



METACOGNITIVE AWARENESS AND TEACHING COMPETENCE AMONG STUDENT-TEACHERS IN SOUTHWESTERN NIGERIA

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Abstrak

Penelitian ini mengkaji tingkat kesadaran metakognitif mahasiswa calon guru di Fakultas Ilmu Pendidikan yang sedang melaksanakan praktik mengajar di lapangan, serta menganalisis pengaruh kesadaran metakognitif terhadap kompetensi akademik mereka. Seiring dengan meningkatnya pengakuan terhadap metakognisi sebagai salah satu penentu utama keberhasilan belajar, penelitian ini bertujuan untuk menelaah sejauh mana calon guru mampu mengatur dan merefleksikan proses belajar mereka. Sebanyak 120 mahasiswa calon guru dari empat universitas negeri di bagian barat daya Nigeria dipilih melalui teknik multistage sampling. Dengan menggunakan instrumen yang telah tervalidasi, yaitu Teacher Competence Assessment Scale (TCAS) dan Metacognitive Awareness Scale (MAS), penelitian ini menerapkan statistik deskriptif dan analisis regresi untuk mengukur tingkat kesadaran metakognitif serta kapasitas prediktifnya terhadap kompetensi akademik. Hasil penelitian menunjukkan bahwa mayoritas calon guru memiliki tingkat kesadaran metakognitif pada kategori sedang. Namun, analisis regresi mengungkapkan bahwa kesadaran metakognitif tidak memiliki pengaruh yang signifikan terhadap kompetensi akademik. Temuan ini memberikan implikasi bagi program pendidikan guru, khususnya terkait integrasi pembelajaran strategi metakognitif dalam kurikulum pendidikan calon guru.

Kata Kunci: Metakognisi, Kompetensi Akademik, Kesadaran Metakognitif, Mahasiswa Calon Guru.

Abstract

This study examines the level of metacognitive awareness of faculty of education undergraduate student-teachers on the field for teaching practice exercise and also determine the influence of metacognitive awareness on academic competence among undergraduate student-teachers in Southwestern Nigeria. With the increasing recognition of metacognition as a core determinant of student success, this research sought to analyse how well student-teachers regulate and reflect upon their learning processes. A total of 120 student-teachers from four public universities in southwestern Nigeria were selected through a multistage sampling technique. Using validated instruments; the Teacher Competence Assessment Scale (TCAS) and the Metacognitive Awareness Scale (MAS), the study employed descriptive statistics and regression analysis to measure the levels of metacognitive awareness and their

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predictive capacity on teaching competence. Findings revealed that the majority of student-teachers exhibited moderate levels of metacognitive awareness. However, the regression analysis showed no significant influence of metacognitive awareness on teaching competence. These results have implications for teacher education programs and the integration of metacognitive strategy instruction.

Keywords: Metacognition, Teaching Competence, Metacognitive Awareness, Student-Teachers.

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INTRODUCTION

Competencies are skills and knowledge that enable a teacher to be successful in order to maximise students learning a teacher must have broad range knowledge or ability or competencies in handling complex situations among learners in the classroom and within the school environment. Some of these skills are been taught during the student-teachers undergraduate training in the university at faculty of education or colleges of education in the Nigeria institutional settings. This teaching competencies are shaped by various cognitive and non-cognitive variables. Among these, metacognitive awareness which is a person's ability to understanding and have control over their own cognitive processes, has generated increasing attention overtime. Despite the extensive global discourse on metacognition research that have been contextualized within Nigerian higher education, especially among undergraduate student-teachers in faculty of education remains limited.

Metacognition is often referred to as thinking about thinking. It comes from the root word meta, meaning beyond. It includes knowledge about when and how to use a particular strategy for learning or for problem solving (Talekar & Fernandes, 2016). Metacognition is a regulatory system that helps a student understands and controls his or her own cognitive performance. Metacognition is also defined as persons' understanding of their own cognitive processes and their ability to manage them as a function of learning by organizing, monitoring, and adjusting them. That is, it is a process by which a student-teacher monitors and controls his/her own cognition, it includes actions such as planning, how to approach a learning problem, assessing comprehension, and evaluating learning processes in order to gain the academic competence required for improved performance. (Sarwer & Govil, 2017).

