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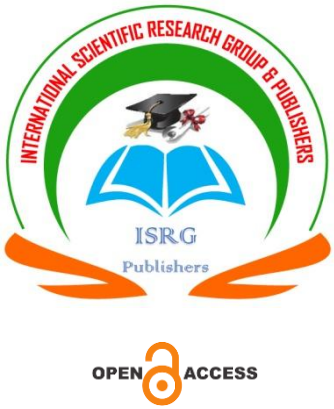

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Pre-Service Teachers' Awareness and Usage of Innovative Strategies in the Classroom in Southwest Nigeria

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Abstract

This empirical study investigated the gap between pre-service teachers' awareness and their actual classroom usage of innovative teaching strategies in Southwest Nigeria (Olagunju et al., 2023; Awolere & Olasedidun, 2023). Using an Explanatory Sequential Mixed-Methods design (QUAN -> qual), data were gathered using three validated instruments: the Pre-service Teachers' Awareness and Use of Innovative Strategies Questionnaire (PTAUISQ, N = 600), the Pre-service Teachers' Classroom Observation Scale (PTCOS, n = 80), and an In-depth Interview Guide (IIG, n = 80). Quantitative findings revealed that while pre-service teachers possess a high level of conceptual awareness (73.2%), actual classroom implementation is substantially lower (46.8%), leaving a significant 26.4-percentage-point knowledge-practice gap (Aiyede et al., 2023; Omodara & Makinde, 2023). Classroom observations confirmed that non-technological, socially embedded approaches like Structured Engagement (65.0%) and Collaborative Learning (42.5%) dominate practice, whereas technology-intensive approaches like Blended Learning (65.0% not used) and Digital Integration (60.0% not used) are largely absent (Olasedidun, 2019; Shittu et al., 2023). A Pearson correlation test demonstrated a statistically significant moderate positive relationship between awareness and usage ($r = 0.487$, $p < 0.05$), confirming that awareness is necessary but insufficient for actual deployment (Rogers, 2003; Ogbonna, 2020). Qualitative thematic analysis following Braun and Clarke's (2006) framework identified systemic constraints—specifically large class sizes, resource inadequacy, curriculum overload, and insufficient mentoring—as primary drivers of this gap. Recommendations include embedding active modelling of innovative practices into university methodology courses and upgrading ICT infrastructure during field experience placements.

Keywords: Pre-service teachers, Innovative teaching strategies, Awareness, Classroom usage, Knowledge-practice gap, Southwest Nigeria.

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1. Introduction

1.1 Background to the Study

Teachers are the bedrocks of sustainable educational policy and the central drivers of reform within and outside the classroom (Kolawole, 2016; Aiyede et al., 2023). The training provided to pre-service teachers—both in subject matter and pedagogical skills—is critical to the successful implementation of 21st-century curriculum innovations. As Shulman (1987) noted in his foundational work on Pedagogical Content Knowledge (PCK), the primary task of teacher preparation is transforming theoretical subject knowledge into pedagogically salient representations for active classroom learning.

Contemporary 21st-century education demands that teacher candidates exhibit flexibility, creativity, and innovation (Dahiya, 2019; Demirkol-Orak & Inozu, 2021). Innovative teaching involves introducing novel instructional approaches—such as Project-Based Learning (PBL), Inquiry-Based Learning (IBL), guided inquiry, flipped classrooms, scaffolding, and blended learning—to make instruction more student-centered and effective (Olasedidun, 2017, 2019; Dahiya, 2019; Aiyede et al., 2023). Despite its recognized importance, scholars globally and within Nigeria have highlighted a persistent disconnect between campus-based methodology courses and field-based practice (Kaya et al., 2015; Price, 2019; Omodara & Makinde, 2023). While prospective teachers may acquire theoretical awareness of these modern strategies during coursework, they frequently revert to passive, teacher-centered lecture modes when placed in authentic classroom settings (Kolawole, 2016; Price, 2019; Gholam, 2019).

