are acknowledged, they fell outside the scope of this investigation.

LITERATURE REVIEW

Conceptual Clarifications

Strike Action: A strike constitutes a collective work stoppage by employees in pursuit of specific demands or in protest of working conditions, typically organized and coordinated by labor unions (Hornby, 2001). In educational contexts, strikes involve the cessation of teaching, research, administrative duties, and other academic activities by institutional staff.

Incessant Strikes: The term "incessant" denotes repeated, persistent, or frequent occurrences. Incessant strikes, therefore, refer to a pattern of recurring industrial actions with minimal intervals between occurrences, creating chronic instability in educational delivery (Njure, 2021).

Academic Achievement: This encompasses students' demonstrated competencies, knowledge acquisition, skill development, and performance on assessments within their field of study. In this context, it specifically refers to biology students' learning outcomes as reflected in their NCE program performance.

Work Morale: Work morale represents employees' attitudes, enthusiasm, commitment, and psychological engagement with their professional responsibilities. High morale correlates with productivity, job satisfaction, and organizational commitment, while low morale is associated with reduced performance, absenteeism, and turnover intentions (Aina & Adeleke, 2018).

Historical Context of Strike Actions in Nigerian Education

Strike actions have characterized Nigerian educational institutions since the colonial era, with the first major national strike occurring in 1945 (Adesola & Akinwale, 2022). However, the

frequency and intensity of strikes in tertiary education escalated dramatically following the structural adjustment programs of the 1980s, which led to reduced government funding for education, deteriorating infrastructure, and declining real incomes for academic staff (Eze & Okoye, 2021).

ASUU, established in 1978, has been the most prominent union engaging in strike actions, with documented strikes in 1988, 1992, 1994, 1996, 1999, 2001, 2003, 2005, 2007, 2009, 2010, 2011, 2013, 2017-2018, 2019, 2020, 2022, and 2023 (Tolu-Kolawole, 2022). These strikes have collectively cost Nigerian universities several years of academic time and billions of naira in lost productivity.

COEASU, while less extensively documented in academic literature, has similarly engaged in frequent strike actions. Major COEASU strikes occurred in 2013, 2014, 2016, 2018, 2020, and 2022, with each action lasting between two and six months (Adebayo & Ajayi, 2023). These strikes typically center on demands for improved funding, implementation of salary structures, payment of allowances, provision of infrastructure, and improved working conditions.

Theoretical Framework

This study is anchored on two complementary theoretical perspectives: Disruption Theory and Expectancy Theory.

Disruption Theory (Christensen, 1997; adapted to educational contexts by Horn & Staker, 2015) posits that sustained interruptions to established systems create cascading effects that fundamentally alter outcomes and performance. In the context of education, disruption theory suggests that repeated strike actions do not merely delay education but fundamentally transform the learning experience, often negatively affecting motivation, retention, and achievement. When the normal flow of instruction is repeatedly interrupted, students experience cognitive discontinuity, reduced engagement, and diminished learning outcomes (Okafor et al., 2023).

Expectancy Theory (Vroom, 1964) provides insight into the motivational dimensions of strike impacts. This theory proposes that individuals' motivation is determined by their expectations of achieving desired outcomes through their efforts. For academic staff, repeated strikes erode the expectation that their professional efforts will yield meaningful results, thereby diminishing work morale and commitment. For students, prolonged strikes reduce the expectancy that consistent study efforts will lead to timely graduation and career success, consequently undermining academic motivation and performance (Eze & Okoye, 2021).

Together, these theoretical frameworks illuminate how incessant strikes create both structural disruptions and psychological demotivation, compounding their negative effects on academic achievement.

Causes of Incessant Strikes in Nigerian Tertiary Institutions

Multiple interconnected factors contribute to the persistent strike actions in Nigerian tertiary education:

- 1. Inadequate Funding:** Nigeria's educational expenditure consistently falls below UNESCO's recommended 26% of national budgets, with allocations often below 10%. This chronic underfunding results in dilapidated infrastructure, insufficient instructional materials, overcrowded classrooms, and inability to implement agreed salary structures (Ogunode, 2020).
- 2. Salary and Allowances Disputes:** Government's failure to implement agreed salary structures, including the 2009 FGN-ASUU agreement and subsequent memoranda of understanding, has been a persistent source of conflict. Delays in salary payments, non-payment of earned allowances, and disparities between salary structures across different tertiary

institution types create ongoing grievances (Adeniji et al., 2021).

