

Influence of instructional strategies on learning achievement through approved business studies textbooks in secondary schools in Nairobi County, Kenya



 Sarah Getahun Bekele¹⁺

 Paul Odundo Amollo²

 John Kamau Mwangi³

 Lilian Khavugwi Ganira⁴

¹University of Nairobi, Kenya.

¹Email: sarawabekesh@gmail.com

^{2,3}Department of Educational Communication Technology and Pedagogical Studies, University of Nairobi, Kenya.

²Email: odundopaul@yahoo.com

³Email: jmkamau@uonbi.ac.ke

⁴Early Years Education, Department of Educational Communication Technology and Pedagogical Studies, University of Nairobi, Kenya.

⁴Email: lilianganira@gmail.com



(+ Corresponding author)

ABSTRACT

Article History

Received: 16 July 2025

Revised: 3 September 2025

Accepted: 10 October 2025

Published: 31 October 2025

Keywords

Active learning approach
Approved textbooks
Instructional techniques
Learning achievement
Learning zone model
Secondary education
Theory versus practice.

Whenever learners are engaged through learning activities, enthusiasm is enhanced, leading to increased learning experiences. Conversely, inadequately designed content exposes learners to undesirable experiences, challenging creativity and imagination for self-directed learning. The objectives of this study were to examine the influence of active listening and inclusivity on learning achievement. The study adopts a mixed-methods approach, utilizing the Solomon four-group design, with quantitative data collected from teachers and learners. Data were gathered through structured questionnaires, and descriptive and inferential statistics were employed for analysis. The findings revealed that both active learning approaches and the distinction between theory and practice significantly contribute to learning achievement in secondary schools. Regression analysis indicated that these factors jointly explain 56.9% of the variation in learning achievement ($R^2 = 0.569$). Active learning approaches had a significant positive impact on learning achievement ($\beta = 0.584$, $p = 0.002$), suggesting that for each unit improvement in active learning, learning achievement increased by 0.584 units. Hypothesis testing led to the rejection of both H01 and H02, affirming the significant influence of active teaching methods on improving learning achievements. The study concludes that instructional techniques are crucial in enhancing learning outcomes in business studies. Based on these findings, it is recommended that targeted teacher training programs be implemented to promote innovative teaching strategies, alongside regular reviews of textbook content for relevance and accuracy. Furthermore, policymakers should ensure resource allocation for quality instructional materials and professional development to foster an integrated and effective educational system.

Contribution/ Originality: This study is original, and its originality lies in its application of the Solomon four-group design within a mixed-methods framework to evaluate active listening and inclusivity in business studies learning achievement. Unlike prior studies, it quantifies the combined variance explained by the variables and directly links theory–practice integration to measurable outcomes.

1. INTRODUCTION

Instructional content, when properly constituted, improves skill acquisition and encourages academic success across schools. According to Putra, Agusti, and Hastuti (2022), learners' commitment to studying and completing

tasks supports success in the creation of knowledge, boosting learners' mean scores. When learners actively participate in assignments, academic episodes are likely to be completed in time, fast-tracking mastery of content. According to [Asiyah, Wiyono, Hidayah, and Supriyanto \(2021\)](#), learners' concentration in learning encourages active listening, which increases mastery of facts in particular subjects. Improved concentration in learning enhances the acquisition of skills in business studies. Well-structured instructional content is an essential learning tool since it offers materials and resources that inspire learners to construct knowledge ([Lau, Lam, Kam, & Nkhoma, 2018](#)). Whenever a learner individually constructs knowledge, the ability to understand and retain facts is enhanced, leading to increased capability in a particular learning area. [Bekele, Amollo, Mwangi, and Lilian \(2021\)](#) assert that practical sessions for learners provide opportunities to cement knowledge obtained through business studies textbooks. Incorporating role plays, mock business setups, and field visits will complement in aiding learners to retain information obtained in class.

1.1. Active Learning Approach and Learning Achievement

Active learning approaches in instruction enhance the construction of knowledge in business studies, resulting in academic achievement. A learner-centered approach to knowledge construction promotes learners' involvement in doing things and encourages them to think about what they are doing ([Baeten, Kyndt, Struyven, & Dochy, 2010](#)). Business studies textbooks are likely to adopt inquiry-based learning by providing tasks that learners can be involved in at every stage, thereby triggering critical thinking in specific learning activities. Learners are more likely to enjoy lessons that involve activities compared to those where they are just passive listeners ([French, Imms, & Mat, 2019](#)). Learning is likely to be disrupted whenever there is no activity involved in the learning process, as this is likely to lead the learner into boredom. On the other hand, instances where learners engage in the construction of their own knowledge and learning objectives are achieved.

