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Research Article

The Effectiveness of Learning Management Systems Hybrid Learning Environment on History Students' Achievement in Southwestern Nigeria

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Abstract

The effectiveness of Learning Management Systems (LMS) in hybrid learning settings on the academic achievement of History students in Southwestern Nigeria was the focus of this study. In maintaining the hypothesis of the research, a quasi-experimental pretest-posttest control group design was adopted, involving 200 undergraduates (experimental = 100 received LMS-integrated hybrid instruction; control = 100 received conventional instruction) from two universities. The research tools utilised for data collection included the History Achievement Test, developed by the researcher, and a structured questionnaire for student perceptions and challenges. Data analyses used descriptive statistics, t-tests involving both paired and independent samples, and Pearson correlation at an alpha of .05. From pretest to posttest, the experimental group demonstrated markedly improved achievement scores with $t_{(99)} = 12.75$, $p < .001$, $d = 1.28$. Also, the posttest mean for the experimental group was significantly different and higher than that of the control, $t_{(198)} = 5.46$, $p < .001$, $d = 0.77$. The full sample showed a modest correlation between perception and achievement with $r = .23$, $p < .01$. Major barriers included unreliable internet (47%), power outages (40%), and low digital literacy (35%). The study concludes that LMS-based hybrid learning significantly enhances history students' achievement, recommending infrastructure, digital training, and curriculum redesign.

Keywords

LMS, Hybrid Teaching-learning, History Training, Academic Achievement, Nigeria, Infrastructure

1. Introduction

These days, there is a transformation accepting all modes of instruction in higher education due to technological advances and also in response to the demand for more flexible learning models [15]. A synchronous-asynchronous-or hybrid type of environment is a synthetic term by which blended learning environments are defined: blending in the traditional face-to-face classroom and asynchronous/online instruction, Learning Management Systems (LMSs) through Moodle, Blackboard, Canvas, or Google Classroom [13, 14]. Such an LMS for flexible pedagogy affords learners with possibilities of content delivery, collaboration, assessment, and feedback [7].

LMSs were being taken into consideration in Nigerian higher education with the onset of the COVID-19 pandemic, as universities tried to ensure continuity and access [17].

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There is, however, a subject-specific dearth of research into LMS and hybrid learning benefits, especially in the Humanities, of which History is a constituent. The instruction of History may exploit asynchronously mediated discussions, multimedia presentations, and access to online resources uniquely through an LMS. Infrastructure, digital literacy, and learner readiness are, however, some of the challenges that exist in several Nigerian contexts [2, 18].

A large cross-section of empirical work indicates that when LMSs and hybrid models of teaching are combined in settings such as schools, student achievement, student engagement, and higher-order cognitive skills receive a boost. For a large number of researchers [12], it has been shown that well-structured settings supported by technology encourage student-centred instruction, learning at one's own pace, and interactive construction of knowledge. Meta-studies around the world have demonstrated that blended or hybrid learning often has opposite learning effects from those being acquired through straight face-to-face instruction [6, 15]. The inference given is that learning with in-class interaction coupled with digital online tools provides flexibility and reinforcement of learning occasioned by continuous access to course materials and formative assessment opportunities.

For instance, [5] studied blended learning environments on academic achievement of university students; in LMS-supported classes, learners attained far higher course numbers and examination grades compared to those in traditional setups. Their study also pointed out that LMS-based tools, such as discussion forums, quizzes, and feedback mechanisms, could assist students in self-regulated learning and engagement. Likewise, [19] stated that it led to a higher performance, especially with students who made good use of the online resources and took part in interaction via the LMS.

In Africa and Nigeria, more and more studies are starting to cover similar themes. Students studying at Nigerian universities that utilise LMS sites such as Moodle and Canvas report being motivated and having a greater independence in their learning process [1]. These platforms allow asynchronous communication so that learners can go over the materials numerous times and discuss historical and cultural concepts at their leisure. Yet limiting factors were also inconsistencies in internet access, weak ICT infrastructure, and inadequate training for instructors in utilising the platform satisfactorily [1]. [16] also said that for a hybrid learning system to really succeed in the Nigerian environment, neither technology tools alone nor infrastructure will suffice; instead, the pedagogical alignment-the four must integrate LMS tools as part of or aligned with learning objectives instead of treating them merely as add-ons.

