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The Role of AI and blockchain in combating academic fraud

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Abstract

Educational fraud poses an enormous threat to universities across the globe by concurrently violating academic standards and diminishing educational qualifications. This research studied how AI together with blockchain technology works to reduce academic cheating among Nigerian institutions with particular attention on the University of Ibadan and the University of Abuja. The research technique combined qualitative methods with quantitative approaches to gather both quantitative and qualitative data. Students alongside faculty members and administrators and developers of AI/blockchain solutions received Google Form surveys about their opinions regarding the use of these technologies to maintain academic integrity. The research discovered that plagiarism in connection with dishonest examination conduct represents the principal methods students use to cheat in their studies. The implementation of AI-powered plagiarism detection systems proved to be the most successful measure among other interventions and blockchain technology showed promise for secure credential authentication. The study utilized one-way ANOVA to show that blockchain feasibility received different responses from participants who served as administrators or faculty members and those who already understood AI and blockchain systems. The study discovered three main barriers affecting the implementation of these technologies to curb academic fraud; they included: expensive solutions implementation along with shortage of technical skills and opposition from organizational members. The research concluded that AI and blockchain technologies have profound potentials for academic fraud prevention but institutions struggle to use them due to expense limitations and poor infrastructure. Greater implementation of blockchain in universities requires official investment in digital training and subsidized technology purchases and regulatory standards for integration. Future research must examine how these technologies can be applied to various educational settings worldwide for establishing international optimal practices.

Keywords: Academic Fraud; Artificial Intelligence; Blockchain; Higher Education; Academic Integrity; Nigeria; Digital Literacy; Plagiarism Detection

1. Introduction

Academic fraud now affects educational institutions globally as it seriously damages the credibility of academic degrees combined with educational system credibility. Educational pursuit based on knowledge suffers degradation because students and faculty or educational institutions use fraudulent means to achieve unnecessary advantages. Academic fraud consists of many unethical actions which spread from plagiarism through examination cheating to falsified research findings and also involve impersonation cases as well as bogus academic record creation. The dishonest practices violate essential educational principles that uphold honesty along with fairness and honorable achievement. Academic fraud takes its most popular form through plagiarism which involves the uncredited submission of others' work alongside their intellectual concepts or verbal productions. Al Wahaibi and Jose (2019) distinguish between three plagiarism types as direct copying, unwarranted paraphrasing, and self-plagiarism that happens when scholars use past work without permission. Technical advances and open access internet resources have dramatically increased plagiarism incidents so academic institutions must establish advanced detection and prevention systems for such

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unethical conduct. Academic fraud includes cheating which refers to students who implement dishonest techniques for assessments to receive grades that they do not deserve. Students violate academic integrity by employing unauthorized materials during tests as well as working together for individual assignments while using hidden tools or software for illegitimate benefits. The practice of cheating reduces valuable learning by creating unskilled graduates who cannot add meaningful value in society (Bello, Idemudia and Iyelolu, 2024; Odeyemi, Okoye, Ofodile, Adeoye, Addy and Ajayi-Nifise, 2024).

Academic dishonesty also includes the creation of false documentation particularly degrees and transcripts plus professional certifications that people use to gain employment or educational placement. According to Bello and Olufemi (2024) and Tang (2021) the practice damages real qualifications while breaking academic institution credibility and ultimately leads to wide-ranging occupational incompetence. Research findings face integrity issues because some scientists fabricate their data while falsifying the results which leads to compromised research contributions credibility. Such unethical actions generate extended impacts particularly for medical and engineering fields and social sciences due to their real-world dependence on scientific outcomes.

Educational integrity together with credibility suffers significant harm due to academic fraud. Students who cheat academic tasks hinder their own ability to acquire problem-solving abilities as well as critical thinking competencies which are fundamental for their personal and job advancement. The failure of universities to maintain rigorous academic standards causes institutions to lose their accreditation status together with funds and student confidence. Due diligence of employers regarding educational standards begins to diminish the job prospects available to college graduates. Society suffers degradation because widespread academic dishonesty results in unqualified professionals reaching their positions (Tripathi and Thakar, 2024). People who achieve their careers through fraud lack necessary competencies to handle their duties properly which negatively impacts public service quality.

The existence of academic fraud continues robustly because academic policies fail to enforce properly along with high academic demands and students' low understanding about the long-term results of dishonest academic conduct. Students who want good grades and scholarships along with meeting expectations from their parents or societal standards become inclined to cheat on their school work. Faculty members sometimes choose to overlook or do not properly enforce strong anti-fraud measures because they have either inadequate resources to perform proper monitoring or show leniency toward students. An investigation of academic fraud causes along with its manifestations and potential resolutions exists as the main focus of this study because of increasing academic fraud concern which threatens education quality and professional competency. This research investigates academic dishonesty because of its rapid normalization which threatens the educational institutions' credibility as well as the reliability of the professional workforce. The research investigates both factors leading to academic fraud alongside assessing current preventive measures while offering methods to develop academic integrity practices. Based on this objective, the following research questions will be answered in the course of the study:

- What is the underlying basis of academic fraud and the factors responsible for these various forms of academic wrong-doing?
- How does academic dishonesty hit against educational quality, the credibility of a school or an institution and ability of educated people, and what impact does this have on the economy overall?
- How effective are present day policies and technological interventions at finding out if academic fraud is being committed?
- What are the strategies recommended by educational institutions in order to promote academic integrity and discourage fraudulent practices?

1.1. The Need for Innovative Solutions

Higher education depends on academic integrity as its foundation because credibility and authenticity define learning and knowledge development standards. The wide adoption of academic cheating across institutions worldwide represents a substantial problem for educational organizations around the world. Traditional identification mechanisms for academic dishonesty have been used for many years and include manual review work and plagiarism detection software and institutional policies that attempt to eliminate misconduct. According to Odeyemi et al (2024), the existing approaches which have shown some effectiveness are falling short because of rising technological sophistication and fraudulent techniques. Increasing academic fraud requires new innovative solutions built through the use of contemporary digital and technological tools to effectively fight against academic fraud.

