



EFFECT OF STUDENT TEAMS-ACHIEVEMENT DIVISION STRATEGY ON GENDER-BASED LEARNER PERFORMANCE IN SECONDARY SCHOOL ACCOUNTING IN KAJIADO COUNTY, KENYA

Emmanuel Munyao Mailo^{1*}, Samson Rosana Ondigi (Prof.)²,

Priscilla Ndegwa (Ph.D.)³, and Mary Nasibi⁴.

^{1,2&4}Department of Educational Communication and Technology,
School of Education and Lifelong Learning, Kenyatta University, Nairobi, Kenya.

³Department of Business Administration, School of Business, Economics and Tourism,
Kenyatta University, Nairobi, Kenya.

*Corresponding Author's Email: emmanuelmailo254@gmail.com

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ABSTRACT: *This study investigated the effect of the Student Teams-Achievement Division (STAD) instructional strategy on learners' achievement in Accounting with respect to gender in secondary schools in Kajiado County, Kenya. The study was anchored on Social Interdependence Theory and Vygotsky's Constructivist Theory. A quasi-experimental design based on Solomon's four-group model was adopted. The sample comprised 211 form three learners from four gender-mixed public secondary schools and six Business Studies teachers. Learners were assigned to two experimental groups taught using the STAD strategy and two control groups taught using conventional methods, with stratification and random sampling procedures. A pilot study involving 46 learners and two teachers from a non-participating school was conducted to refine the research instruments. Data were collected using validated Accounting Achievement Tests and interview schedules for teachers. Reliability of the achievement tests was established using KR-20 coefficients of 0.72 and 0.74. Data were analyzed using descriptive and inferential statistics, including t-tests, one-way ANOVA, and two-way ANOVA at the 0.05 significance level. Findings revealed that learners taught using STAD performed significantly better than those taught through conventional methods. However, no statistically significant gender differences were observed among learners taught using STAD and the interaction effect between gender and instructional strategy was also not significant. The study concluded that STAD is an effective and gender-neutral instructional strategy for enhancing achievement in Accounting. It is therefore recommended that teachers adopt cooperative learning strategies, such as STAD, to enhance academic performance across genders while promoting equity in classroom learning outcomes.*

KEYWORDS: Accounting, Achievement, Attitudes, Conventional methods, Gender, Learner-based participation, Peer support, STAD strategy.



INTRODUCTION

The teaching and learning of Accounting within Business Studies aims to equip all learners, regardless of gender or socio-cultural background, with essential financial literacy and analytical and decision-making skills necessary for real-life application. According to Walusa and Qhosola (2025), Accounting plays a vital role in enabling learners to understand business operations, manage resources effectively, and make informed economic decisions. Similarly, Rahman, Rahman and Rahaman (2021) opine that Accounting underpins business transactions, supports organizational accountability, and contributes to economic development at both individual and societal levels. This corroborates the sentiment of Makhathini and Akpa-Inyang (2024) that Accounting value extends beyond the classroom, influencing personal financial management, entrepreneurship, and participation in the broader economy. All things considered, from small-scale enterprises to large corporations, Ndovela and Myeza (2025) opine that Accounting knowledge remains indispensable for planning, control and sustainability.

Nevertheless, Accounting instruction at the secondary school level continues to attract researchers' attention due to persistent gender-based variations in learner performance. A study conducted by Bru, Virtanen, Kjetilstad and Niemiec (2021) on *Gender differences in the strength of association between perceived support from teachers and student engagement* indicates that performance variations between female and male students remain evident, particularly in classroom participation and assessment scores. In the same vein, Huikku, Myllymäki and Ojala (2022) add that boys tend to outperform girls in examination settings, mainly due to competitive, performance-oriented learning goals, while such disparities diminish in cooperative assessment tasks. Similarly, Sáinz, Solé, Fàbregues, and García-Cuesta (2021) corroborate that gender gaps in academic achievement persist across disciplines, with male learners often occupying higher performance categories while female learners are overrepresented among lower-performing categories. Importantly, current scholarship suggests that these disparities are not simply a reflection of innate ability but are closely linked to the learning environment, including how content is delivered, assessed, and socially framed within classrooms.