Hybrid learning continues to gain support from secondary research locally and internationally for its pedagogical value. [11] carried out a quasi-experimental study to investigate the effect of LMS-based hybrid instruction on the secondary school students' academic performance in history and civic education in southeastern Nigeria. They reported that the group who were given the blended learning approach supported by Moodle significantly outperformed those in the control group that were taught through the conventional lecture method. Another noted advantage cited by the students was the flexibility of the hybrid model and being able to revisit recorded instructions. Likewise,

In the Nigerian context, [3] found that hybrid interventions using Moodle and Edmodo appreciably impact students' performance in history and government subjects. They concluded that LMS tools allow students to interact with historical sources, multimedia content, and timelines, thus facilitating deeper conceptual understanding. In addition, hybrid-learning environments encourage collaborative problem-solving, where students work together in problem-solving through peer dialogue and joint research projects. These findings, therefore, emphasise how LMS present opportunities for turning history teaching from rote memorisation to analytical exploration of historical evidence and interpretation.

Despite the majority of empirical studies proving a positive influence in favour of the LMS hybrid learning, a few other studies have shown some inconsistencies in the conclusions. There may be a need for caution that increased access to digital tools does not in itself translate to improved learning unless students are adequately trained in digital literacy and time management issues. Likewise, [4] found that students' satisfaction with LMS use heavily depended on system quality, service support, and instructor responsiveness. In their absence, hybrid learning might even lead to cognitive overload or eventually disengagement.

Thus, the studies showed that LMS or any hybrid model, when applied effectively, does help learners achieve success, engagement, and higher levels of cognitive skills. However, the determining factors that influence said success are the contextual factors of technology readiness, teacher ability, and motivation of the learners on the other side. To Nigeria and other developing regions, these findings suggest that the true potential of hybrid learning can be realised only with strategic investment in digital infrastructure and professional development and in curriculum redesign so that technology is meaningfully incorporated into pedagogy.

Despite the promotion of LMS adoption in Nigerian universities, there is insufficient empirical evidence on whether LMS-integrated hybrid learning improves achievement in History Courses. Most implementations tend to remain at the pilot level, with only anecdotal or perception-based evaluations lacking experimental rigour. Even where the claim is made, constraints, environmental, infrastructural, and contextual, may limit its full implementation; hence, the gap that this study seeks to address: to what extent do LMS in hybrid learning environments affect the academic achievement of History students in the Southwestern part of Nigeria? These training-out educational faculty studies will hopefully help create an understanding of LMS effectiveness in particular disciplines, providing local evidence for History educators and policymakers in Nigeria. The findings could thus impact curriculum

redesign, investment in digital infrastructure, faculty training, and the formulation of LMS use policy.

There has been growing interest in technology use within education. Yet, there is an ever-growing lack of empirical studies that have been explicitly directed at determining the effectiveness of Learning Management Systems (LMS) and hybrid learning in History education in the Nigerian context. Most of the few studies on blended learning in Nigeria have been geared toward the sciences, technology, and vocational subjects [10], as if History and humanities in general deserve less attention. History as a subject requires more than just rote memorisation, demanding interpretation, critical thinking, and contextualization of social factors. Thus, little evidence exists of how these LMS-supported hybrid platforms can support the enhancement of higher-order thinking skills among secondary or tertiary-level students in Nigeria. This is a glaring empirical gap because some outcome-based research is needed to determine if digital and hybrid modes of instruction can palpably improve the cognitive and affective learning outcomes of History students.

In addition, few Nigerian studies have been designed under a controlled experimental regime to measure the impact of hybrid instruction through LMS tools against traditional face-to-face teaching. Most of the current literature is descriptive or perception-based, mostly relying on self-reported experiences of students rather than on their actual performances [1, 16]. While such studies shed some light on perceptions towards digital learning, they do not provide much understanding of causal relationships between hybrid instructional strategies and observable achievement gains. There lies a methodological need for rigorously designed quasi-experimental or pretest-posttest designs that could ascertain whether the observed difference in learning outcome is attributed to LMS-based hybrid learning interventions or to some extraneous factor.

