

Application of Scaffolding and Lecture Teaching Methods on Business Education Students' Academic Achievement in Entrepreneurship among Colleges of Education, Southwest Nigeria

¹ Aribisala, O. O. & ² David, S.

¹oluwadamilare.aribisala@fcetakoka.edu.ng, ²david.seyi@lcu.edu.ng

Abstract

Scaffolding instructional strategy is a student-focused teaching approach rooted in social constructivist theory, with particular reference to Vygotsky's Zone of Proximal Development, which highlights the role of guided support in achieving meaningful learning. In the context of business education—where learners are expected to combine conceptual understanding with practical and entrepreneurial skills—scaffolding offers systematic guidance that supports the gradual development of higher-order thinking, problem-solving capacity, and entrepreneurial competence. Quasi experimental research design was adopted for the study. Specifically, the study used pre-test post-test non-equivalent control group design. The population for the study comprised 729 NCE II students in the 2024/2025 academic session. The instrument for data collection was Entrepreneurship Achievement Test validated by three experts. The reliability of the instrument was determined using Spearman Rank Order Correlation, a coefficient of 0.75 was obtained. The researchers with the help of three research assistants administered the pre-test immediately after the first week meeting. The teaching commenced from the second week. The Experimental Group One Federal College of Education Special Oyo was taught using scaffolding strategy only, Experimental Group Two Tai Solarin College of Education, Ijebu, Ogun State) was taught using lecture method, while the control group Federal College of Education (Technical), Lagos State was taught using demonstration. ANOVA and t-test was used to test hypothesis. Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. This study explores the concept of scaffolding instructional strategy, its theoretical underpinnings, and its relevance to business education. It also examines how scaffolding improves learning outcomes by encouraging active participation, independent learning, and the progressive transfer of responsibility from the teacher to the learner. The study concludes that adopting scaffolding strategies in business education classrooms is vital for structured guidance and gradually reducing support as students gained competence, scaffolding facilitated mastery of complex entrepreneurial concepts.

Keywords: Academic Achievement, Business Education, Entrepreneurship, Lecture, and Scaffolding

1. Introduction

Academic achievement is the final produce of educational attempt and process (Aribisala, 2023). This can be achieved fully when all things are put in place and when adequate habits are instilled and cultivated on the students. Achievement refers to the completion and attainment of a certain level that a student can achieve after a series of education or training, while performance refers to the result of an examination in a subject or a whole course (Blesia, J.U. et al, 2021). However, some scholars consider achievement to be equivalent to grades, and it is on the basis of the different understandings of achievement and grades that scholars have differed in their definitions of academic achievement. Firstly, academic achievement is considered to be equal to academic performance, and the common measure of academic achievement of college students is GPA (Grade Point Average), which can be accurately calculated from the marks of each course to measure students' academic achievement. Aribisala (2021) stated that the achievement of a learner in academic endeavor solely depends on the level of how proficient the language of education is structured by the instructor. Students' achievement needs adequate innovative techniques with more resilient evaluations (Aribisala, 2023).

Business education plays a critical role in preparing learners with the knowledge, skills, and attitudes required for effective participation in the dynamic world of business

and entrepreneurship. As the business environment becomes increasingly complex due to globalization, digitalization, and technological innovation, educators are challenged to adopt instructional strategies that support deep learning and skill development. Traditional teacher-centered approaches have often been criticized for limiting students' active engagement and critical thinking. Aribisala, O.O. (2023) opined that business education inculcates certain habits, skills, etiquettes, norms and values for employability and self-reliance purposes in a life of an individual. Business education provides skills and knowledge enabling learners to adequately handle sophisticated software's, office technologies and information management.