Academic fraud detection techniques in the past mainly involved direct observation together with honor codes that institutions used for disciplinary action (Mohan, 2019). The evaluation process relied on educator assessments of

student assignments through manual inspection for any evidence of cheating or improper help from others. Turnitin became a critical tool in academic plagiarism detection by revealing both exact copied content and unique text. Examination proctoring involved direct on-site invigilation to monitor students since strict surveillance was considered an effective deterrent against cheating. Students who wish to cheat have found various methods to circumvent detection systems because manual oversight and institutional rules contain gaps.

Students in higher education experience fundamental practice changes because of digital tools and technologies which have reshaped instruction and student learning and evaluation systems. Online platforms together with artificial intelligence (AI) and blockchain technology and data analytics systems present practical methods to detect academic fraud according to Heng (2023). Faisal, Nahar, Sultana and Mintoo (2024) note that AI-driven tools for plagiarism detection analyze extensive text databases while detecting paraphrased materials through their large-scale data examination capabilities. It is the advanced proctoring technologies that use biometric authentication and AI-based remote invigilation to keep an eye on candidates by detecting suspicious activity in real time and confirming their identities.

The academic record verification process has empowered itself through the adoption of blockchain technology. The implementation of tamper-evident digital credentials through blockchain technology as described by Tang (2021) makes academic credentials more secure and verifiable for reducing falsified credential incidents. Student writing analysis through data analytics along with machine learning identifies unusual patterns along with submission irregularities which help detect contract cheating activities involving outside assignment completion services. Education institutions can better sustain academic integrity by incorporating these modern technologies that operate in digital educational settings.

Digital solutions deliver better fraud detection abilities but introduction of these tools creates complex implementation matters. Tripathi and Thakar (2024) believe that educational institutions must handle three main ethical areas including data surveillance and privacy as well as algorithmic bias considerations carefully. Educational organizations need to find an equilibrium between using technology for enforcement and developing an honest academic environment through educational awareness and technological tools. The transition requires faculty to adjust their approaches for assessment methods which evolve to comply with revised academic standards of integrity. Modern higher education demands critical solutions against academic fraud because academic cheating has become an increasingly vital problem. Modern detection techniques gain value when they adopt modern digital tools that match the complexity of academic fraud across educational institutions. In order to improve their ability to prevent academic misconduct and create an ethical learning environment, institutions should adopt AI in conjunction with blockchain and data analytics technologies for academic integrity systems, as recommended by Heng (2023).

1.2. Introduction to AI and Blockchain

The combination of Artificial Intelligence (AI) and Blockchain creates transforming power which alters sectors of finance and healthcare and education systems. The simulation of artificial intelligence in machines accomplishes human-like capabilities which allow machines to handle learning tasks and execute reasoning operations and solve problems and make decisions independently. Under the decentralized AI methodology named machine learning, computers use vast data analysis to establish patterns, therefore becoming powerful tools for automation alongside predictive analytics (Bello & Olufemi, 2024). Data stored by blockchain exists across decentralized distributed networks which provides users with secure protected trending information that remains unchanged. Blockchain technology eliminates data tampering risk and fraud through its secure system for transaction recording (Tang, 2021). The separate features of these technologies demonstrate their potential to combine and solve complex academic and other challenges through unique applications (Kuznetsov et al., 2024). An urgent challenge in education involves academic misconduct that takes shape through activities such as towing research from others, using diploma mills, creating fake educational documents and testing different answers for exams. Academic credential authenticity stands as a cornerstone for public confidence in educational institutions while allowing students to receive actual knowledge and mastery skills. Due to improved digital tool availability dishonest persons can now easily modify academic records and participate in deceptive academic practices (Tripathi & Thakar, 2024). Academic credentials together with fraud prevention are currently monitored through extensive manual procedures that require significant time and financial resources. AI together with blockchain technology creates an essential solution to overcome present academic issues.

Plagiarism detection systems powered by AI already serve educational organizations for spotting matching content and determining cases of unoriginal work (Bennett, 2024). Complex AI models study how people write to find irregularities while also detecting writer identities which combats ghostwriting and contract cheating activities. The implementation of AI through facial recognition and eye-tracking and behavioral analysis ensures the prevention of cheating behaviors

by students during testing sessions (Xie, Wu, & Chakravarty, 2023). Educational institutions can detect academic misconduct more efficiently with the help of AI systems than they could through conventional methods according to Nwozor (2025).

The innovative aspect of blockchain technology allows institutions to establish secure digital storage of educational credentials and validate their originality. Established academic records on blockchain systems allow institutions to generate secure certificates and transcripts which employers together with universities and their stakeholders can immediately validate (Mohan, 2019). Academic accomplishments remain both protected and easily verifiable through this system because it repeals the possibility of forged certificates. Blockchain technology enables monitoring of student academic development through an unalterable system that maintains permanent records of student achievements according to Al Wahaibi and Jose (2019).

Academic institutions can utilize AI and blockchain for many additional purposes after fraud prevention. The integration of these technologies enables simplified administration management and build-up of online learning presence through enhanced validation systems with customized educational pathways (Bello, Idemudia, & Iyelolu, 2024). While blockchain smart payment systems manage normal university enrollment and degree documentation procedures, artificial intelligence (AI) recommendation technology analyzes student learning habits to produce personalized academic resources (Dawson, 2020). As a result, academic fraud may be prevented by the combination of blockchain technology and artificial intelligence, which provides a clever and safe framework for preserving the integrity of educational systems. As these technologies develop further, their use in education will help to prevent fraud while also creating a more open, effective, and reliable learning environment.