Active learning approaches in instruction enhance the construction of knowledge in business studies, resulting in academic achievement. A learner-centered approach to knowledge construction promotes learners' involvement in doing things and encourages them to think about what they are doing ([Baeten et al., 2010](#)). Business studies textbooks are likely to adopt inquiry-based learning by providing tasks that learners can be involved in at every stage, thereby triggering critical thinking in specific learning activities. Academic achievement is promoted through the use of well-designed textbooks. As propounded by [Kovach \(2019\)](#), success at school is supported whenever the learner is committed to studying and accomplishing assignments. In the views of [Asiyah et al. \(2021\)](#), dedication to work determines the level of quality of learning realized by the learner. Self-determination and undistracted focus help learners to master the concepts learned for increased learning outcomes.

1.2. Theory Versus Practice and Learning Achievement

It is a crucial learning tool [Lau et al. \(2018\)](#) as it provides learning resources and contents that should motivate students to learn. The textbook is subject to social control mechanisms, since it represents a source of knowledge that is officially recognized as suitable and objective. [Hadar \(2017\)](#), in a study on the interaction between textbooks and teachers, revealed that teachers frequently strictly follow textbooks when delivering educational content. [Ham and Heinze \(2018\)](#) found that topics not included in textbooks are rarely discussed in class, as teachers mostly use them as a guiding instructional tool. Well-organized business studies textbooks strike a balance between theory and practice. Learning is enhanced when students are able to apply concepts they are studying in class to real-world situations. According to [Davoudi \(2015\)](#), students benefit from increased self-awareness, information acquisition, and skill development when they have ample opportunities to apply what they learn in class. The business studies textbook is anticipated to include fieldwork exercises to promote a balance between theory and practice, increasing the level of cemented knowledge ([Oluoch, Odundo, & Mwangi, 2020](#)). Learners, guided by their learning goals,

spend time outside of class observing and forming opinions about the topic of interest. Students are more likely to retain course material if they regularly apply it to solve problems in learning assignments.

1.3. Statement of the Problem

When learners actively participate in learning, mastery of concepts and acquisition of skills are likely to be realized. Learning actively in business studies may not be accomplished in instances where focus groups have an unclear structure to guide learners. However, when learners are categorized into ability groups, mastery of concepts is accelerated, leading to an increase in self-efficacy. Learning in schools may be promoted whenever learners acquire timely feedback about concepts being studied, promoting learning achievement. Therefore, inculcating immediate responses in learning and positive criticism by peers encourages learning for increased interesting episodes of concept mastery.

1.4. Research Objectives

- i. To assess the effectiveness of the active learning approach in promoting learning achievement.
- ii. To examine the effectiveness of theory versus practice in supporting learning achievement.

1.5. Research Hypothesis

- i. *There is no significant relationship between the active learning approach and learning achievement.*
- ii. *There is no significant relationship between theory and practice and learning achievement.*

2. REVIEW OF RELATED LITERATURE

Table 1 presents a summary of knowledge gaps derived from the empirical review and that this study sought to address.

Table 1. Presents summary of Research Gaps in related literature.

Author/year	Title	Methodology	Findings	Knowledge gap
Hadar (2017)	Opportunities to learn: Mathematics and students' achievements	Exploratory study	The findings show that the opportunity to engage in tasks demanding higher levels of understanding promotes learning.	Influence of group discussion in assessing equity in education.
Chiu, Chai, Williams, and Lin (2021)	Teacher professional development on self-determination	Design thinking framework	Findings revealed benefits of applying learned concepts from workshops in the classroom, encouraging critical thinking and benefiting learners in skill acquisition.	Study on the influence of critical thinking enhancing peer learning in business studies classes.
Mithans and Grmek (2020)	The use of textbooks in the teaching and learning process	Online questionnaire, consisting of sets of questions and sets of evaluating scales.	Revision of content by learners reinforces mastery of concept	Influence of role reversal in active learning sessions on learning achievement
Kovach (2019)	A review of classical motivation theories: understanding the	Literature review	Active engagement in learning is influenced by factors such as	Influence of the function of intrinsic

