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Stakeholder Engagement and Ethical Implementation of Artificial Intelligence in EdTech Startup Projects in Nairobi City County, Kenya

Authors: [1]Alice Njoki Kamau, [2]Stella Karimi Silas and [3]Edwin Juma
[1,2&3]The Catholic University of Eastern Africa - Kenya. **Website:** www.cuea.edu
Correspondence: Alice Njoki Kamau **Email:** kisalinjoki@gmail.com

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Abstract: *The integration of Artificial Intelligence (AI) into educational technologies (EdTech) presents substantial potential for enhancing personalized learning experiences, improving decision-making, problem-solving, and critical thinking in students. However, the ethical implementation of AI in EdTech start-ups within Nairobi County, Kenya, faced significant challenges. This study examined the influence of stakeholder engagement on ethical implementation of AI in EdTech Startup projects in Nairobi City County, Kenya. The Study was guided by Edward Freeman's Stakeholder Theory (1984). A mixed-methods approach using a convergent parallel research design was adopted, targeting 261 participants from various functional roles across EdTech start-ups in Nairobi County. A census approach was used to survey the population, and both quantitative (using Likert-scale questionnaires) and qualitative (via interviews) data were collected. Data analysis involved descriptive and inferential statistics, including correlation and multiple regression analyses. The results revealed significant positive correlations between stakeholder engagement ($r = 0.733$, $p < 0.01$). Regression analysis indicated that stakeholder engagement ($\beta = 0.286$, $p < 0.01$) had stronger predictive power. The findings underscored the importance of effective stakeholder engagement in ensuring the ethical deployment of AI technologies. To improve stakeholder engagement in AI projects within EdTech start-ups, it is essential to enhance the clarity of stakeholder roles by creating and disseminating clear role-specific documentation during onboarding. Establishing accessible communication channels, such as inclusive forums or digital platforms is also essential.*

Key words: *Stakeholder Engagement, Artificial Intelligence, Ethical Implementation, EdTech Startup Projects*

1.1 Study Background

The rise of EdTech startups transformed education by leveraging digital tools to enhance accessibility, engagement, and efficiency (Al-Abdullah & Hassan, 2023). These startups addressed challenges such as infrastructure limitations, teacher shortages, and resource constraints by leveraging solutions like mobile-based learning applications, virtual classrooms, and cloud-based content delivery (West, 2023). Artificial Intelligence (AI)-driven platforms offered personalized education, real-time feedback, and adaptive learning, while gamification, virtual reality, and AI improved engagement and retention (Wang

& Huang, 2020; Kumar, 2024). However, AI adoption in EdTech startups presented ethical challenges such as data privacy, algorithmic bias, transparency, and user autonomy (Akgun & Greenhow, 2022). Without ethical implementation, startups risked losing trust, reducing inclusivity, and violating fundamental rights. Effective project management was essential to navigate these challenges, ensuring strategic planning, stakeholder alignment, risk mitigation, and continuous evaluation (George & Wooden, 2023; Pan & Zhang, 2023). AI-driven EdTech solutions had to be developed responsibly to maximize their benefits while maintaining ethical integrity.

As AI continued to shape EdTech innovations, global trends highlighted the growing importance of structured project management to ensure ethical and responsible AI implementation. Frameworks like the United Nations Educational, Scientific, and Cultural Organization's (UNESCO) AI for Education emphasized integrating ethical AI principles into implementation strategies (Lasaite, 2023). AI-powered EdTech projects involved multiple stakeholders, including students, educators, policymakers, investors, and regulatory bodies (Mohamed, 2023). Without structured engagement, concerns over job displacement, data privacy, and AI bias hindered effective implementation (Neittaanmäki & Lehto, 2024). Successful AI-driven EdTech platforms like Duolingo and Khan Academy leveraged stakeholder collaboration, while Finland's AI-powered learning platforms improved student engagement by 27%, and Singapore's Smart Nation initiative increased academic performance by 31% (Lempinen et al., 2024). In the U.K., Century Tech refined its AI models through stakeholder feedback to align with national curricula and compliance standards.

