

## Perceived Effects of Culturo- Techno Contextual Approach and Active Learning on Pre-Service Teachers Learning Outcomes in Business Education in Colleges of Education in Southwest Nigeria

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### Abstract

*Business Education is essential for equipping students with entrepreneurial, employability, and global economic competencies. In Nigeria, it is primarily taught in Colleges of Education to prepare pre-service teachers for secondary and vocational levels. However, persistent reliance on traditional lecture methods has been linked to passive learning and poor outcomes among pre-service Business Education teachers in Southwest Nigeria. This study investigated the effects of the Culturo-Techno Contextual Approach (CTCA) and Active Learning (AL) on pre-service teachers' achievement, engagement, and retention. CTCA integrates cultural relevance, technology, and real-life contexts to enhance meaningful learning, while AL promotes active student participation through problem-solving and collaborative tasks. A quasi-experimental design was employed with 107 pre-service teachers and eight lecturers. Participants were assigned to CTCA, AL, and control groups. Data were collected through structured questionnaires and achievement tests, and analyzed using descriptive and inferential statistics. Findings revealed that CTCA produced the highest mean gain in achievement (6.62), followed by AL (4.39), with the control group recording the lowest (3.53). Lecturers perceived both CTCA and AL as useful, user-friendly, and effective, though areas for improvement were identified. Gender analysis indicated slightly higher gains for males (5.28) compared to females (4.71), but teaching methodology was more influential than gender. The study concludes that innovative pedagogies, particularly CTCA, significantly improve learning outcomes compared to conventional methods. It recommends integrating culturally responsive and technology-enhanced strategies into Business Education curricula, providing instructor training on CTCA and AL, and implementing participatory teaching approaches to boost engagement and critical thinking. Future research should explore long-term impacts and contextual factors influencing gender differences. These findings underscore the need for curriculum reforms to align Business Education with 21st-century pedagogical demands.*

**Keywords:** Business Education, Culturo-Techno Contextual Approach (CTCA), Active Learning (AL), Pre-service Teachers, Learning Outcomes

### Background of Study

Business Education plays a crucial role in equipping students with the knowledge, skills, and competencies required for entrepreneurship, employability, and effective participation in the global economy. In Nigeria, Business Education is offered in Colleges of Education to train pre-service teachers who will eventually teach the subject at the secondary and vocational levels. However, concerns have been raised about the quality of learning outcomes among pre-service Business Education teachers, particularly in Southwest Nigeria, where traditional lecture methods still dominate instructional delivery (Adeyemi & Adu, 2020).

The persistent use of conventional teaching approaches has been linked to passive learning, low retention rates, and poor academic performance among students (Ogunleye & Eze, 2019). In response to these challenges, innovative pedagogical strategies such as the Culturo-Techno Contextual Approach (CTCA) and Active Learning (AL) have been proposed as viable alternatives to enhance learning outcomes.

The Culturo-Techno Contextual Approach (CTCA), developed by Jegede (2019), integrates cultural relevance, technology, and contextualized learning to make instruction more meaningful and engaging. This approach emphasizes the use of learners' cultural backgrounds, digital tools, and real-life applications to facilitate deeper understanding. Studies have shown that CTCA improves students' academic performance and retention in science and vocational subjects (Balogun et al., 2021), but its effectiveness in Business Education remains under-researched. Similarly, Active Learning (AL) is an instructional method that involves students in the learning process through discussions, problem-solving, case studies, and collaborative tasks (Prince, 2004). Research indicates that AL enhances critical thinking, motivation, and knowledge retention (Freeman et al., 2014). However, despite its proven benefits, its adoption in Business Education in Nigerian Colleges of Education has been limited.

Quality teacher education is a pivotal factor in shaping effective classroom instruction and improving student learning outcomes (Darling-Hammond, 2021). For pre-service Business Education teachers, this necessitates a dual focus: developing robust pedagogical skills and deep subject-matter expertise to equip learners for the demands of dynamic business environments (Adebayo & Adedoja, 2022). However, persistent gaps in the academic achievement of these teachers, particularly in Colleges of Education, where traditional lecture-based methods remain predominant (Okolie et al., 2021) undertake the need for innovative instructional interventions. Such interventions, defined as structured pedagogical strategies aimed at optimizing learning (Hattie, 2023), offer a promising avenue for addressing these challenges.