Author/year	Title	Methodology	Findings	Knowledge gap
	value of locus of control in higher education.		one's roles, how much each knows about the role, and the respective results.	motivation on learning achievement in business studies
Allred and Cena (2020)	Reading motivation in high school: Instructional shifts in student choice and class time.	Qualitative research design	Dedicating class time to reading circle discussions helped learners have more positive reading experiences.	Influence of dedicating class time on self-driven reading experience in accounting
Becker and McElvany (2018)	The interplay of gender and social background. A longitudinal study of interaction effects in reading attitudes and behavior.	Questionnaire data from both students and parents.	Gender, social background, and the interaction of the two are relevant for development in the domain of reading, even in young children.	Influence of learner motivation, gender, and social background on learning achievement in business.
Tegmark, Vinterek, Alatalo, and Winberg (2025)	What motivates students to read at school? Student views on reading practices in middle and lower-secondary school	Survey research design was adopted; an interview schedule with open-ended questions was used to obtain data from students in four of the school subjects.	Autonomous motivation strongly predicts reading achievement.	Influence of reflection opportunities on learning achievement in business studies

2.1. Theoretical Framework

Senninger (2000) is The main theory anchoring this study, propounded by Senninger (2000), aims to help visualize and explain the process of learning and development as a progression through different psychological states. The model was developed to illustrate the balance between comfort, learning, and fear, and to demonstrate how personal growth is often limited by an individual's reluctance to face uncertainty or challenge. This theory was adopted by Chris (2019) to underpin a study on the benefits of reflection and role models in learning. The study concluded that opportunities for supported reflection on newly learned concepts broaden individuals' scope of learning, thereby increasing mastery of concepts. The Learning Zone Model asserts that learning activities aligned with the learner's mental ability create a conducive learning environment that promotes knowledge construction within a given subject area. Conversely, when learning activities exceed the learner's mental capabilities, knowledge creation is discouraged, leading to panic and limiting knowledge development. The Zone of Proximal Development reiterates Senninger's concept by emphasizing that appropriate instructional activities bridge the gap between what the learner can do independently and what they can achieve with assistance.

2.2. Conceptual Framework of instructional strategies and Learning Achievement Through approved Business Studies Textbook

The independent variable, instructional strategies, interact through the teaching and learning environment to contribute to an enhanced reading culture and effective study habits, resulting in a rise in learners' mean scores. Figure 1 illustrates the conceptual framework used.

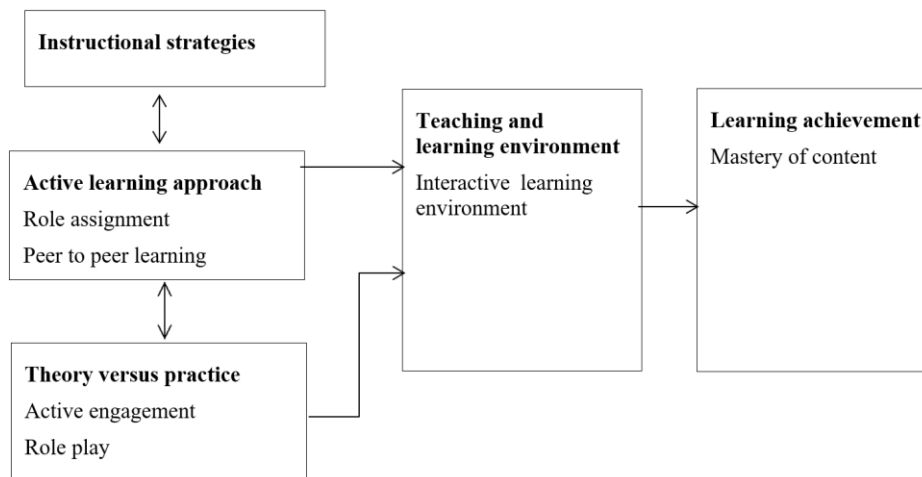


Figure 1. Conceptual framework of instructional strategies and learning achievement through approved business studies textbooks.

3. METHODOLOGY

3.1. Research Methodology

This study is anchored in positivism, as propounded by Comte (1858). This paradigm posits that reality is stable and can be observed and described from an objective viewpoint, free from the influence of the researcher (Neuman, 2014). This scientific approach entails the use of quantitative methods, which allow for the measurement and analysis of data, leading to the discovery of general laws and principles that govern phenomena (Creswell, 2017). Additionally, knowledge is generated from the understanding of diverse perspectives on learning content and the strategies adopted for specific learning areas. Qualitative methods such as interviews, observations, and textual analysis will be used to explore the influence of the quality of textbooks on learning achievement.