In Kenya and other developing contexts, the challenge of gender-based underperformance in the Accounting component of Business Studies is compounded by pedagogical limitations. Disparities in Accounting achievement are often associated with unequal access to quality instructional support, learning resources and inclusive teaching strategies (Eshetu et al., 2024; Santos & Soliven, 2025). Continued reliance on teacher-centred methods has been criticised for limiting learner engagement and failing to address diverse learning needs, which, according to Mungeria (2021), reinforces achievement gaps between girls and boys. Additionally, Moraga-Pumarino, Salvo-Garrido and Ortiz-Cea (2025) emphasise that elements such as learner motivation, self-efficacy and classroom interaction factors, coupled with teaching strategies, play a vital role in determining academic scores across gender. In the Kenyan context, where Accounting forms a key component of Business Studies, persistent underperformance among learners of both genders, though often varying in magnitude, has been increasingly linked to ineffective pedagogical practices rather than learner capability alone (Marwa, 2022). This underscores the need to re-examine instructional methods to create more inclusive and gender-responsive Accounting classrooms.



Statement of the Problem

Accounting is a core discipline of Business Studies in secondary schools in Kenya that equips learners with essential financial and business skills necessary for both personal and entrepreneurial development. Despite its importance, many learners in Kajiado County consistently perform poorly in Accounting, with low achievement observed across both male and female students, though with disparities. This persistent underperformance has contributed to overall challenges in Business Studies, as learners often struggle to grasp key concepts and apply them in practical contexts, leading to subpar achievement in final examinations. Over the years, several instructional strategies have been explored to improve gender-based learner performance in Accounting, yet many have shown limited success in promoting outcomes. Among emerging strategies, the Student Teams-Achievement Division (STAD) strategy has shown promise in other subject areas by fostering cooperative learning and encouraging participation from all learners, resulting in more balanced performance across genders. However, there remains a need for empirical evidence on the effectiveness of STAD in enhancing Accounting achievement while minimizing gender disparities in the context of Kenyan secondary schools. Thus, this study sought to investigate the effect of STAD strategy on gender-based learner performance in Accounting, within secondary schools in Kajiado County, Kenya.

Purpose and Objective

The purpose of this study was to examine the effect of the Student Teams-Achievement Division (STAD) instructional strategy on learners' performance in Accounting in secondary schools. The specific objective of the study was to determine whether there is a significant difference in Accounting performance between male and female learners taught using STAD strategy in secondary schools in Kajiado County, Kenya.

Research Hypothesis

The study tested the following null hypothesis at a significance level of 0.05:

H₀₁: There is no statistically significant difference in Accounting performance between male and female learners taught using STAD strategy.