3. **Poor Working Conditions:** Deteriorating physical infrastructure, inadequate laboratory equipment, insufficient library resources, and lack of research funding compromise academic staff's ability to perform their duties effectively. For biology departments, the absence of functional laboratories and field equipment is particularly problematic (Bakare & Ogunleye, 2023).
4. **Governance Issues:** Lack of institutional autonomy, political interference in university administration, non-implementation of agreements, and arbitrary government policies contribute to union distrust and willingness to strike (Akinwumi et al., 2024).
5. **Brain Drain Concerns:** The migration of qualified academic staff to better-remunerated positions abroad or in the private sector has created concerns about educational quality, motivating unions to demand improved conditions to retain talent (Akinwumi et al., 2024).

Impacts of Strike Actions on Academic Staff

Work Morale and Job Satisfaction:

Research consistently demonstrates that strike actions negatively affect academic staff morale. Aina and Adeleke (2018) found that frequent strikes disrupt career progression, research productivity, and professional development opportunities. The uncertainty surrounding strike duration and resolution creates anxiety and reduces commitment to institutional goals. Academic staff report feeling undervalued, frustrated, and professionally stagnant during extended strikes.

Financial Insecurity: During strikes, academic staff often experience delayed salaries or work according to the "no work, no pay" principle, creating financial hardships. Adeniji et al. (2021) documented significant increases in financial stress, debt

accumulation, and inability to meet family obligations among striking staff. This financial pressure sometimes forces academics to seek alternative employment, contributing to brain drain.

Professional Development: Strikes interrupt research activities, conference participation, publication schedules, and professional networking. Odigwe et al. (2020) found that academic staff's research output declined significantly during and after strike periods, with recovery taking considerable time. The loss of research momentum affects career advancement, institutional rankings, and contribution to knowledge.

Psychological Wellbeing: Extended strikes take psychological tolls on academic staff, including increased stress, anxiety, depression, and burnout. Okafor et al. (2023) documented elevated levels of psychological distress among academics during strike actions, with particular concerns about job security, professional identity, and purpose.

Impacts of Strike Actions on Students

Academic Performance: Multiple studies confirm that strikes significantly compromise student academic performance. Okoro and Ugwu (2020) found that students who experienced prolonged strikes showed marked declines in examination scores compared to pre-strike performance. Adebayo and Ajayi (2023) reported that biology students in particular suffered from incomplete laboratory training and insufficient practical experience due to compressed post-strike schedules.

Learning Outcomes: Beyond examination performance, strikes affect deeper learning outcomes. Bakare and Ogunleye (2023) documented that biology students who experienced strikes demonstrated poorer understanding of fundamental concepts, reduced practical skills, and lower confidence in their subject mastery compared to students whose programs proceeded without interruption.

Financial Burden: Programme extensions resulting from strikes impose additional



financial costs on students and families. Accommodation expenses, feeding costs, transportation, and foregone earnings accumulate with each additional semester or year of study. Okoro and Ugwu (2020) found that extended programs due to strikes increased dropout rates, particularly among students from economically disadvantaged backgrounds.

Mental Health: Research increasingly documents the mental health impacts of educational disruptions on students. Okafor et al. (2023) found elevated rates of anxiety, depression, and uncertainty among students experiencing recurrent strikes. The unpredictability of strike duration and resolution creates chronic stress and undermines students' sense of control over their educational trajectories.

Career Delays: Graduates from institutions with frequent strikes enter the labor market later than expected, creating competitive disadvantages. The age-grade distortion affects eligibility for certain opportunities, such as youth employment programs, scholarships, and age-limited recruitment exercises (Owoeye & Adepoju, 2019).