The study adopted a mixed-method research design incorporating the Solomon four-group design, which combines both quantitative and qualitative research methods to answer different aspects of the research question, thus fully exploring the relationship between phenomena (Sale, Lohfeld, & Brazil, 2002). The Solomon four-group design uses quantitative methods to evaluate effectiveness of intervention while controlling threats to internal and external validity (Russ-Eft & Hoover, 2005). The design can be used to test the effect of pre-intervention sensitization, which occurs when pre-intervention measurement influences participants' responsiveness to the intervention. The design involves four groups of participants: two treatment groups and two control groups. One treatment group and one control group receive both pre-intervention evaluation (pretest) and post-intervention evaluation (posttest), while the other two groups receive only posttest. The advantage of this design is that it can control for the effect of pre-intervention sensitization, which is when pre-intervention measurement influences participants' responsiveness to the intervention presented.

Target population is particular group or groups of individuals that are central focus of research study (Ponto, 2015). The selection of participants is determined by their alignment with research objectives and their capacity to offer valuable perspectives on the research subject matter. The target population included secondary school learners enrolled in public schools in Nairobi County who are taking the business studies subject, as well as the respective subject teachers.

The study applied three-tier sampling; simple random sampling in selecting four educational institutions from four educational zones in Nairobi, as per Solomon four-group design principles. The study assumed that every school in the country uses approved textbooks for instructional guides and thus has an equal chance of being selected. Purposive sampling was applied to select form three classes and teachers undertaking business education studies. Orodho, Khatete, and Mugiraneza (2016) Assert that in purposive sampling, cases are often selected for possessing characteristics of interest. The subject was optional, and therefore, only the appropriate class was chosen. The census approach was applied at the class level, where every learner in the selected class participated in

the study. The adoption of a census at the class level gave all learners the same opportunity to participate. As explained by Oluwatayo (2012), census surveys are capable of yielding representative results if they are effectively utilized. In schools where there are expected to be multiple Form Three classes, all classes will receive identical instruction for ethical reasons. Subsequently, a random sampling method was employed to choose one class to provide data for the study.

The analysis involved the use of both descriptive and inferential statistical techniques, including a summary of findings in the form of tables from coded numbers and percentages. Descriptive statistics included mean, standard deviation, frequency, and percentages. On the other hand, inferential statistics involved t-tests and regression analysis to test for the influence of evaluation criteria on the quality of business studies core textbooks used in Kenyan secondary schools. Data collection and analysis are two aspects of qualitative research that are conducted simultaneously. As a result, data was gathered and analyzed at the same time by taking notes of all data from interview sessions with teachers and school principals. After gathering all data through in-depth interviews, the researcher organized data for analysis by grouping data into instruments that were used. The researcher then refined codes that had already been derived by reducing them to relevant analytical concepts. Data was analyzed through content analysis of thematic areas.

3.2. Ethical Consideration

In the course of research, ethical guidelines were strictly adhered to. When collecting data, permission was requested from NACOSTI and was granted a research permit, and an introductory letter from the University of Nairobi was also obtained. Consent for data collection was obtained from teachers and learners participating in the study from the eight sampled schools. Additionally, teachers and students were guaranteed confidentiality of gathered information. When completing questionnaires, teachers and learners were asked not to disclose their names. The researcher also ensured that respondents would not face any harm in any way and that collected information would be exclusively utilized for educational purposes.

4. FINDINGS AND DISCUSSIONS

The study used a sample size of 30 participants, all of whom participated, resulting in a response rate of 100%. The demographic information revealed a female majority among the teachers, with 62.5% being female and 37.5% male. In terms of age distribution, half of the teachers (50.0%) were aged 30–39 years, followed by 25.0% aged 20–29 years, and equal proportions (12.5%) in the 40–49 and above 50 age brackets. Regarding educational qualifications, most teachers held bachelor's degrees (75.0%), while 12.5% had master's degrees, and 12.5% had other qualifications. Teaching experience in the school showed that 50.0% of teachers had served for 6–10 years, 12.5% for 10–15 years, and 37.5% had other lengths of service. Most teachers (87.5%) taught business studies alongside another subject, while only 12.5% taught business studies exclusively. Additionally, 87.5% of teachers handled fewer than 27 lessons per week, with only 12.5% taking on 27 or more. The school type representation indicated that 87.5% taught in boarding schools and 12.5% in day schools. These findings highlight diverse demographic and professional attributes among teachers, reflecting varied experiences and qualifications relevant to the study's focus.

4.1. Descriptive Analysis

Strategy adopted in teaching or relaying information is based on teaching and learning methods. Variability of teaching methods promotes learning achievement among learners, consequently leading to an increase in learners' mean score in summative evaluation. Suitability of teaching methods to learners' learning styles therefore influences learning achievement through textbooks.

