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Rethinking Human Responsibility and Accountability in AI-Driven Decision–Making: Implications for Girl Child Education in Nigerian Secondary Schools

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ABSTRACT: Developments for the good of mankind are ever welcomed in any sphere of life, and the education sector is not left out. Educational technology has led to the emergence of Artificial Intelligence (AI), which is undoubtedly beneficial for research, teaching, and learning. Still, it must be well applied to benefit all users, especially the girl child. The integration of AI in education presents opportunities and challenges for girls' education in Nigeria, where access to quality education remains a significant concern. This concern should be put on the front burner whenever AI education policies, especially those related to the equalisation of education, are being developed. This study investigates how AI-driven decision-making systems affect girls' education, focusing on accountability gaps and responsibility challenges in secondary schools. The study discussed AI's role in perpetuating biases and reinforcing stereotypes, and it also proposed solutions to address these issues. Key concerns, such as accountability and responsibility, are identified, and frameworks for the responsible deployment of AI are proposed. The study emphasises collaboration among education stakeholders to address issues raised and promote equitable education, and offers policy decisions to bridge accountability gaps in AI usage. Recommendations such as providing teachers with AI literacy training to recognise biases affecting the girl child in AI-driven decision-making, paying attention to gender parity, and adopting transparent AI, among others.

KEYWORDS: Rethinking, Human Responsibility, Rethinking Human Responsibility, Accountability, AI-Driven Decision-Making, Girl Child Education

1. INTRODUCTION

Education is largely considered the main force that drives social and economic development, and making sure that girl child has equal access to secondary school education is very important. In Nigeria, however, girl child suffers from significant obstacles in getting a full secondary education- these include cultural beliefs, poverty, child marriage, sexual harassment, and violence Akporehe and Uviovo (2023). Educating girls through secondary school is a personal opportunity that also benefits society as a whole by reducing child marriage and providing future generations with better health (International Institute for Capacity Building in Africa, 2022). The process of educational systems in Nigeria being strengthened is ongoing, while at the same time the digital technology's increasing integration into teaching, assessments, and administrative processes is a source of both promise and risk (Ogheneakoke, Benike & Obro, 2018, Uwaifo, Osah, & Obro, 2025). The rise of AI in these areas presents new possibilities- customized learning paths, data-based assignment decisions, and forecasting evaluations-but at the same time, it poses responsibility and accountability issues that are of concern to girl child. AI-assisted decision-making denotes the application of artificial intelligence systems that allow for making recommendations and decisions that directly impact educational output for an individual- this includes machine learning models, rule-based engines, or hybrid systems. These systems study the past or present data to either guess or suggest students' placements, grades, behaviour interventions, or personalised learning trajectories. While such tools promise to improve the efficiency of schools and customise learning, they could also reinforce the existing inequalities, gender stereotype particularly when gender biases are present in the training data or system design and this calls for rethinking the use of AI in education as indicated by the study of García-Ull and Melero-Lázaro (2023).

A major difficulty is that most AI systems are doing their work in a "black box" manner, which means that the thinking of such systems is not easily visible to the students, teachers, or parents. This lack of transparency increases the necessity of human responsibility and accountability in any AI-influenced educational decision. The study by Atwal and Khan (2025), conducted with 100 respondents, indicated that female students expressed disbelief in AI's decision-making capabilities, as they expressed greater concern about reduced human interaction, reliability, and accuracy, even though experience and exposure play a significant role.

The study on "gender perceptions of generative AI in higher education" by the White Rose University Consortium (2024) highlighted the need for gender-specific considerations in the design and implementation of AI-supported learning and teaching practices when using generative AI, as it can affect students' educational experiences differently. Significant governance structures—such as recording the steps of decision-making and assigning the right people, controls, and liability—are needed to manage the issues that might arise from automated decisions. Indeed, international policy measures emphasise that human oversight, auditability, and accountability are essential to trustworthy AI systems (UNESCO, 2021). The governance and ethical aspects of AI in education are a matter of concern at many levels. Along with regulatory governments, there are already frameworks in place, such as the Artificial Intelligence Act of the European Union, that ask for "high-risk" AI systems that affect access to education to be created with the qualities of being transparent, having human supervision, and being well-documented (European Commission, 2025). Schools and ministries need to implement appropriate procurement policies, ensure that teachers are aware of the strengths and limitations of AI systems, and conduct gender-sensitive impact assessments. In Nigeria, where social and gender imbalances in education remain a significant problem, these actions are necessary; without them, AI implementation might lead to the reassertion of the technical barriers limiting girls' access to secondary education rather than to their removal.