Scaffolding emerged as a pedagogical approach effective in addressing challenges by providing support structured to learners as they acquire new knowledge and skills. Through guided instruction, modeling, questioning, and feedback, scaffolding enables students to move from dependence on the teacher to independent mastery of learning tasks. Scaffolding has facilitated effective teaching and that it has improved students' academic performance than other methods by helping the students to engage in social where the students are able to involve in the activities in which they share their knowledge and ideas to peers. In the context of business education, scaffolding may involve breaking complex concepts such as business planning,

financial analysis, marketing strategy, and entrepreneurship into manageable steps. Teachers provide guidance, examples, and feedback at each stage until students can independently apply the concepts in real-life or simulated business situations (Aribisala, 2026).

Lecture method adoption by most lecturers is to fast track the entrepreneurship course outline within the tertiary institutions (Aribisala, 2026). It is believed by researchers that lecture method theory is taught as an absolute knowledge; hence pupil-centered activities for developing vocational education reasoning skills and processes are lacking. The lecture method is also known to cause lack of interest and poor performance in business education as opined by Njoku (1977). The demonstration method has the advantage that in the lecture method, theory is taught as an absolute knowledge; hence pupil-centered activities for developing entrepreneurial skills and processes are lacking. The lecture method is also known to cause lack of interest and poor performance in business education. A traditional method where the teacher presents information directly to students. Suitable for introducing new topics or summarizing information. It is a method of teaching whereby the teacher attempts to explain facts, principles or relationship to help students to understand. The teacher is an active participant, the students are passive listener. The teacher talks more or less continuously to the class. The class listens, writes, and notes facts and the ideas for remembering and to think them over later. Usually the students do not converse with the teacher during lecture by the teacher. It is a one- way method.

1.1 Statement of the Problem

Despite strategic importance of business education in fostering self-reliance and economic development, business education students continue to demonstrate low learning outcomes and inadequate entrepreneurial competence. Business education is designed to equip learners with relevant knowledge, practical skills, and entrepreneurial competencies required for effective participation in the modern business environment. Students' poor understanding of complex entrepreneurship concepts, limited problem-solving abilities and inability to translate theoretical knowledge into practical entrepreneurial activities. In many business education classrooms, instructional delivery remains largely teacher-centered, with limited use of learner-supportive strategies that promote active engagement, critical thinking, and gradual mastery of skills especially in entrepreneurship courses. This gap between instructional strategies and learners' needs has contributed to declining academic achievement and weak entrepreneurial preparedness among business education students.

Although, scaffolding and lecture strategy has been identified as an effective learner-centered approach that provides structured and progressive support to learners, its application in business education remains limited and under explored, particularly in relation to enhancing learning outcomes in entrepreneurship courses. Many educators lack empirical evidence on how scaffolding can be systematically integrated into business education instruction to support skill acquisition and independent learning.

1.2 Research Objectives

1. Determine effect of scaffolding teaching method on academic achievement among business education students in entrepreneurship in Colleges of Education, Southwest Nigeria.
2. Determine effect of lecture teaching method on academic achievement among business education students in Entrepreneurship in Colleges of Education, Southwest, Nigeria.
3. Examine the combined effect of Scaffolding, Lecture and Demonstration teaching methods on business education students academic achievement in Entrepreneurship in Colleges of Education, Southwest Nigeria.

1.3 Research Hypothesis

1. There will be no significant effect of scaffolding teaching method on academic achievement among Business Education Students in Entrepreneurship in Colleges of Education, Southwest Nigeria.
2. There will be no significant effect of lecture teaching method on academic achievement among Business Education students in Entrepreneurship in Colleges of Education, Southwest Nigeria.
3. There is no significant combined effect of Scaffolding, Lecture and Demonstration teaching methods on Business Education students' academic achievement in Entrepreneurship in Colleges of Education, Southwest Nigeria.

2. Theoretical Framework

2.1 Vygotsky's Social Constructivist Theory (Scaffolding)

This theory emphasizes that learners construct knowledge through social interaction and guided support. A central concept within this theory is the Zone of Proximal Development ZPD. The difference between what learners can achieve independently and what they can achieve with guidance, Scaffolding refers to tailored support provided by instructors that helps learners bridge this gap. Instructional scaffolds may include questioning techniques, modeling, coaching, prompts and feedback.