Africa EdTech startups took advantage of AI to improve education, student performance, and personalize learning processes. In Ghana, another example is a teaching assistant called Kwame for Science, which aided science education through the provision of prompt answers relying on carefully selected sources to formulate answers and previous national examinations (Boateng, 2024). The platform was based on ethical issues and it was also appropriately used in various learning settings as a result of working with educators, policymakers, and learners (Boateng, 2022). Likewise, South Africa had Siyavula that tailored individual learning facilities by constantly communicating with educators (Msomi & Mthethwa, 2024).

Kenya EdTech start-up projects since 2020 experienced a great change as 67 percent of EdTech startups use artificial intelligence solutions (Owuondo, 2023). Nonetheless, the blistering adoption of AI in EdTech start-ups has increased ethical concerns to include data privacy, algorithmic prejudice as well as fair and equal access to AI-powered learning. The Kenyan start-ups worked with the educators, policymakers, students, and parents to make sure that the AI applications supported the national curriculum and handled the problems of education on the local level. M-Shule is a good example where teachers and parents were called to action to personalize learning of students using personalized adaptive learning platform powered by AI (Ndungu & Chepsergeon, 2024). As it received user feedback, M-Shule enhanced student engagement by 24 percent, especially on the learners in underserved regions.

On the other hand, an AI-enabled mobile learning platform, Eneza Education, partnered with schools and the Ministry of Education to fine-tune its AI-based tutoring solutions to align with Kenya Competency Based Curriculum (CBC) (Murungu, 2024). Nonetheless, it was not free of ethical problems like privacy of data, the ineffective and unstable digital infrastructure, and lack of acceptance to technology in conventional learning contexts despite the available potential. In order to address these risks, the company of Eneza Education has reduced the risks by following strict measures of data

protection to assure the correct use of the information of the students and students confidence (Murungu, 2024). Furthermore, to facilitate adoption among teachers, students, and institutions, due to unfamiliarity with digital platforms, the EdTech startups implemented extensive training and awareness programs (Al-Abdullah & Hassan, 2023). M-Shule conducted digital literacy workshops for parents and teachers to ease the transition to AI-driven personalized learning. In the meantime, the Kenya EdTech Alliance, an interdependent effort, assisted in training initiatives to enhance the adoption of AI by educators as well as learners so that there was easy integration and implementation in the education system.

1.2 Statement of the problem

AI in EdTech startups was expected to revolutionize education by personalizing learning, enhancing critical thinking, and supporting data-driven interventions. On paper, the solutions should be able to provide individualized content, differentiate to the personal learning skills, and enable educators with real-time analytics and early warning systems using AI-powered systems. Ethical implementation of AI was to be guided by structured project management practices such as stakeholder engagement. Properly applied, the practice made it clear, just, responsible, and oriented to ethical standards, which protect the rights of learners and positively affect learning outcomes. In spite of this potential, ethical challenges in AI implementation were highly presented in EdTech startups in Nairobi City County. More than 70 percent of such startups did not have official data protection policies, which put users at a risk of losing their privacy (Kipkorir, 2023). Moreover, the discrimination in algorithms cost educational systems the students who had underprivileged learning backgrounds at the expense of those with privileged learning backgrounds (Wambugu & Ochieng, 2023). Little transparency was also practiced, exceptional, 60 percent of the platforms did not reveal how their AI-generated choices were met (Mutuku & Njoroge, 2022). There was insufficient involvement of the stakeholders which aggravated the problem. Such lapses contributed to an inappropriate use of data, inequality, and a lack of confidence in AI instruments. This research was proposed by the necessity to comprehend to what extent the stakeholder engagement impacted the ethical use of the AI in the EdTech startup projects in Nairobi City County. Through this knowledge gap, the study had the objective to provide the responsible integration and implementation of AI in Kenya education context.