4.1.1. Active Learning Approach

The teachers were asked to provide answers to questions on the active learning approach selected to improve the quality of business studies textbooks to facilitate the achievement of learning objectives in business studies. The results are presented in Table 2.

Table 2. Descriptive statistics on active learning approach.

Statement	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean	Std. dev.
Active learning approach	5%	10%	15%	40%	30%	3.81	1.24
Encourages individualized learning.	2%	8%	10%	45%	35%	4.03	1.19
Motivates learners when carrying out group discussions.	1%	7%	15%	40%	37%	4.05	0.99
Methods promote learner enthusiasm in knowledge construction.	3%	10%	12%	43%	32%	3.91	1.25
Approach facilitates inquiry-based learning	4%	8%	10%	45%	33%	3.95	1.38
Fosters student participation and engagement through active learning strategies.	5%	10%	15%	40%	30%	3.84	1.36
Supports personalized learning experiences, catering to individual student needs and preferences.	3%	7%	12%	43%	35%	4.23	0.87
Encourages collaborative learning through effective group discussion techniques, promoting motivation and knowledge sharing among peers.	2%	5%	10%	45%	38%	4.12	0.81
Overall mean						3.951	

The results in Table 2 depict that the majority of teachers (75%) agreed that the active learning approach was effective in enhancing learning achievement in business studies (Mean = 3.81, SD = 1.24). This indicates a generally positive perception of the active learning approach, with a moderate level of variability in responses, suggesting that while many teachers found the approach beneficial, some held differing opinions. Additionally, 80% of teachers agreed that the approach encourages individualized learning (Mean = 4.03, SD = 1.19), highlighting its perceived value in catering to individual student needs. The relatively low standard deviation suggests a more consistent agreement among teachers regarding the effectiveness of the active learning approach in promoting personalized learning. Furthermore, 77% of teachers agreed that the active learning approach motivated learners during group discussions (Mean = 4.05, SD = 0.99). This result indicates that the approach has a strong positive influence on learner motivation and engagement, particularly in collaborative settings. Teachers also recognized that the methods promoted enthusiasm for knowledge construction, with 75% agreeing (Mean = 3.91, SD = 1.25). Although the standard deviation is moderate, it indicates some variability in teachers' views on how well the approach fosters enthusiasm in learners.

In terms of inquiry-based learning, 78% of teachers agreed that the active learning approach facilitated this type of learning (Mean = 3.95, SD = 1.38), further reinforcing its value in encouraging critical thinking and exploration. Similarly, 70% of teachers agreed that the approach fostered student participation and engagement through active learning strategies (Mean = 3.84, SD = 1.36). The slightly higher standard deviation here suggests that some teachers may have had concerns about the consistency of student engagement through these strategies. Regarding personalized learning experiences, 78% of teachers agreed that the active learning approach supported individualized student learning preferences (Mean = 4.23, SD = 0.87). This result, with a low standard deviation,

indicates strong consensus on the value of the approach in adapting to students' specific learning needs. Moreover, 83% of teachers agreed that the approach encouraged collaborative learning through effective group discussions (Mean = 4.12, SD = 0.81), suggesting a high level of agreement on its role in promoting teamwork and peer-to-peer knowledge sharing.

The results suggest that the active learning approach was widely recognized as an effective strategy to improve learning outcomes in business studies. The means generally reflect positive views, while the standard deviations indicate moderate to low variability in teachers' perceptions. This indicates a strong consensus on the value of the approach in fostering individualized and collaborative learning environments, as well as its potential to enhance student engagement and motivation. These findings imply that the approach is perceived as beneficial for improving student learning outcomes. Teachers' positive perceptions of its ability to foster motivation, engagement, and individualized learning suggest that active learning strategies play a significant role in enhancing student achievement. However, variability in some responses highlights the need for further investigation into how the approach can be consistently implemented across diverse classroom settings.

4.2. Diagnostic Tests

The researcher conducted diagnostic tests to ensure the assumptions of the multiple regression analysis are not violated. These tests included assessments for multicollinearity, heteroscedasticity, and normality of residuals.

4.2.1. Multicollinearity

Multicollinearity describes a situation where two or more independent variables in a regression model are highly correlated. This can result in inflated standard errors, making it difficult to determine the individual effect of each predictor. To assess this, the Variance Inflation Factor (VIF) and Tolerance values were used. A VIF value less than 10 and a Tolerance value greater than 0.2 indicate the absence of multicollinearity. The results are shown in Table 3.