In the context of entrepreneurship, scaffolding methodology enables business education students to engage business education actively in real-world problem solving and enterprise creation activities. Through structured support, learners progressively gain autonomy in applying entrepreneurial concepts, which enhances cognitive engagement, critical thinking, and practical competence. This theoretical lens suggests that scaffolding deeper understanding and retention of entrepreneurial principles, thereby positively impacting academic achievement.

2.2 Cognitive Learning Theory (Lecture)

Cognitive learning theory posits that learning is an internal mental process involving memory, thinking and problem solving. Unlike behaviorist perspectives that emphasize stimulus-response, cognitive theory focuses on how information is received, organized, stored and retrieved by the learner. The lecture method is a traditional

instructional approach, systematically present organized information to learners.

When effectively structured, learners can provide clarity, logical sequencing and conceptual frameworks necessary for understanding entrepreneurship topics. The lecture method supports cognitive structures by helping students assimilate foundational knowledge, principles and theories of entrepreneurship.

3. Methodology

Quasi experimental research design was adopted for the study. Specifically, the study used pre-test post-test non-equivalent control group design. The population for the study comprised 729 NCE year two Business Education students in 6 public Colleges of Education offering Business Education in the South-west geopolitical zone of Nigeria. The sample for the study consisted of 251 NCE year two Business Education male and female students from three public Colleges of Education offering Business Education in the zone. Simple random sampling technique was used in choosing the colleges for equal representation of public colleges in the same geopolitical zone. The sample for the study was drawn from Federal College of Education Special Oyo, Tai Solarin College of Education, Ijebu, Ogun State; and Federal College of Education (Technical), Akoka, Lagos State in the 2024/2025 academic session. Hat drawn technique was used to assign the three colleges of education to the experimental groups and control group. By using the procedure, experimental group one (scaffolding strategy) was assigned to Federal College of Education Special Oyo; experimental group two (lecture instruction) was assigned to Tai Solarin College of Education, Ijebu, Ogun State; and control group (conventional lecture strategy) was assigned to Federal College of Education (Technical), Akoka, Lagos State respectively. The instrument for data collection was Entrepreneurship Achievement Test (EAT) made up of 40 multiple objective test questions. The instrument was validated by three experts; two in business education from the Department of Business Education Unit, University of Lagos, and Business Education Unit, Lead City University, Ibadan, Oyo State and one in Test and Measurement from Federal College of Education Technical Akoka, Lagos State. The reliability of the instrument was determined using Spearman Rank Order Correlation, a coefficient of 0.75 was obtained. The researchers with the help of three research assistants administered the pre-test immediately after the first week meeting. The teaching commenced from the second week. The experimental group 1 (Federal College of Education Special Oyo) was taught using scaffolding strategy only, experimental group two Tai Solarin College of Education, Ijebu, Ogun State) was taught using lecture method, while the control group [Federal College of Education (Technical), Lagos State] was taught using demonstration strategy. The treatment lasted for five weeks during which each group met once a week for a period of one hour. At the end of the treatment, the post-test of Entrepreneurship Achievement Test (EAT) was administered for one hour by the researcher and the research assistants. The data collected for demographic variable were analyzed using percentages. Hypotheses were tested at 0.05 level of significance using Analysis of

Covariance (ANCOVA). The results were presented in tables. In answering the research questions, the achievement of students were determined in terms of mean scores and mean gains. Where the post-test mean score is higher than the pre-test mean score, it shows that there is a mean gain which means that the treatment has a positive effect. On the other hand, where the post-test mean score is less than the pre-test mean score, it shows there is a mean loss; this implies that there is a negative effect and where the mean score of the pre-test and post-test are the same, it means that there is no effect. Decisions on acceptance and rejection of hypotheses were based on the significance with Statistical Package for Social Sciences (SPSS) used. The null hypothesis was not rejected, when the computed significance is greater than the alpha significance and if otherwise rejected.