2. Literature Review

2.1. The Role of Artificial Intelligence in Combating Academic Fraud

Artificial Intelligence through its applications brought revolutionary changes to the healthcare and financial domains and transportation systems. The biggest educational use of artificial intelligence involves fighting academic dishonesty which poses a worldwide threat to academic institutions. Academic fraud comprises different types of dishonest academic behavior which span from plagiarism to examination cheating and recorded academic data falsification. AI has adopted machine learning and natural language processing with predictive analytics to create vital protection systems for preventing fraudulent academic conduct (Bello & Olufemi 2024; Tripathi & Thakar 2024). Digital resources alongside paraphrasing tools have made plagiarism easier to carry out due to their advanced nature. The former methods of plagiarism detection used manual check processes that became inefficient and slow. Plagiarism detection tools through AI technology presented as Turnitin Grammarly and Copyscape modernized text comparison analysis through their deep learning solutions which mine extensive data resources to reveal document similarities. The tools analyze sentence patterns together with writing styles and textual content to reveal rewritten content that doesn't present direct duplicate text (Kang, 2024). Modern statistical data demonstrates AI can detect plagiarism very effectively. The research by Bennett (2024) detected reduced plagiarism activity among educational institutions because most high school and college assignments lacked AI-generated text patterns. Research statistics demonstrate that AI plagiarism detection tools currently perform properly to identify and stop academic cheating practices. Institutional adoption of AI-based detection systems leads students to refrain from submitting any form of plagiarism or AI-generated content according to research findings. The advanced capabilities of these tools that reveal both paraphrased and restructured text make them highly effective for academic integrity maintenance.

Turnitin recorded low numbers of student assignments written completely through AI thus demonstrating the strength of AI detection tools (Nwozor, 2025). The current AI detection systems show they can recognize the difference between text written by humans and AI because these detection methods function effectively. AI plagiarism detection systems will advance with better accuracy to detect fraudulent work because they continue to improve. The research demonstrates how AI maintains academic credibility through secure assessment practices along with protecting institutional integrity (Ganiyu, 2025).

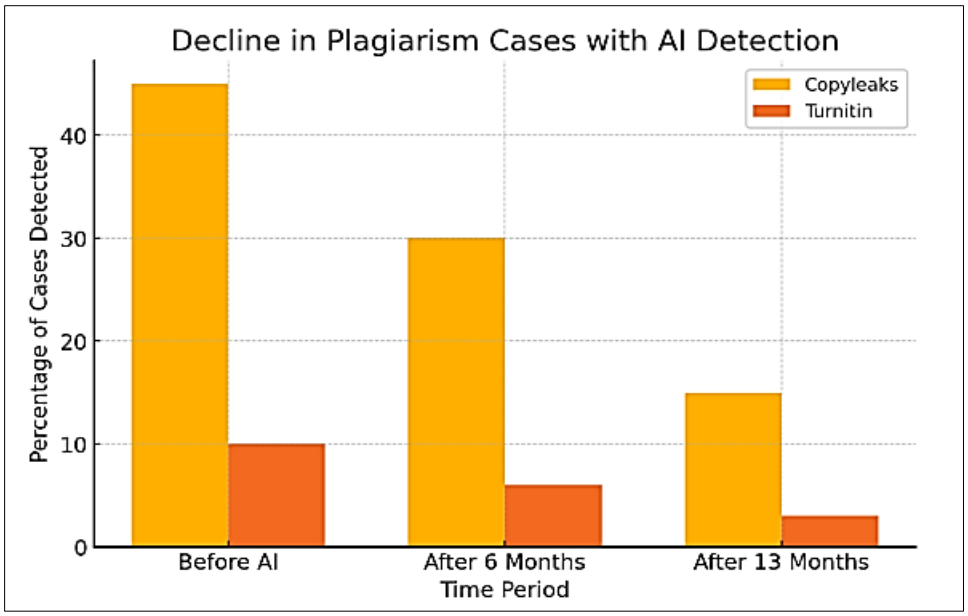

Figure 1 Bar chart illustrating the decline in plagiarism cases over time with the implementation of AI detection tools, based on findings from Copyleaks and Turnitin

The artificial intelligence system uses predictive analytics alongside its capability to detect immediate academic dishonesty occurrences. Student education records and behavioral indicators as well as performance metrics are analyzed by machine learning models to detect abnormal activity signals that indicate academic dishonesty (Tripathi & Thakar, 2024). Artificial Intelligence employs data mining and pattern recognition to spot students whose academic achievements show unprovoked growth and present various writing styles or inconsistent results between examination types (Nwozor, 2025). Predictive analytics powered by AI technology operates in universities as a preventive mechanism against academic misconduct cases. A research institution revealed AI-based prediction models attained a 85% success rate to detect students who posed risks for academic fraud according to Bennett (2024). Educators can provide support and elevation of attention before problems arise through this forward-thinking strategy (Kang, 2024).

The exceptional capability of AI systems enables detection of anomalous patterns which includes evaluating phony academic qualifications. Organizations together with educational establishments utilize AI-driven verification systems to match students' academic information to official databases thus preventing degree manufacturing incidents (Tang, 2021). AI and blockchain are combined to protect academic certificates from falsification through their implementation in academic credential authentication processes (Al Wahaibi & Jose, 2019; Bello, Idemudia, & Iyelolu, 2024).

The implementation of AI-based systems to fight academic dishonesty generates essential dilemmas regarding privacy protection as well as ethical matters. The detection capability of AI generates fear among students and teachers because its supposed false alerts could lead to baseless disciplinary actions (Huy, 2024). released data and surveillance practices have triggered public discussions about how much Artificial Intelligence should be introduced across educational facilities (Mohan, 2019). Establishing precise rules for AI use that guarantee openness, equity, and moral application is necessary to overcome these issues (Tripathi & Thakar, 2024). The importance of AI in education will only grow as it develops further, making academic fraud more challenging to commit (Ganiyu, 2025).