LITERATURE REVIEW

MEANING OF AI

AI is the acronym for artificial intelligence. Artificial intelligence (AI) is a set of technologies that use computers to perform tasks that human intelligence can do, such as understanding language, making decisions, analysing data, and more, thereby providing helpful suggestions in educational development. It is a branch of computer science that enables machines to make rational decisions, as humans do. AI techniques used in education include. Machine learning algorithms, deep learning, supervised and unsupervised learning, and AI technologies include chatbots, robots, image and speech recognition, and more. The role of AI techniques is to make student placements, assessments, and effective learning, such as adaptive learning and interventions, easier for teachers and administrators. AI platforms such as chatbots, virtual reality (VR), and augmented reality (AR) can enhance learning by offering interactive experiences that are rewarding for learners. AI techniques can help teachers in various ways, such as in data-driven work, instruction (e.g., analysing course materials), creating learning plans, and learning (e.g., uncovering learning shortcomings and applying intelligent, adaptive interventions).

AI USAGE IN EDUCATION

There are diverse AI-powered educational tools, which include adaptive learning platforms, virtual tutors, chatbots, and intelligent tutoring systems, that have the potential to significantly transform learning experiences for girls, particularly in underserved and geographically remote communities where access to qualified teachers and learning materials may be limited. As noted by Sharma (2024), these tools expand access to personalised instruction, while Chen and colleagues (2020) demonstrate their effectiveness in improving learning outcomes. Other scholars have also emphasised this trend, including Harry (2023) and Lin et al. (2023), who highlight the value of AI in supporting students in resource-constrained environments. These systems personalise learning by adjusting content difficulty, pacing, and instructional strategies according to learners' progress. Consequently, girls can learn at their own pace, revisit challenging concepts, and receive individualised support, which builds comprehension and academic confidence. In addition, AI-driven systems generate immediate feedback on assignments and assessments, enabling learners to detect errors and misconceptions quickly. Such real-time feedback promotes continuous learning and encourages student autonomy, as highlighted by Sharma (2024) and reinforced by Harry (2023). This benefit is particularly significant for girls whose schooling may be disrupted by household responsibilities or socio-economic pressures.

By enabling flexible, self-directed learning, AI fosters digital literacy and independent study skills that are essential for future educational and career development. Adewale et al. (2024) noted that teachers perceived AI as an analytics tool that helps track student engagement, performance trends, and progress over time. This capacity for data-driven monitoring helps educators identify at-risk learners early. For instance, Albahli (2025) reports that AI-assisted early-warning systems help prevent dropout, while Alotaibi (2024) underscores their role in addressing learning difficulties before they escalate. These kinds of insights are essential for helping girls who may be under pressure to get married young, do housework, or meet social and cultural expectations that could get in the way of their education.

Furthermore, AI technologies enhance inclusive education by tailoring learning materials to different linguistic, cultural, and cognitive needs. This adaptability aligns with the broader body of research, including Chen et al. (2020) and Lin et al. (2023), which affirms that AI reduces the limitations of uniform instructional models and fosters greater participation among diverse learners. Through improved engagement and customised support, AI systems can strengthen retention, elevate academic achievement, and enhance long-term educational success for girls in secondary schools. In essence, responsibly implemented AI technologies offer powerful opportunities to reduce learning disparities, sustain educational participation, and empower the girl child academically.

However, these benefits can only be realised when equitable access, ethical design, and continuous teacher oversight are prioritised, ensuring that AI systems promote educational inclusion rather than reinforce gender-based inequalities.