1.3 Study objective

The objective of this study was to evaluate the effect of stakeholder engagement on ethical implementation of AI in EdTech startup projects in Nairobi City County, Kenya.

1.4 significance of the study

This research would be beneficial to EdTech start-ups because it may assist them in learning how stakeholder engagement strategy could further assist in the ethical application of solutions based on AI. This involved knowing how to make information in AI-based educational platforms more confidential, fair, and transparent. The government agencies, the Ministry of Education and the Office of the Data Protection Commissioner may also benefit from the research by obtaining empirical evidence of the existing gaps in AI ethics in the EdTech sector in Nairobi. The results of the study may be used to advance policy making, regulatory procedures, and national AI policies with the view of fostering responsible AI adoption in education. The study may help investors, venture capitalists, and the international funding agencies that sponsor AI-powered Education projects understand better about the ethical risks that exist in the EdTech environment of Nairobi City County. The findings may be valuable to academicians,

researchers, universities, and individual practitioners who will be conducting studies on AI ethics, digital learning, and stakeholder engagement.

1.5 Scope and delimitation of the study

The study sought to examine the influence of stakeholder engagement on AI ethical implementation in EdTech start-up projects in Nairobi City County, Kenya. The study concentrated on EdTech start-up projects within Westland Sub- County in Nairobi City County, Kenya. It specifically targeted start-ups, as they represented the most dynamic and rapidly evolving sector in AI-driven education solutions. Westland Sub- County had a high concentration of technology-driven education companies, investors, and government agencies that influence AI adoption in learning. EdTech start-ups from other regions or counties were not studied. The ethical implementation of AI formed the dependent variable and was measured on four indicators: Stakeholder identification, Stakeholder communication, Stakeholder participation in decision making and Stakeholder feedback.

1.6 Conceptual Framework

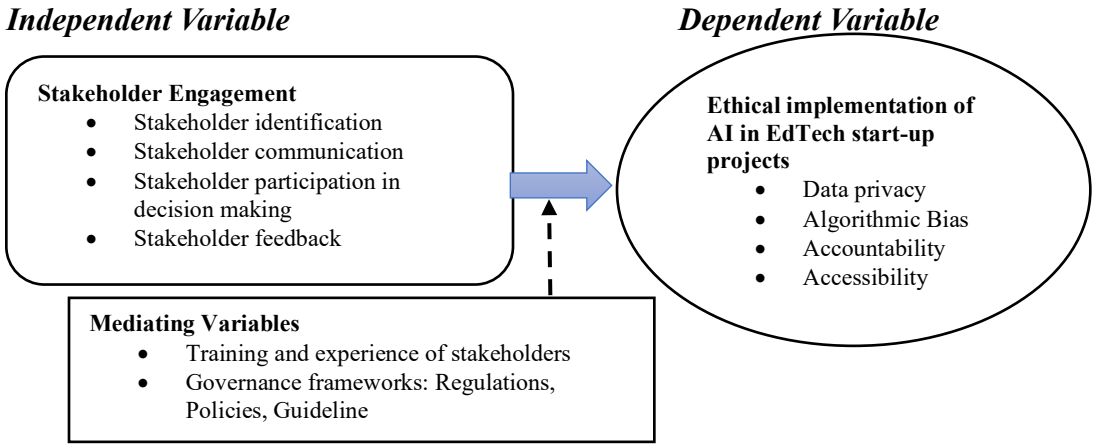

Figure 1: *The Conceptual Framework*
Source: *Own Conceptualization, 2024*

1.7 Literature review

In this section, theoretical and empirical review on stakeholder engagement and implementation of ethical AI in EdTech startup projects are presented.