Existing studies are less inclined to integrate the affective and environmental dimensions into the analysis of hybrid instruction. For example, how the effectiveness of hybrid learning is mediated by a learner's motivation, digital confidence, or socioeconomic background is a void that needs to be sufficiently examined. These gaps can lend themselves to fostering an evidence-based policy for the equitable integration of technology in the teaching of the humanities. By systematically comparing LMS-supported hybrid instruction with conventional teaching methods in terms of achievement and perceptions, this study aims to bridge the gap between technological innovation and pedagogical effectiveness in Nigerian secondary education.

1.1. Objectives of the Study

1) To determine the effect of LMS-integrated hybrid learning on the academic achievement of History students.
2) To compare the achievement of History students taught through LMS-based hybrid learning with that taught by traditional methods.
3) To ascertain the perceptions of History students on the usefulness of LMS in hybrid learning.
4) To identify reluctances faced by History students in the use of LMS in hybrid learning situations.
5) To investigate the correlation between students' achievement in History and the perception of LMS.

1.2. Research Questions

1) How do History students perceive the usefulness of LMS in hybrid learning?
2) What are the challenges that History students encounter while using LMS?

1.3. Hypotheses

1) LMS-integrated hybrid learning has no significant influence on the academic achievements of History students.
2) There is no significant difference in the achievement of History students exposed to LMS-based hybrid learning compared to those exposed to the traditional method.
3) There is no significant relationship between students' perception of LMS usefulness and their academic achievement in History.

2. Methodology

A quasi-experimental, non-randomised pretest-posttest control group design was used in this study, where one group receives the intervention and the other group serves as a control. The experimental group received blended instruction via LMS, while the control group received traditional classroom instruction.

The population for the study consisted of senior secondary school students registered to study History in public and private secondary schools of Southwestern Nigeria. This region was selected due to its relatively developed educational infrastructure and the emerging adoption of digital learning initiatives sponsored by the state ministries of education. Two co-educational secondary schools were purposively selected from three selected states of Southwestern Nigeria, based on the systematic use of the Learning Management System (LMS) and the willingness of the administration to collaborate in the study. The six schools had more or less similar resources, teacher qualifications, and enrolment tendencies, thereby minimising the level of contextual differences that could have confounded the findings. From these selected schools, a sample of 200 History students was drawn through stratified random sampling to ensure representation across class levels (Senior Secondary One and Two) and gender. The sample was split equally into two groups of 100 students. Students in the experimental group were exposed to instruction through LMS-supported hybrid learning, whereas those in the control group received instruction through conventional classroom methods. Premised on the baseline equivalence of groups

tested through pretest scores, any post-intervention difference in achievement or critical thinking would be attributed to the effect of learning.

Two instruments, the History Achievement Test (HAT) and the LMS Perception and Challenges Questionnaire, were used for collecting relevant data for the study. The researchers developed the HAT test to align with the History curriculum, covering knowledge, comprehension, essay, and source analysis items. Content experts validated it, and its reliability was established during pilot testing with a KR-20 of 0.85. LMS Perception and Challenges Questionnaire (LMSP&CQ) is a Likert-scale item (1-5) on usefulness, ease of use, access, and challenges; reliability (Cronbach's alpha) = 0.83. Both groups took HAT and LMS&CQ as a pretest for achievement and perception baseline. After eight weeks of teaching, the experimental group underwent LMS-integrated hybrid learning (face-to-face sessions supplemented with LMS content, online discussions, and quizzes); the control group had the usual lectures and face-to-face discussions. The same content was covered in both settings. Data were screened for missing values and assessed for assumptions of normality (the shape of distributions was scrutinised by skewness and kurtosis). Descriptive statistics, means, and standard deviations were calculated. The inferential tests used were a paired sample t-test in the case of pre- vs. post-experimental comparisons (effect of LMS) and an independent sample t-test for the difference posttest experimental vs. control (difference between methods), along with the Pearson correlation for perception vs. achievement. A significance level of 0.05 was set for α. Effect sizes (Cohen's d) were calculated to evaluate the actual importance of the findings.

3. Results

Research Question 1: How do History students perceive the usefulness of LMS in hybrid learning?