CONCEPT OF HUMAN RESPONSIBILITY AND ACCOUNTABILITY IN AI-DRIVEN DECISION–MAKING

This refers to taking responsibility for or bearing the burden of AI outputs or decisions, as well as to transparency in providing an answer to the AI outcome. The developers bear the burden in AI decisions. The integration of Artificial Intelligence (AI) systems into educational decision-making has raised numerous concerns about human responsibility and accountability, prioritising fairness, transparency and wellbeing, and who is to be held liable for the outcomes generated by AI. One of the main issues is AI's lack of transparency. For instance, machine learning models, intense learning models, are ensembled algorithms that are "black boxes" and even their developers find it hard to interpret the outputs they produce (Doshi-Velez & Kim, 2017). The lack of clear explanations makes it nearly impossible to determine whether the AI-decided actions are fair, accurate, or unbiased, thus reducing the potential for human oversight and accountability (Raji et al., 2020).

IMPLICATIONS OF HUMAN RESPONSIBILITY AND ACCOUNTABILITY IN AI

The use of Artificial Intelligence (AI) in education poses numerous legal and ethical dilemmas that are difficult to resolve, particularly when automated decisions directly affect students' learning opportunities, access, and academic performance. Human responsibility in AI-based processes depends on compliance with both stringent legal and ethical standards to prevent harm and promote fairness. The authors Díaz Rodríguez et al. (2023) argue that even if AI systems are gaining more autonomy, they still do not possess the ability to distinguish right from wrong or the legal rights needed to take responsibility. Likewise, Redrup Hill et al. (2023) point out that the accountability for AI decisions should always be on the human side- developers, implementers, and users, while Naik et al. (2022) report that AI's present limitations do not allow for full moral or legal accountability.

The twin issues of responsibility and accountability raise the question of liability from a legal perspective. It is known that legal systems often struggle to assign liability when AI inadvertently results in harmful or unjust outcomes, particularly in cases involving non-transparent algorithms or self-governing decision-makers (Díaz Rodríguez et al., 2023). Santoni de Sio and Mecacci (2021) alluded to the "responsibility gap," the situation in which it is impossible to determine who should be held liable for the mistakes AI systems commit. Al-Dulaimi & Mohammed (2025) advocated for clearer liability allocation models and more robust oversight structures to bridge existing gaps. This liability will make AI developers provide transparent data. Tatipamula (2025) and Lepri et al. (2021) espoused the European Union's risk-based legislation that emphasises the human factor, openness, and understandability, thereby guaranteeing that AI applications will always remain under the control of democracy and the law. The use of artificial intelligence in the education sector, on an ethical basis, adds more layers of responsibility.

The authors Naik et al. (2022) emphasise that, in cases where significant educational harm could result from errors or misclassifications, humans should have meaningful control over AI systems. It is thus necessary to ensure transparency, explainability, and fairness (Lepri et al., 2021). The most significant ethical issue is bias and discrimination. AI systems cannot only replicate but also exacerbate existing inequalities, provided the data on which they are based is tainted or incomplete. A combination of methods, such as regular audits, including diverse teams for development, and the application of representative datasets, has been suggested by researchers as a way to minimise these risks (Naik et al., 2022; Redrup Hill et al., 2023). Questions regarding the fairness of AI systems are relevant, but so is the issue of moral responsibility. According to Santoni de Sio and Mecacci (2021), while AI systems are becoming more sophisticated, moral responsibility cannot be entirely ascribed to machines. Supporting this argument, Díaz Rodríguez et al. (2023) contend that throughout the life cycle of AI technologies, from design and deployment to use, humans must be held accountable, thereby reiterating the principle that responsibility ultimately lies with people rather than with autonomous systems.