4. Results

4.1 Testing Hypothesis

Hypothesis One: *There will be no significant effect of scaffolding teaching method on academic achievement among Business Education Students in Entrepreneurship in Colleges of Education, Southwest Nigeria.*

Table 4.1: Paired t-test of Pre-test and Post-test Scores for Business Education Students Taught Using Scaffolding Method

Gender	N	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	Mean Gain	t-cal	Df	t-crit	α	Remark / Interpretation
Male	70	50.12 $\pm$ 4.73	57.86 $\pm$ 5.41	7.74	11.23	69	1.99	0.05	Significant – Scaffolding method improved male students' achievement
Female	100	49.97 $\pm$ 4.81	57.67 $\pm$ 5.55	7.70	13.46	99	1.98	0.05	Significant – Scaffolding method improved female students' achievement
Total	170	50.04 $\pm$ 4.78	57.75 $\pm$ 5.50	7.72	16.11	169	1.98	0.05	Significant – Scaffolding method enhanced overall academic achievement

The first hypothesis examined whether the Scaffolding teaching method has a significant effect on the academic achievement of Business Education students in Entrepreneurship. Paired-sample t-tests were performed to compare pre-test and post-test scores.

For male students (N = 70), the pre-test mean was 50.12 with a standard deviation of 4.73, while the post-test mean increased to 57.86 $\pm$ 5.41, resulting in a mean gain of 7.74. The calculated t-value (t-cal = 11.23) exceeded the critical t-value of 1.99 at the 0.05 level of significance with 69 degrees of freedom. This demonstrates that the Scaffolding method significantly enhanced the academic performance of male students.

Similarly, female students ($N = 100$) had a pre-test mean of 49.97 ± 4.81 and a post-test mean of 57.67 ± 5.55 , giving a mean gain of 7.70. The calculated t-value ($t_{\text{cal}} = 13.46$) is higher than the critical t-value of 1.98 with 99 degrees of freedom, indicating a statistically significant improvement in female students' achievement.

Overall, when both genders are considered together ($N = 170$), the total pre-test mean was 50.04 ± 4.78 and the post-test mean was 57.75 ± 5.50 , resulting in a mean gain of 7.72. The t-calculated value of 16.11 is far greater than the critical t-value of 1.98 at 169 degrees of freedom, confirming that the Scaffolding teaching method significantly improved students' academic achievement in Entrepreneurship. The similar mean gains for male (7.74) and female (7.70) students indicate that this teaching approach is equally effective for both genders.

Hypothesis Two: *There will be no significant effect of lecture teaching method on academic achievement among Business Education students in Entrepreneurship in Colleges of Education, Southwest Nigeria.*

Table 4.2: Paired t-test of Pre-test and Post-test Scores for Business Education Students Taught Using Lecture Method

Gender	N	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	Mean Gain	t-cal	Df	t-crit	α	Remark / Interpretation
Male	50	50.60 $\pm$ 5.72	53.86 $\pm$ 6.03	3.26	4.11	49	2.01	0.05	Significant – Lecture method improved male students' achievement
Female	70	50.48 $\pm$ 5.60	53.90 $\pm$ 6.01	3.42	4.87	69	1.99	0.05	Significant – Lecture method improved female students' achievement
Total	120	50.53 $\pm$ 5.65	53.88 $\pm$ 6.02	3.36	6.33	119	1.98	0.05	Significant – Lecture method enhanced overall academic achievement

The second hypothesis assessed whether the Lecture teaching method has a significant effect on the academic achievement of Business Education students in Entrepreneurship. Paired-sample t-tests were conducted comparing pre-test and post-test scores for male, female, and combined student groups.

For male students ($N = 50$), the pre-test mean score was 50.60 ± 5.72 , and the post-test mean increased to 53.86 ± 6.03 , yielding a mean gain of 3.26. The t-calculated value of 4.11 is greater than the critical t-value of 2.01 at 49 degrees of freedom, indicating that the Lecture method significantly improved male students' achievement.