Table 3. Multicollinearity test using tolerance and VIF.

Variable	Collinearity Statistics	
	Tolerance	VIF
Active Learning Approach	0.612	1.634
Theory Versus Practice	0.553	1.809

The results in Table 3 indicate that both variables had Tolerance values greater than 0.2 and VIF values below the threshold of 10 confirm that there was no multicollinearity problem in the regression model, allowing for confident interpretation of individual predictor effects on learning achievement.

4.2.2. Normality Testing

The assumption of normality was tested using the Shapiro-Wilk and Kolmogorov-Smirnov (K-S) tests. These tests assess whether the residuals follow a normal distribution, which is important for the validity of hypothesis testing in regression. Table 4 shows the normality test results.

Table 4. Test for normality.

Test	Statistic	df	Sig. (p-value)
Kolmogorov-Smirnov	0.109	30	0.200
Shapiro-Wilk	0.972	30	0.445

The p-values for both the Kolmogorov-Smirnov (0.200) and Shapiro-Wilk (0.445) tests were greater than 0.05, indicating that the residuals were normally distributed. This supports the assumption of normality in the regression model.

4.2.3. Heteroscedasticity

Heteroscedasticity occurs when the variance of residuals is not constant across all levels of the independent variables. This violates a key assumption of regression and can lead to inefficient estimates. To test for heteroscedasticity, the Breusch-Pagan test was conducted, with the null hypothesis assuming constant variance (Homoscedasticity). Table 5 shows the results.

Table 5. Heteroscedasticity results.

Test	Chi-square	p-value
Breusch-Pagan / Cook-Weisberg test	0.742	0.689

The results indicate that the p-value (0.689) was greater than 0.05, leading to a failure to reject the null hypothesis. Therefore, the data did not exhibit heteroscedasticity, and the residuals had constant variance. This paved the way for regression analysis.

4.3. Regression Analysis

The study conducted linear regression analysis to explore the influence of the active learning approach on learning achievement in secondary schools in Nairobi, Kenya, and to assess the influence of theory versus practice on learning achievement in secondary schools in Nairobi, Kenya. Table 6 shows model summary results.

Table 6. Model summary.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.754 ^a	0.569	0.565	0.53021

Note: a. Predictors: (Constant), theory versus practice, active learning approach.

The results in Table 6 show a coefficient of determination (R squared) of 0.569, implying that theory versus practice and active learning approach jointly explain 56.9% of the variation in learning achievement among secondary school students in Nairobi, Kenya. The adjusted R squared, which accounts for the number of predictors in the model, reflects a slightly reduced but still significant explanatory power. However, the remaining 43.1% of the variation in learning achievement is attributed to factors that were not part of the current study, such as teacher qualifications, class size, school funding, student motivation, parental involvement, and socio-economic status. The exclusion of these potentially confounding variables implies that the findings should be interpreted with caution and considered as partial rather than comprehensive explanations of learning achievement. Table 7 shows ANOVA results.

Table 7. ANOVA.

Model		Sum of squares	Df	Mean square	F	Sig.
	Regression	35.665	2	17.833	17.851	0.000 ^b
	Residual	26.988	27	0.999		
	Total	62.653	29			

Note: b. Predictors: (Constant), active learning approach, theory versus practice

The ANOVA results in Table 7 show that the model used to assess the influence of active learning approach and theory versus practice on learning achievement in secondary schools in Nairobi, Kenya, was statistically significant. This is shown by a p-value of 0.000, which is less than the critical significance level of 0.05, indicating

that the predictors (active learning approach and theory versus practice) jointly have a significant influence on learning achievement. Additionally, the F statistic of 17.851 further validates the model's statistical significance, demonstrating that the independent variables significantly predict the dependent variable (learning achievement). Table 8 shows regression coefficient results.

Table 8. Regression of Coefficient.

Model		Unstandardized coefficients		Standardized coefficients	T	Sig.
		B	Std. error	Beta		
1	(Constant)	1.629	0.286		5.701	0.000
	Active learning approach	0.584	0.07	0.649	8.349	0.002
	Theory versus practice	0.734	0.065	0.754	11.264	0.001

The regression model therefore became.

$$Y = 1.629 + 0.584X_1 + 0.734X_2$$

Where:

Y = Learning Achievement.

X₁= Active Learning Approach.

X₂= Theory Versus Practice.