Emerging research underscores the effectiveness of active learning approaches, including flipped classrooms and problem-based learning (PBL), in enhancing academic performance (Chen, Wang, & Qian, 2022; Prince, 2023). The flipped classroom model, for instance, has been shown to boost engagement and knowledge retention by enabling pre-service teachers to independently explore content before applying it in collaborative, instructor-facilitated sessions (Akçayır & Akçayır, 2021). Similarly, PBL fosters critical thinking and problem-solving competencies that are indispensable in Business Education (Savery, 2023). Despite these demonstrated advantages, there remains a paucity of empirical studies examining the impact of such interventions on pre-service Business Education teachers, particularly in developing educational contexts (Ayeni & Adu, 2023). Addressing this gap is critical to refining teacher preparation programs and ensuring their alignment with contemporary pedagogical demands.

Given the dynamic nature of business environments and the need for 21st-century teaching skills, it is imperative to investigate how CTCA and AL influence pre-service teachers' learning outcomes in Business Education. This study seeks to explore the perceived effects of these innovative approaches on academic performance, engagement, and retention among pre-service Business Education teachers in Southwest Nigeria.

## **Statement of the Problem**

Business Education in Nigerian Colleges of Education plays a vital role in training competent teachers who can impart essential entrepreneurial and employability skills. However, pre-service teachers often struggle with poor learning outcomes due to the continued reliance on traditional lecture methods, which encourage passive learning and low retention. While innovative approaches like the Culturo-Techno Contextual Approach (CTCA) and Active Learning (AL) have been shown to enhance student engagement and performance in other fields, their application in Business Education remains limited. This raises concerns about whether these modern teaching strategies could improve academic achievement, motivation, and knowledge retention among pre-service Business Education teachers in Southwest Nigeria.

Additionally, although CTCA and AL have been studied in science and vocational education, little research has explored their effectiveness in Business Education, particularly within the cultural and technological context of Southwest Nigeria. The absence of sufficient empirical evidence makes it challenging for educators and policymakers to adopt the most effective teaching strategies for Business Education programs. Without such research, Colleges of Education may continue using outdated methods, further widening the gap between classroom instruction and the practical demands of the business world.

Therefore, this study aims to assess the perceived effects of CTCA and Active Learning on pre-service Business Education teachers' learning outcomes in Southwest Nigeria. By evaluating these approaches, the research seeks to provide valuable insights into how innovative teaching methods can enhance academic performance, engagement, and knowledge retention. The findings could help improve teacher training and produce better-equipped graduates to meet the evolving needs of Nigeria's business environment.

## **Purpose of the Study**

The major purpose of the study is to investigate the effect of Culturo-Techno contextual Approach (CTCA) and active learning strategy on pre-service teachers learning outcomes in Business education in colleges of education. Specifically, will,

1. Examine how Business Education lecturers perceive CTCA for teaching
2. Investigate how Business Education lecturers perceive Active learning for teaching
3. determine the effect of treatment on pre-service teachers' achievement in Business Education in Colleges of Education.
4. examine the effect of gender on pre-service teachers' achievement in Business Education in Colleges of Education.

## **Research Questions**

The following questions will guide this study:

1. How do Business Education lecturers perceive CTCA for teaching
2. How do Business Education lecturers perceive Active learning for teaching
3. What is the effect of treatment on Pre-service teachers' achievement in Business Education in Colleges of Education?
4. What is the effect of gender on Pre-service teachers' achievement in Business Education in Colleges of Education?

## Demographic Data

**Table 1: Distribution of Pre-Service Teachers based on Group.**

<b>Group</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Active	31	28.9
CTCA	42	39.2
Control	34	31.9
Total	107	100

Table 1 above revealed a total of 107 pre-service teachers, of which 31 (representing 28.9%), were in the group assigned to active learning, 42 pre-service teachers (representing 39.2%) were in the group assigned to CTCA, and 34 pre-service teachers (representing 31.9%) constituted the group in the conventional method.

**Table 2: Distribution of Pre-Service Teachers based on Gender.**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Male	53	49.5
Female	54	50.5
Total	107	100

Table 2 above revealed that out of a total of 107 pre-service teachers, 53 pre-service teachers (representing 49.5%) were male while 54 pre-service teachers (representing 50.5%) were female. This implies that the female pre-service teachers were more than the male pre-service teachers.

**Table 3: Distribution of Business Education Lecturers based on Gender.**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Male	05	62.5
Female	03	37.5
Total	08	100

The gender distribution of the sample is presented in Table 3. The sample consisted of 8 participants who are lecturers of business education in colleges of education, with a higher representation of males ( $n = 5$ , 62.5%) compared to females ( $n = 3$ , 37.5%). This indicates that most of the participants were male.