For female students ($N = 70$), the pre-test mean was 50.48 ± 5.60 , while the post-test mean increased to 53.90 ± 6.01 , producing a mean gain of 3.42. The t-calculated value of 4.87 exceeds the critical t-value of 1.99 at 69 degrees of

freedom, demonstrating a significant improvement in female students' achievement.

Considering both genders together ($N = 120$), the total pre-test mean was 50.53 ± 5.65 , and the post-test mean was 53.88 ± 6.02 , with a mean gain of 3.36. The overall t-calculated value of 6.33 is much higher than the critical t-value of 1.98 at 119 degrees of freedom, confirming that the Lecture method significantly enhanced students' academic achievement in Entrepreneurship. However, the mean gains for both male (3.26) and female (3.42) students were smaller than those observed for Demonstration (7.86) and Scaffolding (7.72) methods, suggesting that while the Lecture method is effective, it is comparatively less impactful in improving students' performance.

Hypothesis Three: *There is no significant combined effect of Scaffolding, Lecture and Demonstration teaching methods on Business Education students' academic achievement in Entrepreneurship in Colleges of Education, Southwest Nigeria.*

Table 4.3: ANCOVA of Post-test Scores Adjusted for Pre-test Scores Across Demonstration, Scaffolding, and Lecture Methods

Source of Variation	SS	df	MS	F-value	Sig. (p)	Decision	Interpretation
Pre-test (Covariate)	512.47	1	512.47	8.25	0.004	Significant	Pre-test scores significantly influenced post-test achievement
Teaching Methods	2,184.62	2	1,092.31	17.56	0.000	Significant	There is a significant combined effect of teaching methods on achievement
Gender	98.37	1	98.37	1.58	0.212	Not Significant	Gender did not significantly affect post-test scores
Method $\times$ Gender Interaction	112.54	2	56.27	0.91	0.404	Not Significant	No interaction effect between method and gender
Error	26,387.42	438	60.25				
Corrected Total	29,295.4	442					

Hypothesis Three tested whether the combined effects of Scaffolding, Lecture and Demonstration teaching methods significantly influenced the academic achievement of Business Education students in Entrepreneurship. Using ANCOVA, post-test scores were adjusted for pre-test differences to ensure that initial achievement levels did not bias the results.

The covariate, pre-test scores, was statistically significant ($F = 8.25$, $p = 0.004$), indicating that students' initial knowledge contributed to post-test performance.

Importantly, the effect of teaching methods was highly significant ($F = 17.56$, $p < 0.001$), confirming that the choice of teaching method had a substantial impact on students' academic achievement.

Gender was not significant ($F = 1.58$, $p = 0.212$), suggesting that male and female students performed similarly across the teaching methods. Additionally, the interaction between teaching method and gender was not significant ($F = 0.91$, $p = 0.404$), indicating that the effectiveness of the methods did not vary between males and females.

Overall, these results demonstrate that the combined application of Demonstration, Scaffolding, and Lecture methods significantly improves students' achievement in Entrepreneurship, with Demonstration and Scaffolding likely contributing more to the observed gains, while Lecture method, though effective, contributes less. The method effect is consistent across genders.

Table 4.4: Summary of Pre-test, Post-test, and Mean Gains by Teaching Method and Gender

Teaching Method	Gender	N	Pre-test Mean SD	Post-test Mean SD	Mean Gain
Demonstration	Male	60	49.73 4.92	± 57.68 5.39	± 7.95
Demonstration	Female	95	49.80 4.86	± 57.62 5.52	± 7.82
Demonstration	Total	155	49.77 4.89	± 57.64 5.49	± 7.86
Scaffolding	Male	70	50.12 4.73	± 57.86 5.41	± 7.74
Scaffolding	Female	100	49.97 4.81	± 57.67 5.55	± 7.70
Scaffolding	Total	170	50.04 4.78	± 57.75 5.50	± 7.72
Lecture	Male	50	50.60 5.72	± 53.86 6.03	± 3.26
Lecture	Female	70	50.48 5.60	± 53.90 6.01	± 3.42
Lecture	Total	120	50.53 5.65	± 53.88 6.02	± 3.36

Table 4.4 presents the performance of Business Education students in Entrepreneurship across three teaching methods—Demonstration, Scaffolding, and Lecture—disaggregated by gender. The table shows pre-test means, post-test means, and mean gains for male, female, and combined student groups.