1.2 Statement of the Problem

Higher education reforms in Nigeria have increasingly emphasized the assessment and integration of innovative practices into teacher preparation programmes (Shittu et al., 2023). However, empirical studies indicate that pre-service teachers continue to exhibit low-to-fair execution of these strategies in real classroom settings (Aiyede et al., 2023). There is growing concern that teacher candidates are being trained primarily through traditional lecture modes rather than being exposed to or guided in practicing 21st-century instructional methods (Olasedidun, 2017; Price, 2019).

In Southwest Nigeria, where resource constraints interact with large class sizes, empirical evidence systematically mapping the exact relationship between pre-service teachers' conceptual awareness and their physical usage of innovative strategies remains sparse (Olagunju et al., 2023). This study directly addresses this empirical gap.

1.3 Focus Research Questions & Hypothesis

To address this core problem, this paper focuses on the primary research questions and hypothesis established in the broader project:

- Research Question 1: How well are pre-service teachers abreast of innovative teaching strategies?
- Research Question 2: Do pre-service teachers make use of innovative teaching strategies in the classroom?
- Research Hypothesis 1 (H01): There is no statistically significant relationship between pre-service teachers' awareness and their usage of innovative strategies.

2. Theoretical and Conceptual Framework

2.1 Theoretical Foundations

This study is grounded in two complementary theoretical frameworks:

- **Vygotsky's Social Constructivist Theory (1978):** Emphasizes that learning is an active, socially mediated process where knowledge is constructed through interaction, peer collaboration, and structured scaffolding. It provides the rationale for why collaborative and engagement-oriented strategies are more easily adopted by student teachers (Vygotsky, 1978; Dahiya, 2019).
- **Rogers' Innovation Decision Process Theory (2003):** Models the stages an individual passes through when adopting a new idea: Knowledge (awareness), Persuasion, Decision, Implementation (usage), and Confirmation. This framework explains why high awareness does not automatically translate to usage; transition through the stages can be blocked by unfavorable environmental and structural conditions (Rogers, 2003; Ogbonna, 2020).

CONCEPTUAL FRAMEWORK FLOW:

[Input: Pre-Service Teacher Education & Methodology Courses]
↓
[Mediator 1: Conceptual Awareness of Innovative Strategies]
↓ ←— [Contextual Barriers: Large Class Size, Resource Scarcity, Mentoring Gaps]
[Output: Classroom Usage / Pedagogical Practice (Enacted Strategies)]

3. Research Methodology

3.1 Research Design

The study adopted an Explanatory Sequential Mixed-Methods Design (QUAN -> qual) as outlined by Creswell & Creswell (2018). Quantitative data were collected first via a large-scale survey to quantify levels of awareness and usage. This was sequentially followed by qualitative data collection through structured classroom observations and in-depth interviews to explain the underlying patterns and barriers identified in the quantitative phase.

3.2 Population, Sample, and Sampling Technique

The population consisted of final-year (400-level) pre-service teachers across public universities in Southwest Nigeria who had completed at least one full year of teaching practice (field experience). A multi-stage sampling technique was employed:

- **Institution Selection:** Four representative tertiary institutions in Southwest Nigeria with equivalent physical and human resource baselines were selected: Adeniran Ogunsanya University of Education (Lagos), Tai Solarin University of Education (Ogun), University of Ibadan / Special College of Education (Oyo), and Ekiti State University / Emmanuel Alayande University of Education (Oyo).

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- **Quantitative Sample:** Purposive sampling was used to select 150 final-year student teachers from each institution, yielding a total survey sample of N = 600.
- **Qualitative Sub-Sample:** From the main cohort, 20 student teachers per institution (n = 80 total) were randomly selected for classroom observation during active teaching practice and subsequent in-depth interviews.

3.3 Instrumentation and Reliability

Three validated instruments were utilized for data collection:

- **Pre-service Teachers' Awareness and Use of Innovative Strategies Questionnaire (PTAUISQ):** A 24-item, 4-point Likert scale measuring awareness (12 items) and classroom usage (12 items). Internal consistency calculated via Cronbach's alpha yielded alpha = 0.78.
- **Pre-service Teachers' Classroom Observation Scale (PTCOS):** An 18-item observation rubric assessing enacted strategies (8 items) and observed student engagement (10 items) during teaching practice. Inter-rater reliability evaluated via Scott's Pi produced pi = 0.87.
- **In-Depth Interview Guide (IIG):** A 9-item semi-structured interview protocol exploring qualitative perceptions, practical feasibility, and implementation constraints (alpha = 0.75).

