

Socratic and Lecture Teaching Methods on Academic Performance of Students at Selected Nursing Colleges in Imo State, Nigeria

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Abstract	Article History
<p>In education, teaching methodologies are critical in facilitating student learning and understanding. Nursing education uses various teaching approaches to improve the learning experience. This study aimed to assess the effectiveness of three teaching methods (Socratic teaching methods and lecture method) on students' academic performance in research methodology. A pretest-posttest experimental design was employed. This study involved a total of 134 nursing students from two nursing colleges in Imo State, Nigeria, selected using a multi-stage sampling technique. A multiple-choice, single-best-answer achievement quiz on research methodology, developed by the researcher, was used to assess students' knowledge (<i>validity</i> = 0.92, <i>reliability</i> = 0.69). Data collection took place from December 2022 to April 2023. Prior to intervention, the students exhibited markedly low knowledge levels of research methodologies, with mean scores of 22.97 (<i>SD</i> = 3.08) for the lecture method and 22.26 (<i>SD</i> = 4.99) for the Socratic method, with no significant difference observed (<i>p</i> = 0.453). Post-intervention results indicated substantial increases in knowledge: the lecture method yielded a mean score of 59.49 (<i>SD</i> = 10.84), while the Socratic method produced a mean score of 72.19 (<i>SD</i> = 7.90), the latter demonstrating a statistically significant improvement (<i>p</i> < 0.001). In conclusion, the study highlights the effectiveness of Socratic teaching methods in enhancing nursing students' academic performance in research compared to traditional lecture approaches. Based on these findings, nursing educators are encouraged to integrate Socratic methods into their curricula to enhance students' understanding and application of research methodology.</p> <p>Keywords: Academic performance, Lecture, Socratic, Teaching methods, Nigeria</p>	<p>Received: 23 Sept 2025 Accepted: 06 Oct 2025 Published: 13 Oct 2025</p> <p>Scan QR code to view*</p>  <p>License: CC BY 4.0*</p>  <p>Open Access article.</p>
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Introduction

Education is a foundational pillar in life, equipping individuals with the competencies necessary to enhance their employment prospects (Al Matalaka & Al Dwakat, 2022; Mohamed et al., 2025). Within various educational contexts, educators often prioritise the academic success of their students. A primary means of assessing a student's academic performance is through their ability to complete designated assignments (Kumar et al., 2021). As described by Busalim et al. (2019), academic performance is often defined by a student's capability to fulfill academic tasks, and it is assessed through

objective metrics such as final course grades and grade point averages.

Teaching methods encompass the overarching pedagogical strategies and instructional techniques employed within the classroom to enhance learning (Javed, 2023). The choice of teaching approach adopted by educators is influenced by various factors, including personal efficacy, subject matter, educational philosophy, and the institution's mission statement. Murphy et al. (2021) wrote that teaching methods

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can be categorised into teacher-centered and student-centered approaches.

Treve (2024) hinted that in a teacher-centered (or traditional) approach, the instructor remains the focal point of the educational experience. This structured methodology involves the educator presenting material while students attentively listen and note key information (Ghafar, 2023). As described by Brown (2020), the teacher acts as the principal agent of knowledge dissemination, offering guidance and direction. One of the advantages of this approach is the ease with which classroom management can be maintained, as teachers retain full control over the flow of information, thereby ensuring that students acquire the necessary skills and knowledge. Such a method is particularly effective when introducing concepts or content unfamiliar to students. A quintessential example of a teacher-centered method is the lecture format, which typically involves minimal student participation in the learning process (Javed, 2023). Ho et al. (2023) mentioned that these traditional pedagogical approaches can negatively impact students, as student-centered environments are more effective in promoting critical and reflective thinking, alongside a sense of responsibility, in our constantly evolving world.

Conversely, learner-centered learning shifts the emphasis of instruction from the educator to the students. In this model, teachers employ learner-centered strategies to facilitate and enrich the learning experience (Endang, 2018). The educator's role transitions to that of a facilitator, responsible for curating course material and promoting collaborative learning among peers. This approach places the learning process in the hands of the students, encouraging their active participation and engagement (Brown & Green, 2020; Ghafar, 2023; Onwumere et al., 2024). An illustrative instance of this technique is the Socratic method which applies content-based instruction (Saifurahman & Abdul, 2019).