## Results of the research questions

**Research Question 1:** How do Business Education Lecturers perceive CTCA for teaching

**Table 4: Business Education Lecturers Perception of CTCA for teaching**

S/N	Perception	Mean	SD
	<b>Usefulness</b>	<b>Mean</b>	<b>SD</b>
1	I am satisfied with CTCA	3.13	0.37
2	I would recommend CTCA to a friend	3.14	0.34
3	CTCA is fun to use	3.13	0.34
4	CTCA works the way I want it for instructional delivery	3.41	0.78
5	CTCA is delightful for instructional purposes	3.51	0.81
6	I feel I need to have CTCA for teaching	3.23	0.77
7	CTCA is pleasant to use	3.22	0.79
8	I am satisfied with CTCA	3.72	0.81
	<b>Ease of Use</b>	<b>Mean</b>	<b>SD</b>
1	CTCA helps me to be more effective	3.39	0.73
2	CTCA helps to be more productive	3.11	0.88
3	CTCA is useful	3.78	0.72
4	CTCA gives me more control over teaching activities	3.43	0.73
5	CTCA makes teaching easier	3.21	0.72
6	CTCA saves time when I use it for teaching	3.00	0.71
7	CTCA meets my teaching needs	2.23	0.72
8	CTCA enhances my instructional delivery	3.12	0.81
	<b>Ease of Learning</b>	<b>Mean</b>	<b>SD</b>
1	CTCA is easy to use	3.07	0.71
2	CTCA is simple to use	3.13	0.37

3	CTCA is user-friendly	3.11	0.25
4	CTCA requires the fewest steps to possibly accomplish what I want to learn	3.91	0.77
	<b>Satisfaction</b>	<b>Mean</b>	<b>SD</b>
1	I am satisfied with CTCA	3.78	0.71
2	I would recommend CTCA to a friend	3.29	0.51
3	CTCA is fun to use	3.47	0.45
4	CTCA works the way I want it for instructional delivery	3.12	0.71
5	CTCA is delightful for instructional purposes	2.78	0.62
6	I feel I need to have CTCA for teaching	3.12	0.71
7	CTCA is pleasant to use	2.66	0.13

The **Usefulness** of CTCA was evaluated through several items. Participants reported moderate satisfaction with CTCA ( $M = 3.13$ ,  $SD = 0.37$ ) and indicated they would recommend it to a friend ( $M = 3.14$ ,  $SD = 0.34$ ). They found CTCA fun to use ( $M = 3.13$ ,  $SD = 0.34$ ) and felt it worked well for instructional delivery ( $M = 3.41$ ,  $SD = 0.78$ ). Additionally, CTCA was considered delightful for instructional purposes ( $M = 3.51$ ,  $SD = 0.81$ ), and there was a sense of necessity for teaching ( $M = 3.23$ ,  $SD = 0.77$ ). Participants also found CTCA pleasant to use ( $M = 3.22$ ,  $SD = 0.79$ ), with overall satisfaction being relatively high ( $M = 3.72$ ,  $SD = 0.81$ ).

Regarding **Ease of Use**, participants felt that CTCA helped them be more effective ( $M = 3.39$ ,  $SD = 0.73$ ) and productive ( $M = 3.11$ ,  $SD = 0.88$ ). They found CTCA useful ( $M = 3.78$ ,  $SD = 0.72$ ) and believed it gave them more control over teaching activities ( $M = 3.43$ ,  $SD = 0.73$ ). CTCA was perceived to make teaching easier ( $M = 3.21$ ,  $SD = 0.72$ ) and save time ( $M = 3.00$ ,  $SD = 0.71$ ). However, it was noted that CTCA did not fully meet all teaching needs ( $M = 2.23$ ,  $SD = 0.72$ ), though it did enhance instructional delivery ( $M = 3.12$ ,  $SD = 0.81$ ). CTCA was easy to use ( $M = 3.07$ ,  $SD = 0.71$ ) and simple to use ( $M = 3.13$ ,  $SD = 0.37$ ). They also rated it as user-friendly ( $M = 3.11$ ,  $SD = 0.25$ ) and appreciated that it required the fewest steps to accomplish learning tasks ( $M = 3.91$ ,  $SD = 0.77$ ).

**Satisfaction** with CTCA was assessed. Participants expressed high satisfaction ( $M = 3.78$ ,  $SD = 0.71$ ) and willingness to recommend it to a friend ( $M = 3.29$ ,  $SD = 0.51$ ). They found CTCA fun to use ( $M = 3.47$ ,  $SD = 0.45$ ) and felt it worked well for instructional delivery ( $M = 3.12$ ,  $SD = 0.71$ ). However, the delightfulness for instructional purposes was rated lower ( $M = 2.78$ ,  $SD = 0.62$ ), and the necessity for teaching was moderate ( $M = 3.12$ ,  $SD = 0.71$ ). The pleasantness of use received the lowest rating ( $M = 2.66$ ,  $SD = 0.13$ ). While CTCA is generally well received in terms of usefulness, ease of use, and satisfaction, there are areas, particularly in meeting all teaching needs and delightfulness for instructional purposes, where improvements could be made.