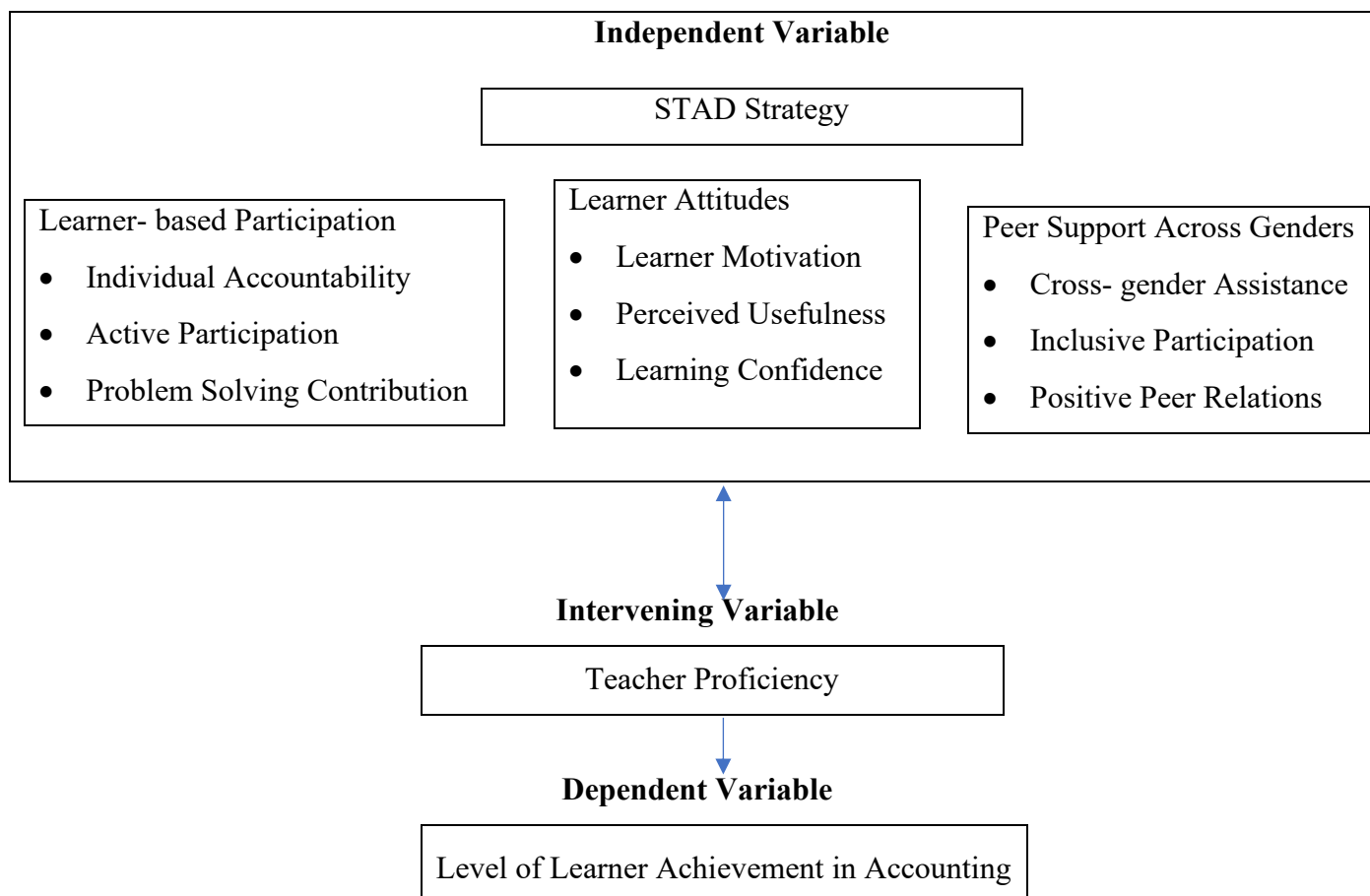
Theoretical Framework

This study was guided by Social Interdependence Theory (SIT), which was first propounded by Kurt Lewin in 1935 and later extended by Morton Deutsch in 1949 to explain how cooperative structures influence group interaction and outcomes and Vygotsky's Social Constructivist Theory, developed by Lev Vygotsky during the 1920s and 1930s. SIT has been widely used in educational research to examine the effects of cooperative learning approaches on academic achievement, showing that positive interdependence and individual accountability heighten learner outcomes. Vygotsky's theory has been applied globally to explain how learners construct knowledge through socially mediated interaction and scaffolding within the zone of proximal development. Together, these theories were suitable for this study because STAD's emphasis on structured group engagement, positive peer interaction across genders and teacher facilitation aligns well with the principles of interdependence and socially constructed learning to enhance gender-based performance in Accounting.



Conceptual Framework

The conceptual framework illustrates how the STAD strategy influences gender-based performance among learners in Accounting.



Source: (Researcher, 2025)

This conceptual framework illustrates how the STAD strategy, intervened by teacher proficiency, influenced learner performance in Accounting, with attention to gender-based outcomes, highlighting the key aspects of participation, attitudes and peer support that shaped equitable academic achievement.