3.4 Data Analysis

Quantitative data were analyzed using descriptive statistics (frequencies and percentages) and inferential statistics (Pearson Product Moment Correlation) at alpha = 0.05 level of significance using SPSS. Qualitative interview data were analyzed using thematic analysis following Braun and Clarke's (2006) framework. Observation records were synthesized using descriptive frequency distributions.

4. Results Presentation

4.1 Demographic Profile of Respondents

The survey sample (N = 600) was composed of 264 males (44.0%) and 336 females (56.0%), distributed equally across the four participating institutions (150 candidates / 25.0% per university). Candidates were spread across Arts Education (31.2%), Science Education (24.2%), Social Sciences Education (22.0%), and Specialized/Professional Education (22.6%).

4.2 Research Question One: Level of Awareness

Research Question 1 sought to determine how well pre-service teachers are abreast of innovative teaching strategies. Items from Section B (Awareness Strand) of the PTAUISQ were categorized into 'Aware' (Strongly Agree + Agree) and 'Not Aware' (Disagree + Strongly Disagree). Negatively phrased items were reverse-coded prior to aggregation.

Table 1: Pre-service Teachers' Awareness of Innovative Teaching Strategies (N = 600)

S/N	Statement / Item	Aware (f)	Aware (%)	Not Aware (f)	Not Aware (%)	Decision
1	Innovative strategies create curiosity and effective learning.	462	77.0%	138	23.0%	Aware
2	Innovative teaching reinforces classroom learning.	479	79.8%	121	20.2%	Aware
3	Graphic organizers & inquiry matrices cannot aid deep knowledge. (-)	198	33.0%	402	67.0%	Aware
4	Hands-on resources are relevant to classroom interaction.	441	73.5%	159	26.5%	Aware
5	Scaffolding and differentiation slow down student learning. (-)	174	29.0%	426	71.0%	Aware
6	ICT courses are not compulsory in teacher education. (-)	204	34.0%	396	66.0%	Aware
7	Collaborative teaching promotes teamwork and flexible interaction.	489	81.5%	111	18.5%	Aware
8	I am unaware of teaching designs incorporating hands-on experiments. (-)	162	27.0%	438	73.0%	Aware
9	Use of innovative strategies does not consume time and energy.	306	51.0%	294	49.0%	Fairly Aware
10	Digital technology-shaped approaches are unsuitable for conventional classes. (-)	216	36.0%	384	64.0%	Aware
11	Blended learning combines face-to-face instruction with online digital tools.	456	76.0%	144	24.0%	Aware
12	Components of innovation include creativity, flexible grouping, and collaboration.	468	78.0%	132	22.0%	Aware

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Overall	**Grand Mean Awareness Rate**	—	**73.2%**	—	**26.8%**	**High**

Note: (-) indicates negatively worded items reverse-coded during analysis. Source: Field Survey Data (2024).

Summary Finding for RQ1: Pre-service teachers demonstrate a high overall awareness level (73.2%) regarding innovative teaching strategies (Demirkol-Orak & Inozu, 2021). Awareness is highest for collaborative strategies (81.5%) and general innovative reinforcement (79.8%), but comparatively lower regarding the time/energy demands of innovation (51.0%) and specialized ICT integration (64.0%-66.0%) (Olasedidun, 2017).

4.3 Research Question Two: Classroom Usage

Research Question 2 examined whether pre-service teachers actually make use of innovative teaching strategies in classroom practice. Items from the Usage Strand of the PTAUISQ were aggregated into 'Usage' (SA + A) and 'No Usage' (D + SD).