1.7.1 Theoretical review

This study was guided by the Stakeholder Theory. The theory was proposed by Edward Freeman in 1984, and it stressed on the significance of every category of people or group that might be impacted or could influence the activities of a company. The theory altered the emphasis longer held under the shareholders-centered approach, where profits were the only factors taken into account to a larger and more comprehensive one where the needs and interests of all of the stakeholders were weighed (Freeman, Dmytriyev & Phillips, 2021). In the case of stakeholder engagement and the ethical application of artificial intelligence in EdTech startup projects in Nairobi City County, the theory played a critical role in ensuring that development and implementation of AI-infused educational technology solutions took

into consideration issues concerning various stakeholders including educators, students, parents, developers and policymakers (Mishra, 2024).

The stakeholder involvement was the key to the ethical use of AI in the sphere of education because AI systems might frequently contain bias, be opaque, and lead to unexpected outcomes unless the opinions of all stakeholders were taken into consideration (Alabi, Ubandawaki & Issa, 2025). By subjecting various stakeholders to the process of AI-creation, the organizations before, according to the Stakeholder Theory, would have provided means through which the technology would have been more linked to education ideals, cultural traditions, and ethics (Camilleri, 2024). Such a theory was of specific significance to EdTech startups in the Nairobi County because it was necessary to include local communities, government agencies, and education facilities to resolve issues associated with the algorithmic bias, fairness, data privacy, and inclusivity.

By using Stakeholder Theory in the analysis, it became clear that ethical risks associated with the issue could be avoided through the active communication and involvement of stakeholders in decisions made in relation to AI. To illustrate, developers may have paid attention to the technical efficiency of the AI, whereas educators were more interested in how its technologies contributed to successful learning and were culturally applicable (Kallina & Singh, 2024). The co-design process involved educators and students, and thus, AI systems did not implicitly reproduce any inequalities or create unequal impacts on the student population due to introducing some form of bias. This situation could have opened a gap between the potential AI features and the local educational requirements in Nairobi County since socio-economic diversity like that of the county was high, so it would have been best not to exclude local stakeholders in the design and deployment phases.

In addition, the theory also proposed that there be ongoing feedback systems, which enabled the stakeholders to give feedback during and at the end of the implementation process (Huang & Peissl, 2023). This feedback loop allowed addressing the concerns related to bias, algorithmic and ethical matters proactively. As an example, in the event that both parents and students have expressed issues regarding the privacy of the data, the developers might have redesigned the AI systems by enhancing their data protection potentials. The frequent interaction of the EdTech creators and educational stakeholders meant that AI technologies were continuously enhanced, so the ethical standards were adhered to, and trust was built (Pangark, 2022). The Stakeholder Theory was paramount as EdTech startups in the Nairobi City County should study the interests of all the parties that are influenced with the implementation of AI-driven education, the students, the teachers, the parents, the policymakers and the developers. It offered a system of appreciating how stakeholder engagement would contribute to the implementation of ethical AI due to promoting the collaboration of responsible governance and decision-making. The theory also helped examine ethical risks (violation of data privacy, algorithmic bias, and accessibility gap), the importance of stakeholders in assessing and managing risk. Also, it assisted assessing management practices that encouraged moral policies of AI, adherence to data laws, and openness. Moreover, Stakeholder Theory was used in the evaluation of the monitoring and evaluation (M\&E) frameworks, where the recognition of feedback by the stakeholders is seen as vital in the improvement of AI systems. Incorporating such learning, EdTech startups were able to increase ethical standards, establish trust, and create better educational results.

1.7.2 Empirical Review

Stakeholder engagement and implementation of ethical AI in EdTech startup projects

Clear communication fosters transparency in aligning AI objectives with educational needs. Participation in decision-making allows diverse perspectives, mitigating biases and ethical risks (Luckin & Cukurova, 2023). A structured feedback mechanism enables continuous improvement, addressing concerns promptly. Involving educators, students, developers, and policymakers ensures AI solutions remained ethical, inclusive, and beneficial to all stakeholders (Mielikäinen, 2022).