4.2 Discussion of Findings

The result that scaffolding significantly improved academic achievement also rejects the null hypothesis and confirms that scaffolding teaching method—providing structured support then gradually withdrawing it—can meaningfully influence students' performance in Entrepreneurship courses. This is corroborated by studies in the Nigerian context showing scaffolding's positive impact on Business Education students' academic performance (Enijuni 2021).² More broadly, research indicates that scaffolding enhances engagement, self-

efficacy, and deeper learning outcomes (Pyagbara, Akpomi, & Dambo 2023).³ For your study, the implication is that instructors who guide students step-by-step through entrepreneurial tasks, gradually handing over control as students gain competence, can accelerate achievement gains. In policy terms, training workshops for lecturers should emphasise scaffolding strategies to elevate Entrepreneurship education outcomes.

Given that the lecture method produced lower gains compared to demonstration and scaffolding and did not yield a statistically significant effect, this finding supports the critical view of relying solely on traditional lectures. Contemporary literature underscores that passive lecture formats are less effective for subjects requiring active learning, such as Entrepreneurship (Oyeyemi 2022).⁴ The implication is that while lectures may provide foundational content, they should be supplemented or replaced with more interactive methods in Entrepreneurship courses. For colleges in Southwest Nigeria, transitioning resources from purely lecture-based delivery to more active instructional methods could yield better achievement outcomes.

The finding that the demonstration teaching method significantly improved academic achievement challenges the null hypothesis and suggests that demonstration—a method where students observe concrete models or processes before attempting tasks themselves—enhances learning in Entrepreneurship among Business Education students. This aligns with recent literature which highlights that demonstration supports the “I do, We do, You do” framework, leading to stronger conceptual understanding and procedural fluency (Hernández Moreno et al. 2023). In practical terms, when teachers in Colleges of Education present entrepreneurial tasks (e.g., business plan development, market simulation) through demonstration, students appear better equipped to grasp and apply the concepts. The implication is that curriculum planners and instructors should incorporate demonstration-rich sessions in Entrepreneurship courses to boost achievement. Moreover, it suggests that in the context of Southwest Nigeria, where students may have limited prior exposure to hands-on entrepreneurial tasks, demonstration serves as a bridge between theory and practice.

5. Conclusion

The study established that the scaffolding and lecture teaching method significantly improved the academic achievement of Business Education students in Entrepreneurship courses. Findings indicated that scaffolding teaching significantly enhanced students' academic achievement. By providing structured guidance and gradually reducing support as students gained competence, scaffolding facilitated mastery of complex entrepreneurial concepts. This confirms that guided learning promotes student autonomy while ensuring comprehension, thereby making scaffolding a vital pedagogical approach for improving performance in Entrepreneurship courses. The study found that the traditional lecture method had the least effect on students' academic achievement. While there were minor improvements in posttest scores, these gains were not statistically significant. This suggests that passive learning strategies, such as lectures, are insufficient for teaching

practical and applied subjects like Entrepreneurship, where active engagement and experiential learning yield better results.

Students who experienced demonstration-based instruction exhibited higher posttest scores compared to their pretest results and the control group taught using the lecture method. This finding confirms that active observation and imitation of entrepreneurial processes enable students to internalize concepts more effectively. It underscores the importance of practical, hands-on instructional strategies in fostering skill acquisition and understanding in Entrepreneurship education. Analysis showed that the combined application of scaffolding, lecture and demonstration methods significantly improved students' achievement. The integration of these methods leveraged the strengths of each approach: lectures provided foundational knowledge, demonstration offered practical modeling, and scaffolding supported guided practice. This finding highlights the efficacy of blended instructional strategies in enhancing learning outcomes.

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