Table 2: Pre-service Teachers' Classroom Usage of Innovative Teaching Strategies (N = 600)

S/N	Statement / Item	Usage (f)	Usage (%)	No Usage (f)	No Usage (%)	Decision
1	I feel confident using innovative strategies during teaching practice.	294	49.0%	306	51.0%	Fair Usage
2	I always adopt creative approaches to promote active learning.	318	53.0%	282	47.0%	Moderate
3	I do not combine whole class interaction with technology. (-)	210	35.0%	390	65.0%	Fair Usage
4	I engage students in communication, critical writing, and creativity.	336	56.0%	264	44.0%	Moderate
5	I lack opportunities to try new strategies I am interested in. (-)	288	48.0%	312	52.0%	Fair Usage
6	I always acquire the necessary hands-on tools for teaching.	252	42.0%	348	58.0%	Low Usage
7	I always use visual representations in classroom instruction.	330	55.0%	270	45.0%	Moderate
8	I frequently integrate digital technology into physical teaching.	216	36.0%	384	64.0%	Low Usage
9	I do not use social media or digital platforms for instruction. (-)	282	47.0%	318	53.0%	Fair Usage
10	I deploy internet resources and digital tools during lessons.	240	40.0%	360	60.0%	Low Usage
11	Large class sizes prevent me from using innovative strategies. (-)	318	53.0%	282	47.0%	Moderate
12	Resource scarcity and low support impede my use of innovative methods. (-)	372	62.0%	228	38.0%	High Constraint
Overall	**Grand Mean Usage Rate**	—	**46.8%**	—	**53.2%**	**Low Usage**

Note: (-) indicates negatively worded items recoded accordingly. Source: Field Survey Data (2024).

Summary Finding for RQ2: Actual classroom usage (46.8%) lags significantly behind conceptual awareness (73.2%), establishing a 26.4-percentage-point knowledge-practice gap (Aiyede et al., 2023). Direct technology integration (36.0%) and internet platform usage (40.0%) recorded the lowest usage levels, while resource constraints (62.0%) and large class sizes (53.0%) were heavily cited as operational barriers (Price, 2019; Omodara & Makinde, 2023).

4.4 Direct Classroom Observation Verification and Qualitative Insights

Direct classroom observations (PTCOS, n = 80) corroborated the survey findings. Observation rubrics revealed that non-technological, socially embedded practices like Structured Engagement (65.0% observed frequently) and Collaborative Learning (42.5%) dominated practice. Conversely, Blended Learning (65.0% absent), Digital Integration (60.0% absent), Problem-Based Learning (55.0% absent), and Multimedia Application (50.0% absent) were rarely enacted in physical classrooms.

Qualitative interviews (IIG, n = 80) analyzed using Braun and Clarke's (2006) thematic framework illuminated three primary structural constraints: (1) Inadequate Course Modeling: 65% of student teachers reported that university methodology courses teach about strategies theoretically rather than modeling them actively; (2) Severe Environmental Constraints: 91.3% cited class sizes exceeding 60 students and 82.5% cited absence of electricity/hardware in secondary placement schools; (3) Supervisory Mentoring Gaps: Mentoring focuses heavily on formal

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lesson plan compliance rather than encouraging pedagogical innovation (Price, 2019; Gholam, 2019).

4.5 Hypothesis Testing: Awareness vs. Usage Relationship

Hypothesis 1 (H01) posited that there is no statistically significant relationship between pre-service teachers' awareness and their usage of innovative strategies. A Pearson Product-Moment Correlation coefficient was calculated using composite scores derived from the PTAUISQ (N = 600).

Table 3: Pearson Correlation Analysis between Awareness and Classroom Usage (N = 600)

Variable	N	Mean	Std. Dev.	Pearson r	Sig. (2-tailed)	Decision
Awareness Score	600	38.42	4.81	0.487**	0.000	H01 Rejected
Usage Score	600	28.14	5.62			

*** Correlation is significant at the 0.01 level (2-tailed). p < 0.05. Source: Field Data Analysis (2024).*

Statistical Interpretation: The analysis produced a Pearson r of 0.487 with p = 0.000 < 0.05. Consequently, the null hypothesis (H01) was rejected. There is a statistically significant, moderate positive relationship between pre-service teachers' awareness and their actual usage of innovative teaching strategies (Ogbonna, 2020; Shittu et al., 2023). While higher conceptual awareness correlates with higher classroom deployment, the coefficient of determination (R2 = 0.237) indicates that awareness accounts for only 23.7% of the variance in usage. The remaining 76.3% of variance is accounted for by contextual, institutional, and environmental constraints.