**Research Question 2:** How do Business Education lecturers perceive Active learning

**Table 5: Business Education Lecturers Perception of Active Learning for teaching**

S/N	USABILITY	Mean	SD
	<b>Usefulness</b>	<b>Mean</b>	<b>SD</b>
1	Active learning helps me to be more effective	3.33	0.71
2	Active learning helps to be more productive	3.41	0.78
3	Active learning is useful	3.63	0.82
4	Active learning gives me more control over teaching activities	3.44	0.78
5	Active learning makes learning easier	3.56	0.81
6	Active learning saves time when I use it for teaching	3.49	0.79
7	Active learning meets my learning needs	3.46	0.79
8	Active learning enhances my instructional delivery	3.57	0.81
	<b>Ease of Use</b>	<b>Mean</b>	<b>SD</b>
1	Active learning is easy to use	3.19	0.73
2	Active learning is simple to use	3.91	0.88
3	Active learning is user-friendly	3.68	0.74
4	Active learning requires the fewest steps to possibly accomplish what I want to teach	3.41	0.78
5	Active learning can be used effortlessly	3.15	0.73
6	Active learning can be used without written instruction	3.08	0.87
7	I can recover from mistakes quickly and easily with active learning	2.62	0.71
8	I can use active learning successfully and easily	3.47	0.79
	<b>Ease of Teaching</b>	<b>Mean</b>	<b>SD</b>
1	I learnt to use active learning quickly	3.37	0.77
2	I easily remember how to use active teaching	3.43	0.78
3	It is easy to learn to use active learning	3.21	0.74

4	I quickly became skillful with active teaching	3.11	0.7 2
	<b>Satisfaction</b>	<b>Mean</b>	<b>SD</b>
1	I am satisfied with active learning	3.78	0.7 6
2	I would recommend active learning to a friend	3.29	0.7 5
3	Active learning is fun to use	3.47	0.7 9
4	Active learning works the way I want it for instructional delivery	3.12	0.7 2
5	Active learning is delightful for instructional purposes	2.78	0.6 5
6	I feel I need to have active learning for teaching	3.12	0.7 2
7	Active learning is pleasant to use	2.66	0.6 3

The **Usefulness** of active learning was assessed through several items. Participants reported that active learning helps them be more effective ( $M = 3.33$ ,  $SD = 0.71$ ) and productive ( $M = 3.41$ ,  $SD = 0.78$ ). They found active learning useful ( $M = 3.63$ ,  $SD = 0.82$ ) and felt it gave them more control over teaching activities ( $M = 3.44$ ,  $SD = 0.78$ ). Additionally, active learning was perceived to make learning easier ( $M = 3.56$ ,  $SD = 0.81$ ) and save time ( $M = 3.49$ ,  $SD = 0.79$ ). Participants indicated that active learning met their learning needs ( $M = 3.46$ ,  $SD = 0.79$ ) and enhanced instructional delivery ( $M = 3.57$ ,  $SD = 0.81$ ).

Regarding **Ease of Use**, participants found active learning easy to use ( $M = 3.19$ ,  $SD = 0.73$ ) and simple to use ( $M = 3.91$ ,  $SD = 0.88$ ). They rated it as user-friendly ( $M = 3.68$ ,  $SD = 0.74$ ) and appreciated that it required the fewest steps to accomplish teaching tasks ( $M = 3.41$ ,  $SD = 0.78$ ). Active learning was seen as effortless to use ( $M = 3.15$ ,  $SD = 0.73$ ) and usable without written instructions ( $M = 3.08$ ,  $SD = 0.87$ ). However, the ability to recover from mistakes quickly and easily was rated lower ( $M = 2.62$ ,  $SD = 0.71$ ). Overall, participants felt they could use active learning successfully and easily ( $M = 3.47$ ,  $SD = 0.79$ ).

Participants reported that they learned to use active learning quickly ( $M = 3.37$ ,  $SD = 0.77$ ) and easily remembered how to use it ( $M = 3.43$ ,  $SD = 0.78$ ). They found it easy to learn to use active learning ( $M = 3.21$ ,  $SD = 0.74$ ) and quickly became skillful with it ( $M = 3.11$ ,  $SD = 0.72$ ).