The regression coefficient results in Table 8 show that the active learning approach has a positive and significant impact on learning achievement in secondary schools in Nairobi, Kenya ($\beta = 0.584$, $p = 0.002 < 0.05$). This result is supported by a t-statistic of 8.349, which is greater than the critical t-value of 1.96, confirming the significance of the relationship. The findings indicate that for each unit increase in the effectiveness of the active learning approach, learning achievement is expected to increase by 0.584 units. This supports constructivist pedagogical principles, which posit that student engagement enhances understanding. This led to the rejection of H_{01} , and the conclusion is that the active learning approach has a significant influence on learning achievement in secondary schools in Nairobi, Kenya. In the table, a denotes the dependent variable, which in this case is learning achievement.

Similarly, the theory versus practice also has a positive and significant impact on learning achievement ($\beta = 0.734$, $p = 0.001 < 0.05$). The t-statistic of 11.264, which exceeds the critical t-value, further confirms this significant relationship. This suggests that for each unit increase in the balance and integration of theory versus practice, learning achievement is expected to increase by 0.734 units. These results indicate that both teaching methods and the integration of theory versus practice significantly contribute to improving learning achievement. This suggests that ensuring conceptual knowledge is in line with experiential learning may broaden comprehension, improve retention, and support application-based assessments. Consequently, the null hypothesis (H_{02}) was rejected, affirming that theory versus practice has a significant influence on learning achievement in secondary schools, Nairobi, Kenya.

These findings are strongly supported by existing literature. For instance, a study by Hadar (2017) explained that engaging learners in tasks requiring higher-order thinking significantly boosts academic achievement, aligning with the present study's conclusion that participatory learning especially through active listening and inquiry, improves comprehension and retention. Additionally, Chiu et al. (2021) demonstrated that when teachers implement concepts gained through professional development, it cultivates critical thinking and skill acquisition, reinforcing the idea that theory-practice integration promotes practical understanding. Moreover, Mithans and Grmek (2020) found that learner-driven revision using textbooks strengthens mastery of concepts, consistent with this study's finding that inclusive and structured learning materials ensure achievement.

Similarly, a study by Kovach (2019) linked learner roles and responsibilities to intrinsic motivation and performance, echoing how active learning strategies like the Fishbowl technique through role assignment and

collaboration, stimulate learner engagement and responsibility. Allred and Cena (2020) also found that structured yet student-centered instructional time led to positive reading experiences, analogous to the active learning environment's effect on business studies achievement. Moreover, Becker and McElvany (2018) identified motivation, gender, and social context as crucial for academic development, which complements the current study's argument that pedagogical approaches should account for diverse learner profiles. Finally, Tegmark et al. (2025) demonstrated that autonomous motivation is a strong predictor of achievement, paralleling the study's implication that methods encouraging autonomy, like bridging theory with practice, lead to better learning outcomes.

4.3.1. Practical and Pedagogical Implications

The findings revealed that theory-practice integration has a stronger impact on achievement than active learning methods alone, which holds important implications for curriculum design. This suggests that secondary school instruction should go beyond participatory techniques and aim to connect classroom content with practical scenarios, such as using case studies, simulations, or fieldwork. Meanwhile, enhancing active learning should still serve as a foundational strategy to engage diverse learner styles and promote critical thinking. These results indicate a need for targeted teacher training programs to build capacity in both active learning facilitation and curriculum contextualization. Moreover, the findings suggest that policymakers should consider reviewing syllabi to emphasize application-oriented content, especially in STEM subjects.

5. CONCLUSION

The study concludes that active learning approaches have a significant and positive impact on learning achievement in secondary schools. The adoption of diverse and effective teaching strategies, such as active learning, personalized approaches, and inquiry-based techniques, directly enhances student engagement, knowledge retention, and academic performance. These active learning approaches not only motivate knowledge construction but also promote collaboration for improved learning achievement. Additionally, the study concludes that quality and properly aligned instructional content with the syllabus are critical in supporting curriculum coverage and learning outcomes. Textbooks that provide clear practical application significantly contribute to enhancing learner comprehension and enthusiasm. The inquiry-based learning further demonstrates the importance of well-structured textbooks in fostering academic success. Additionally, the study concludes that the relationship between active learning approaches and learning achievement is both statistically significant and impactful. The regression model demonstrated that improvements in teaching methods lead to measurable increases in learning achievement. This indicates the necessity of professional development for teachers to adopt innovative teaching strategies that align with both curricular requirements and learner needs. Moreover, effective active learning approaches and the integration of theory with practice are critical drivers of academic success, suggesting that educators and policymakers should prioritize pedagogical strategies that actively engage students and bridge theoretical knowledge with real-world applications. These findings highlight the need for curriculum reforms that focus on practical relevance, fostering critical thinking and adaptability in students. Additionally, the results indicate the broader implication that innovative and contextually responsive teaching approaches can significantly enhance the overall quality of education in secondary schools, equipping students with the skills and knowledge needed for academic and professional excellence.