Real-world experiences with AI deployment in education and related sectors offer critical insights into the ethical challenges and practical strategies for responsible implementation. These cases demonstrate how AI can both support and undermine educational equity, offering valuable lessons for enhancing human responsibility- particularly in contexts affecting the girl child in Nigerian secondary schools. One of the most significant issues emerging from the use of AI in education is the ethical dilemma that arises when automated decision-making fails to account for individual backgrounds or socio-cultural realities sufficiently. Automated grading systems, predictive analytics tools, and student placement algorithms often rely on historical datasets that contain embedded inequities. Holstein et al. (2019) observe that AI systems can misinterpret the performance of learners from marginalised or disadvantaged backgrounds, potentially misclassifying them as "low potential. In practice, this means that a girl facing socio-economic barriers might be assigned fewer academic opportunities or excluded from advanced classes based on algorithmic conclusions divorced from contextual realities. These dilemmas underscore an essential principle: AI-generated outputs must never replace human judgment; instead, they must be subject to careful review and context-sensitive interpretation.

CHALLENGES OF AI USE IN GIRL CHILD EDUCATION IN NIGERIA

In the context of Nigerian secondary education, where the girl child already suffers from systematic disadvantages in accessing quality education, AI responsibility and accountability could reinforce the bias. Responsibility and accountability are burdened by bias and discrimination in AI systems, which is worrisome. AI algorithms usually mirror the historical or societal biases that were present in the data on which they were trained. For instance, research has shown that AI systems in hiring, law enforcement, or credit scoring caused racial or gender inequities similar to those in the human population (Buolamwini & Gebru, 2018; ProPublica, 2016). The same situation applies to academia, where AI-powered tools are used to assess or select students; thus, there would be a gender bias against girls, and the underlying problem of unequal access and performance would only be exacerbated (UNESCO, 2021). One possible scenario is that, in predictive models that prioritise historically higher-performing students, girls could be inadvertently excluded from access to interventions, scholarships, or more advanced courses. The education of the girl child has high stakes, where an incorrect or distorted forecast may result in the learner being deprived of the future they rightfully deserve; hence, someone should be accountable for their actions.

Documented instances of algorithmic bias further illustrate the dangers of deploying AI systems without transparency and accountability measures. A landmark study by Buolamwini and Gebru (2018) demonstrated that widely used commercial facial recognition systems exhibited significantly higher error rates for women and individuals with darker skin tones. Their work highlighted the structural limitations of non-representative training data and inadequate oversight. Similarly, investigative reporting by ProPublica (2016) revealed how a widely used predictive policing algorithm in the United States disproportionately flagged Black defendants as high risk, despite no corresponding increase in actual reoffending. Although these examples originate in sectors outside education, the implications are directly relevant. If AI tools used for educational assessment or resource allocation are trained on biased data, they could inadvertently perpetuate gender disparities, affecting girls' academic trajectories, perceptions of ability, and future opportunities.

Another difficulty facing education is the limited understanding of AI decision-making among teachers, administrators, and policymakers. Techno-literacy is lacking among educational personnel, especially those with the basic skills to interpret model outputs, evaluate risks, and act when AI recommendations conflict with ethical or policy considerations (Holstein et al., 2019). This knowledge gap would lead to ineffective human supervision in AI use. Worse still, developers could rely entirely on AI decisions, thereby compromising accountability and ethical responsibility. UNESCO (2020) cited a case, "I'd blush if I could: closing gender divides in digital skills through education," from 2019, that reported digital bias in voice assistants such as Amazon's Alex and Apple's Siri, which are given female voices. The aforementioned challenges - transparency issues, bias buried in the system, and limited understanding - underline the urgent need for strong governance, ethical standards, and human oversight in the use of AI in education. While dealing with these problems, it is essential to make sure that the AI does not worsen the situation of the already disadvantaged groups in the Nigerian secondary school girls' case.

