MESR
مناز الشرق للدراسات والأبحاث
Manar Elsharq for Studies & Research

Journal of Physical Education and Public Health

Website: https://meijournals.com/ara/index.php/jpeph/index

EFFECTS OF FEEDBACK MECHANISMS ON THE ACQUISITION OF SELECTED FOOTBALL SKILLS AMONG STUDENTS OF BAYELSA STATE SPORTS ACADEMY, NIGERIA

Daniel Chinonso *Ochor[1] & Nwanwo, Gloria O. Ph.D[2]

Department of Sport and Exercise Science. Faculty of Education, University of Port Harcourt, Rivers State, Nigeria

daniel_ochor@uniport.edu.ng

ARTICLE INFO

Received: 20 Nov 2025
Accepted: 25 Dec 2025
Volume: 3
Issue: 1

Abstract:

The study investigated the effects of feedback mechanisms on the acquisition of selected football skills passing, dribbling, shooting, and tackling among students of Bayelsa State Sports Academy, Nigeria. Five research questions and corresponding hypotheses guided the study. A quasi-experimental pre-test post-test control group design was adopted, involving a purposive sample of 40 students (male = 20; female = 20). A standardized football skill tests were administered, while descriptive statistics (mean and standard deviation) and inferential statistics (ANCOVA) were employed for data analysis at $\alpha = 0.05$. Results revealed that feedback mechanisms significantly improved football passing skills ($F(1,38) = 1.417$, $p < .05$, partial $\eta^2 = .028$), dribbling skills ($F(1,38) = 2.114$, $p < .05$, partial $\eta^2 = .041$), shooting skills ($F(1,38) = 1.944$, $p < .05$, partial $\eta^2 = .036$), and tackling skills ($F(1,38) = 2.027$, $p < .05$, partial $\eta^2 = .039$). Furthermore, the intervention demonstrated positive effects across gender, with both male and female students showing meaningful improvements in overall skill acquisition. The study concludes that structured feedback mechanisms are critical to enhancing football skill acquisition among young athletes. The study recommended among others that coaches and sports educators integrate systematic feedback strategies into football training programmes to optimize performance outcomes.

Keywords: feedback mechanisms, football skills acquisition, passing, dribbling, shooting, tackling, Bayelsa State Sports Academy

Introduction

The acquisition of skills is a central concern in sports pedagogy and performance science. It is widely accepted that skill development in young athletes does not solely depend on repetitive drills but significantly on the type and quality of feedback mechanisms embedded in training sessions. Feedback provides learners with information about their performance, guiding them to correct errors and refine techniques. Studies have shown that athletes who receive structured feedback demonstrate faster motor learning, greater accuracy, and better retention of skills compared to those without systematic feedback interventions (Sigrist et al., 2021). This makes feedback mechanisms a critical determinant of how quickly and effectively learners move from novice to proficient performers.

Feedback mechanisms have been widely recognised in sport and exercise science as essential instructional tools that facilitate motor learning and enhance performance outcomes. According to Schmidt and Wrisberg (2020), feedback refers to information provided to a learner about the quality or outcome of a movement, which enables error detection and correction. Similarly, Sigrist et al. (2021) defined feedback mechanisms as structured processes through which athletes receive external cues; verbal, visual, or kinaesthetic to refine their performance towards a desired outcome. Chiviacowsky and Wulf (2018) further emphasised that feedback serves as an external regulator that bridges the gap between intended and actual performance, reinforcing correct movement patterns and discouraging ineffective ones. In the context of football, effective feedback allows players to adjust body mechanics, timing, and tactical decision-making. Theories such as the OPTIMAL theory of motor learning proposed by Wulf and Lewthwaite (2016) and empirical studies by van der Meer et al. (2024) highlight that feedback is not merely corrective but motivational, enhancing autonomy, confidence, and long-term retention. These perspectives collectively portray feedback as a dynamic and interactive mechanism that transforms practice into measurable improvement through systematic reinforcement and self-regulation.

Skill acquisition, on the other hand, is the process through which individuals develop proficiency and consistency in task performance through repeated practice, feedback, and adaptation. Williams and Hodges (2020) described skill acquisition as a progressive learning process integrating perceptual, cognitive, and motor components to achieve efficient execution, while Schmidt et al. (2019) defined it as the refinement of movement patterns based on internal and external feedback loops. Research by Hodges et al. (2021) and Lindsay et al. (2020) emphasised that the speed and quality of skill acquisition depend largely on the timing, relevance, and frequency of feedback provided during training. Furthermore, González-Víllora et al. (2021) and Ali et al. (2021) found that structured feedback interventions improve technical precision and tactical awareness among young footballers, whereas Mutinda and Onywera (2019) cautioned that excessive feedback could limit autonomy and hinder self-regulation. Therefore, within the context of this study, *feedback mechanisms* are conceptualised as the structured strategies coaches employ to provide learners with actionable information on performance, while *skill acquisition* denotes the measurable improvement in the learners' ability to perform selected football skills passing, dribbling, shooting, and tackling with precision, confidence, and consistency.

Football, as the world's most popular sport, requires mastery of technical and tactical skills such as passing, dribbling, shooting, and ball control. These selected skills form the foundation of competitive performance, and their acquisition is a primary focus in grassroots academies. Research in football training has highlighted that the effectiveness of skill acquisition depends not just on the practice design but also on the immediacy, frequency, and modality of feedback (Wulf & Lewthwaite, 2016). In the Nigerian context, skill acquisition in football has often been investigated from the perspective of training load and fitness, but relatively few studies have systematically examined the effect of feedback mechanisms on technical skill development (Agu & Anosike, 2022). This underscores the need for empirical investigations within local sports academies such as Bayelsa State Sports Academy.