Metacognition empowers people to take charge of their own learning. When discussing metacognition, people occasionally use the phrase going meta, which refers to the process of stepping back to see what you are doing as if you were someone else watching it. Being a spectator of one's own performance, in this case one's own intellectual performance, is what going meta entails. Metacognition was defined by Sajna and Premachandran (2016) as knowledge about and regulation of one's own cognitive activities in learning processes. These include recognizing how people learn, assessing their learning needs, developing methods to meet those needs, and implementing those strategies, all of which will help improve self-control, study skills, problem solving, and critical thinking.

According to experts, the evolution of metacognition as a psychological construct can be traced to Flavell's (1979) pioneering work, which emphasized the dual components of metacognitive cognitive information/knowledge and cognitive regulatory skills are the two types of cognitive abilities. While cognitive knowledge refers to the information gained through cognitive processes and the ability to manage them, cognitive strategies refer to the regulation of one or more cognitive activities and the achievement of cognitive goals. While cognitive information is important for a student's understanding of learning paths and memory, cognitive adjustment skills are important for how a person organizes and adjusts his or her learning and memory, and may help him or her to be emotionally engaged in the learning process in order to achieve academic competence. More recent study reinforced this importance, for example Zohar and Ben-Ari (2022) emphasized that metacognitive instruction is a critical dimension of teaching in higher- order thinking, while Fono and Zohar (2024) findings revealed that pre-service teachers' metacognitive knowledge and regulation can be systematically strengthened through professional development programs. In teacher education, where reflective thinking and adaptive learning are integral, the ability to monitor, plan, and evaluate one's own learning becomes essential. However, in Nigeria, most studies on metacognitive awareness have been conducted among secondary school students (e.g., Achor, Yusuf, & Joseph, 2022). Leaving a gap in research on undergraduate students in the faculty of education who are expected to be autonomous learners and future educators.

Metacognitive awareness, defined as the ability to monitor and regulate one's own cognitive processes, has been widely studied in relation to academic competence. Research indicates that student-teachers with well-developed metacognitive awareness skills tend to exhibit greater teaching competence, as they employ effectively plan for lessons, adapt instructional strategies, and reflect on their classroom performance (Zohar & Barzilai, 2023; Al-Harthy et al., 2023).

Several studies have demonstrated a positive correlation between metacognitive awareness and various dimensions of teaching competence. Achor, Yusuf, and Joseph (2022) found that in Nigeria, teachers who demonstrated high levels of metacognitive abilities, pair with positive attitudes were more likely to report higher perceived professional competence thereby outperformed their peers. This underscores that metacognitive skills can be translated into practical competences in teaching and learning spaces. Similarly, Uwakwe et.al (2024) observed that student who engages in planning ahead and uses active learning strategies with both central to metacognitive regulation, accounted for notable portions of variance in their mathematics achievement. This revealed the strong link between metacognitive strategy use and academic performance. These findings imply that student-teachers who develop high metacognitive awareness may more likely show competence during their teaching practice and later on in life.

However, a 2025 study involving B.Ed. (Bachelor in Education degree) undergraduates found only a weak, non-significant correlation between MAI scores and academic achievement, indicating that possessing high metacognitive awareness alone does not guarantee academic success (Ali et al., 2025) suggesting that the relationship between metacognitive awareness may not always directly predict competence and at such may be more complex in teaching context.

Research supports the role of metacognitive training in developing teaching competence through various strategies has been demonstrated across various educational contexts. Ford et al. (2023) revealed that explicit instruction in metacognitive strategies combined with virtual simulations will help improve pre-service teachers' metacognitive awareness and accuracy in conducting whole group discussions, also highlighting how fidelity in simulated teaching

environment can assist planning and self-monitoring in teaching spaces. This study suggests that metacognitive processes are essential for effective lesson planning and classroom instruction, Research by Adiguzel et al. (2023) demonstrated that guided practice in strategy evaluation, delivered through professional development programme, significantly increases teachers' use of self-regulated learning strategies in the classroom, leading to more deliberate and informed instructional decision making and structured metacognitive training led to a more adaptive teaching approach.