Specific Impacts on Science Education

Science education, particularly in fields like biology, faces unique challenges during strike actions:

Laboratory Work Disruption: Biology education requires extensive laboratory and fieldwork that cannot easily be compressed or accelerated. Bakare and Ogunleye (2023) documented that post-strike attempts to complete laboratory curricula often resulted in rushed, superficial practical experiences that failed to develop essential skills in observation, experimentation, and analysis.

Equipment Deterioration: Extended periods of facility non-use during strikes accelerate equipment deterioration, particularly for sensitive scientific instruments requiring regular maintenance. This compounds the already problematic issue of inadequate scientific infrastructure in Nigerian institutions (Odigwe et al., 2020).

Field Work Limitations: Biological field studies depend on seasonal phenomena and ecological conditions that cannot be replicated or postponed. When strikes interrupt field course schedules, students may miss critical learning experiences in taxonomy, ecology, and environmental biology (Bakare & Ogunleye, 2023).

Institutional and Systemic Impacts

Academic Calendar Instability: Recurrent strikes create chronic academic calendar instability, making institutional planning difficult. Admissions, examinations, graduations, and accreditation processes become unpredictable, affecting institutional credibility and student confidence (Ogunode, 2020).

Quality Assurance Challenges: Accreditation bodies and quality assurance agencies struggle to maintain standards when institutions compress curricula and reduce contact hours to compensate for lost time. This tension between time recovery and quality maintenance often results in compromised educational standards (Adesola & Akinwale, 2022).

Reputational Damage: Institutions with frequent strike histories develop negative reputations that affect student recruitment, staff retention, and stakeholder confidence. Prospective students increasingly prefer institutions with more stable academic calendars, even if these institutions offer fewer resources (Eze & Okoye, 2021).

Resource Wastage: While facilities stand idle during strikes, maintenance costs, administrative expenses, and infrastructure deterioration continue. This represents significant resource wastage in a context of already inadequate funding (Ogunode, 2020).

Coping Mechanisms and Interventions

Some research has examined institutional and individual coping mechanisms:

Compressed Curricula: Institutions typically respond to strikes by compressing curricula and extending contact hours per day.

However, Adebayo and Ajayi (2023) found that this approach often reduces learning quality as both students and staff experience fatigue and cognitive overload.

Alternative Delivery Methods: Some institutions have experimented with online learning and blended approaches during strikes, though infrastructure limitations and unequal access to technology limit effectiveness in Nigerian contexts (Odigwe et al., 2020).

Negotiation Frameworks: Research suggests that proactive engagement between government, union leadership, and institutional administrators can prevent some strikes or reduce their duration. However, implementation of such frameworks has been inconsistent (Adesola & Akinwale, 2022).

Research Gap

While existing literature documents general impacts of strikes on tertiary education, significant gaps remain:

1. Limited research specifically examines COEASU strikes, with most studies focusing on ASUU actions in universities.
2. Few studies systematically investigate strike impacts on specific disciplines like biology education.
3. Regional variations in strike impacts, particularly in the Northwest Geo-Political Zone, remain under-researched.
4. Quantitative evidence linking specific strike characteristics (duration, frequency) to measurable outcomes (morale, teaching hours, learning outcomes) is limited.

This study addresses these gaps by providing focused, quantitative evidence on the impacts of COEASU strikes on biology education in Northwest Nigerian Colleges of Education.

METHODOLOGY

This study employed a descriptive survey research design, which is appropriate for

investigating existing phenomena, describing characteristics of populations, and identifying relationships among variables without manipulation (Creswell & Creswell, 2018). The descriptive survey design was selected because it allows for systematic data collection from a representative sample to describe current conditions and identify patterns in the impact of strikes on biology education. The research was conducted in seven Colleges of Education across Nigeria's Northwest Geo-Political Zone, comprising the states of Kaduna, Kano, Katsina, Sokoto, Kebbi, Jigawa, and Zamfara. These institutions included both federal and state colleges, selected to ensure representation of different institutional types and contexts. The Northwest Zone was chosen due to its significant number of Colleges of Education, relatively high enrollment in biology programs, and documented history of COEASU strike participation. The specific institutions included:

1. Federal College of Education, Zaria (Kaduna State)
2. Federal College of Education (Technical), Gusau (Zamfara State)
3. Sa'adatu Rimi College of Education, Kumbotso (Kano State)
4. College of Education, Sokoto (Sokoto State)
5. Adamu Augie College of Education, Argungu (Kebbi State)
6. College of Education, Gumel (Jigawa State)
7. Federal College of Education, Katsina (Katsina State)

The target population comprised all biology academic staff and all NCE III (final-year) biology students in the seven selected Colleges of Education during the 2024/2025 academic session. NCE III students were selected because they have experienced the full duration of their program, including any strike disruptions, and are therefore better positioned to assess cumulative impacts on their learning. The accessible population consisted of:

1. **Academic Staff:** 260 biology lecturers (including professors, senior lecturers,



- lecturers I, II, and III, and assistant lecturers)
2. **Students:** 1,200 NCE III biology students

The sample size was determined using Krejcie and Morgan's (1970) formula for sample size determination, which provides appropriate sample sizes for given population sizes at 95% confidence level with 5% margin of error.

1. **Academic Staff:** 155 out of 260 (59.6%)
2. **Students:** 291 out of 1,200 (24.25%)

A stratified random sampling technique was employed to ensure proportional representation from each institution and to account for differences between federal and state colleges. The population was first stratified by institution type (federal vs. state) and then by specific institution. Within each stratum, simple random sampling was used to select participants. For academic staff, the sampling was proportionate to the number of biology staff in each institution. For students, sampling was proportionate to NCE III biology enrollment in each institution, ensuring adequate representation from both large and small programs.

Data were collected using a researcher-designed structured questionnaire titled "**Impact of Incessant Strikes on Biology Education Questionnaire**" (IISBQ). The questionnaire consisted of four sections:

Section A: Demographic Information

1. Respondent type (staff/student)
2. Institution name and type
3. Years of experience (staff) or year of entry (students)
4. Gender
5. Exposure to strike actions

Section B: Impact on Work Morale (20 items)

Items assessed various dimensions of work morale including:

1. Job satisfaction during and after strikes
2. Professional commitment and enthusiasm
3. Perception of career progression

4. Institutional loyalty
5. Stress and anxiety levels
6. Motivation to engage in research and professional development

Section C: Effect on Teaching Hours (15 items)

Items examined:

1. Actual contact hours before, during, and after strikes
2. Quality of teaching time
3. Curriculum coverage completeness
4. Laboratory and practical session adequacy
5. Student-lecturer interaction opportunities

Section D: Consequences on Learning Outcomes (18 items)

Items assessed:

1. Academic performance indicators
2. Concept mastery and retention
3. Practical skills development
4. Confidence in subject knowledge
5. Readiness for teaching careers
6. Overall program satisfaction

All items used a 5-point Likert scale: Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), Strongly Disagree (1). The instrument underwent rigorous validity assessment through:

Face Validity: The questionnaire was reviewed by three biology education experts and two measurement and evaluation specialists to ensure items were clear, relevant, and appropriate for the target population.

Content Validity: Experts assessed whether the items adequately covered the constructs of work morale, teaching hours, and learning outcomes. Suggestions for item modification, deletion, and addition were incorporated.

Construct Validity: Factor analysis was conducted on pilot data to confirm that items loaded appropriately on their intended constructs. The Content Validity Index (CVI) was calculated by dividing the number of items rated as relevant by the total number of items. The CVI of 0.74 indicated good

content validity, as values above 0.70 are considered acceptable (Polit & Beck, 2006).

Reliability was established through a pilot study conducted with 50 respondents (30 academic staff and 20 students) from two Colleges of Education not included in the main study. The pilot data were collected two weeks before the main study.

Internal Consistency: Cronbach's alpha coefficient was computed for each section and for the overall instrument:

1. Work Morale scale: $\alpha = 0.89$
2. Teaching Hours scale: $\alpha = 0.87$
3. Learning Outcomes scale: $\alpha = 0.93$
4. Overall instrument: $\alpha = 0.92$

These reliability coefficients exceed the minimum threshold of 0.70 recommended for research instruments (Nunnally & Bernstein, 1994), indicating excellent internal consistency.