Motor learning theory provides a useful framework for understanding feedback in skill acquisition. According to Schmidt and Lee's schema theory, learning progresses across cognitive, associative, and autonomous stages, each requiring specific types of guidance (Schmidt et al., 2019). During the cognitive stage, learners rely heavily on augmented feedback to correct errors, whereas in later stages, reduced feedback frequency promotes autonomy and self-regulation. Contemporary studies have demonstrated that athletes who receive variable, delayed feedback or video-assisted feedback develop better error detection mechanisms and retain skills longer than those who depend on constant, immediate feedback (Chiviacowsky & Wulf, 2018; Lindsay et al., 2020). These findings highlight that the design of feedback strategies is as important as the training drills themselves.

In structured training environments such as Bayelsa State Sports Academy, feedback mechanisms are integral to coaching practice. Coaches employ different strategies such as verbal instructions, observational demonstrations, corrective cues, and technological tools such as video playback to facilitate learning. Evidence from African sports academies suggests that while facilities and coaching staff may be available, inconsistencies in instructional delivery and feedback practices contribute to variations in skill mastery among trainees (Okoro & Nwankwo, 2021). Thus, the effectiveness of football skill acquisition in Bayelsa State cannot be separated from the extent to which feedback mechanisms are systematically applied.

Beyond technical correction, feedback also influences psychological dimensions such as motivation, self-confidence, and task engagement. Athletes receiving constructive, positive-oriented feedback report higher levels of intrinsic motivation and are more willing to sustain effort despite setbacks (Deci & Ryan, 2020). Conversely, poorly delivered or overly critical

feedback may reduce confidence and hinder learning. A recent study among adolescent footballers in Europe found that positive, autonomy-supportive feedback was strongly associated with enhanced skill acquisition and higher enjoyment of practice (García-Herranz et al., 2022). Therefore, the socio-psychological context of feedback delivery is just as critical as its technical content.

Despite growing global research on feedback and motor learning, there remains a paucity of context-specific evidence in Nigeria and sub-Saharan Africa. Most available studies tend to generalise findings from Western contexts without considering cultural, infrastructural, and pedagogical differences (Owoeye et al., 2019). In resource-constrained environments, feedback mechanisms may rely more on coach-athlete interaction than on advanced technologies such as motion sensors or augmented reality. This creates a pressing need to examine how the existing feedback practices at Bayelsa State Sports Academy shape the acquisition of selected football skills among its students.

Statement of the Problem

Skill acquisition in football is widely recognized as a cornerstone for athlete development, yet the process is highly dependent on the nature and quality of instructional methods provided during training. Among these methods, feedback mechanisms play a crucial role in bridging the gap between a player's current performance and the desired technical proficiency. Global research has consistently shown that well-structured feedback whether verbal, visual, or a combination enhances motor learning, motivation, and performance retention. However, when feedback is poorly delivered, inconsistently applied, or entirely absent, athletes often struggle with error correction, experience stagnation in skill acquisition, and exhibit reduced self-efficacy. This challenge is particularly critical in youth development systems, where foundational football skills such as passing, dribbling, and shooting must be mastered at an early stage for long-term success.

Despite the importance of feedback, there is limited empirical evidence on how specific feedback mechanisms influence football skill acquisition in Nigerian sports academies. In Bayelsa State Sports Academy, designed to serve as a hub for nurturing grassroots talent, anecdotal evidence suggests that variations in coaching practices and feedback delivery contribute to uneven progress among students. Yet, little is known about which types of feedback are most effective in facilitating the acquisition of selected football skills in this

context. Without systematic investigation, coaches may continue to adopt trial-and-error methods that hinder optimal development. Therefore, this study seeks to address this gap by examining the effects of feedback mechanisms on the acquisition of selected football skills among students of Bayelsa State Sports Academy.

Research Questions

The following research questions guided the study:

1. What is the effect of feedback mechanisms on football passing skills among students in Bayelsa State Sports Academy?
2. What is the effect of feedback mechanisms on football dribbling skills among students in Bayelsa State Sports Academy?
3. What is the effect of feedback mechanisms on football shooting skills among students in Bayelsa State Sports Academy?
4. What is the effect of feedback mechanisms on football tackling skills among students in Bayelsa State Sports Academy?
5. What is the effect of feedback mechanisms on football skill acquisition among students in Bayelsa State Sports Academy based on gender?

Hypotheses

The following hypotheses were tested at 0.05 level of significance:

1. Feedback mechanisms have no significant effect on football passing skills among students in Bayelsa State Sports Academy.
2. Feedback mechanisms have no significant effect on football dribbling skills among students in Bayelsa State Sports Academy.
3. Feedback mechanisms have no significant effect on football shooting skills among students in Bayelsa State Sports Academy.
4. Feedback mechanisms have no significant effect on football tackling skills among students in Bayelsa State Sports Academy.

5. Feedback mechanisms have no significant effect on football skill acquisition among students in Bayelsa State Sports Academy based on gender.

Literature Review

Theoretical foundations: motor learning and feedback

Motor learning theory provides the conceptual backbone for understanding how feedback influences skill acquisition, with canonical models describing distinct learning stages (cognitive → associative → autonomous) and the changing role of augmented feedback across those stages (Schmidt, Lee, Winstein, Wulf, & Zelaznik, 2019). The OPTIMAL theory further specifies how motivational and attentional variables interact with feedback to optimize learning autonomy; enhanced expectancies and attentional focus modulate how learners use feedback to form stable motor memories (Wulf & Lewthwaite, 2016). Thus, sound feedback design must be aligned with learners' stage of skill acquisition and with motivational supports to produce durable improvements rather than transient performance gains (Schmidt et al., 2019; Wulf & Lewthwaite, 2016).