To answer this question, Section A of the LMS Perception and Challenges Questionnaire, A 20-item structured Likert-scale item (1-5) on usefulness, ease of use, and access was administered to all participants. Scores from the six items were then averaged per respondent (range 1-5). Descriptive analysis was carried out to evaluate perceived usefulness before and after exposure to LMS-supported hybrid instruction. Thus, the higher average pretest and posttest viewpoints in the experimental group are seen as a positive change in view. For comparison, scores from the control group were analysed to determine if any changes occurred in their position without exposure to the use of an LMS. The results are presented in Table 1.

Table 1. *Descriptive Statistics of Students' Perception of the Usefulness of LMS in Hybrid Learning.*

Group	N	Mean	SD	Median	% Agree/Strongly Agree (≥ 4.0)
Pretest (Experimental)	100	3.21	0.48	3.20	28.0%
Posttest (Experimental)	100	4.09	0.35	4.10	72.0%
Pretest (Control)	100	3.19	0.46	3.20	27.0%
Posttest (Control)	100	3.24	0.43	3.20	30.0%

Table 1 gives the descriptive statistics on History students' perceived usefulness of LMS in hybrid learning environments. At the pretest stage, perception scores of both the experimental and the control groups were almost similar, with means of 3.21 and 3.19, respectively, indicating a neutral (or moderate) perception toward the usefulness of LMS before the intervention. Just about a quarter of the students within both groups were in agreement or strong agreement about LMS tools being useful in the enhancement of their learning (28% for the experimental and 27% for the control). Following a hybrid learning-type intervention, perception of usefulness in the experimental group rose largely to a mean of 4.09 (SD = 0.35), with 72% of the students agreeing or strongly agreeing that LMS tools modified the way they were learning/were engaged with/enhanced their understanding of History. This is an exigent positive change in attitude after being exposed to LMS-based instruction. In contrast, the control group posttest mean was low in change (3.24, SD = 0.43), with a negative perception shifting just a little from 27% to 30%. Such stability implies that improvement in the experimental group was a direct result of the hybrid experience and could not be attributed to any external variables.

For the experimental group, a paired-samples t-test was performed to see whether the observed increase in mean perception was statistically significant.

Table 2. *Difference in Experimental Group Perception of the Usefulness of LMS in Hybrid Learning.*

Variable	N	Mean Pre-test	Mean Post-test	Mean Gain	SD of Difference	t(99)	p	Cohen's d
LMS Usefulness Perception	100	3.21	4.09	0.88	0.52	16.92	<.001	1.69

Table 2 displays the results of a paired-samples t-test performed to investigate whether exposure to LMS tools within a hybrid setting could significantly affect History students' perception of LMS usefulness. From the perception-score-wise standpoint, the mean increased from 3.21 (pretest) to 4.09 (posttest), denoting an overall gain of 0.88. The standard deviation of the difference (SD =.52) indicates moderate variation in particular levels of improvement. The computed t-value of 16.92 with 99 degrees of freedom and a p-value of less than .001 shows that the perception increase was statistically significant. With Cohen's d equal to 1.69, the effect size is recognised as a large one, suggesting the intervention exerted a significant positive influence on students' perceptions of LMS usefulness. It means that the hybrid learning tools might have given the students a greater appreciation of the LMS as an educational tool for the understanding, engagement, and access to History learning materials.

Research Question 2: What are the challenges that History students encounter while using LMS?

To answer this question, responses to Section B of the LMS Perception and Challenges Questionnaire, a 15-item structured Likert-scale item on challenges that History students encounter while using LMS, were compiled for all participants. Scores were then averaged per respondent. Descriptive analysis was carried out to evaluate perceived challenges before and after exposure to LMS-supported hybrid instruction. Thus, the higher average pretest and posttest viewpoints in the experimental group are seen as a positive change in view. For comparison, scores from the control group were analysed to determine if any changes occurred in their position without exposure to the use of an LMS. The results are presented in Table 3.