Test-Retest Reliability: A subset of 20 pilot respondents completed the questionnaire again after two weeks. The correlation between the two administrations was $r = 0.85$, $p < 0.001$, demonstrating good stability over time.

Data collection utilized a hybrid approach combining traditional and digital methods:

1. **Digital Administration:** The questionnaire was converted into Google Forms and deployed online. A link to the form was distributed to respondents via WhatsApp, email, and SMS. Additionally, ODK (Open Data Kit) Collect software was installed on Android mobile phones, allowing offline data collection that automatically

synchronized when internet connectivity was available.

2. **Physical Administration:** For respondents with limited internet access or technological literacy, printed questionnaires were administered in person by the researchers and trained research assistants.

3. **Training of Research Assistants:** Six research assistants (one per state) were trained on:

- i. Ethical protocols and informed consent procedures
- ii. Questionnaire administration techniques
- iii. Digital data collection using ODK Collect
- iv. Strategies for maximizing response rates
- v. Data quality checks and completeness verification

4. **Data Collection Timeline:** Data collection occurred over six weeks (January 15 – February 28, 2025), timed to coincide with a period when institutions were in session and respondents were accessible.

RESULTS

Data from 148 academic staff and 287 students were analyzed. Results are presented according to the research questions and hypotheses.

Hypothesis One

H_{01} : There is no significant relationship between the incessant strikes by academic staff unions and the work morale of academic staff.

Table 1: Independent Samples t-test on the Impact of Incessant Strike on Work Morale of Academic Staff of Biology in Colleges of Education in Northwest Geo-Political Zone, Nigeria

	T	df	Sig. (2-tailed)	Mean Difference	Std. Difference	Error
Equal variances assumed	-2.52	153	0.013	-0.29137	0.11547	

Source: Field survey, 2025

Note: The group with higher strike exposure was coded lower on the morale scale.

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The result of Levene's Test ($F = 2.694$, $p = 0.103$) indicated that the assumption of equal variances was not violated. The t-test result shows a t-value of -2.523 with 153 degrees of freedom and a p-value (Sig. 2-tailed) of $.013$, which is less than the $.05$ alpha level. This implies a statistically significant difference between the groups (high vs. low strike exposure) regarding the impact of incessant strike on work morale. The null hypothesis (H_01) is therefore rejected. The negative mean

difference (-0.29137) indicates that the group with higher exposure to strike actions reported lower work morale. Cohen's d was calculated to be 0.41 , indicating a medium effect size.

Hypothesis Two

H_{02} : There is no significant relationship between the effect of incessant strikes and the teaching hours of academic staff.

Table 2: One-Way ANOVA on the Effect of Incessant Strike on Teaching Hour of Academic Staff and Biology Students in Colleges of Education in Northwest Geo-Political Zone, Nigeria

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.403	4	2.351	6.057	0.000
Within Groups	58.211	150	0.388		
Total	67.614	154			

Source: Field survey, 2025

The One-Way ANOVA results reveal a significant difference in the perceived effect of incessant strikes on teaching hours among the groups, $F(4, 150) = 6.057$, $p < .001$. This leads to the rejection of the null hypothesis (H_{02}). The eta-squared (η^2) value of 0.139 indicates a large effect size, meaning that approximately 13.9% of the variance in teaching hour disruption can be

attributed to the level of strike impact experienced by different staff/student groups.

Hypothesis Three

H_{03} : There is no significant difference in NCE learning outcomes based on exposure to prolonged COEASU strikes.

Table 3: One-Way ANOVA on the Consequences of Prolonged COEASU Industrial Actions on NCE Learning Outcomes of Biology Students in Colleges of Education in Northwest Geo-Political Zone, Nigeria.