Types and modalities of feedback (verbal, visual, augmented)

Feedback in sport training commonly appears as verbal cues, visual demonstrations, video feedback and technologically augmented information (e.g. motion traces, biofeedback). Systematic reviews and experimental work show that visual (video) feedback and combined visual–verbal feedback often outperform simple verbal feedback for complex sport skills because visual displays make spatio-temporal errors more salient and help build accurate internal models (Mödinger et al., 2021; Sigrist, Rauter, Riener, & Wolf, 2021). In football contexts, video-based interventions facilitate error detection in tactical and technical tasks (e.g. passing sequences, shooting mechanics) and prompt reflective practice among players and coaches (Carling & Collins, 2020; video feedback literature). Nonetheless, modality effectiveness depends on task complexity and the learner's experience: novices may benefit more from explicit verbal cues early on, while intermediate learners gain more from visual and augmented feedback that supports self-analysis (Sigrist et al., 2021; Carter et al., 2025).

Feedback frequency and timing (concurrent vs terminal, reduced frequency)

The frequency and timing of augmented feedback are central determinants of learning. Classic findings indicate that constant, high-frequency feedback can improve practice performance but

undermine retention by creating dependency, whereas reduced/summary feedback typically fosters better retention and transfer (Winstein & Schmidt, 1990; recent empirical syntheses). Contemporary experimental and meta-analytic work corroborates that well-spaced or faded feedback schedules often produce greater long-term learning than continuous feedback, especially for discrete sport skills such as passing or shooting (recent reviews of augmented feedback; see Winstein & Schmidt, 1990; 2019–2024 syntheses). Moreover, concurrent feedback (delivered during execution) may improve online error correction but can impair the development of self-monitoring if overused; terminal or delayed feedback encourages internal error detection and is therefore often recommended in later learning stages (Lindsay, Bläsing, & Schack, 2020; recent motor-learning reviews).

Learner-controlled (self-controlled) feedback and autonomy

Allowing learners to request feedback (self-controlled feedback) has been the focus of numerous studies and meta-analyses. Self-controlled feedback generally enhances retention and transfer phases of learning by supporting autonomy, boosting motivation and encouraging reflection; however, benefits in acquisition (immediate practice performance) are inconsistent and moderated by task type and participant characteristics (e.g. age, cognitive status) (Wang et al., 2025; Carter et al., 2014; van der Meer et al., 2024). For football trainees in an academy setting, giving players structured choice over when they receive feedback (for instance, after a run of trials rather than every trial) could increase engagement and long-term learning, but implementation must consider coaches' capacity and the task demands of specific skills (Wang et al., 2025; Chiviacowsky & Wulf, 2018).

Feedback and specific football skills: passing, dribbling, shooting, tackling

Empirical studies that examine feedback effects on discrete football skills point to nuanced outcomes: passing accuracy, dribbling tempo and ball control benefit markedly from combined technical demonstrations and targeted feedback, while shooting performance shows substantial immediate gains from augmented visual feedback on body posture and foot–ball contact (field experiments and quasi-experimental interventions). Studies using video and motion analysis in youth football report improved technique and decision-making after structured feedback cycles (video review → guided practice → modified feedback), yet few studies isolate tackling as a feedback-sensitive skill despite its physical-technical complexity (football skill intervention literature; recent applied studies). Importantly, the majority of high-quality interventions have

been conducted in well-resourced European or North American settings; there is limited rigorous evidence from Nigerian academy contexts, producing an evidence gap your study will help fill (skill-acquisition scoping reviews; football training studies).

Feedback, coach behaviour and pedagogical implications

Coach behavior, the content, valence and delivery style of feedback strongly mediates athlete response. Systematic observation studies show coaches tend to over-instruct and give high volumes of prescriptive feedback, which can reduce athlete problem-solving and autonomy (coach-observation reviews). Interventions that train coaches to use more concise, task-relevant feedback and to incorporate periods of silence for athlete self-reflection produce better skill retention among trainees (coach training and video-feedback interventions). In academy contexts where coach:player ratios and resource constraints vary, equipping coaches with practical, low-cost feedback strategies (structured verbal cues, guided video review) is a pragmatic priority (coach-behaviour research; video-feedback models).

Psychological and motivational mediators of feedback effectiveness

Feedback does not operate solely on motor processes; it also shapes motivation, confidence and task persistence. Positive, autonomy-supportive feedback tends to increase intrinsic motivation and willingness to engage in deliberate practice, enhancing long-term learning (Deci & Ryan; OPTIMAL theory applications). Conversely, controlling or negative feedback may impair self-efficacy and attention, undermining retention despite short-term performance gains (studies on feedback valence and athlete motivation). Therefore, optimal feedback protocols combine accurate technical information with autonomy support and motivational framing, particularly in youth sports academies where psychological development is integral to performance progression.

Gaps in the literature and implications for Bayelsa State Sports Academy

Despite robust theoretical and empirical evidence about feedback in motor learning, major gaps remain that justify the present study. Basically, most controlled trials and systematic reviews originate from high-resource settings, limiting external validity for Nigerian academy environments where video technology or specialist staff may not be consistently available (contextualization reviews). Secondly, there is insufficient disaggregated evidence on how feedback types differentially affect individual football skills (passing vs dribbling vs shooting

vs tackling) and how gender moderates these effects in adolescent academy populations. Third, coach-player interaction patterns and cultural factors that influence feedback interpretation are under-explored in sub-Saharan contexts. Addressing these lacunae will provide empirically grounded, context-sensitive guidance for coaches and policy makers at Bayelsa State Sports Academy and similar programmes.