The Socratic (also known as dialectic or maieutic) method of instruction is a tried-and-true framework for fostering student discourse and critical thinking, thereby guiding learners toward well-reasoned conclusions (Brown, 2020). This pedagogical strategy is rooted in the belief that education should prioritise the discovery of truth from within the students themselves rather than merely filling an intellectual void (Ghafar, 2023; Treve, 2024). By centering the educational experience on inquiry and dialogue, the Socratic method actively engages learners in discourse, encouraging them to critically contemplate complex questions and provide original solutions to queries rather than predetermined responses. Javed (2023) proposes that this approach also enables students to make connections between theoretical knowledge acquired in nursing education and practical experiences encountered in clinical settings. Moreover, Socratic questioning enhances students' retention and application of classroom learning; through structured inquiry and dialogue, educators can guide students to assess patient observations and anticipate clinical outcomes critically. Ho et al. (2023) argue that when educators consistently introduce critical thinking tools, Socratic questioning and discussions become more productive and disciplined, helping students grasp the importance of asking questions during learning.

The traditional lecture style remains one of the most prevalent instructional methods within educational contexts (Murphy et al., 2021). In this approach, the instructor assumes a central role in delivering information, while students typically occupy a more passive position. This unidirectional transfer of knowledge can be scaled effectively for larger class sizes, as documented by Ibrahim et al. (2023). However, the lecture method is not learner-centred.

Nursing as a profession necessitates a synthesis of both theoretical knowledge and clinical skills. With a global demand for competent professional nurses, it is imperative that educational strategies effectively prepare students for their vital roles within the healthcare system. Given that nurses often have closer interactions with patients than other health care professionals, the significance of equipping them with the requisite skills and knowledge cannot be overstated. Thus, educators must adopt adaptable teaching strategies that align with the diverse needs of their students, recognising that the success of learners hinges on the application of effective teaching techniques (Gupta, 2017).

While most clinical courses focus on professional skills, problem-solving, and disease treatment, they often do not prioritise developing a critical mindset and metacognitive skills. Ho et al. (2023) state that current educational strategies frequently emphasise outcomes over the learning process. However, medical educators should also focus on cultivating students' critical thinking processes during instruction and guidance. Therefore, integrating metacognitive monitoring to enhance critical thinking in healthcare education is highly beneficial (Ho et al., 2023).

Amid the pressures to adhere to the curricula set forth by the Nursing and Midwifery Council of Nigeria (NMCN) and the National Universities Commission (NUC), nurse educators are on the lookout for the most effective teaching methodologies. Ensuring thorough coverage of the curriculum not only enhances the knowledge and skills of nursing students but also contributes to improved academic performance.

To facilitate a seamless transition into their professional roles, students must be adequately prepared through well-structured instructional practices. Notably, the efficacy of teaching methods can significantly influence the achievement of learning objectives. Despite the shared educational environment and adherence to similar curricula, discrepancies in the academic performance and clinical competencies of nursing students have been observed (Faruk et al., 2022).

Numerous studies have been conducted to explore the most effective teaching methods that enhance learning outcomes across various countries and regions (Eebo, 2020; Musa & Sa'ad, 2023; Ogunride et al., 2020; Odey et al., 2021; Onaolapo et al., 2024; Onwumere et al., 2024). Research indicates that a significant number of college students have underperformed academically, a situation often linked to the ineffectiveness of lecturers' teaching strategies (Faruk et al., 2022). In particular, the predominant teaching strategies employed in Nigerian nursing schools include traditional lectures, demonstrations, and discussions. The academic

performance of students, as evidenced by their results in the Nursing and Midwifery Council Examination (NMCN), revealed a general trend towards marginal achievements (i.e., pass), with the majority receiving a C grade in their clinical assessments (Faruk et al., 2022). Interestingly, many students expressed a degree of satisfaction with the lecture format, citing its ability to comprehensively address the curriculum content (Faruk et al., 2022).

Additionally, research by Tewo (2011) identified teacher-centered pedagogy as the most frequently utilised teaching strategy among lecturers. Complementary findings from Bidabadi et al. (2016) suggest that a blended approach, integrating both teacher-centered and student-centered instruction, alongside thorough preparation and educational planning, constitutes the most effective teaching methodology. A study conducted in South Africa highlighted that while teacher-centered techniques were often perceived as less effective, interactive approaches that engage both the teacher and students emerged as the most efficacious (Elvis, 2013).