2.2. The Role of Blockchain in Combating Academic Fraud

Figure 2 The Role of Blockchain in Combating Academic Fraud

Modern educational systems face an escalating problem of academic fraud which compromises the trustworthiness of educational institutions as well as their student records and the employer evaluation process. Academic achievements face continuous threats because students submit falsified degrees as well as manipulate research findings. Manual record-keeping alongside paper-based certificates demonstrates three main issues which include inefficiency and vulnerability to tampering and authentication complexity (Tang, 2021). Academic honor depends on blockchain technology which serves as a strong system for maintaining academic integrity. Academic credentials can be secured using the decentralized ledger system of blockchain while research transparency and examination fairness are both achieved by this technology (Mohan, 2019). In order to create transparent research publication processes, educational institutions use smart contract technology for exam security and blockchain technology to create tamper-resistant digital records. Academic fraud detection receives added strength through the implementation of artificial intelligence (AI) and data mining techniques that identify performance irregularities among students and their research work (Bello & Olufemi 2024).

Students benefit the most from blockchain when their academic credentials become securely protected by blockchain technology. Traditional paper diplomas easily become counterfeit items that create problems for both educational firms and job market stakeholders trying to authenticate students' educational records. Educational institutions have developed a tamper-proof way to generate digital credentials that can be verified and securely maintained on decentralized ledgers using blockchain technology. The issuance of blockchain-secured credentials includes encryption and time-stamping alongside institution linkage which prevents any modifications or fakery (Al Wahaibi & Jose, 2019). The verification process through blockchain technology performs instant examinations of credentials therefore schools eliminate manual background checks and manage lower administrative requirements. Universities and employers can use this technology to verify academic accomplishments from their legitimate sources and thus build trust regarding educational credentials.

The examination integrity is maintained by blockchain technology through its implementation of smart contracts. The blockchain-based smart contract operates as a self-governing digital contract that enforces established protocols automatically and without human intervention. Educational organizations utilize smart contracts to secure their assessment records while preventing manipulation attempts along with live examination process supervision. Each stage in an exam process gets timestamped on blockchain using its records function from question distribution to student submissions and grading. The secure recording system makes it possible to quickly discover any unapproved changes to exam results and prohibited activities. Smart contracts use anonymous decentralized grading procedures which minimize biases while delivering objective evaluation systems according to Mohan (2019). Institutions that use blockchain for their exam management procedures will maintain academic assessment transparency while achieving fairness so they can preserve educational system trust.

The field of academic research along with scholarly publications remains exposed to three major ethical breaches that comprise data fabrication and plagiarism as well as authorship disputes (Bennett, 2024). The technological solution blockchain provides includes permanent data storage for research documentation which verifies authorship correctly and blocks illicit document changes. Academic research findings that exist in centralized databases face exposure to unauthorized modifications in traditional academic publishing systems. Blockchain combines decentralized operations with an open distributed ledger system that keeps permanent records of publications and research data. The permanent record system enables researchers to detect modifications of scientific findings which protects both the genuineness of published work and the research records (Odeyemi et al., 2024). The peer review system benefits from blockchain because it enables reviewers to authenticate research submissions without exposing authors to disclosure risks. Through enhancing accountability along with transparency in academic publishing blockchain develops an environment dedicated to moral scientific work.

Additionally, blockchain technology detects cases of academic fraud in conjunction with data mining techniques and AI-powered models. Digital algorithms study student behaviors as well as academic track history to extract distinctive evidence of dishonest practices. An AI system uses programming capabilities to recognize performance inconsistencies which include unexplained grade upgrades and instances of plagiarism along with differences in writing styles observed in assignments (Kang, 2024). Data mining techniques operated by AI detect uncommon patterns in research work including duplicated papers along with excessive self-citations and questionable research network connections according to Tripathi & Thakar (2024). Educational institutions can create a full-time academic fraud prevention system through their integration of AI and blockchain technologies. A proactive system protects academic integrity as well as discourages people from conducting dishonest activities (Nwozor, 2025).

Implementing blockchain technology as a solution for academic fraud brings forth multiple beneficial advantages. The education system achieves higher trust levels together with greater credibility because blockchain technology offers

reliable authentication of academic credentials. Businesses gain assurance to verify applicant qualifications before hiring them effectively because candidates demonstrate their claimed skills. Blockchain processes elevate administrative operations which leads to decreased institutional workload and facilitates faster records maintenance. The technology promotes research integrity along with academic publication transparency through its ability to link intellectual achievements properly with their creators (Odeyemi et al., 2024). Educational institutions gain the ability to prevent fraud escalation through enhanced detection mechanisms which integrate AI analytics systems as described in Bello & Olufemi (2024).

The use of blockchain for education faces multiple obstacles even though it provides many important benefits to educational systems. The spread of blockchain technology needs substantial infrastructure development alongside expert personnel and regulatory system standards (Heng, 2023). A key issue that needs resolution is the achievement of compatibility between blockchain networks and present academic frameworks (Tripathi & Thakar, 2024). Academic records with their sensitive information need thorough protection from unauthorized access because of privacy and data security concerns (Ganiyu, 2025). Through blockchain technology developments and educational partnerships with policymakers and providers the educational system will create a secure framework based on transparency. Academic fraud can be battled by blockchain technology since it delivers secure credential checking as well as smart contracts to ensure exam integrity and transparent research methods (Tang, 2021). Blockchain technology with AI-driven fraud detection functions makes academic achievements and publications more reliable (Bello, Idemudia, & Iyelolu, 2024). Nonetheless, blockchain integration is necessary to safeguard the integrity of educational processes as a result of educational institutions' dedication to digital transformation.

2.3. Synergy Between AI and Blockchain in Combating Academic Fraud

The educational systems worldwide face substantial threats to their integrity because of academic fraud which consists of plagiarism together with falsification of credentials and contract cheating. Because digital technology has produced sophisticated deception techniques, it is more difficult for modern educational institutions to identify fraudulent activities. Although artificial intelligence (AI) and blockchain technology work separately, some issues unite to form a complete solution against these problems. Blockchain's transparent and unchangeable ledger combined with AI's analytical powers can be used to create a system that prevents academic fraud. AI’s pattern recognition strength combines with blockchain’s decentralized verification system to build a system which conducts real-time detection and stops fraudulent academic activities at institutions (Bello, Idemudia, & Iyelolu 2024; Al Wahaibi & Jose 2019).