Stakeholder participation in decision-making was extensively documented in Singapore's EdTech ecosystem. Singaporean startups actively involving educators and school administrators in AI system design and policy formation demonstrated more sustainable and ethically aligned outcomes (Pangarkar & Vandenberg, 2022). When stakeholders participated in key decisions about AI implementation, particularly regarding data privacy and algorithmic fairness, the resulting systems better reflected educational values and cultural sensitivities. Singapore's approach of creating multi-stakeholder advisory boards for EdTech projects became a model for inclusive decision-making in AI implementation (Brief, 2024).

In Germany, stakeholder feedback mechanisms proved instrumental in refining ethical AI implementations in education. German EdTech startups with robust feedback loops, including regular surveys, focus groups, and automated reporting systems, showed greater adaptability in addressing ethical concerns (Renz & Hilbig, 2020). Berlin-based EdTech companies employing systematic collection and analysis of stakeholder feedback achieved more effective identification and mitigation of potential ethical issues in AI systems (Carella & Colombo, 2024). Additionally, German startups implementing real-time feedback mechanisms for teachers and students reported higher rates of successful AI integration and better alignment with educational objectives (George & Wooden, 2023).

In South Africa, stakeholder communication remained vital for ethical AI implementation in EdTech startups. Regular communication channels between EdTech developers and educational institutions significantly improved the alignment of AI solutions with local educational needs (Dahanayake & Muna, 2022). Schools and parents developed higher trust levels when startups maintained transparent communication about their AI algorithms' capabilities and limitations. Clear communication protocols about data privacy and AI decision-making processes resulted in fewer implementation challenges and higher adoption rates among educational institutions (Shilongo, Gaffley, Plantinga, Adams & Olorunju, 2024).

Ethiopia's experience with stakeholder participation in decision-making highlighted the value of inclusive governance structures in EdTech AI implementations. Ethiopian EdTech startups incorporating teachers and school administrators in AI feature development meetings achieved 40% higher adoption rates compared to those with top-down implementation approaches (Liche, 2021). Educational institutions establishing AI steering committees with diverse stakeholder representation better aligned AI tools with local educational needs and cultural values. Parent associations involved in AI policy development helped address critical concerns about data privacy and cultural sensitivity in Ethiopian schools (Munro, Ahmed & Skinner, 2021).

Uganda's implementation of stakeholder feedback mechanisms demonstrated the importance of continuous improvement in ethical AI deployment. Structured feedback systems, including regular surveys and focus group discussions, enabled early identification and resolution of ethical concerns in AI implementation processes (Zziwa, Ilolo, Dawson & Serwadda, 2025). Digital feedback platforms provided valuable insights about AI bias and fairness issues from teachers and students (Atabulwaire, Kahiigi & Plan, 2023). The mechanisms of real-time feedback assisted the Ugandan EdTech firms to improve the ethical AI algorithms to meet the needs of the local educational situation (Abaho, Aguma, Beronda, Nkambwe, Obang & Kituyi, 2024).

In Kirinyaga County, stakeholder communication was found as an important element in the application of ethical AI in EdTech startups. Communication between educational facilities and developers on a regular basis through digital forms and scheduled meetings in a structured manner helped with improving both coordination and faith by a large margin (Ochieng, 2024). Opening communication lines with school administrations also helped EdTech companies to better appreciate the issues regarding AI integration. Also, multilingual communication plans allowed a wider participation of the communities to have a clear picture of the attitudes towards AI technology in education, as they were clear to the parents and teachers (Gikunda, 2023).

The involvement of stakeholders in decision-making had an incredible influence in EdTech ecosystem in Mombasa County. Local EdTech start-ups have adopted participatory models, in which the teachers, the parents and the education officials played their role in formulating the AI policy (Mugambi, 2020). The resulting outcomes using these participatory methods were AI solutions based on the development that became more culturally sensitive, and key educational needs and values were provided by stakeholders. Specifically, community leaders and representatives of educational authorities were crucial in helping to design ethical principles of AI adoption within the context of the local goals of education (Munene & Kinoti, 2020).