Table 3. *Descriptive and t-Test Statistics of Students' Perception of the Challenges in the Use of LMS.*

Group	N	Mean (Pretest)	SD (Pre-test)	Mean (Post-test)	SD (Post-test)	Mean Difference	t	P	Cohen's d
Experimental	100	3.82	0.46	2.91	0.52	-0.91	-14.72	<.001	1.47
Control	100	3.84	0.48	3.79	0.45	-0.05	-1.08	.283	0.11

At the pretest, both groups reported similar levels of perceived LMS challenges (Experimental = 3.82, Control = 3.84), indicating that students initially struggled with platform navigation, unstable internet access, and limited digital literacy. After the intervention, the experimental group's mean score dropped significantly to 2.91 (SD = 0.52), indicating a substantial reduction in perceived challenges following consistent LMS exposure and guided hybrid instruction. The control group showed little change (Mean = 3.79, SD = 0.45), confirming that the improvement observed in the experimental group was primarily due to the LMS-based training and experience rather than external factors. The paired-sample t-test for the experimental group yielded $t_{(99)} = -14.72$, $p < .001$, showing a highly significant decrease in perceived challenges. Cohen's d = 1.47 indicates a large effect size, suggesting that the intervention had a strong positive impact on students' ability to navigate and use the LMS effectively. For the control group, no significant difference was observed ($p = .283$).

Hypothesis 1: LMS-integrated hybrid learning has no significant influence on the academic achievements of History students.

The hypothesis was tested using a pretest-posttest control group design. The History Achievement Test (HAT), consisting of 40 items, was administered to 200 students, 100 experimental and 100 controls, before and after a six-week instructional period. The experimental group was taught with a hybrid model mixing classroom teaching and LMS, while traditional methods were followed for the control group. The means and standard deviations were calculated to assess changes in performance. An independent samples t-test was conducted to test the null hypothesis, comparing posttest mean scores at $\alpha = 0.05$. The result is presented in Table 4.

Table 4. *Descriptive and t-Test Statistics of the LMS-integrated hybrid learning Influence on the academic achievements of History students.*

Group	N	Pretest Mean	SD	Posttest Mean	SD	Mean Gain	t(99)	p	Cohen's d
Experimental	100	48.62	6.91	72.15	7.82	23.53	21.48	<.001	2.15
Control	100	49.05	7.03	54.31	6.78	5.26	5.19	<.001	0.52

Presented in Table 4 are the pretest and posttest scores of History students in the experimental group (LMS-integrated hybrid learning) and the control group (traditional classroom). In the experimental group (n = 100), the mean achievement score rose conspicuously from 48.62 (SD = 6.91) in the pretest to 72.15 (SD = 7.82) in the posttest, resulting in a mean gain of 23.53 points. The computed $t_{(99)} = 21.48$, $p < .001$, and Cohen's d = 2.15 indicate an extremely high and statistically significant improvement in academic performance due to the hybrid learning intervention. By contrast, the control group (n=100) demonstrated only a slight improvement, with the mean score going from 49.05 (SD = 7.03) to 54.31 (SD = 6.78), an average gain of 5.26 points. This difference was also significant statistically ($t_{(99)} = 5.19$, $p <. 001$), but the effect size (d = 0.52) was moderate. In sum, the data show that comparatively greater academic gains in History occurred under LMS-integrated hybrid learning than under traditional instruction. The large effect size indicates that hybrid learning statistically improved achievement; in practice, it had a profoundly positive impact on the students' learning outcomes.

Hypothesis 2: There is no significant difference in the achievement of History students exposed to LMS-based hybrid learning compared to those exposed to the traditional method.

This hypothesis was tested using a pretest-posttest control-group procedure with 200 students (100 as experimental and 100 as control). Measures were taken to ensure equivalence between groups at baseline, by descriptive statistics. The primary inferential analyses compared posttest means between groups, using the independent-samples t-test.

Table 5. *Descriptive and t-Test of the Difference in the Achievement of History Students Exposed to LMS-Based Hybrid Learning Compared to those Exposed to the Traditional Method.*

Group	N	Posttest Mean	SD	Mean Difference	t(df)	P	Cohen's d
Experimental (LMS Hybrid)	100	72.15	7.82	17.84	17.15 (198)	<.001	2.43
Control (Traditional)	100	54.31	6.78				

The independent-samples t-test as presented in Table 5 revealed that there was a statistically significant difference in posttest achievement between students taught by LMS-based hybrid learning and those taught through traditional methods; $t(198) = 17.15$, $p <.001$, d = 2.43. This finding rejects the null hypothesis, affirming that the LMS-integrated hybrid learning environment greatly enhanced the academic achievement of History students in comparison to the conventional method of instruction. An ANCOVA was also employed as a robustness check, adjusting for any baseline differences by controlling for pretest scores. The significance level was set at $\alpha = .05$. Practical significance was evaluated using Cohen's d (pooled SD). The results are as presented in Table 6.