The unified system integrating AI and blockchain functions to prevent academic fraud increases data authenticity then it runs automatic verifications simultaneously with real-time academic transaction oversight. Large amounts of data processed by AI help it detect academic record anomalies and irregular patterns. AI plagiarism tools analyze several thousand research documents in mere seconds to spot dubious content that indicates potential cheating (Bennett 2024). The tamper-proof nature of blockchain enables secure academic credential and record storage through an environment that prevents unauthorized changes and detects all certificate falsifications. These technologies combined form an information system that detects fraudulent activities instantly thus reducing the risks caused by human verification and human mistakes. Blockchain-based academic verification systems employ AI technology for conducting immediate fraud recognition as one of their vital applications. AI algorithms perform a constant analysis of blockchain networks to discover record inconsistencies and applications of fraudulent manipulation on academic credentials. AI anomaly detection systems detect modifications of verified academic certificates and send alerts to relevant authorities as described in Tang (2021). The continuous monitoring system through blockchain networks detects fraudulent activities while protecting institutions from enduring major effects of fraud. Professional institutions can use machine learning applications trained with extensive history data to correct fraud before its occurrence because these models detect illegal activities based on patterns from previous occurrences. Academic institutions using AI analysis with blockchain systems will build an autonomous academic integrity system based on Bello & Olufemi's (2024) research.

The key benefit of uniting AI with blockchain technology is the opportunity to build self-operating systems for fraud identification which maintain complete transparency. The verification of institutional standards in education requires extensive time which forces human workers to manually check credentials against original sources and authenticate all documents. The manual method proves inefficient while creating conditions for errors as well as deliberate distortions. These vulnerabilities disappear through AI-powered blockchain operations since smart contracts handle automated verification procedures that initiate actions under preset criteria. A smart contract runs automatic degree verifications when it links blockchain ledger information to external academic databases. AI system detection of inconsistencies permits the blocking of invalid certificate validations per findings by Kuznetsov et al. (2024).

Furthermore, Transparency operates as an essential blockchain element which helps stop academic fraud. Blockchain records maintain both permanent integrity and full accessibility since their data becomes evident to every network participant who observes credential manipulation attempts. The complete openness of blockchain systems protects educational institutions from potential scammers by creating enhanced trust in academic institutions. Employers and universities and other certification bodies can immediately verify academic records without needing any intermediaries thus eliminating time-consuming manual verification processes (Mohan, 2019). The security measures are enhanced through AI implementation in this system because it provides continuous monitoring and auditing capabilities which rapidly identify attempted fraudulent activities.

The integration of AI with blockchain technology demonstrated its capacity to fight academic fraud through several practical uses and theoretical schemes. The successful application of blockchain technology to produce unchangeable academic credentials that instantaneously validate to external observers is demonstrated by the MIT Digital Certificates Project. The addition of AI analytics would boost this system by allowing it to find academic record inconsistencies while detecting doubtful behavior (Mohan, 2019). Sony Global Education developed a blockchain-enabled system to protect academic documents in addition to their sharing capabilities. The system provides data integrity and enables simple verification processes that operate between institutions and employers. Algorithms based on AI could work together with this platform to evaluate credential usage behaviors which help identify irregular system events associated with fraud attempts (Al Wahaibi & Jose, 2019).

An AI-powering platform built on blockchain technology operates theoretically in remote educational platforms where students conduct online assessments. The integration of AI proctoring tools enables live monitoring of students through analysis of their facial characteristics while recording their keyboard movements together with behavioral indicators meant to prevent cheating. The encryption of examination data enables blockchain to record every activity for instant verification of unchanged information at any point. Through its two-layer security method the system actively stops academic misconduct while establishing unassailable student proof of examination integrity (Heng, 2023).

The educational sector depends on innovative solutions which prevent academic cheating to adapt to current changes in the educational system. When AI and blockchain technologies are successfully combined, a ground-breaking system is created that improves academic resource preservation by preserving data integrity and enabling quick verification. When AI and blockchain technologies are successfully combined, a ground-breaking system is created that improves academic resource preservation by preserving data integrity and enabling quick verification. These technologies operate harmoniously to create a secure system that stops and detects academic fraud throughout academic institutions. The combination of AI analysis of extensive data with blockchain's unalterable record system enables institutions to establish a seamless and effective system that maintains academic integrity. Studies both in practical applications and theoretical models suggest that this integration combination between AI and blockchain holds excellent prospects for transforming academic fraud prevention on a global scale (Ganiyu, 2025). The digital era requires higher education institutions to integrate AI and blockchain for academic qualification security because this represents a necessary alignment with current educational reforms.

3. Methodology

The study uses a mixed methods approach to investigate how AI and blockchain can help prevent academic fraud. In combining qualitative and quantitative research methods, the study offers a thorough understanding of how these technologies work together to improve academic integrity. Data collection is done through surveys that are given to stakeholders, such as students, faculty, and technology providers at the University of Ibadan and the University of Abuja. These institutions were chosen based on factors like academic credibility, technological advancement, and a diverse student body to ensure that the findings represent a range of viewpoints.

Data analysis approaches applied in this study include thematic analysis for qualitative data and statistical analysis for quantitative data. Thematic analysis allows for the detection of repeating patterns and themes within replies from open-ended survey questions, revealing light on attitudes, worries, and expectations regarding AI and blockchain adoption in academia. Conversely, statistical analysis measures patterns and connections, providing factual proof of how well AI and blockchain technologies identify and stop academic fraud. This dual strategy guarantees a fair evaluation of these technologies' social and technological ramifications. This study places a high priority on ethical issues, implementing safeguards to protect participant privacy, informed consent, and data confidentiality. To preserve objectivity and dependability, any biases in AI models and survey responses are also recognized and dealt with.