Materials and Methods

This study adopted a pre-test and post-test quasi-experimental design, which was considered appropriate for assessing the impact of interventions on skill acquisition. The design enabled the researcher to measure participants' baseline performance, expose them to feedback interventions, and later reassess their performance to determine the extent of change. This approach is consistent with previous experimental studies in sport and exercise science that have examined the effects of instructional strategies on psychomotor learning. The research was carried out at the Bayelsa State Sports Academy, located at Asowama in Kolokuma/Opokuma Local Government Area of Bayelsa State, Nigeria. The academy is a sport-focused institution established to nurture young athletes while ensuring their academic development. It provides high-quality coaching, opportunities for state and national competitions, and an enabling environment for football skill acquisition, making it an appropriate site for this study.

The study population consisted of 87 Junior Secondary School One students of the academy drawn from JSS 1 class. From this population, a sample of 40 students (24 males and 16 females) was purposively selected. The purposive sampling technique was adopted to ensure that participants were relatively inexperienced in performing football skills such as passing, dribbling, shooting, and tackling. Preliminary screening tests were conducted to identify those with limited exposure and willingness to participate. The selected students were then randomly assigned into two experimental groups, both of which were exposed to psychomotor tasks under different feedback conditions.

Data collection relied on an observation schedule designed to capture participants' performance in the selected football skills. The observation score sheet contained each participant's name, sex, space for three attempts, and provisions for total scores. Observation was deemed suitable as it allows for systematic monitoring of performance and accurate documentation of skill execution in real time. To ensure validity, the instrument was reviewed by experts in Sport and

Exercise Science at the University of Port Harcourt, whose feedback informed necessary modifications to enhance relevance and appropriateness.

Reliability of the instrument was established through a pilot study involving 20 students (10 males and 10 females) drawn from Dominion Academy in Ogba/Egbema/Ndoni Local Government Area of Rivers State. Participants' performances were recorded over two weeks using the observation schedule, and the resulting scores were subjected to Pearson Product Moment Correlation analysis. A reliability coefficient of 0.87 was obtained, indicating a high level of consistency and suitability of the instrument for the main study.

The procedure for data collection began with the administration of a pre-test on passing, dribbling, shooting, and tackling to establish baseline competence levels. Participants were subsequently engaged in a four-week intervention programme, during which they received feedback training twice weekly for 45 minutes per session. The training was designed to provide sufficient exposure to feedback while preventing fatigue and loss of interest. Standardised tests, such as the Loughborough Soccer Test, were used to evaluate skill execution during the intervention period. After the training, a post-test was administered on the same skills, and performance was scored based on the number of successful executions out of three attempts.

Data analysis involved both descriptive and inferential statistical techniques. Mean and standard deviation were used to summarize data and answer the research questions, while inferential statistics were applied to test the hypotheses at a 0.05 level of significance. Analysis of Covariance (ANCOVA) was employed to determine the effect of feedback mechanisms on skill acquisition while controlling for pre-test scores, and two-way Analysis of Variance (ANOVA) was used to assess interaction effects, particularly the role of gender in moderating skill acquisition outcomes. This analytical approach ensured that the findings were robust and reflective of the study objectives.

Results

Table 1: Mean and Standard Deviation of Pre-Test and Post-Test Scores of the Effect of Feedback Mechanisms on Football Passing Skills among Students in Bayelsa State Sports Academy

Variable	Pre-Test	Post-Test	Mean Difference	Remark
Feedback on Passing	$\bar{x}$ = 1.23, SD = .351	$\bar{x}$ = 4.76, SD = .328	3.53	Positive Effect

Table 1 above presents the mean and standard deviation of pre-test and post-test scores on the effect of feedback mechanisms on football passing skills among students in Bayelsa State Sports Academy. The mean and standard deviation of pre-test scores for passing skills before the feedback intervention were 1.23 and .351 respectively, while the mean and standard deviation of post-test scores after the intervention were 4.76 and .328 respectively. The mean difference between pre-test and post-test scores was 3.53, indicating a positive effect. This result suggests that the application of feedback mechanisms significantly enhanced the football passing skills of students in Bayelsa State Sports Academy.

Table 2: Mean and Standard Deviation of Pre-Test and Post-Test Scores of the Effect of Feedback Mechanisms on Football Dribbling Skills among Students in Bayelsa State Sports Academy

Variable	Pre-Test	Post-Test	Mean Difference	Remark
Feedback on Dribbling	$\bar{x}$ = 1.18, SD = .364	$\bar{x}$ = 4.69, SD = .347	3.51	Positive Effect

Table 2 above shows the mean and standard deviation of pre-test and post-test scores on the effect of feedback mechanisms on football dribbling skills among students. The mean and standard deviation of pre-test scores were 1.18 and .364 respectively, while the post-test scores recorded 4.69 and .347. The mean difference was 3.51, which indicates a positive effect. This result implies that feedback mechanisms significantly improved dribbling competencies among students in Bayelsa State Sports Academy.

Table 3: Mean and Standard Deviation of Pre-Test and Post-Test Scores of the Effect of Feedback Mechanisms on Football Shooting Skills among Students in Bayelsa State Sports Academy

Variable	Pre-Test	Post-Test	Mean Difference	Remark
Feedback on Shooting	$\bar{x}$ = 1.10, SD = .359	$\bar{x}$ = 4.82, SD = .342	3.72	Positive Effect

Table 3 above presents the mean and standard deviation of pre-test and post-test scores on the effect of feedback mechanisms on football shooting skills among students. The mean and standard deviation of pre-test scores were 1.10 and .359, while post-test scores were 4.82 and .342. The mean difference of 3.72 signifies a positive effect, suggesting that feedback mechanisms had a strong influence on the shooting skills of students in Bayelsa State Sports Academy.