REVIEW OF RELATED LITERATURE

Building on the central role of Accounting in equipping secondary school learners with critical competencies, empirical research has shown that learner achievement is largely contingent on the instructional methods used in the classroom. Persistent poor performance in Accounting has frequently been attributed to the continued reliance on teacher-centred pedagogies that limit learner engagement, participation and conceptual understanding (Pereira & Sithole, 2020). Such approaches often fail to accommodate diverse learner needs, which according to Novák, Berková, Kubišová and Kolářová (2024), exacerbate disparities in achievement, including those observed between boys and girls.



In contrast, learner-centred instructional strategies, particularly cooperative learning models such as the STAD, have been widely acknowledged for fostering collaborative knowledge construction and heightened achievement among learners. In this regard, Wrigley-Asante, Ackah and Frimpong (2023) claim that these approaches not only enhance academic performance but also promote inclusivity by creating opportunities for meaningful interaction and peer support across gender and ability levels. Consequently, neglecting effective teaching approaches in Accounting would undermine learners' preparedness for economic participation and limit their ability to contribute meaningfully to national development (Ugwunwoti, 2021; Mailo et al, 2026). It is therefore essential that instructional strategies adopted in its teaching, such as cooperative learning strategies like STAD, promote inclusivity and enhance achievement for all learners.

STAD Strategy, Learner-Based Participation and Achievement in Accounting

Globally, a growing body of research has attributed persistent poor achievement in disciplines such as Accounting and other numerically oriented areas to the predominance of teacher-centred instruction. As highlighted by Dubey (2025), teacher-based methods limit engagement and active participation, which reduces conceptual understanding and retention among secondary school learners. Evidence from prior studies indicates that learners often prefer interactive and participatory environments, yet many classrooms remain dominated by passive instructional strategies, leading to low achievement (Carroll, Lindsey, Chaparro & Winslow, 2021; Lee & Paul, 2023). In the same vein, Mbua (2025) argues that cooperative learning methods have gained prominence due to their emphasis on structured learner participation, peer interaction, and shared accountability. Learners who display strong motivation and active engagement tend to achieve better outcomes across various academic areas, including participation in class, development of effective learning strategies, and pursuit of long-term educational goals (Eccles & Wigfield, 2020). A recent investigation by Anggraini et al. (2025) demonstrates that cooperative learning models, including STAD, significantly improve academic achievement across diverse contexts, underscoring the importance of active learner involvement in enhancing performance.

Regionally and within the Kenyan context, similar concerns have been raised regarding the limited participation of learners in Business Studies classrooms, particularly in Accounting (Mungeria, 2021; Musomba, 2022). According to a study conducted by Gcabashe (2024), traditional pedagogical practices have been associated with rote learning, minimal interaction, and inadequate engagement with practical problem-solving tasks. Additionally, Dare (2022) corroborates that such approaches not only hinder mastery of accounting concepts but also contribute to disparities in performance among learners of different genders. These findings further echo Bano and Ambreen (2025) in a study on STAD, which reveals that when learners are actively involved in group-based tasks, discussions, and peer teaching, their cognitive engagement increases, leading to improved comprehension and retention of content regardless of gender.

STAD Strategy, Learner Attitudes and Achievement in Accounting

Learner attitudes play a critical role in determining academic performance, particularly in subjects perceived as complex, such as Accounting. Anjum (2025) asserts that negative attitudes toward teacher-centred instructional methods have been linked to low motivation, anxiety, and reduced persistence in learning. According to study findings of Maries, Karim,



and Singh (2020), students exposed to passive learning environments often develop unfavourable perceptions of the subject, which in turn negatively influences their achievement. Conversely, interactive and collaborative pedagogical strategies have been associated with improved learner attitudes, as they promote a sense of belonging, engagement, and perceived instructor support (Chatterjee & Correia, 2020). In modern learning environments, positive academic emotions have been found to significantly mediate learning performance, highlighting the importance of fostering favourable learner attitudes through appropriate instructional approaches.