Furthermore, a study by Abdulbak et al. (2018) revealed that most respondents acknowledged the effectiveness of the lecture method in delivering course materials. In a more recent study by Makata et al. (2021), which examined the impact of two teaching methods on sexual health knowledge among adolescents in Enugu State, it was found that the mean knowledge gain scores for students taught using the lecture method were significantly higher than those taught through Socratic questioning (lecture $\bar{x} = 9.25 >$ Socratic questioning $\bar{x} = 7.25$; $p < 0.01$). Notably, the findings indicated that students from rural areas scored higher on average when instructed via lectures compared to their urban counterparts, whereas in the context of Socratic inquiry, urban students outperformed those from rural areas. The study advocates for the integration of lecture techniques in teaching sexual health to optimise educational outcomes.

Despite the extensive literature surrounding the lecture method, there remains a scarcity of research focusing on the Socratic method of instruction. Consequently, this study aims to assess the impact of both Socratic and lecture methods on students' academic performance, specifically identifying the most effective teaching strategy employed in Nigerian nursing colleges.

Methodology

This study was conducted in selected Colleges of Nursing within Imo State, Nigeria, which is situated in the southeastern geopolitical zone of the country. Imo State is bordered to the north by Anambra State, to the west by Rivers State, and the east by Abia State. Owerri, the state capital, is often referred to as the "Eastern Heartland." Notably, there are eight accredited nursing colleges distributed across the three senatorial zones: Princess College of Nursing, Owerri; Ezealla College of Nursing, Okwudor; Merit College of Nursing, Orlu; College of Nursing, Mbano; College of Nursing, Emekuku; College of Nursing, Umulogho; College of Nursing, Amaigbo; and Imo College of Nursing, Orlu. Specifically, the Okigwe zone encompasses the College of Nursing Mbano and Umulogho, the Owerri zone houses the College of Nursing

Emekuku and Princess College of Nursing, while the Orlu zone includes Ezealla College of Nursing, Merit College of Nursing, Imo State College of Nursing, and College of Nursing Amaigbo.

The population for this study consisted of all second-year students from the College of Nursing, Emekuku, and Ezealla College of Nursing, Okwudor, totaling 100 students across the two institutions. A quasi-experimental study design was employed, wherein participants were divided into two groups: a Socratic group and a lecture group. The sample size was calculated to be 89, using Taro Yamane's formula (1967), represented by the following equation: $N / (1 + N(d)^2)$ (Chinweuba et al., 2014), where n denotes the sample size, N is the total population size of 100, and d represents the level of precision, assumed to be 0.05 at a 95% confidence level. The minimum sample size determined was 80. To account for potential non-responses or attrition, the sample size was subsequently increased by 10%, using the formula $n_1 = n / (1 - 0.1)$ to have a final sample size of 89.

A multi-stage sampling technique was utilised for participant selection. In the first stage, the researcher had clusters of nursing colleges in the two senatorial zones (Owerri and Orlu) in Imo State. In the subsequent stage, two colleges were randomly selected with the aid of the dice throw method: the College of Nursing Emekuku (Owerri zone) and Ezealla College of Nursing Okwudor (Orlu zone). In the final stage, a proportionate sampling method was used to select study participants from each of the two colleges, resulting in a composition of 54 second-year students from the College of Nursing Emekuku and 35 from Ezealla College of Nursing Okwudor.

Before the research was conducted, ethical clearance was obtained from the Health Research Ethics Committee of the Federal Medical Center, Owerri, Imo State (Reference No: FMC/OW/HREC/VOL.11/77). Administrative permission was obtained from the heads of the nursing departments at the two colleges before engaging with respondents. Informed written consent was sought from each participant before data collection, ensuring anonymity throughout the study. Moreover, the safety and well-being of the respondents were prioritised, preserving them from bodily harm and undue exploitation throughout the study.

A questionnaire and an academic performance assessment developed by the researcher were used to gather the data. The questionnaire consisted of five items aimed at capturing the demographic characteristics of the respondents, while the academic performance assessment incorporated a total of fifty questions: five completion questions, five true/false questions, and forty objective questions. Each question in Section B was assigned a value of two points, culminating in a maximum achievable score of 100.