Stakeholder feedback mechanisms in Kisumu County proved to be of great value when it comes to the improvement of the education tools instructed by AI. Real-time feedback systems that allowed the constant optimization of the AI algorithm with the necessary speed and satiation of ethical concerns were made possible (Wakwoma, 2024). The digital platforms used in gathering the user experience of both teachers and students generated useful information that could be utilized in enhancing the AI functionality and making them ethically sound (Oteki, 2023). Besides, the existence of well-developed feedback channels between EdTech creators and schools and colleges allowed achieving a quick reaction to new ethical issues and user complaints.

1.8 Research Methodology

Research design: The study used mixed methods research methodology, whereby both quantitative and qualitative research methods were used to provide knowledge on the influence of stakeholder engagement on ethical application of AI in the context of EdTech startups in the state of Westlands sub-county in the Nairobi City County. With the mixed-methods approach, the study had a convergent parallel research design.

Study Area: The research was limited to the fast-developing tech hub of Kenya, Nairobi City County in East Africa, colloquially known as the Silicon Savannah (Odera, 2023; Lolgisoi, 2024). In Nairobi, a

thriving EdTech industry exists, with numerous startups such as Mshule Learning Platform, Kytabu Digital Learning, and Zeneka Education utilizing AI to enhance education. The researchers studied 11 EdTech companies in the Westlands sub-county, where the principals, deputy principals, and Directors of Studies filled the role as the key stakeholders in the suggested management of AI-driven education solutions. Nairobi's socio-economic demographics, coupled with its reputation as a hub for technological innovation, policy development, and research, made it an ideal setting for exploring the ethical issues surrounding the use of AI in EdTech projects. The city's unique infrastructure and regulations also helped demonstrate how startups ethically utilize AI.

Target population: The study's target population was 261 respondents, comprising 209 respondents from the 11 EdTech start-ups in Nairobi County that implemented AI-driven educational technologies, including Mshule Learning Platform, Kytabu Digital Learning, Zeneka Education, Eneza Education, Elimu.ai, FunKe Science, Arifu Digital Learning, Kidato Online School, Zydii Skills Learning Platform, Angaza Education, and Zeraki. Each start-up contributed 19 workers, responsible for the ethical implementation of AI, compliance officers, project managers, machine learning engineers, curriculum developers/instructional designers, cybersecurity experts, user experience & user interface designers, policy and legal advisors, and monitoring & evaluation officers. Besides the key respondents in the quantitative study, some key informants were incorporated into the study to enhance the qualitative aspect of the study. These key informants were the school officers in all 47 secondary schools in Westlands sub-county who were directly involved in ensuring that the implementation of AI technologies on the school level was comprehensively met. Their insights offered a clear view into how AI is being used in schools and the challenges that come with it. Additionally, 5 education officers from relevant education authorities were engaged to offer policy-level perspectives on the ethical regulation, strategic planning, and institutional support surrounding the adoption of AI in the education sector.

Table 1: Target population

Description	Number per organization	Target population
Compliance officer	3	33
Project managers	1	11
Machine learning engineers	2	22
Curriculum developers	4	44
Cybersecurity experts	3	33
User interface designers	1	11
Policy and legal advisors	2	22
Monitoring & evaluation officers.	3	33
Key informants		
Head of secondary schools	1 x 47	47
Education officers		5
Total		261

Source: EdTech start-ups and Education office in Westlands (2025)

Sample size and sampling procedures: The study sample size involved a total of 221 participants, comprising 209 EdTech professionals who participated in the quantitative phase and 12 key informants (10 school heads and 2 education officers) who contributed to the qualitative component. The study adopted a census method to include all EdTech professionals in the study. The census approach was appropriate given the relatively small and manageable population size, allowing for comprehensive data collection from all relevant professionals involved in the ethical implementation of AI in EdTech projects. It ensured no sampling bias and total representativeness. Purposive sampling was used in

identifying 10 school principals and two education officers in government education authorities where the key informants are principals of selected schools. These are key people at the right place to offer profound details on the policy, implementation, and management of the use of AI in education.