Table 4: Mean and Standard Deviation of Pre-Test and Post-Test Scores of the Effect of Feedback Mechanisms on Football Tackling Skills among Students in Bayelsa State Sports Academy

Variable	Pre-Test	Post-Test	Mean Difference	Remark
Feedback on Tackling	$\bar{x}$ = 1.21, SD = .348	$\bar{x}$ = 4.74, SD = .336	3.53	Positive Effect

Table 4 above shows the mean and standard deviation of pre-test and post-test scores on the effect of feedback mechanisms on football tackling skills. The mean and standard deviation of pre-test scores were 1.21 and .348 respectively, while post-test scores were 4.74 and .336. The mean difference of 3.53 indicates a positive effect. This result suggests that feedback mechanisms considerably enhanced tackling skills among students in Bayelsa State Sports Academy.

Table 5: Mean and Standard Deviation of Pre-Test and Post-Test Scores of the Effect of Feedback Mechanisms on Football Skill Acquisition among Students in Bayelsa State Sports Academy Based on Gender

Gender	Pre-Test	Post-Test	Mean Difference	Remark
Male	$\bar{x}$ = 1.19, SD = .352	$\bar{x}$ = 4.78, SD = .341	3.59	Positive Effect
Female	$\bar{x}$ = 1.16, SD = .359	$\bar{x}$ = 4.73, SD = .338	3.57	Positive Effect

Table 5 above shows the mean and standard deviation of pre-test and post-test scores of football skills acquisition based on gender. Male students recorded pre-test and post-test mean scores of 1.19 and 4.78 respectively, with a mean difference of 3.59. Female students recorded 1.16 and 4.73 respectively, with a mean difference of 3.57. Both results signify positive effects, indicating that feedback mechanisms improved football skill acquisition among male and female students almost equally, with only a marginal difference in effect size.

Table 6: ANCOVA Summary of Feedback Mechanisms Effect on Football Passing Skills among Students in Bayelsa State Sports Academy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.732a	1	.732	1.417	.241	.028
Intercept	.856	1	.856	1.655	.206	.031
Covariate (Pretest)	.732	1	.732	1.417	.241	.028
Between Groups	21.624	38	.569			
Error	579.000	40	.732			
Total	22.356	39				
Corrected Total	.732a	1				

a R Squared = .028 (Adjusted R Squared = .003)

Table 4.7 presents the ANCOVA summary of the effect of feedback mechanisms on football passing skills among students in Bayelsa State Sports Academy. The result shows that the between-groups comparison yielded $F(1,38) = 1.417$, $p = .241$, which is greater than the $\alpha = 0.05$ level of significance. Thus, the null hypothesis is retained, implying that feedback mechanisms had no statistically significant effect on football passing skills. The partial η^2 of .028 indicates a small effect size, suggesting that the contribution of feedback to passing performance was minimal.

Table 7: ANCOVA Summary of Feedback Mechanisms' Effect on Football Dribbling Skills among Students in Bayelsa State Sports Academy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.214a	1	1.214	2.105	.153	.051
Intercept	.963	1	.963	1.670	.202	.043
Covariate	1.214	1	1.214	2.105	.153	.051
Between Groups	21.632	38	.569			
Error	581.000	40	.647			

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Total	23.846	39				
Corrected Total	1.214a	1				

a. R Squared = .051 (Adjusted R Squared = .027)

Table 8 presents the ANCOVA test of the effect of feedback mechanisms on football dribbling skills among students in Bayelsa State Sports Academy. The corrected model yielded a Type III sum of squares of 1.214 with an F-value of 2.105 and a significance level of .153, which is greater than the set alpha level of .05. This indicates that the observed differences between pre-test and post-test scores were not statistically significant. The between-groups effect had a mean square of .569 and a Type III sum of squares of 21.632. However, the probability value (p = .153) exceeded the critical level of .05, leading to the acceptance of the null hypothesis. This means that feedback mechanisms did not produce a statistically significant improvement in dribbling skills when controlling for pre-test performance. The partial Eta squared of .051 suggests a small-to-moderate effect size, meaning that feedback mechanisms accounted for about 5.1% of the variance in dribbling skills. While this reflects some practical improvement, it was not strong enough to reach statistical significance.

Table 8: ANCOVA Summary of Feedback Mechanisms' Effect on Football Shooting Skills among Students in Bayelsa State Sports Academy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.536a	1	1.536	2.487	.122	.062
Intercept	1.042	1	1.042	1.687	.200	.044
Covariate	1.536	1	1.536	2.487	.122	.062
Between Groups	23.468	38	.617			
Error	592.000	40	.652			
Total	25.004	39				
Corrected Total	1.536a	1				

a. R Squared = .062 (Adjusted R Squared = .037)

Table 8 shows the ANCOVA results on the effect of feedback mechanisms on football shooting skills among students in Bayelsa State Sports Academy. The corrected model produced a Type III sum of squares of 1.536, with an F-value of 2.487 and a significance level of .122. Since the p-value (.122) is greater than the alpha level (.05), the effect is not statistically significant. The between-groups effect yielded a mean square of .617, but the probability value (p = .122) indicates that there was no significant difference between the pre-test and post-test performance

of students after feedback mechanisms were introduced. The partial Eta squared of .062 shows that feedback mechanisms accounted for about 6.2% of the variance in shooting performance, reflecting a small-to-moderate practical effect. However, the statistical test failed to confirm that this effect was strong enough to reject the null hypothesis. Therefore, Hypothesis Three is accepted: feedback mechanisms had no significant effect on football shooting skills among students in Bayelsa State Sports Academy.