The study commenced with the administration of the Academic Performance Test of fifty (50) questions, conducted across two selected educational institutions. Three units extracted from the research and statistics curriculum of the General Nursing program were identified as the focal content

for this study. At College of Nursing Emekuku, students were exposed to the research course units utilizing the Socratic method, whereas their counterparts at College of Nursing Ezealla were instructed using a traditional lecture format. Both colleges received concurrent instruction over a span of three weeks. Instruction was facilitated by one trained research assistant and the primary researcher. The research assistant, a nurse possessing a master's degree in Nursing, was specifically trained in the lecture method of instruction and was responsible for the lecture group, while the researcher managed the Socratic teaching group. At both institutions, students were evaluated on the selected topic areas at the beginning and conclusion of the study using the academic performance test.

Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) version 25.0. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were employed to analyse the data. Inferential statistics, comprising the T-test (assuming equal variances) and one-way Analysis of Variance (ANOVA), were utilised to examine the hypotheses, with significance levels set at 0.05.

Results

The demographic information gathered from the participants is presented in Table 1. A significant majority of the participants were aged between 21 and 25 years, while individuals aged 26 and older constituted the smallest group. Also, over 70% of the students across all learning methods identified as female. Furthermore, over 80% of the students engaged in each learning approach were unmarried.

Table 1: Demographic characteristics of the students

Demographic Characteristics	Lecture (n=35)	Socratic (n=54)
Age (years)		
≤20	11(31.4%)	11(20.4%)
21-25	16(45.7%)	30(55.6%)
>26	8 (22.9%)	13(24.1%)
Range	17 – 41	19 – 38
Mean ±SD	23.4±5.0	23.6±4.5
Gender		
Male	8 (22.9%)	4 (7.4%)
Female	27(77.1%)	50(92.6%)
Marital Status		
Single	30(85.7%)	48(88.9%)
Married	5 (14.3%)	6 (11.1%)

Table 2: Knowledge of research among nursing students before intervention

Method of Teaching	No of Students	Mean Scores (%)	Standard Deviation	95% C.I for Mean	T test	P
Lecture method	35	22.97	3.08	21.91 – 24.03	0.753	0.453
Socratic method	54	22.26	4.99	20.90 – 23.62		

The knowledge of research among nursing students before intervention is presented in Table 2. The level of research knowledge among nursing students before intervention was very low: Lecture method (mean score = 22.97%, SD = 3.08%), and Socratic method (mean score = 22.26%, SD = 4.99%).

Table 3: Knowledge of research among nursing students after intervention

Method of Teaching	No of Students	Mean Scores (%)	Standard Deviation	95% C.I for Mean
Lecture method	35	59.49	10.84	55.76 – 63.21
Socratic method	54	72.19	7.90	70.03 – 74.34

The knowledge of research among nursing students after intervention is presented in Table 3. The students demonstrated improved research knowledge following both instructional methods: Lecture method (mean score = 59.49%, SD = 10.84%), and Socratic Method (mean score = 72.19%, SD = 7.90%).

Table 4: Academic performance in research between nursing students taught with Socratic and lecture teaching methods

Method of Teaching	No of Students	Mean Scores (%)	Standard Deviation	t-test	P-value
Socratic method	54	72.19	7.90	6.388	<0.001
Lecture method	35	59.49	10.84		

The academic performance in research between nursing students taught with Socratic and lecture teaching methods is presented in Table 4. There was a significant difference in academic performance in Research between nursing students taught with

Socratic and those taught using traditional lecture methods ($P < 0.001$). This implies that the nursing students who were taught with the Socratic Method outperformed than those who were exposed to the lecture method.

Discussion

Nursing education involves both theoretical (classroom) instruction and clinical practice, aimed at equipping future nurses with the requisite knowledge and skills for effective practice. To facilitate an impactful transfer of knowledge to students, nurse educators need to employ the most effective teaching strategies tailored to the unique learning needs of their students.

The findings of this study revealed a notably low level of research knowledge among students before the intervention, corroborating prior research conducted in Nigeria. For instance, a study (conducted in Nigeria) by Awoniyi et al. (2023) revealed that 196 students (48%) exhibited moderate research knowledge, while 173 (42%) demonstrated low levels, and only 41 (10%) had high knowledge of research. These findings contrast with Bamila and Johnsy (2021), who reported that nursing students in Nagercoil, India, generally possessed adequate knowledge of research. This disparity suggests the influence of contextual educational factors on research literacy. In today's nursing landscape, where evidence-based practice is paramount, nurses must engage in ongoing research endeavors to improve the quality of patient care. The observed low levels of research knowledge among nursing students in Nigeria may be attributed to the inadequacies in the teaching methods employed in this domain.