5. Discussion of Findings

5.1 Pre-Service Teachers' Level of Awareness

The finding that pre-service teachers possess a high overall awareness (73.2%) aligns with prior empirical literature (Kaya et al., 2015; Kolawole, 2016; Demirkol-Orak & Inozu, 2021). University coursework successfully instills a theoretical understanding of the value of active, student-centered learning. However, awareness is unevenly distributed: candidates demonstrate high familiarity with social and collaborative strategies (e.g., group work, peer interaction) because these fit naturally into social constructivist paradigms (Vygotsky, 1978; Dahiya, 2019). Conversely, awareness surrounding digital integration and blended learning remains less developed, reflecting gaps in university educational technology coursework (Olasedidun, 2017, 2019).

5.2 The 26-Point Knowledge-Practice Gap

The substantial discrepancy between awareness (73.2%) and actual classroom usage (46.8%) confirms the observations of Aiyede et al. (2023) and Omodara & Makinde (2023), who posited that Nigerian teachers possess theoretical knowledge of evidence-based practices but fail to reach implementation. Through the lens of Rogers' (2003) Innovation Decision Process, pre-service teachers become stuck at the Knowledge and Persuasion stages. When transitioning to Implementation during field teaching practice, they encounter environmental hurdles—such as large class sizes, lack of functional ICT infrastructure, rigid examination schedules, and non-supportive cooperating teachers. As a result, candidates default to low-resource, traditional methods to maintain classroom management (Gholam, 2019; Price, 2019).

5.3 Nature of the Awareness-Usage Relationship

The rejection of H01 (r = 0.487, p < 0.05) confirms that awareness is a critical precursor to innovative practice (Ogbonna, 2020; Shittu et al., 2023). Teacher candidates cannot enact strategies they do not know or understand (Shulman, 1987). However, because r is moderate rather than strong, the statistical evidence proves that awareness alone cannot bridge the implementation gap. Systemic interventions—such as active modeling by university lecturers and structural resourcing in placement schools—are necessary co-conditions (Kolawole, 2016; Aiyede et al., 2023).

6. Conclusion and Recommendations

6.1 Conclusion

Pre-service teachers in Southwest Nigeria possess a solid conceptual baseline regarding innovative teaching strategies. However, a substantial 26.4-percentage-point knowledge-practice gap exists between what student teachers know and what they execute in authentic classrooms. While awareness significantly correlates with usage, environmental constraints—including resource scarcity, large class sizes, inadequate ICT infrastructure, and passive teacher preparation methods—severely hamper implementation.

6.2 Recommendations

To close this knowledge-practice gap, the following targeted interventions are recommended:

- **Pedagogical Reform in University Method Courses:** Teacher educators must transition from lecturing about innovative strategies to actively modeling them within university lecture halls. Pre-service teachers should experience inquiry-based, blended, and project-based approaches firsthand during their training (Olasedidun, 2019; Aiyede et al., 2023).
- **Practicum Placement Infrastructure Upgrades:** Ministries of Education and university faculties should collaborate to equip teaching practice partner schools with basic functional ICT tools, open educational resources, and lower student-to-teacher ratios where feasible (Shittu et al., 2023).
- **Mentoring and Supervision Orientation:** Cooperating school teachers and university supervisors should receive targeted training on how to evaluate, mentor, and encourage pre-service teachers in executing innovative practices during field placements (Price, 2019; Gholam, 2019).
- **Integration of Micro-Teaching Rubrics:** University assessment systems should explicitly evaluate candidates on their ability to deploy at least two non-traditional, innovative strategies during micro-teaching and practicum evaluations (Kolawole, 2016).

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