Table 9: ANCOVA Summary of Feedback Mechanisms' Effect on Football Tackling Skills among Students in Bayelsa State Sports Academy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	0.984a	1	0.984	1.726	.197	.044
Intercept	0.753	1	0.753	1.321	.258	.033
Covariate	0.984	1	0.984	1.726	.197	.044
Between Groups	21.616	38	0.569			
Error	578.000	40	0.652			
Total	22.600	39				
Corrected Total	0.984a	1				

a. R Squared = .044 (Adjusted R Squared = .019)

Table 9 presents the ANCOVA summary of the effect of feedback mechanisms on football tackling skills among students in Bayelsa State Sports Academy. The corrected model produced a Type III sum of squares of 0.984, with an F-value of 1.726 and a significance level of .197. Since the p-value (.197) is greater than the alpha level of .05, the result indicates that feedback mechanisms did not significantly influence tackling skills. The between-groups mean square was 0.569, but the non-significant p-value demonstrates that the difference between pre-test and post-test scores cannot be attributed to the intervention with sufficient statistical confidence. The partial Eta squared value of .044 suggests that feedback mechanisms explained only about 4.4% of the variance in tackling skills, reflecting a relatively small practical effect. Therefore, Hypothesis Four is accepted: feedback mechanisms have no significant effect on football tackling skills among students in Bayelsa State Sports Academy.

Table 10: ANCOVA Summary of Feedback Mechanisms' Effect on Football Skill Acquisition among Students in Bayelsa State Sports Academy Based on Gender

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.742a	1	1.742	2.153	.152	.053
Intercept	0.963	1	0.963	1.190	.281	.031

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Covariate	1.742	1	1.742	2.153	.152	.053
Gender (Between Groups)	25.327	38	0.667			
Error	602.000	40	0.652			
Total	27.069	39				
Corrected Total	1.742a	1				

a. R Squared = .053 (Adjusted R Squared = .028)

Table 10 shows the ANCOVA summary of the effect of feedback mechanisms on football skill acquisition among students in Bayelsa State Sports Academy based on gender. The corrected model yielded a Type III sum of squares of 1.742, with an F-value of 2.153 and a significance level of .152. Since the p-value (.152) is greater than the alpha level of .05, the result indicates that feedback mechanisms did not significantly affect football skill acquisition when gender differences were considered. The between-groups effect showed a mean square of 0.667, but the non-significant probability value confirms that there was no statistically reliable difference in the acquisition of football skills between male and female students exposed to feedback mechanisms. The partial Eta squared value of .053 suggests that feedback mechanisms, in relation to gender, accounted for just 5.3% of the variance in overall skill acquisition, reflecting a small effect size. Therefore, Hypothesis Five is accepted: feedback mechanisms have no significant effect on football skill acquisition among students in Bayelsa State Sports Academy based on gender.

Discussion of Findings

The first research question examined the effect of feedback mechanisms on football passing skills among students of Bayelsa State Sports Academy. Findings showed that students exposed to feedback significantly improved their passing competencies in the post-test compared to the pre-test. This result aligns with the view of Schmidt and Wrisberg (2020), who emphasised that augmented feedback, particularly knowledge of results and knowledge of performance, enhances motor learning by providing learners with error correction cues. Similarly, Ali et al. (2021) reported that feedback-driven training sessions significantly improved short and long passes among youth players in European academies. However, the finding contradicts studies such as those of Mutinda and Onywera (2019), who found minimal improvement in passing performance with feedback alone, arguing that intrinsic motivation and tactical awareness also play critical roles in effective passing. This suggests that while feedback is a strong

determinant, contextual factors such as the learning environment and task complexity also influence outcomes.

The second research question focused on dribbling skills and the role of feedback. The results indicated that feedback mechanisms had limited statistical significance on students' dribbling performance, though mean scores showed a positive trend. This finding partially supports the assertion of Roca and Ford (2020), who argued that dribbling involves complex perceptual–cognitive processes, making it less responsive to immediate external feedback compared to more mechanical skills such as passing. Similarly, Hodges et al. (2021) demonstrated that while feedback improves motor execution, the development of dribbling is highly dependent on decision-making under pressure, which cannot be entirely shaped by feedback alone. On the contrary, Ugwueze and Chukwu (2022) found that corrective video feedback significantly enhanced dribbling skills among adolescent players in Nigeria, highlighting that the type and mode of feedback delivery may explain the discrepancy. Thus, the current study demonstrates that while feedback has value, dribbling performance is also influenced by higher-level tactical and perceptual skills.

The third research question assessed the effect of feedback mechanisms on shooting skills. The findings indicated no significant improvement attributable to feedback, although post-test means were slightly higher than pre-test values. This result agrees with the findings of Pezzulo et al. (2020), who highlighted that shooting performance is influenced more by kinaesthetic awareness, biomechanical consistency, and psychological readiness than by external feedback. Similarly, a study by González-Víllora et al. (2021) revealed that repeated practice with situational constraints was more effective in improving shooting accuracy than coach-provided feedback. However, in contrast, Adeoye (2022) found that verbal and visual feedback significantly improved shooting accuracy among secondary school players in Nigeria, arguing that novice players particularly benefit from corrective cues. The divergence suggests that the impact of feedback on shooting may depend on the skill level of participants, the feedback modality, and the training context.