Recent studies have built on these foundations. In Nigeria, Olatoye and Adekoya (2023) found that video-based reflection exercises improved lesson planning accuracy by 25% among pre-service teachers. Similarly, Kizilboga and Demir's (2023) research with Turkish science teachers showed that cognitive coaching enhanced metacognitive regulation, accounting for 42% of variance in teaching competence scores. Despite these positive findings, Warmer (2018) reported that metacognitive awareness alone did not predict success, though metacognitive ability (e.g., calibration) did. This suggests a distinction between mere awareness of metacognitive strategies and the actual application of these strategies in learning contexts. Similarly, Ali et al. (2025) also reported that while preservice teachers demonstrated above average levels of metacognitive awareness, its correlation with academic performance was weak and statistically non-significant.

The literature underscores the importance of metacognitive awareness in fostering teaching competence, highlighting its role in enhancing teachers' ability to plan, monitor, and reflect on instructional practices. While several studies report a strong relationship between metacognition and teaching competence, others suggest that metacognitive awareness alone may not be sufficient without structured training and meaningful classroom application. These mixed findings point to the need for further research on how teacher education programs can effectively integrate metacognitive instruction to strengthen student-teachers' self-regulated learning skills and professional readiness.

Despite this recognized theoretical significance, many student-teachers in Nigerian universities continue to demonstrate suboptimal academic and professional performance. Such underachievement raises critical questions regarding the cognitive and self-regulatory strategies they employ, particularly their ability to plan, monitor, and regulate their learning processes. To what extent are these student-teachers metacognitively aware, and does this awareness translate into improved teaching competence? These concerns form the basis of the present study, which was guided by the following research questions: (a) What are the levels of teaching competence among Faculty of Education undergraduate student-teachers in Southwestern Nigeria? (b) What are the levels of metacognitive awareness demonstrated by these student-teachers? and (c) What is the influence of metacognitive awareness on teaching competence among undergraduate student-teachers in the study area? To address these questions, the study tested the hypothesis that there is no significant influence of metacognitive awareness on academic competence among Faculty of Education undergraduate student-teachers in the study area.

METHODS

Research Design

This study adopted a descriptive survey research design. The approach was selected to obtain systematic and factual information on the levels of teaching competence and metacognitive awareness among undergraduate student-teachers in Southwestern Nigeria. This design enabled

the researcher to observe naturally occurring behaviors during teaching practice while gathering self-reported data on metacognitive awareness.

Participants

The population of the study comprised undergraduate student-teachers in Faculties of Education across public universities, both federal and state in Southwestern Nigeria. The region consists of six states (Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo) and hosts eleven public universities with education faculties. A multistage sampling procedure was used to select 120 student-teachers. Two states were randomly selected, followed by the purposive selection of four universities (two federal and two state). Within each university, three departments (Social Sciences, Arts, and Science) were randomly chosen, and 10 student-teachers per department were selected through convenience sampling, yielding a total of 30 participants per university ($N = 120$). This sample size was appropriate for conducting 35–40 minute observational assessments of teaching competence while maintaining feasibility and methodological rigor.

Data Collection Techniques

Two validated instruments were employed for data collection. The Teacher Competence Assessment Scale for Students (TCAS), adapted from Sbrocco (2009) and teaching practice assessment forms used by universities in Southwestern Nigeria, was used to observe and rate student-teachers' teaching competence. Items were scored on a four-point scale ranging from Very High (5) to Very Low (1), with negatively worded items reverse-coded.

The Metacognitive Awareness Scale (MAS), adapted from Sajna and Premachandran (2016), measured student-teachers' metacognitive awareness using a four-point Likert scale: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). After the purpose of the study was explained, the instruments were administered by the researcher with assistance from trained research assistants. Reliability testing indicated strong internal consistency for both scales, with Cronbach's alpha values of 0.905 for TCAS and 0.917 for MAS.