STRATEGIES FOR ENHANCING HUMAN RESPONSIBILITY AND ACCOUNTABILITY IN AI

It is very important to strengthen human accountability in AI decision-making, particularly in the educational sector, to reduce risks associated with AI decisions. This is especially vital in such places as Nigerian secondary schools, where the most disadvantaged people, that is, the girl child, might suffer unintended harm unless AI systems are developed or used under appropriate supervision. Several actions need to be taken to make AI for learning, equity and ethical governance by strengthening accountability, transparency and inclusivity. One strategy for building responsibility in AI is to explain how it works clearly. Open AI systems trace every move, that is, where the data comes from, the structure of the algorithm and the way the decision is made, allowing the stakeholders to see how the AI recommendations are made, and even form and give their own judgement about it. XAI methods, in which the teacher and other school staff use analysis tools that work with any model and visual dashboards, assist teachers and administrators in investigating AI outputs and criticising or even rejecting unsuitable or biased ones. Doshi-Velez and Kim (2017) state that explainability is a prerequisite for ensuring that human reviewers of decisions are critical, while Raji et al. (2020) highlight the role of interpretability in avoiding adverse effects. In the school context, such measures help ensure that AI will not magnify ingrained gender biases nor reduce the chances for girls.

It is equally important to promote diversity and inclusivity in AI development. Varsha (2023). revealed that teams with diverse membership can more easily find and reduce the biases that are likely to be present in the algorithmic systems. Buolamwini and Gebru (2018) argue that the lack of ethnic and gender diversity among AI developers is a significant factor in the creation of biased algorithms, especially those that are negative toward the underrepresented groups. One way to ensure fair data-driven predictions or classifications is by using a variety of student groups, such as girls in Nigerian secondary schools, when creating datasets. The involvement of teachers, social scientists, gender advocates, and local community representatives in the development of AI systems ensures that the technology fits the realities and needs of all students.

Another important strategy is establishing clear ethical guidelines for AI use. Ethical frameworks serve as institutional guardrails, promoting accountability across design, deployment, and implementation stages. Scholars such as Cath et al. (2018) have

emphasised the need for sector-specific protocols that classify AI systems by risk, ensure robust human oversight, and mandate pre-deployment impact assessments. Similarly, UNESCO (2021) calls for ethical principles such as fairness, transparency, and human-centeredness to be embedded in all educational AI systems. These guidelines should be complemented by teacher training on AI literacy, continuous performance monitoring, and precise mechanisms for reporting and redressing harm. Embedding such safeguards into institutional practice ensures that AI complements human judgment rather than replacing it, thereby supporting responsible and equitable decision-making.

Continuous monitoring and evaluation are also vital components of human responsibility in AI governance. Ongoing assessments help identify system drift, emergent biases, or unintended consequences that may not be apparent at deployment. As Holstein et al. (2019) note, feedback loops involving teachers and students, periodic audits, and ethical benchmarking are essential for maintaining responsible AI over time. In Nigerian secondary schools, such monitoring ensures that AI supports learning equity rather than undermining it, and aligns with national and international ethical standards. Central to these strategies is maintaining meaningful human oversight through Human-in-the-Loop (HITL) approaches. HITL systems ensure that humans review, contextualise, and, when necessary, override AI recommendations, especially in high-stakes environments. Scholars argue that meaningful human control helps close responsibility gaps and prevents unchecked automation that can lead to harmful outcomes in sectors such as healthcare, criminal justice, and education. By embedding humans in critical decision loops, responsibility remains traceable and ethically grounded.

Transparency, explainability, and data provenance further strengthen accountability. Implementing reason-giving AI systems enables humans to understand, justify, or contest algorithmic decisions—an essential component of both moral and legal responsibility. Maintaining clear data provenance, which involves documenting how data were sourced, processed, and used, helps identify and correct sources of bias, supporting both transparency and fairness. Regulatory and ethical frameworks also play a central role. Comprehensive regulatory models, such as risk-based regulation, regulatory sandboxes, and mandatory auditing, create structured environments in which AI systems can be tested safely before full deployment. These approaches, supported by scholars and policy institutions alike, ensure alignment between AI systems, societal values, and legal requirements. Ethical AI governance structures such as impact assessments and ongoing oversight committees further reinforce the principle that AI development should be accountable, inclusive, and aligned with the public good.