Table 6. *Analysis of Covariance (ANCOVA) Showing Adjusting Baseline Differences by Controlling for Pretest Scores.*

Source	SS	Df	MS	F	P	Partial η^2
Group (LMS vs	16,466.2	1	16,466.2	308.9	<.001	0.61

Source	SS	Df	MS	F	P	Partial η^2
Traditional)						
Pretest (Covariate)	1,875.4	1	1,875.4	35.2	<.001	0.15
Error	10,509.6	197	53.4			
Total		199				

The ANCOVA results reveal a statistically significant difference in posttest achievement between History students given LMS-based hybrid learning and those exposed to the traditional method of instruction, after controlling for pretest scores. The Group effect gave an F-value of 308.9 at p <.001 and with partial η^2 of 0.61, which implied that the differences in instructional methods could account for 61% of the variance in students' posttest achievement. The effect was so large that it unequivocally showed that students in LMS-based hybrid learning achieved significantly better academic results than those taught by the traditional approach. The Pretest covariate was also significant, $F_{(1,197)} = 35.2$, p <.001, η^2 =.15, so it can be said that prior achievement exerted a moderate effect on the posttest performance. Overall, the ANCOVA confirmed the effectiveness of LMS integration in improving students' performance beyond their prior ability levels.

Hypothesis 3: There is no significant relationship between students' perception of LMS usefulness and their academic achievement in History.

To determine the relationship between students' perception of LMS usefulness and their academic performance, a Pearson Product-Moment Correlation Coefficient (r) was estimated between the two variables. The perception scores for all participants, as well as both experimental and control groups, were obtained from a validated 20-item LMS Usefulness Perception Scale rated on a 5-point Likert scale. In contrast, achievement scores came from students' performance on the posttest following instruction. The Pearson correlation was carried out for the experimental and control groups to determine the strength and direction of the relationship. The cut-off for significance was set at 0.05. The results are presented in Table 7.

Table 7. *Relationship between Students' Perception of LMS Usefulness and Academic Achievement in History.*

Group	N	Pearson *r*	*p*-value
All Participants	200	0.392	<.001
Experimental Group Only	100	0.284	.004
Control Group Only	100	0.102	.308

Table 7 generally showed that there is a moderate positive correlation between students' perception of LMS usefulness and their academic achievement among all participants, r = 0.392, p < 001, according to the table. This would mean that students who perceived the LMS as more useful tend to get better academic scores in History. Within the experimental group, a smaller correlation was noted, though still significant (r = 0.284, p = 004), thus suggesting that being exposed to hybrid learning through the LMS slightly strengthened the relationship between perceived usefulness and performance. However, the control group, on the other hand, showed a weak correlation that was not statistically significant (r = 0.102, p =.308), implying that the absence of LMS exposure turned the perception of usefulness into a poor predictor of a student's recorded performance. In brief, the findings support the assertion that the perceived usefulness of the LMS is positively associated with learning outcomes, as evidenced by students' active engagement with the hybrid learning tools.

4. Discussion of Findings

The study assessed the role of LMSs in hybrid instruction, focusing on academic achievement, perceptions of usefulness, and challenges faced by History students in Southwestern Nigeria. It contains findings that enrich the substantive literature by providing further empirical evidence of the instrumental utility of LMS-based hybrid teaching in changing the learning outcomes and engagement.

The pretest-posttest analysis results showed significantly

positive variation in achievement scores among students exposed to LMS hybrid learning, compared with those who received traditional subject matter instruction. The posttest mean for the experimental group contrasted sharply with that of the control group in an effect size magnitude that was large. On the other hand, the ANCOVA results also indicated that controlling for pretest differences, group membership (LMS vs. traditional) significantly predicted posttest achievement. The results are in tandem with [15] and [6] previous meta-analyses that reported that blended and technology-enhanced learning environments often have superior academic outcomes when compared with face-to-face instruction alone. Integration of LMS tools, including interactive content delivery, quizzes, and discussion forums, probably made the students actively engaged, self-paced in learning, and increased feedback-giving opportunities to enrich understanding and achievement. This finding goes with constructivist learning theory, which pinpoints learner autonomy and interaction, including knowledge construction through technological mediation [12, 21].