This study admits some shortcomings in spite of its thorough methodology. The extent of technical review may be limited by restricted access to blockchain and proprietary AI technologies. Furthermore, the study is limited to Nigerian

universities, which might not accurately reflect the state of academic fraud detection worldwide. However, the results reveal insightful information about the possibilities of integrating blockchain technology with artificial intelligence, laying the groundwork for future study and advancement in this area.

4. Data Analysis

In order to examine how students, teachers, administrators, and blockchain developers at the Universities of Ibadan and Abuja perceive these technologies and their efficacy, this study used a mixed-methods methodology. Below, statistical methods such as frequencies, percentages, and mean scores are used to examine the data gathered from a Google Form survey in order to offer empirical insights about the viability of blockchain and artificial intelligence in maintaining academic integrity.

Table 1 Demographic Information

Variable	Frequency (n)	Percentage (%)
Position in Institution		
Student	52	40.3
Faculty Member	34	26.4
Blockchain/AI Developer	18	14.0
University Administrator	15	11.6
Others	10	7.7
University Affiliation		
University of Ibadan	72	55.8
University of Abuja	57	44.2
Knowledge of AI & Blockchain		
Highly knowledgeable	35	27.1
Relatively knowledgeable	50	38.8
No opinion	10	7.7
Somewhat knowledgeable	25	19.4
Not knowledgeable	9	7.0

Source: SPSS 25

As shown in Table 1 students comprise the largest segment of respondents and are followed by faculty members with blockchain and AI developers alongside university administrators and other personnel making up the remaining participant groups. The respondent distribution demonstrates balanced insight about the topic since it includes both academic and technical community members. The data on university affiliations indicates balanced participation from both institutions which creates geographical and institutional diversity in answers. A large portion of survey participants show an intermediate to advanced understanding of AI and blockchain technology principles that allow them to form well-informed opinions about their integration against academic fraud. The consistent discovery of persons lacking sufficient knowledge about these subjects demonstrates a need for better public education about these technologies.

Table 2 Perception of Academic Fraud and Technological Interventions

Question	Frequency (n)	Percentage (%)
Perception of Cheating Prevalence		
Very serious	45	34.9
Somewhat serious	50	38.8
Neutral	20	15.5
Not very serious	10	7.8
Not serious at all	4	3.0
Common Forms of Academic Fraud		
Plagiarism	100	77.5
Dishonest Exam Practices	90	69.8
Falsification of Credentials	85	65.9
Contract Cheating	55	42.6
Data Falsification	45	34.9
AI's Potential in Preventing Cheating		
Strongly Agree	88	68.2
Do Not Agree	41	31.8
Blockchain's Role in Academic Integrity		
Yes	90	69.8
No	39	30.2

Source: SPSS 25

The research data from Table 2 indicates that cheating is viewed as a major problem in Nigerian higher education institutions according to most respondents. Academic dishonesty practices especially plagiarism and unethical examination acts present the primary forms of academic fraud which stem from institutional integrity challenges. The surveyed population stands with confidence in AI solutions since they strongly agree about its capability to fight academic dishonesty. The public strongly supports blockchain technology because it provides secure authentication systems which boost academic integrity. The mean score analysis validates these patterns because it reveals high levels of academic fraud concerns and optimistic beliefs regarding AI and blockchain solutions for the same problems. There exists skepticism about complete adoption from certain respondents even though implementation expenses and stakeholder opposition are seen as potential implementation barriers.

Table 3 Effectiveness and Feasibility of AI and Blockchain in Academia

Question	Frequency (n)	Percentage (%)
Most Effective AI Application		
AI Plagiarism Checker	65	50.4
AI Proctoring for Exams	30	23.3
AI Veracity Checks in Research	20	15.5
Machine Learning for Fake Degrees	14	10.8
Plausibility of Blockchain in Academics		
Highly Plausible	42	32.6
Moderately Plausible	38	29.5
Neither Plausible nor Implausible	28	21.7
Implausible	13	10.0
Not Implausible at All	8	6.2
Challenges in AI and Blockchain Adoption		
High Costs	95	73.6
Lack of Technical Expertise	85	65.9
Resistance from Stakeholders	70	54.3
Privacy Concerns	60	46.5
Slow Tech Adoption in Universities	55	42.6

Source: SPSS 25

Table 3 reveals that AI plagiarism checkers command the highest position as the most effective tool to fight academic misconduct because stakeholders prefer automated content verification software to alternative AI applications. The data indicates stakeholders select plagiarism detection because they can readily measure its impact on academic integrity. The preponderance of participants selected either high or moderate scores for blockchain integration plausibility in mean score analysis while persistent doubts exist among a lesser group. The hurdles to implement AI and blockchain prove to be substantial due to the high deployment expenditures and insufficient expert knowledge needed for operational implementation. The reluctance of stakeholders combined with privacy fears and security concerns has created major obstacles for large-scale adoption since these obstacles represent the challenge between innovation and reform. Research results show that colleges need specific programs to bridge their technological limitations and build better acceptance of AI and blockchain systems.

4.1. Test of Hypotheses

As universities look for creative ways to improve academic integrity and stop fraudulent activities, the use of cutting-edge technology like blockchain and artificial intelligence (AI) in academia is growing in popularity. However, opinions among various stakeholders within the organization, such as students, instructors, administrators, and AI developers, about the viability of implementing blockchain in academic settings may differ greatly. Similarly, a person's opinion of the technology's suitability for higher education may be influenced by their past understanding of blockchain and artificial intelligence.

The mean impression scores of blockchain feasibility across various institutional positions (Hypothesis 1) and levels of AI and blockchain expertise (Hypothesis 2) are compared using a one-way Analysis of Variance (ANOVA) in order to look into these possible differences. In light of this, the following hypotheses are expressed explicitly:

- **(H_{01}):** There is no significant difference in the perception of blockchain feasibility among different groups within the institution (students, faculty members, administrators, blockchain/AI developers, and others).