6. RECOMMENDATION

6.1. Practice

In view of the findings:

Business teachers should adopt a diverse range of teaching methods tailored to the needs of learners to maximize learning outcomes.

The study emphasizes the need for ongoing professional development and training for teachers to adopt innovative and effective instructional approaches to enhance success in academics.

Active learning approaches, when incorporated into daily teaching practices, create learner engagement in the learning process, culminating in mastery of content. Interactive strategies motivate learners in peer-to-peer knowledge sharing for sustained understanding of concepts in business studies.

6.2. Policy

Policymakers should prioritize the development and dissemination of high-quality instructional materials that are closely linked with the curriculum. Business studies textbooks should be based on clarity, relevance, and include question-based and practical applications to enhance problem-solving skills among learners. Education policies should also conduct regular reviews of learning materials to ensure they meet evolving educational demands.

Government and educational institutions should invest in teacher training programs that focus on innovative pedagogical techniques, ensuring that all educators have access to resources for implementing effective teaching strategies.

6.3. Further Study

Despite its strengths, the model excluded other critical variables, limiting its generalizability. Future research should consider incorporating additional factors such as teacher experience, class size, and home learning environments and their influence on learning achievement. Additionally, a mixed-methods or longitudinal design is recommended to capture changes over time and provide richer explanatory power.

Funding: This study received no specific financial support.

Institutional Review Board Statement: The study involved minimal risk and adhered to ethical guidelines for social science fieldwork. Formal approval from an Institutional Review Board was not required under the policies of University of Nairobi, Kenya. Informed verbal consent was obtained from all participants, and all data were anonymized to ensure participant confidentiality.

Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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Appendix 1: Questionnaire for business studies teachers.

This Appendix 1 presents the questionnaire that was administered to business studies teachers. The section starts with an introductory letter.

A: Introduction and Consent Letter

Hello. My name is Sarah Getahun, PhD Candidate at the University of Nairobi conducting a study on the influence of the quality of approved Form Three Business Studies textbooks on learning achievement in secondary schools in Nairobi County, Kenya. This questionnaire seeks to collect data on the influence of teaching methods, instructional content, learning assignments, differentiated techniques, and curriculum coverage on learning achievement through Business Studies textbooks.

Your responses will be kept secret and used solely for academic purposes. To ensure confidentiality, please do not indicate your name in this questionnaire. Thank you for your cooperation.

Instructional strategies and Learning Achievement

Teaching strategies adopted in learning through textbooks, such as discussion and peer-to-peer reading, are likely to boost understanding of concepts in business studies.

Likert scale of 1 to 5 shows level of agreement with listed statement on strategies used to realize learning achievement in business studies.

KEY 5: Strongly Disagree=1 Disagree=2 Undecided=3 Agree=4 Strongly Agree=5

State the level of agreement with the following statements on teaching and learning for accelerated mastery of content in business studies for enhanced achievement.

1.0 Pedagogical routines						
1.1 Active learning approach and learning achievement		SA	A	U	D	SD
1.1.1	Adoption of individualized instruction improves learning acquisition and application of business studies skills.					
1.1.2	Learner involvement through discussion aids mastery of content for accelerated learning.					
1.1.3	Minimal use of instructional resources may invigorate learner enthusiasm during business studies lessons for accelerated learning.					
1.1.4	In-built feedback mechanism during instruction encourages achievement of learning for enhanced capabilities in given task.					
1.1.5	Adopting a consultative and collaborative learning approach promotes the sharing of ideas for efficient teaching and learning processes.					
1.2	Theory and practice and learning achievement	SA	A	U	D	SD
1.2.1	Teacher preparation focused on real-world examples encourages mastery of concepts for improved learning outcomes.					
1.2.2	Addressing issues confronting ethics during instruction may raise enthusiasm in acquiring content for enhanced scores.					
1.2.3	Financial literacy foundation facilitates understanding of basic economic principles, leading to efficient learning session.					
1.2.4	Exposing current business trends equips learners with the requisite skills, thereby improving their capability in relevant content.					
1.2.5	Presenting business scenarios in textbooks encourages the development of problem-solving skills and promotes interest in learning.					

Please state suggestions on areas of improvement in teaching methods in business studies textbooks

State challenges experienced in adopting suggested teaching methods for specific learning outcome in business studies

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