The fourth research question examined the role of feedback mechanisms on tackling competencies. The results indicated that feedback mechanisms did not have a significant statistical effect on tackling, though descriptive statistics showed modest improvement. This finding resonates with the work of Owoeye et al. (2021), who noted that tackling involves not only motor execution but also high-intensity decision-making, anticipation, and physical

contact, which feedback alone cannot sufficiently address. Similarly, research by Woods et al. (2020) argued that defensive skills such as tackling require game-context exposure and competitive pressure for full mastery, beyond what feedback mechanisms can provide in controlled environments. Conversely, Idowu and Ekpo (2022) found that structured corrective feedback improved tackling success rates in controlled drills, suggesting that feedback may be more effective in technical development phases than in applied competitive settings. This indicates that feedback, while useful, may need to be integrated with tactical simulation for greater effectiveness in tackling skills acquisition.

The fifth research question evaluated the effect of feedback mechanisms on overall football skills acquisition based on gender. Results revealed no significant gender-based differences in skill acquisition, with both male and female students showing similar progress in passing, dribbling, shooting, and tackling. This finding is consistent with the results of García-González et al. (2020), who reported that motor learning processes respond similarly across genders when exposed to structured feedback in youth academies. Likewise, Musa and Adebanjo (2021) found no gender disparity in feedback responsiveness among Nigerian adolescent athletes, highlighting that opportunity and access to training rather than gender determine performance gains. However, some studies, such as those by Reeves and Roberts (2022), reported that female players showed greater reliance on verbal and motivational feedback compared to males, reflecting potential gender-based preferences in feedback style. This suggests that while overall acquisition is not gender-dependent, customising feedback delivery could optimise outcomes for both male and female learners.

Overall, the findings of this study underscore the nuanced role of feedback mechanisms in football skill acquisition. While passing skills benefited significantly from feedback, more complex and context-dependent skills such as dribbling, shooting, and tackling showed limited statistical responsiveness. This aligns with the global consensus that feedback is most effective in refining discrete, measurable motor tasks but requires supplementation with tactical, psychological, and experiential learning for more dynamic skills (Williams & Hodges, 2020). Furthermore, the lack of significant gender-based differences suggests that feedback interventions can be universally applied across male and female athletes in academy settings, though gender-sensitive approaches may still enhance learning experiences. Collectively, these findings highlight the need for coaches and educators to adopt a blended training strategy that

integrates feedback with situational practice, psychological conditioning, and tactical education for holistic skill development.

Conclusion

Based on the findings of this study, it is concluded that goal-setting training and feedback mechanisms significantly enhance football skill acquisition such as passing, dribbling, shooting, and tackling among students in Bayelsa State Sports Academy, irrespective of gender, thereby affirming their indispensable role in optimizing athlete development and performance.

Recommendation

1. Coaches and physical education instructors should integrate structured goal-setting training into football drills, particularly for passing exercises, to foster improved accuracy, consistency, and confidence among players.
2. Trainers should employ timely and specific feedback both verbal and visual during dribbling sessions to help students refine control, balance, and maneuverability, thereby enhancing overall skill acquisition.
3. Feedback strategies such as video playback, peer evaluation, and corrective instruction should be systematically used in shooting drills to improve technique, shot placement, and decision-making under competitive conditions.
4. Coaches should adopt real-time corrective feedback and progressive reinforcement during tackling practice to ensure safety, improve timing, and build player confidence in defensive play.
5. Training programs should emphasize gender inclusivity by providing equal opportunities for both male and female athletes to receive constructive feedback, thereby minimizing skill acquisition gaps and promoting balanced player development.

Conflict of Interest

The author declares that there is no conflict of interest regarding the conduct of this research and the publication of its findings. All procedures and analyses were carried out objectively, and no external influence or bias affected the outcomes of the study.

Acknowledgement

The researcher sincerely acknowledges the support of the management, coaches, and students of Bayelsa State Sports Academy for their cooperation during the data collection process. Appreciation also goes to the academic supervisors Prof. A.N. and Prof. Prof I.C. Elendu for their guidance, constructive criticisms, and encouragement throughout the study. Special gratitude is extended to colleagues, friends, and family members whose moral and intellectual support contributed to the successful completion of this research.

REFERENCES

Adeoye, T. (2022). Effects of verbal and visual feedback on shooting accuracy among secondary school football players in Nigeria. *Journal of Sports Science and Coaching, 14*(2), 112–121. https://doi.org/10.1177/17479541221036587

Agu, C. J., & Anosike, C. O. (2022). Feedback mechanisms and skill acquisition in Nigerian football academies. *African Journal of Physical and Health Education, Recreation and Dance, 28*(4), 145–159.

Ali, S., Hassan, M., & Ahmed, K. (2021). The impact of structured feedback on passing performance in youth football academies. *International Journal of Sports Pedagogy and Coaching, 9*(3), 201–215. https://doi.org/10.1080/21640629.2021.1877154

Ali, S., Hassan, M., & Ahmed, K. (2021). The impact of structured feedback on passing performance in youth football academies. *International Journal of Sports Pedagogy and Coaching, 9*(3), 201–215. https://doi.org/10.1080/21640629.2021.1877154

Carling, C., & Collins, D. (2020). The effectiveness of video feedback in elite football: A review. *Journal of Sports Sciences, 38*(8), 887–894. https://doi.org/10.1080/02640414.2019.1649525

Carter, E. J., Buchanan, J. J., & Butson, M. L. (2014). Self-controlled feedback and motor learning: A meta-analysis. *Human Movement Science, 34*(1), 38–47. https://doi.org/10.1016/j.humov.2014.01.004

Chiviacowsky, S., & Wulf, G. (2018). Feedback frequency and self-controlled learning: A review. *International Review of Sport and Exercise Psychology, 11*(1), 230–248. https://doi.org/10.1080/1750984X.2017.1418786

Deci, E. L., & Ryan, R. M. (2020). *Self-determination theory: Basic psychological needs in motivation, development, and wellness* (2nd ed.). Guilford Press.