Students have a generally favourable perception of LMS. The mean perception score for the experimental group has increased from 3.21 (pre-intervention) to 4.09 (post-intervention), with 72% agreeing or strongly agreeing that LMS tools enhanced their learning experience. The large mean gain and significant t-value imply that direct LMS exposure ingrained in students the appreciation of how useful it can be in their pursuits. This result is consistent with [5] finding that students in blended learning through LMS had higher rates of satisfaction and academic achievement. In much the same way, [8] found that LMS provide avenues for collaboration, critical thinking, and self-regulated learning. This positive perception among the History students further illustrates the adaptability of digital tools, even in disciplines that were once mainly considered text- and discussion-oriented.

According to correlation analysis results, we found a significant positive relationship between perceived LMS usefulness and academic achievement for all participants, albeit with a smaller yet significant correlation within the experimental group. In contrast, the controls had a weak and non-significant correlation. The implications of these results are that students who perceived the LMS tools as more useful fared better in their academic outcomes. Such a finding is aligned with technology acceptance models, where perceived usefulness affects engagement and learning performance [9], and further supports the earlier evidence by [20] that attitudes of learners toward digital platforms predict their persistence and cognitive engagement.

Apart from all the good outcomes, the study has also brought to the limelight some inherent challenges that may stand in the way of the actual implementation of the LMS. Specifically, half of the respondents reported a lack of reliable internet access, power outages were cited by 36%, while about one-third named workload pressures, low digital literacy, and usability issues. The challenges outweigh those found within Nigerian and, indeed, African higher education contexts, where infrastructural deficits along with limited digital skills hamper the integration of technology [3, 11]. Steering great effort into eliminating the aforementioned would be critical towards the realisation of an equitable, sustainable hybrid learning system.

These findings strongly confirm that LMS-based hybrid teaching improves History students' learning outcomes, perceptions, and engagement. However, infrastructural and literacy-related barriers must be in place for such innovations to thrive at their full potential. The study contributes to the limited empirical literature on educational technology in the humanities, a category generally understated in Nigerian educational research.

5. Conclusion

The research assessed the impact of Learning Management System (LMS)-based hybrid learning on the academic performance and learning experiences of History students in Southwestern Nigeria. The results showed that hybrid learning students achieved considerably more academically, developed critical thinking more and had more favourable learning perceptions than the students taught using traditional classroom methods. The ANCOVA and t-test analyses validated that the integration of LMS had a strong, positive and statistically significant effect on learning outcomes, with large effect sizes. Moreover, the students reported a high perceived usefulness of LMS tools, but infrastructure problems such as poor internet connectivity and erratic power supply still existed.

The findings indicate that if digital tools are used correctly, they can improve the quality of teaching and learning. The research finally stated that LMS-based hybrid learning is a worthwhile and efficacious educational innovation that can change the history of teaching in Nigeria's secondary schools.

6. Recommendations

1) Institutional Integration of LMS: The use of LMS as a complementary tool for teaching and learning should be instituted at schools and educational authorities.
2) Capacity Building for Teachers: Teachers should be trained continuously through professional development programs that will prepare them for instructional design, content uploading, online assessment, and student monitoring via LMS.
3) Infrastructure Improvement: sustainable E-learning environments should be supported by governments and institutions investing in stable electricity, internet connectivity, and device accessibility.
4) Curriculum Reform: The teaching of History should be done through inquiry, critical thinking, and problem-solving by restructuring the curricula to integrate those hybrid learning activities.

5) Monitoring and Evaluation: The education stakeholders should set up mechanisms for periodical evaluation of LMS effectiveness as a part of quality assurance and evidence-based improvement.
6) Student Support Systems: Technical support should be provided along with digital literacy training for students to minimise the challenges in LMS navigation and engagement.

Abbreviations

LMS	Learning Management Systems
ANCOVA	Analysis of Covariance

Conflicts of Interest

The authors declare no conflicts of interest.

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