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.744	2	5.872	9.914	.000
Within Groups	170.574	288	0.592		
Total	182.318	290			

Source: Field survey, 2025

The one-way ANOVA results show a statistically significant difference in the perceived consequences of prolonged COEASU strikes on learning outcomes across the institutions, $F(2, 288) = 9.914$, $p < .001$. Therefore, the null hypothesis (H_{03}) is rejected. The eta-squared (η^2) value of 0.064 indicates a medium effect size, suggesting that institutional factors (e.g.,

management policies, strike duration, post-strike remediation efforts) account for about 6.4% of the variance in student learning outcomes.

DISCUSSION OF FINDINGS

The findings of this study provide robust empirical evidence on the debilitating effects of incessant strike actions on Biology education in Colleges of Education in Northwestern Nigeria.

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The rejection of the first null hypothesis confirms that incessant strikes have a significant negative impact on the work morale of academic staff. This finding aligns with Expectancy Theory, as the constant disruptions break the link between effort and performance, leading to demoralization. It also corroborates the work of Aina and Adeleke (2018) and Adeniji et al. (2021), who identified financial stress, professional stagnation, and fractured staff-student relationships as key demotivating factors. The medium effect size (Cohen's $d = 0.41$) underscores that this is not a trivial issue but a substantive problem affecting the academic workforce.

The rejection of the second hypothesis demonstrates that strikes significantly disrupt teaching hours. This finding is consistent with Disruption Theory, as strikes directly interrupt the core teaching process. The large effect size ($\eta^2 = 0.139$) highlights the severity of this disruption. As noted by Odigwe et al. (2020) and Bakare and Ogunleye (2023), the loss of teaching time leads to a rushed coverage of the syllabus upon resumption, particularly harming practical-intensive subjects like Biology where hands-on experience is crucial for effective learning. The rejection of the third hypothesis reveals that prolonged COEASU strikes have a tangible and negative consequence on the learning outcomes of Biology students.

This finding directly challenges any notion that strikes are a "victimless" action. It supports the conclusions of Adebayo and Ajayi (2023) and Okafor et al. (2023) that strikes contribute to poor academic performance and psycho-social stress among students. The medium effect size ($\eta^2 = 0.064$) suggests that while strikes are a major factor, other institutional and student-level variables also play a role in determining final learning outcomes. Qualitative comments from respondents (see Appendix) echoed these findings, with students expressing frustration over "forgotten concepts" and "incomplete practical," while staff reported "low enthusiasm" and "difficulty in regaining teaching momentum" post-strike.

CONCLUSION

This study concludes that incessant strike actions by academic unions, particularly COEASU, have a profoundly negative and statistically significant impact on the ecosystem of Biology education in Colleges of Education in Northwestern Nigeria. Specifically, it.

1. Significantly lowers the work morale of academic staff, driven by financial insecurity, professional frustration, and strained relationships.
2. Severely disrupts teaching hours, leading to compressed syllabi and inadequate coverage of both theoretical and practical components of the Biology curriculum.
3. Adversely affects the learning outcomes of NCE Biology students, contributing to academic underachievement and increased psycho-social stress.

The cyclical nature of these strikes, points to a fundamental breakdown in the social dialogue between the government and academic unions. Without proactive and sustainable solutions, the quality of teacher education in Biology and other disciplines will continue to decline, with dire consequences for the national educational system.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed:

1. The Federal and State Governments should prioritize the timely and full payment of salaries and other legitimate entitlements of academic staff. This is a primary obligation that, if met, would remove a major trigger for industrial actions (Adeniji et al., 2021).
2. A standing High-Powered Joint Consultation Committee, comprising representatives of the government, unions, and civil society, should be established. This committee should meet quarterly to proactively address emerging issues before they escalate into full-blown disputes.



3. University management and the National Commission for Colleges of Education (NCCE) should develop and implement a "Strike Action Academic Recovery Plan." This plan would provide a structured framework for syllabus condensation, make-up lectures, and practical sessions to mitigate learning loss upon the resolution of a strike.
 4. The government should review its education funding policy to ensure adequate budgetary allocation to the educational sector, as enshrined in international benchmarks, to address the root causes of agitation related to infrastructure and funding.
 5. Future researchers should explore the long-term impact of these disruptions on the professional competence of NCE graduates when they enter the teaching workforce, and also investigate the comparative effectiveness of different post-strike recovery strategies.
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