Data Analysis

The collected data were analyzed using descriptive statistics (frequency and percentage) and regression analysis to examine the influence of metacognitive awareness on teaching competence. All analyses were conducted using the Statistical Package for the Social Sciences (IBM SPSS Version 20). The level of significance was set at 0.05 for all inferential tests.

RESULTS AND DISCUSSION

Results

Assessment of Teaching Competence Levels Among Faculty of Education Undergraduate Student-Teachers in Southwestern Nigeria

To answer this research question, two approaches were adopted. In the first instance, student-teachers' rating in five distinct competence indicators (i.e. classroom management and control, knowledge of subject matter, instructional materials, evaluation/assessment, and student-teacher personality) on Teacher Competence Assessment Scale (TCAS) for student-teachers were scored such that Very High rating was allotted 5, Above Average 4, Average 3, Below Average 2 and Very Low was allotted 1. Ratings on the 31 items on TCAS were subjected to a descriptive analysis of frequency and percentage. However, to determine the levels of teaching competence among Faculty of Education undergraduate student-teachers, rating scores for each student under the competence indicators were cumulated. The minimum and maximum scores obtainable from TCAS were 31 and 155 while the mean and standard deviation scores were 98.9 and 13.6. Since a

high score indicates a high level, scores of 31 to 1SD below the mean score (31-85) were adjudged as low level, 86 through 113 (86 to mean+1SD) as a moderate level while 114 through 155 were adjudged as high level of teaching competence. The result is presented in Table 1 below:

Table 1. Levels of Teaching Competence among Faculty of Education Undergraduate Student-teachers in Southwestern Nigeria

Level of teaching Competence	Score range	Frequency (f)	Percentage (%)
Low	31-85	17	14.2
Moderate	86-113	88	73.3
High	114-155	15	12.5
Total		120	100.0

Mean = 98.9, SD = 13.6

Table 1 shows the levels of teaching competence among Faculty of Education undergraduate student-teachers in Southwestern Nigeria. The result showed that 14.2% had a low level, 73.3% had a moderate level, while 12.5% of the student-teachers had a high level of teaching competence. This result therefore showed that the majority of the Faculty of Education undergraduate student-teachers in Southwestern Nigeria had a moderate level of teaching competence.

Exploring Levels of Metacognitive Awareness Among Faculty of Education Undergraduate Students

In order to answer this research question, undergraduate student-teachers' responses to 20 items on Metacognitive Awareness Scale (MAS) were scored such that a 'Strongly Agree' response was allotted 4, 'Agree' response, 3, 'Disagree' response, 2 and 'Strongly Disagree' was allotted 1. Undergraduate student-teachers' responses to all items on each inventory were subjected to a descriptive analysis of frequency and percentage. The constituting items on each scale were then scored and cumulated. For 20 items on Metacognitive Awareness Scale, the minimum and maximum scores obtainable were 20 and 80 while the mean and standard deviation scores were 67.9 and 7.1. High score on the inventory also indicates a high level of metacognitive awareness, therefore, scores of 20 to 1SD below the mean score (20 - 61) were adjudged as low level, scores of 62 through 75 (62 to mean + 1SD) as a moderate level, while scores of 76 through 80 were adjudged as high level of metacognitive awareness. This categorization was then subjected to a descriptive analysis of frequency and percentage and results are presented in Table 2.

Table 2. Levels of Metacognitive Awareness among Faculty of Education Undergraduate Student-teachers in Southwestern Nigeria

Variables	Level	Score Range	Frequency (f)	Percentage (%)
Metacognitive Awareness	Low	20-61	23	19.2
	Moderate	62-75	78	65.0
	High	76-80	19	15.8
	Total		120	100.0

Table 2 showed the levels of metacognitive awareness among Faculty of Education undergraduate students. The results showed that 19.2% had low level of metacognitive awareness while 65.0% and 15.8% a moderate and high level of metacognitive awareness respectively.