Finally, fostering an organisational culture of responsibility is essential. Encouraging values such as care, maintenance, and collective ownership within institutions cultivates shared accountability for ethical use of AI. Studies have shown that such internal cultures motivate developers, policymakers, and educators to take proactive roles in identifying potential risks and ensuring responsible innovation. Multi-stakeholder collaboration, including engagement with policymakers, civil society, parents, and students, creates inclusive governance spaces that strengthen adaptability and trust in AI systems. Complementing this, continuous education and AI literacy training equip stakeholders with the knowledge needed to recognise ethical challenges and make informed decisions about AI use. UNESCO (2021) further emphasises the importance of capacity-building and training programmes, which, in turn, would ensure that human stakeholders operate effectively within AI systems and can address potential wrongdoings.

EXAMPLES OF ORCHESTRATED EFFORTS TO ENHANCE AI DECISION-MAKING THAT COULD BE REPLICATED TO ENHANCE GIRL CHILD EDUCATION in Nigeria.

Despite these challenges, there are documented examples of responsible AI governance that provide constructive models. Several school systems in Europe and the United States have begun adopting “human-in-the-loop” frameworks in which teachers retain final decision-making authority over AI-generated recommendations. As Raji and colleagues (2020) emphasise, integrating human oversight into automated systems enhances fairness by ensuring that algorithmic outputs remain open to scrutiny and contextual interpretation. Global policy bodies echo this position; UNESCO’s recommendation on the Ethics of Artificial Intelligence (2021) advocates for transparent, auditable, and accountable AI systems supported by impact assessments, teacher training, and mechanisms that allow stakeholders to challenge or seek redress for harmful decisions. These examples demonstrate that responsible AI governance is both feasible and beneficial when grounded in deliberate ethical safeguards.

In Nigerian secondary schools, emerging research suggests that AI technologies have significant potential to improve learning outcomes, especially in under-resourced environments. The UNESCO-IICBA (2022) report highlights how AI-powered tutoring platforms, adaptive learning tools, and data-driven teaching supports can help bridge gaps in instructional quality. However, these benefits come with substantive risks. Without explicit protections for equity, AI interventions may further marginalise girls who already face cultural, economic, and infrastructural barriers to education. A recent assessment by the African Centre for Leadership, Strategy and Development (2025) warns that gender-blind AI systems risk embedding structural inequalities unless developers and educators intentionally apply gender-sensitive design principles. Ensuring responsible implementation in Nigeria, therefore, requires robust accountability frameworks, context-aware data practices, and consistent human oversight to guarantee that AI supports rather than constrains the educational advancement of the girl child.

SUMMARY

The write-up so far has discussed the growing integration of Artificial Intelligence (AI) into educational systems and the significant challenges it can pose for human responsibility and accountability, particularly in the context of girl-child education in Nigerian secondary schools. While AI offers valuable opportunities for improving learning efficiency, personalisation, and data-driven decision-making, its unchecked use poses serious risks to fairness, equity, and transparency. The study discussed how many AI systems operate in ways that are not clearly understandable to educators, students, or parents. This lack of transparency limits stakeholders' ability to question or verify decisions made by AI-based systems, such as student placement, grading, or behavioural monitoring. As a result, establishing accountability becomes difficult when AI decisions lead to unfavourable outcomes for students, especially female learners who already face educational disadvantages.

Equally discussed is that bias is a major challenge in AI-driven education systems. AI tools often reflect the biases contained in the data used to build them. When such data reflect long-standing gender inequalities, the outcomes produced by AI can unintentionally disadvantage the girl child in areas such as academic assessment, access to educational opportunities, and learning support systems. These biases can reinforce stereotypes, reduce girls' chances of advancement, and widen existing educational gaps between boys and girls.

The study dwelt on a limited understanding of AI systems among teachers and school administrators. Many educators lack adequate training to interpret AI-generated recommendations or evaluate their fairness. This knowledge gap increases the likelihood of blind reliance on AI systems without adequate human judgment, thereby weakening responsibility and ethical oversight in the educational process.