Within African contexts and Kenya in particular, students' attitudes toward Accounting have often been characterised by low interest, fear and perceived difficulty, largely attributed to the abstract nature of the discipline and the methods used in its delivery (Marwa, 2021; Ndovela & Myeza, 2025). Besides, a study on cooperative learning approaches such as STAD by Rahman (2025) indicates that these methods can positively transform learner attitudes by making learning more interactive, enjoyable, and socially engaging. Through group discussions, shared problem-solving, and mutual support, learners develop confidence and a more positive disposition toward the subject (Serjali et al., 2020). Furthermore, Masoabi and Alexander (2021) echo that the motivational structure embedded in STAD, where group success depends on individual contribution, encourages active participation and fosters intrinsic motivation. This shift in learner attitudes is crucial in addressing poor performance trends and enhancing overall achievement in Accounting discipline of Business Studies.

STAD Strategy, Peer Support Across Genders and Achievement in Accounting

Gender disparities in academic performance have been widely documented across various disciplines, including Accounting and other business-related subjects. According to a study conducted by Mamoun and Nfissi (2023), differences in performance between male and female learners have often been linked to variations in instructional approaches, classroom interaction patterns, and levels of support provided to learners. This sentiment echoes Aguillon, Siegmund, Petipas, Drake, Cotner, and Ballen (2020), who affirm that conventional-based pedagogical methods may inadvertently favour certain groups of learners while disadvantaging others, thereby contributing to uneven performance across genders. However, a study by Paul and Ghosh (2024) has shown that collaborative learning environments can mitigate these disparities by providing equal opportunities for interaction, participation, and knowledge sharing among all learners.

In regional and Kenyan contexts, gender-based performance gaps in Accounting have been a persistent concern, with some variations in achievement levels between male and female learners (Samuel, 2021; Tiges, Nuna & Mwambela, 2025). According to Mumin (2024), these disparities in Kenya have been partly attributed to differences in classroom participation, confidence levels, and access to peer and teacher support. The STAD approach, which emphasizes heterogeneous grouping and peer collaboration, has been identified as an effective strategy for promoting inclusivity and balancing performance across genders in many subject areas (Emmanuel et al., 2022; Fantevie, 2023). By encouraging learners to work together, support one another, and share responsibility for group success, Tumulak (2025) argues that STAD creates an equitable learning environment where both male and female learners can actively contribute and benefit. As such, peer support across genders within STAD not only enhances academic performance but also promotes inclusive pedagogy, thereby addressing one of the critical challenges in the teaching and learning of Accounting.



RESEARCH METHODOLOGY

This study adopted a quasi-experimental research design based on Solomon's four-group model to examine the effect of STAD strategy on learners' achievement in Accounting with respect to gender. The design was considered appropriate, as it allowed for control of pre-test sensitization effects while facilitating comparison between experimental and control groups. The study was conducted in Kajiado County, Kenya, and targeted form three Business Studies students in mixed public secondary schools. A sample of 220 students and six teachers was drawn from four schools (two county and two sub-county) using stratified random sampling. A total of 211 students and the 6 teachers participated, representing a response rate of 95.91% and 100%, respectively. The students were organized into four intact groups, with two groups assigned to the experimental condition and two to the control condition. The experimental groups were taught Accounting using the STAD strategy, while the control groups received instruction through conventional teaching methods.

Data were collected using Accounting Achievement pre-test and post-test and interview schedules. The instruments were subjected to rigorous validation procedures, including face, content, criterion and construct validity, while reliability was established using Kuder-Richardson Formula 20 (KR-20) for achievement tests. A pilot study involving 46 students and two teachers was conducted to refine the instruments in a non-participating school, which was not included in the main study. Pre-tests and post-tests were administered and scores were standardized into T-scores to ensure comparability across groups. Data analysis involved both descriptive and inferential statistics, including independent samples t-tests, one-way ANOVA and two-way ANOVA at a 0.05 level of significance. Additional analyses were conducted to control for pre-test and maturation effects, while qualitative data from interviews were analyzed thematically to complement quantitative findings.