- **(H_{11}):** There is a significant difference in the perception of blockchain feasibility among different groups within the institution.
- **(H_{02}):** There is no significant difference in the perception of blockchain feasibility based on respondents' prior knowledge of AI and blockchain.
- **(H_{12}):** There is a significant difference in the perception of blockchain feasibility based on respondents' prior knowledge of AI and blockchain.

Table 4 ANOVA Analysis for Hypothesis 1 (Position in Institution)

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. (p-value)
Between Groups	10.456	4	2.614	5.678	0.000
Within Groups	57.852	108	0.536		
Total	68.308	112			

Source: SPSS 25

The computed F-value is 5.678 and the p-value is 0.000, both of which are below the generally accepted significance level of 0.05, as shown in Table 4 above. The notable disparity in opinions regarding the viability of blockchain technology by position within the organization implies that various institutional roles—students, teachers, administrators, etc.—have varying opinions about how feasible blockchain technology is for academic settings. This suggests differing degrees of comprehension or real-world blockchain technology experience. But because the p-value is less than 0.05, we reject the null hypothesis (H_0) and come to the conclusion that opinions on the viability of blockchain technology vary significantly depending on one's position within the organization. However, since the p-value is less than 0.05, we therefore reject the null hypothesis (H_0) and conclude that there are significant differences statistically in perceptions of blockchain feasibility based on the position in the institution.

Table 5 ANOVA Analysis for Hypothesis 2 (Knowledge of AI & Blockchain

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. (p-value)
Between Groups	8.740	4	2.185	4.983	0.001
Within Groups	49.324	108	0.456		
Total	58.064	112			

Source: SPSS 25

The computed F-value is 4.983 and the p-value is 0.001, both of which are less than 0.05, as shown in Table 5 above. The substantial disparity in opinions regarding the viability of blockchain depending on respondents' past knowledge of both blockchain and artificial intelligence implies that respondents who are more knowledgeable about these technologies hold different opinions about their viability in academic contexts than those who are less knowledgeable. Thus, based on past knowledge of AI and blockchain, we infer that there are substantial differences in perceptions of blockchain feasibility, and we reject the null hypothesis (H_0) because the p-value is less than 0.05.

5. Discussion of Findings

The research demonstrates vital knowledge about the obstacles and practical aspects and moral aspects of implementing AI and blockchain technologies within Nigerian institutions of higher learning. Results from students together with administration personnel and AI/blockchain developers demonstrate moderate to strong awareness of these technologies while some knowledge discrepancies still appear. Research by Tang (2021) and Mohan (2019) supports the requirement for education programs which target knowledge deficiencies as reported by the study participants. The study findings contrast with Tang (2021) by showing that students along with those on the younger end of the faculty spectrum demonstrate advanced knowledge of AI and blockchain compared to older administrators in developing regions according to Heng (2023).

Users expressed considerable ethical concerns about their data privacy and security because of AI proctoring systems and blockchain digital credentials. The study confirms previous research conducted by Mohan (2019) and Al Wahaibi & Jose (2019) which demonstrated identical opposition toward AI monitoring systems in educational institutions. This

research examines the distinctive Nigerian situation which shows how inadequate data protection regulations intensify security concerns involving misuse. The results show a match with the position presented by Ganiyu (2025) regarding the need for strong data governance which should protect privacy rights alongside fraud prevention measures. Research by Bello and Olufemi (2024) primarily focused on blockchain security enhancements but this study establishes a new perspective through survey results showing that blockchain immutability creates security risks when used for incorrect or harmful data entry.

Participants widely reported financial obstacles as well as insufficient technical skills as implementation barriers that challenged technological implementation. Technology adoption studies in education support this evidence (Bennett 2024, Tripathi and Thakar 2024) to identify financial restrictions as the main challenge. Research adds new information to existing discourse because it shows a strong reluctance to change among academic personnel and administrators who match Heng's (2023) study of institutional resistance as a major challenge. The research results demonstrate that phased technology adoption according to Mohan (2019) might fail to produce results without intentional digital literacy development and institutional acceptance measures. University administrators should develop implementation approaches that address the distinct problems which Nigerian universities face.

The results showed deep concerns about the usage of AI and blockchain due to centralization problems in blockchain governance and the possibility that AI systems could produce biased outcomes. Nwozor (2025) and Tripathi & Thakar (2024) provide warnings similar to the identified fears regarding excessive surveillance combined with improper data handling. The research shows that these worries exist at a greater level in Nigeria since emerging technology regulation is poorly managed across the country. The research refutes blockchain usage as an unbiased mechanism (Odeyemi et al., 2024) because system governance control affects acceptance and trustworthiness capacity in higher education environments.

Academic fraud activity continues to be problematic because researchers found artificial intelligence plagiarism detection features effective while acknowledging their current boundaries in combating other academic fraud schemes. Several studies by Kang and the work of both Bello, Idemudia, & Iyelolu (2024) confirm that AI excels at plagiarism detection but faces difficulties when attempting to stop ghostwriting and contract cheating. This investigation discloses important findings because it demonstrates students favor automated fraud prevention yet faculty express caution about system dependencies. Research by Bennett (2024) demonstrates how artificial intelligence functions best when combined with human examination to perform complete fraud identification.

The survey revealed divergent expectations about blockchain adoption in academia mainly between students and younger faculty members who were more favorable than administrators toward its feasibility. Other researchers such as Al Wahaibi & Jose (2019) alongside Tang (2021) have already reported that decision-makers display restrained approaches toward blockchain adoption. The fundamental causes behind skepticism are not only technology unfamiliarity according to existing studies yet this research also points out two new elements: regulatory ambiguity and preparedness of Nigerian infrastructure. While highlighting the significance of tailoring blockchain implementation plans to the specific infrastructural capacities of areas, the data also supports Mohan's (2019) assertion that policy framework structures are essential for blockchain adoption.