Furthermore, the accountability structures for AI use in education remain weak, as espoused in the study. There are often no clearly defined procedures for determining responsibility when AI systems produce harmful or discriminatory results. This situation creates responsibility gaps in which neither the developers nor the users of the systems are held directly accountable. In educational settings, this lack of accountability undermines trust and poses serious risks to learners, particularly girls. This study has examined the critical intersection of human responsibility, accountability, and AI-driven decision-making in the context of girl-child education in Nigerian secondary schools. As educational systems increasingly adopt AI technologies to support teaching, assessment, and administrative decisions, the potential for both positive impact and unintended harm becomes apparent. While AI offers opportunities for personalised learning, improved efficiency, and data-driven insights, it also raises significant concerns regarding transparency, bias, and ethical governance, particularly for vulnerable groups such as the girl child.

The analysis highlights that human responsibility is indispensable for mitigating the risks associated with AI in education. Lack of transparency, embedded biases in datasets and algorithms, and limited understanding of AI systems among educators and administrators can exacerbate existing gender inequities if not addressed. Ethical and legal frameworks, such as the UNESCO Recommendation on the Ethics of Artificial Intelligence and the EU AI Act, provide guiding principles for accountability, fairness, and human oversight in AI deployment. These frameworks emphasise that responsibility must be clearly assigned to developers, institutions, and end-users to ensure equitable educational outcomes. The study alludes to existing AI governance policies from other countries that could be adapted/adopted for the educational context in Nigeria.

CONCLUSION

It is concluded that AI contribute positively to learning outcomes when used responsibly. When transparency, human oversight, and ethical guidelines are appropriately implemented, AI has the potential to improve access to quality education, provide personalised support, and help teachers identify students who need help. However, these benefits can only be fully realised if accountability mechanisms are strengthened to protect the rights and interests of the girl child.

Strategies to enhance human responsibility—including implementing transparency and explainability, promoting diversity and inclusivity in AI development, establishing clear ethical guidelines, and conducting continuous monitoring are essential for protecting the rights and opportunities of the girl child in Nigerian secondary schools. Case studies from a global perspective demonstrate that when human oversight is embedded into AI systems, potential harms can be mitigated, and the benefits of AI for educational access and personalisation can be realised responsibly.

In conclusion, advancing equitable girl-child education in Nigeria requires a deliberate focus on human responsibility and accountability in AI-driven decision-making. Policymakers, educators, and technology developers must collaborate to ensure AI systems are transparent, inclusive, and ethically governed. Future research should focus on empirically assessing AI's impact on girls' educational outcomes, developing gender-sensitive AI tools, and strengthening teacher capacity to oversee AI implementations effectively. By centring responsibility and accountability in AI governance, Nigerian secondary schools can harness technology to support, rather than hinder, equitable learning opportunities for the girl child.

SUGGESTIONS

Based on the conclusion of this study, the following recommendations are proposed to enhance human responsibility and accountability in AI-driven decision-making, notably to support girl-child education in Nigerian secondary schools:

1. Teachers, school administrators, and policymakers should receive targeted training on AI literacy. This training should focus on understanding AI outputs, recognising potential biases, and ensuring ethical decision-making, with particular attention to promoting gender equity in educational outcomes.
2. AI systems used in schools should be designed and monitored to prevent gender discrimination. Education authorities should implement policies requiring inclusive datasets, gender impact assessments, and routine audits to ensure that AI-driven tools do not inadvertently limit girls' educational opportunities.
3. Schools and education authorities should adopt AI systems that are transparent and explainable. Clear documentation of algorithms, decision criteria, and data sources should be accessible to teachers, students, and parents to enable human oversight and accountability in decisions affecting student learning outcomes.
4. Educational institutions should implement clear ethical frameworks for AI deployment. This includes processes for human review of AI decisions, monitoring system performance, and establishing mechanisms for redress when students are negatively affected by AI outputs.
5. Regular evaluation of AI systems should be carried out to identify unintended consequences, biases, or disparities. Feedback from teachers, students, and parents should be incorporated into system updates to ensure ongoing alignment with educational equity goals and protection of the girl child.
6. Collaboration between government agencies, technology developers, educators, and civil society organisations is crucial for effective governance of AI in education. Partnerships can help ensure ethical practices, accountability, and equitable learning opportunities for all students, particularly girls.

DISCLOSURE

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