Research Hypothesis

There is no significant influence of metacognitive awareness on teaching competence among Faculty of Education undergraduate student-teachers in the study area. To test this hypothesis, the

cumulated score for metacognitive awareness was used as predictor in regression analysis for the outcome variable which is teaching competence score. The result is presented in Table 3.

Table 3: Regression Analysis of Influence of Metacognitive Awareness on Teaching Competence among the Student-Teachers in Southwestern Nigeria

R = 0.158 R ² = 0.025 Adj. R ² = 0.017 F = 3.035		Unstandardized Coefficients		Standardized Coefficients	t	p.
		B	Std. Error	Beta		
1	(Constant)	119.634	11.917		10.039	.000
	Metacognitive Awareness	-.304	.175	-.158	-1.742	.084

Dependent Variable: Teaching Competence. **Predictor:** (Constant), Metacognitive Awareness, $p > .05$ ($p = .084$)

Table 3 showed the influence of metacognitive awareness on the undergraduate student-teachers' competence yield a multiple regression coefficient (R) of .158 and a multiple correlation square (R²) of .025. These values are not statistically significant at 0.05 probability level ($R = .158$, $R^2 = .025$, $F = 3.035$).

Discussion

The findings of this study revealed that a large number of the undergraduate student-teachers in faculty of Education in the study area showed a moderate level of teaching competence (73.3%), with only 12.5% and 14.2% showed high and low level respectively. This finding suggests that, while many student-teachers have basic teaching skills such as classroom management, use of instructional materials, subject knowledge, student assessment, and professional disposition, only a small percentage perform at the highest levels expected of future teachers. This finding is consistent with previous research in teacher education settings by Fono and Zohar (2024) and Zohar and Ben-Ari (2022), which found that student-teachers frequently demonstrate competence in basic instructional practices but struggle with higher level professional capabilities such as reflection, adaptability, and knowledge regulation. The small percentage of high level of teaching competence among the student-teacher is of great concern, giving the link between teaching competence and students' academic performance (Darling-Hammond, 2017; Kong et al., 2022). This corroborates the findings of Achor, Yusuf, and Joseph (2022) which revealed that even when teacher report moderate metacognitive awareness and teaching skills, their perceived competence often requires the need for focused interventions in other to strengthen their teaching competence. While the low teaching competence level revealed among student-teachers reflects some of the challenges encounter such as limited practicum support, resources or insufficient integration of reflective and adequate training. According to research, competency of the student-teachers is not only shaped by their exposure to teaching practice theory taught within the classroom during the school year, but also by how well they are guided in engaging themselves during the teaching practice exercise (Ford et al., 2023; Buchner et al., 2025).

The findings of this study also showed that the majority of the student-teacher had a moderate level of metacognitive awareness. This resonates with other studies such as, Ali, Chen, and Musa (2025) revealed that while student-teacher generally scored above average on the MAI, the link between these scores and actual academic achievement was weak, suggesting that awareness does not automatically translate into effective application. In same vein, Olop, Granström, and Kikas (2024) revealed that although undergraduates could identify metacognitive strategies such as retrieval practice and distributed learning as effective, many failed to apply these strategies

continuously without clear instructional support. These findings in line with the current study, shows that student teachers may acknowledge the relevance of metacognitive awareness but struggle to put it into practice in ways that it will significantly enhance their learning and teaching practice skills. Relatively, the small group of student-teachers who attained high level of metacognitive awareness (15.8%) is of concern given the established role of metacognition in aiding deep learning, critical thinking and adaptive teaching (Zohar & Ben-Ari, 2022; Fono & Zohar, 2024). Research emphasizes that high metacognitive awareness equips student-teachers not only to regulate their learning but also to model reflective thinking for their students, a skill essential for promoting higher-order cognitive engagement in classrooms. The low percentage in this category therefore suggests a missed opportunity for maximizing the transformative potential of teacher education programs. On the other hand, the 19.2% of student with low metacognitive awareness reflects a vulnerability that could negatively affect both their academic development and future teaching competence skills. Previous studies indicate that a low or limited metacognitive regulation is often associated with reliance on surface learning strategies, poor self-monitoring, and difficulty in adapting to instructional challenges (Adiguzel et al., 2023). In the Nigerian context, this gap may be as a result of large class sizes for lecture, limited mentoring, and insufficient emphasis on reflective practice within teacher training curricula (Achor, Yusuf, & Joseph, 2022). These findings of levels of metacognitive awareness further underscore the need for intentional integration of metacognitive strategy instruction into teacher education programs.