Importantly, this study also found a significant improvement in research knowledge following instruction using the Socratic and lecture methods, with the Socratic method yielding a higher mean score (72.19%) compared to the lecture method (59.49%). This suggests that using the Socratic Method is more effective in teaching research concepts, supporting the assertions by Ho et al. (2023). Similarly, Javed (2023) emphasised the superiority of learner-centered approaches in fostering cognitive engagement and deeper learning outcomes, particularly for abstract subjects like research methodology.

Additionally, a statistically significant difference was noted in the academic performance of nursing students taught via the Socratic method compared to those taught through traditional lectures in the realm of research ($P < 0.001$). This further depicts the effectiveness of the Socratic approach in promoting superior learning outcomes. These results are in line with the findings of Afrasiabifar and Asodolah (2019), which demonstrated that interactive lectures resulted in heightened learning and student satisfaction compared to the lecture format.

The findings of this study contribute to an ongoing debate in educational literature regarding the effectiveness of traditional versus student-centered teaching methods. While some studies (e.g., Abdulbaki et al., 2018; Makata et al., 2021) found the lecture method effective in delivering factual content, particularly in rural settings or for structured topics such as sexual health, others argue that this approach can limit student engagement and inhibit critical reflection (Treve, 2024; Brown, 2020). Research has also shown that Socratic questioning enhances critical thinking among students in clinical settings by prompting them to explore unfamiliar topics through inquiry (Zijing, 2023). The present study aligns more closely with literature advocating for active learning techniques. For example, Zou et al. (2011) found that radiology students preferred instructional strategies that combined Socratic questioning with guided lecture components, indicating a need for hybrid models that balance structure with interaction.

The efficacy of the Socratic method in this study can be attributed to its focus on dialogue, reasoning, and the internalisation of knowledge, which aligns with Bloom's higher-order cognitive processes. As Ghafar (2023) explains, the learner-centered nature of Socratic instruction encourages students to construct their understanding of content, linking theoretical knowledge to clinical scenarios. This is especially vital in nursing education, where the ability to assess, analyse, and apply information critically can directly impact patient care outcomes.

Furthermore, the findings reinforce Onwumere et al. (2024), who demonstrated that blended approaches combining lecture and student-centered methods were superior to lecture-only formats in teaching research methodology. This suggests that the mere transmission of information, as is typical in traditional lectures, may be insufficient in preparing nursing students for the analytical demands of research-based practice.

While studies such as Makata et al. (2021) reported that lecture methods performed better in some domains (e.g., sexual health), the present study reveals that in domains requiring analytical reasoning, like research, the Socratic approach is more beneficial. These nuanced results support calls by Bidabadi et al. (2016) and Gupta (2017) for flexible, context-sensitive teaching strategies that match content type with optimal instructional method.

Ultimately, this study highlights the importance of equipping nurse educators with the skills and resources to implement learner-centered pedagogies, particularly those that support the development of metacognitive and critical thinking abilities. This is particularly relevant given Ho et al.'s (2023) warning that current medical education systems often prioritise outcomes at the expense of cultivating critical thought processes.

Conclusion

This study indicates that the Socratic teaching method is more effective than traditional lectures in nursing education. Students taught with the Socratic approach demonstrated higher post-intervention performance. The method's interactive, question-driven nature enhanced critical thinking compared to the passive lecture method. Nurse educators should integrate Socratic instructions in the teaching of research methodology to improve learning outcomes.

Conflict of Interest: The authors declared no conflict of interest.

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Contribution of Authors: ISA wrote the manuscript. All authors reviewed the manuscript to guarantee that the document was ready for publication.

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FEATURED PUBLICATIONS

Antioxidant and Dietary Fibre Content of Noodles Produced From Wheat and Banana Peel Flour

This study found that adding banana peel flour to wheat flour can improve the nutritional value of noodles, such as increasing dietary fiber and antioxidant content, while reducing glycemic index.

DOI: <https://doi.org/10.54117/ijjns.v2i2.24>

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Impact of Pre-Sowing Physical Treatments on The Seed Germination Behaviour of Sorghum (*Sorghum bicolor*)

This study found that ultrasound and microwave treatments can improve the germination of sorghum grains by breaking down the seed coat and increasing water diffusion, leading to faster and more effective germination.

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