RESULTS AND DISCUSSION

The objective of this study was to determine whether there was a significant difference in Accounting performance between male and female learners taught using STAD strategy in secondary schools in Kajiado County, Kenya. Table 1 presents the distribution of learners by gender across the four study groups: Experimental Group 1 (EG1), Experimental Group 2 (EG2), Control Group 1 (CG1) and Control Group 2 (CG2).

Table 1: Distribution of Learners by Gender

Group	Male (f)	%	Female (f)	%	Total
EG1	28	51.9	26	48.1	54
EG2	29	48.3	31	51.7	60
CG1	24	49.0	25	51.0	49
CG2	20	41.7	28	58.3	48
Total	101	47.9	110	52.1	211

The distribution shows a near balance between male and female learners across the groups. EG1 and CG1 were almost evenly distributed, while EG2 had slightly more females (51.7%) than males (48.3%), and CG2 showed a modest female predominance (58.3%). Overall, females constituted 52.1% of the learner respondents, while males were 47.9%, reflecting a



slight female predominance likely due to regional efforts promoting girls' education in Kajiado County. A statistical test of homogeneity confirmed that these differences were not significant, $F(3, 207) = 1.48$, $p = 0.223$, indicating that gender was evenly distributed across groups and could not confound the assessment of instructional methods' effects. A one-way ANOVA further confirmed comparability in student distribution across groups (Table 2).

Table 2: Students' Distribution (ANOVA)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.024	3	0.341	1.215	0.305
Within Groups	58.067	207	0.281		
Total	59.091	210			

The ANOVA results, $F(3, 207) = 1.22$, $p = 0.305$, confirmed no statistically significant differences in gender composition across the groups. This validation established a fair basis for evaluating gender-specific performance outcomes in both pre-test and post-test phases. Table 3 summarizes learners' performance in the pre-test.

Table 3: Learners' Achievement in Pre-Test by Gender

Score Range	Male (f)	%	Female (f)	%	Total (f)	%
Below 30%	26	50.0	24	47.1	50	48.5
30-49%	14	26.9	17	33.1	31	30.1
50% and above	12	23.1	10	19.8	22	21.4
Total	52	100.0	51	100.0	103	100.0

Almost half of the learners (48.5%) scored below 30%, with slightly more males (50.0%) than females (47.1%) in this lowest band. In the 30-49% range, females were slightly more represented (33.1% vs. 26.9%). For the highest band (50%+), males had a marginally higher representation (23.1%) than females (19.8%). The mean scores were nearly equal (males $M = 49.72$, $SE = 1.39$; females $M = 49.85$, $SE = 1.45$), with no statistically significant difference, $t(101) = 0.142$, $p = 0.877$, as shown in Table 4. These results confirmed that learners of both genders started the study at comparable achievement levels, ensuring that subsequent differences could be attributed to the STAD intervention.

Table 4: Comparison between Male and Female Students in the Pre-Test

Gender	N	Mean	SD	SE	T	p-value
Male	52	49.72	7.88	1.39	0.142	0.877
Female	51	49.85	8.18	1.45		

Post-test results, presented in Table 5, showed gains in both genders following STAD implementation.

Table 5: Learners' Achievement in Post-Test by Gender

Score Range	Male (f)	%	Female (f)	%	Total (f)	%
Below 30%	24	46.2	21	41.2	45	43.7
30-49%	14	26.9	18	35.3	32	31.1
50% and above	14	26.9	12	23.5	26	25.2



Total	52	100.0	51	100.0	103	100.0
Mean	53.18		52.52		52.89	
SE	1.15		1.21		1.18	

A closer look shows that females were slightly more represented in the moderate achievement band (30-49%), while males marginally dominated the highest band (50%+). Overall mean scores indicated minimal gender differences (males $M = 53.18$, $SE = 1.15$; females $M = 52.52$, $SE = 1.21$), confirming that both genders benefited similarly from the STAD strategy. Table 6 further shows the comparison of the achievements across gender in the post-test.