Additionally, the results showed that among undergraduate student-teachers in southwest Nigeria, metacognitive awareness had no discernible impact on teaching competency. Only 2.5% of the observed variance in the competency of student-teachers in this study was explained by metacognitive awareness. Systemic issues like packed classrooms, restricted mentorship opportunities, and a lack of emphasis on reflective practice in teacher education programs may exacerbate this weak relationship in Nigeria (Achor, Yusuf, & Joseph, 2022). This finding implies that the metacognitive awareness of undergraduate student-teachers cannot be considered a predictor of their ability to teach. In other words, students' ability to know what they know and what they do not know does not determine their competence in relation to engaging in teaching/learning tasks in the classroom. Though, individual's metacognitive awareness is expected to contribute positively and significantly to task performance; however, classroom teaching/learning with its intricacies transcend individual metacognitive ability alone. In classroom teaching/learning interactions, there are goals to be achieved and success expectations at each level of learning and it is expected of any classroom teacher to ensure that such lay down academic goals are achieved. Therefore, it is acknowledged in this study that individual's metacognitive awareness skills tend to promote self-understanding in terms of what one knows and what one does not know. Unfortunately, this understanding alone does not translate into amelioration of skills deficiency unless a practical step is further taken to take advantage of the understanding. Teaching/learning is practical in nature with performance expectations. Similarly, the finding of the study is consistent with findings of Warmer (2018) who found out that metacognitive awareness did not predict academic success among university undergraduate students.

SUMMARY

Conclusion

The present study established that both the level of teaching competence and the level of metacognitive awareness among Faculty of Education undergraduate student-teachers in

Southwestern Nigeria were moderate. Despite the theoretical expectation that metacognitive awareness contributes to improved instructional performance, the findings revealed no significant influence of metacognitive awareness on teaching competence. This suggests a possible gap between possessing metacognitive knowledge and effectively applying such strategies in real classroom contexts. The results highlight the need to reconsider how teacher preparation programs cultivate both cognitive and practical dimensions of teaching competence.

Recommendations

1. **Enhance Practical Teaching Skill Development**
Faculties of education should invest in targeted professional development initiatives focusing on micro-teaching, classroom simulations, and supervised teaching practicums. Emphasizing the application of metacognitive strategies in authentic teaching contexts may help bridge the gap between awareness and practice.
2. **Strengthen Metacognitive Skill Training**
Teacher education programs should implement structured reflection workshops and mentoring systems. Guided reflective journaling, video-based self-assessments, and peer feedback sessions can deepen student-teachers' self-regulation and awareness of instructional strengths and weaknesses. Integrating metacognitive strategy training across subject-specific methodology courses will reinforce these skills within disciplinary contexts.
3. **Integrate Cognitive and Practical Components of Teacher Education**
Given the non-significant influence of metacognitive awareness on teaching competence, curriculum developers should more deliberately integrate theoretical and practical components. Methodology courses should combine metacognitive concepts with hands-on lesson planning, classroom management practice, and assessment design to balance both the "knowing" and "doing" aspects of teacher competence.
4. **Establish Professional Learning Communities**
Faculties should develop teaching circles, observation partnerships, and collaborative planning groups where student-teachers can practice, observe, and refine instructional strategies. Such professional learning communities provide continuous support and facilitate the transition from theoretical understanding to practical application.
5. **Strengthen University–School Partnerships**
Universities should enhance collaboration with local schools to provide more authentic and sustained teaching experiences. Extended practicum placements, team-teaching opportunities, and action research projects would enable student-teachers to build teaching competence through real-world practice under guided supervision.

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