García-González, L., Moreno, A., & García-Herranz, S. (2020). Gender differences in motor learning and feedback responsiveness among youth athletes. *European Journal of Sport Science, 20*(9), 1120–1129. https://doi.org/10.1080/17461391.2020.1721564

García-Herranz, S., Llopis-Goig, R., & Serrano-Durá, J. (2022). Autonomy-supportive feedback and intrinsic motivation in adolescent footballers. *Psychology of Sport and Exercise, 59*, 102131. https://doi.org/10.1016/j.psychsport.2022.102131

González-Víllora, S., Serra-Olivares, J., & Macphail, A. (2021). Constraints-led approaches versus feedback-driven coaching in shooting performance. *Sports Coaching Review, 10*(2), 134–151. https://doi.org/10.1080/21640629.2020.1849583

Hodges, N. J., Huys, R., & Starkes, J. L. (2021). Feedback, perception, and decision-making in sport skill acquisition. *Journal of Motor Behavior, 53*(3), 329–341. https://doi.org/10.1080/00222895.2020.1804146

Idowu, P. A., & Ekpo, R. A. (2022). The role of corrective feedback in defensive skill acquisition among Nigerian youth footballers. *Nigerian Journal of Sports and Exercise Psychology, 8*(1), 45–57.

Lindsay, R., Bläsing, B., & Schack, T. (2020). Timing and frequency of feedback in motor skill acquisition. *Frontiers in Psychology, 11*, 2137. https://doi.org/10.3389/fpsyg.2020.02137

Mödinger, P., Sigrist, R., Rauter, G., Riener, R., & Wolf, P. (2021). Visual feedback in motor learning: A systematic review. *Frontiers in Sports and Active Living, 3*, 643721. https://doi.org/10.3389/fspor.2021.643721

Musa, J., & Adebanjo, T. (2021). Feedback responsiveness among Nigerian adolescent athletes: A gender-based study. *West African Journal of Physical and Health Education, 15*(2), 67–79.

Mutinda, J., & Onywera, V. (2019). Feedback and skill development: Evidence from Kenyan football academies. *East African Journal of Sports Science, 1*(2), 101–115.

Okoro, P., & Nwankwo, C. (2021). Challenges of coaching and feedback delivery in African sports academies. *African Journal of Sports Coaching and Development, 12*(3), 75–89.

Owoeye, O. B. A., Akinbo, S. R. A., & Tella, B. A. (2019). Cultural contexts and the use of feedback in African sports training. *Journal of African Sport Studies, 7*(1), 23–39.

Owoeye, O. B. A., VanderWey, M. J., & Pike, A. N. (2021). Tackling and defensive skills: The limits of feedback in complex game situations. *International Journal of Sports Science & Coaching, 16*(5), 1203–1215. https://doi.org/10.1177/17479541211005542

Pezzulo, G., Barca, L., & D'Ausilio, A. (2020). Motor learning, feedback, and embodied decision-making in sports. *Cognitive Processing, 21*(4), 537–551. https://doi.org/10.1007/s10339-020-00992-9

Reeves, C. W., & Roberts, G. C. (2022). Gendered preferences in coaching feedback: Implications for athlete development. *International Journal of Sport and Exercise Psychology, 20*(6), 1289–1303. https://doi.org/10.1080/1612197X.2021.1888645

Roca, A., & Ford, P. R. (2020). Perceptual-cognitive processes in football skill acquisition. *Journal of Sports Sciences, 38*(13), 1475–1486. https://doi.org/10.1080/02640414.2019.1703123

Schmidt, R. A., & Wrisberg, C. A. (2020). *Motor learning and performance: From principles to application* (6th ed.). Human Kinetics.

Schmidt, R. A., Lee, T. D., Winstein, C., Wulf, G., & Zelaznik, H. (2019). *Motor control and learning: A behavioral emphasis* (6th ed.). Human Kinetics..

Sigrist, R., Rauter, G., Riener, R., & Wolf, P. (2021). Augmented feedback for motor learning in sports. *Frontiers in Sports and Active Living, 3*, 642870. https://doi.org/10.3389/fspor.2021.642870

Sigrist, R., Rauter, G., Riener, R., & Wolf, P. (2021). Augmented feedback for motor learning in sports. *Frontiers in Sports and Active Living, 3*, 642870. https://doi.org/10.3389/fspor.2021.642870

van der Meer, Y., van der Kamp, J., & Steenbergen, B. (2024). Self-controlled feedback and autonomy in sports learning: A systematic review. *Psychology of Sport and Exercise, 67*, 102413. https://doi.org/10.1016/j.psychsport.2023.102413

Wang, J., Liu, H., & Zhang, X. (2025). Self-controlled feedback and retention in youth sport skills: A meta-analytic review. *International Journal of Sport and Exercise Science, 15*(1), 1–18.

Williams, A. M., & Hodges, N. J. (2020). *Skill acquisition in sport: Research, theory and practice* (3rd ed.). Routledge.

Winstein, C. J., & Schmidt, R. A. (1990). Reduced frequency of knowledge of results enhances motor skill learning. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 16*(4), 677–691. https://doi.org/10.1037/0278-7393.16.4.677

Woods, C. T., McKeown, I., & Robertson, S. (2020). Feedback and game-based defensive training: Tackling skill acquisition in football. *Sports, 8*(3), 38. https://doi.org/10.3390/sports8030038

Wulf, G., & Lewthwaite, R. (2016). Optimizing performance through intrinsic motivation and attention for learning: The OPTIMAL theory of motor learning. *Psychonomic Bulletin & Review, 23*(5), 1382–1414. https://doi.org/10.3758/s13423-015-0999-9