Table 6: Comparison between Female and Male Students in the Post-Test

Gender	N	Mean	SD	SE	T	p-value
Male	52	53.18	8.05	1.35	0.147	0.883
Female	51	52.52	8.21	1.39		

The results indicate that gender did not significantly influence achievement following the STAD intervention ($t(101) = 0.147$, $p = 0.883$), demonstrating the strategy's effectiveness in supporting equitable performance across male and female learners. Teacher interviews reinforced these findings, highlighting that STAD encourages contributions from all group members, equalizing learning opportunities regardless of gender.

In addition, a two-way ANOVA was conducted to explore the combined effect of STAD strategy and gender, as shown in Table 7.

Table 7: Effect of STAD Strategy on Male and Female Students

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2,874.16	3	958.05	14.23	.000	.17
Intercept	279,561.42	1	279,561.42	4,152.36	.000	.95
Gender	988.32	1	988.32	14.68	.000	.07
Group	2,456.29	1	2,456.29	36.58	.000	.15
Gender * Group	152.87	1	152.87	2.28	.132	.01
Error	13,926.24	207	67.25			
Total	306,818.34	211				
Corrected Total	16,800.40	210				

The ANOVA revealed a significant main effect of instructional group (experimental vs. control), $F(1,207) = 36.58$, $p < 0.001$, $\eta^2 = 0.15$, confirming that STAD significantly enhanced learners' achievement in Accounting. The interaction between gender and group was not significant, $F(1, 207) = 2.28$, $p = 0.132$, $\eta^2 = 0.01$, indicating that STAD's benefits were consistent across male and female learners. The statistical analysis depicts that these differences were due to chance and not to systematic gender-related effects. Table 8 presents the group means.

**Table 8: Male and Female Group Means Comparison**

Gender	Group	Mean	SE	Mean	SE
Male	Control	47.85	1.21	55.62	1.32
	Experimental	56.73	1.15		
Female	Control	48.12	1.24	55.21	1.35
	Experimental	56.34	1.18		

Both male and female learners in experimental groups outperformed their control group counterparts, with minimal gender differences (Males: 56.73; Females: 56.34). The findings offered no sufficient evidence to reject the null hypothesis (H_{01}), as the observed differences in achievement between male and female learners were not statistically significant. Even so, the effectiveness of the STAD strategy was clearly evident, with learners in the experimental groups, regardless of gender, demonstrating meaningful performance improvements compared to their counterparts exposed to conventional teaching approaches. These findings affirm that STAD enhances performance equitably, supporting prior research (Umahaba, 2018; Martí-Ballester, 2019; Munyao et al., 2022), suggesting that gender is not a significant determinant of achievement under cooperative learning models.

CONCLUSION

The study concludes that the STAD strategy is a highly effective instructional strategy for enhancing learner performance in Accounting in secondary schools. The findings consistently show that learners exposed to STAD achieved significantly better scores than those taught through conventional methods, underscoring the value of structured cooperative learning in improving academic achievement. Notably, the gains realized were evident across both boys and girls, with no statistically significant differences observed between the two groups. This indicates that STAD fosters equitable learning opportunities by promoting active participation, shared responsibility, and supportive peer interaction among all learners, irrespective of gender. The results further suggest that when effectively facilitated, the strategy minimizes gender disparities and creates an inclusive classroom environment that supports meaningful engagement and deeper understanding of Accounting content.

RECOMMENDATIONS

The following recommendations were drawn from the findings of the study and are intended to guide classroom practice, provide direction for future research, and inform policy formulation.

- i. Teachers of Business Studies to adopt the STAD strategy in teaching Accounting to improve learner engagement and academic performance.
- ii. Future studies to investigate the long-term effects of the STAD strategy on Accounting and across different disciplines of Business Studies such as Economics and Commerce.
- iii. Schools to strengthen continuous professional development programs to equip Business Studies teachers with skills for effective STAD implementation.



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