Strategic actions must be deployed to help Nigerian universities implement AI and blockchain systems properly. Participants recognized that digital competency programs and faculty instructions and policy adjustments would enable proper blockchain deployment. The proposed recommendations match the findings from literature most notably Mohan (2019) and Nwozor (2025) who highlight the importance of combined work between educational institutions and technology developers and government bodies. This research diverges from previous generic implementation studies because it demonstrates the necessity of developing customized solutions to address the financial limitations together with infrastructural obstacles as well as regulatory constraints faced by Nigerian university institutions. This supports the claim put forth by Tripathi & Thakar (2024) that the use of technology in the classroom ought to be flexible rather than uniform.

6. Conclusion

Research shows academia experiences conflicting interactions between the real advantages and obstacles linked to adopting AI and blockchain systems. New technological methods provide substantial capabilities to fight academic fraud through advanced verification methods and protected data systems and live system monitoring. Blockchain authentication solutions and AI-based plagiarism detection enhance academic integrity by offering transparent, validated academic records. These technologies maintain scalability to address document forgery and academic record unauthorized alteration as well as contract cheating through sustainable solutions.

AI along with blockchain technologies face multiple implementation barriers when industries seek to use them in educational settings. Privacy concerns persist as a fundamental issue due to the exploration of substantial academic databases which produces legal and ethical problems regarding student rights alongside data protection measures. The implementation of these technologies meets financial obstacles since organizations need to invest a lot in infrastructure while providing training and continuous maintenance procedures. Stakeholders who include educators along with students and policymakers have the ability to create delays because they show either reservations or a lack of skill regarding AI technology integration. Security protocols and regulatory frameworks must be established because blockchain and AI risks include such things as fake content generation and system weaknesses.

A complete solution for using AI and blockchain together to fight academic fraud needs the collaboration of different entities. To succeed AI deployment and blockchain adoption in academic fraud prevention requires solutions for ethical issues and stakeholder participation and robust institutional commitment systems. Standards-based policies together with best practices need joint development from policymakers and educational institutions alongside technology developers to ensure proper deployment of these technologies. Public education initiatives should be combined with trainer programs to increase both student and teacher understanding of blockchain systems and encourage its smoother implementation.

The future of academic integrity will continue to be shaped by developments in blockchain and artificial intelligence. Deep learning and natural language processing are two examples of emerging AI approaches that can improve fraud detection procedures and make them more accurate and flexible. The dependability of academic qualifications may also be improved by blockchain innovations like smart contracts and decentralized identity verification. In order to scale these solutions internationally and guarantee their smooth incorporation into current educational frameworks, cooperation between academic institutions, technological companies, and governmental organizations will be essential.

In the end, preemptive steps to minimize obstacles and maximize their application will determine how AI and blockchain affect academic integrity in the long run. Universities in Nigeria and around the world must maintain data security and ethical standards while keeping up with technological changes. In order to assess the practical efficacy of these technologies and make sure they are long-lasting instruments for preserving academic credibility, future research should concentrate on comparative assessments and long-term case studies

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Appendix

Survey Instrument on the Role of AI and Blockchain in Combating Academic Fraud [SITRABICAF]

Section A: Demographic Information

1. What is your position or role in the academic institution?

- Student ☐
- Faculty member ☐
- Blockchain or AI developer ☐
- University administrator ☐
- Other roles (name them): _____

2. Which university are you affiliated with?

- University of Ibadan ☐
- University of Abuja ☐
- Other Placement (name it):_____

3. To what extent do you have knowledge of Artificial Intelligence and of Blockchain?

- ☐ highly knowledgeable
- ☐ relatively knowledgeable
- ☐ no opinion
- ☐ somewhat knowledgeable
- ☐ not knowledgeable

Section B: Perception of Academic Fraud and Technological Interventions

4. To what extent do you consider that cheating is prevalent among Nigerian higher institutions?

- ☐ Very serious ☐ Somewhat serious
- ☐ Neutral
- ☐ Not very serious
- ☐ Not serious at all

5. Which of the academic frauds do you think are most common? (Choose all that applies)

- ☐ Plagiarism/ stolen intellectual property
- ☐ Dishonest practices in examinations and assessments
- ☐ Falsification of certificates and credentials
- ☐ Contract cheating
- ☐ Data falsification in research
- ☐ Others: _____

6. Can you assume that AI has the potential to identify and prevent cases of cheating?

- ☐ I strongly agree with the statement
- ☐ I do not agree with the statement

7. In your opinion, would you say that blockchain has the potential in promoting academic integrity?

- ☐ Yes
- ☐ No

Section C: Effectiveness and Feasibility of AI and Blockchain in Academia

8. Which of the AI applications mentioned below can you consider as the most efficient in preventing academic fraud? High stakes cheating includes:

- ☐ AI plagiarism checker
- ☐ Proctoring Exam takers using artificial intelligence
- ☐ AI-assisted veracity checks when it comes to research
- ☐ Machine learning to identify fake degrees
- ☐ Other ones (please specify) _____

9. How plausible do you consider it for the blockchain in recording and authentication of academic documents and certificates?

- ☐ Highly plausible

- ☐ Moderately plausible
- ☐ Neither plausible nor implausible
- ☐ Implausible
- ☐ Not implausible at all

10. What are the issues that can be expected to arise when it comes to applying or integrating the concepts of AI and blockchain into academic integrity?

- High implementation costs ☐
- Lack of technical expertise from the clients ☐
- Resistance from the stakeholders ☐
- Privacy and data security concerns ☐
- Slow adoption of technology in universities ☐
- Others (please specify) _____

Section D: Open-Ended Questions (Qualitative Insights)

11. In your opinion, what should be the best practices of AI and Blockchain in Nigerian universities to prevent the malpractice? _____

_____

_____

12. Specifically, what issues, if any, do you have with regards to the managing of both AI and the tracking of such technologies in an academic environment? _____

_____

_____

13. Do you have any other experience or observation that you think that technology could help in eradicating/controlling academic fraud? _____

_____

_____

14. What specific strategies would you suggest for the implementation of, and ways to guard the promotion and usage of both AI and blockchain for preventing fake academic work? _____

_____

_____