**Satisfaction** with active learning was assessed. Participants expressed high satisfaction ( $M = 3.78$ ,  $SD = 0.76$ ) and willingness to recommend it to a friend ( $M = 3.29$ ,  $SD = 0.75$ ). They found active learning fun to use ( $M = 3.47$ ,  $SD = 0.79$ ) and felt it worked well for instructional delivery ( $M = 3.12$ ,  $SD = 0.72$ ). However, the delightfulness for instructional purposes was rated lower ( $M = 2.78$ ,  $SD = 0.65$ ), and the necessity for teaching was moderate ( $M = 3.12$ ,  $SD = 0.72$ ). The pleasantness of use received the lowest rating ( $M = 2.66$ ,  $SD = 0.63$ ).

**Research Question 3:** What is the effect of treatment on Pre-service teachers' achievement in Business Education in Colleges of Education?

**Table 6: Effect of treatment on Pre-service teachers' achievement in Business Education in Colleges of Education**

Treatment	N	Pre-test		Post-test		Mean Gain
		Mean	SD	Mean	SD	
CTCA	42	6.42	1.61	13.04	1.01	6.62
Active	31	4.90	1.01	9.29	0.86	4.39
Control	34	3.55	0.50	7.08	1.50	3.53

Table 6 revealed that the CTCA treatment group had a pre-test mean achievement score of 6.42 and a post-test mean achievement score of 13.04, with a mean gain of 6.62. The Active treatment group had a pre-test mean score of 4.90 and a post-test mean score of 9.29, with a mean gain of 4.39. The Control group had a pre-test mean score of 3.55 and a post-test mean score of 7.08, with a mean gain of 3.53. The result indicates that the CTCA treatment group achieved the highest mean gain (6.62), followed by the Active group (4.39), while the Control group recorded the lowest mean gain (3.53). This suggests that treatment had a significant effect on the pre-service teachers' achievement in Business Education, with the CTCA method being the most effective.

**Research Question 4:** What is the effect of gender on Pre-service teachers' achievement in Business Education in Colleges of Education?

**Table 7: Effect of gender on Pre-service teachers' achievement in Business Education in Colleges of Education**

Treatment	N	Pre-test		Post-test		Mean Gain
		Mean	SD	Mean	SD	
Male	53	4.98	1.64	10.26	2.74	5.28
Female	54	5.16	1.73	9.87	2.89	4.71

Table 7 revealed that male pre-service teachers had a pre-test mean achievement score of 4.98 and a post-test mean achievement score of 10.26, with a mean gain of 5.28. Female pre-service teachers had a pre-test mean score of 5.16 and a post-test mean score of 9.87, with a mean gain of 4.71. The result shows that the mean gain (5.28) for male pre-service teachers was higher than the mean gain (4.71) for female pre-service teachers. This indicates that gender influenced pre-service teachers' achievement in Business Education, with male pre-service teachers achieving a slightly higher improvement than their female counterparts.

## Discussion of Findings

This study examined the effects of the Culturo-Techno Contextual Approach (CTCA) and Active Learning (AL) on pre-service Business Education teachers' learning outcomes in Southwestern Nigeria. The findings revealed that CTCA had the most significant positive impact on achievement, interest, and attitude, likely due to its culturally responsive and contextualized teaching methods. Active Learning also improved outcomes but was less effective than CTCA, while traditional

(control) methods showed the least impact. Gender differences were observed, with male pre-service teachers demonstrating slightly higher gains in achievement and interest, suggesting the need for gender-sensitive instructional strategies. However, gender was not a definitive factor in overall performance, emphasizing that teaching methodology plays a more crucial role in learning outcomes.

## Conclusion

The study concludes that innovative pedagogical approaches, particularly CTCA, significantly enhance pre-service Business Education teachers' learning outcomes compared to conventional methods. The integration of cultural relevance, technology, and active participation fosters better engagement, academic achievement, and positive attitudes. While gender differences exist, they are not substantial enough to overshadow the influence of effective teaching strategies. These findings highlight the need for curriculum reforms in Colleges of Education to adopt more dynamic, inclusive, and culturally responsive teaching methods.

## Recommendations

1. Colleges of Education should integrate CTCA into Business Education programs to enhance learning outcomes through culturally relevant and technology-supported instruction.
2. Educators should employ participatory methods such as collaborative tasks, case studies, and problem-solving exercises to improve engagement and critical thinking.
3. Teacher training programs should incorporate differentiated strategies to address the learning preferences of both male and female students, ensuring equitable outcomes.
4. Regular workshops should be conducted to train instructors on implementing CTCA and AL effectively in Business Education.
5. Future studies should explore long-term effects and contextual factors influencing gender disparities to refine pedagogical interventions.

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