Data collection tools: The study employed structured questionnaires with categorical and continuous variables, as well as Likert-scale tools. Structured questionnaires were chosen because they allowed for standardized responses, making data easier to analyze quantitatively (Jackson, 2023). They reduced interviewer bias and ensured consistency across respondents. The Likert-scale tools captured perceptions, attitudes, and opinions with measurable precision, ensuring questions were clear, concise, and unbiased (Taherdoost, 2021). Interviews were also conducted with key informants to get in-depth information on the role of stakeholder engagement.

Data analysis and processing: After the data collection process, the researcher coded the responses and entered the data into the Statistical Package for Social Sciences (SPSS). The dataset was screened for errors such as incomplete responses, missing values, and outliers that might have affected the reliability of results. The errors were cleaned. For missing data, appropriate methods such as mean substitution or multiple imputation were applied. Descriptive and inferential statistics analyses were conducted in SPSS. Measures such as frequencies, percentages, means, and standard deviations were used to summarize responses and describe the characteristics of the background information and the study variables. The inferential statistics, correlation analysis, examined the strength and direction of the relationships between independent variables (stakeholder engagement) and the dependent variable (ethical AI implementation). In addition, responses to open-ended questions were analyzed using thematic analysis.

1.9 Study Findings

Response rate

The study administered a total of 209 questionnaires to participants, out of which 169 were returned fully completed, resulting in a response rate of 81%. This response rate was considered high and could be attributed to the relevance of the study topic to the participants, clear communication of the study's purpose when obtaining informed consent, effective follow-up, and the cooperation of EdTech start-ups management in encouraging participation. On the other hand, the non-response rate of 40(19%) could be due to participants' lack of time, not finding benefit for participation, and fear of being intimidated by the management as well.

Education level

The study analyzed education level attained by the respondents.

Table 2: Education Level

Education level	Frequency	Percent
Diploma	48	28.4
Bachelor's degree	104	61.5
Postgraduate	17	10.1
Total	169	100.0

Source: *Field Data, 2025*

Findings indicate that the majority of respondents (61.5%) hold a Bachelor's degree, suggesting that most employees involved in AI implementation in EdTech start-up projects possess undergraduate-level qualifications, which aligns with typical entry and mid-level requirements in the tech and education sectors. This supports studies such as Jima, Tarekegn & Debelee (2024) which submitted that bachelor's degree holders dominate Nairobi's digital innovation workforce due to the technical and analytical skills required. Respondents with a Diploma took up 28.4%, likely reflecting individuals in support roles or early-career stages, while 10.1% have postgraduate qualifications, representing a smaller group likely involved in strategic planning, research, or project management. This distribution highlights the importance of tertiary education in enabling participation in AI-driven EdTech roles. This was emphasized by Adams & Gaffley (2024) that 70% of AI specialists and developers in Nairobi-based firms had undergraduate qualifications, while 20% had master's degrees.

Involvement in the AI implementation in EdTech projects

The study asked respondents to indicate whether they are directly involved in AI implementation in EdTech projects

Table 3: Involvement in the AI implementation in EdTech projects

Response	Frequency	Percent
YES	145	85.8
NO	24	14.2
Total	169	100.0

Source: *Field Data, 2025*

Results reveal that the majority of respondents (85.8%) are being directly involved in the implementation of AI in EdTech projects. This high level of involvement is expected, given that the study targeted employees from EdTech start-ups that actively utilize AI-driven educational technologies. It reflects the hands-on nature of work in such organizations, where staff, regardless of role, often participate in the deployment, customization, or support of AI solutions (Munga, 2024). Only 14.2% indicated no direct involvement, which may include administrative, finance, or support staff who contribute indirectly to the projects. These findings confirm that the sample is highly relevant for assessing the ethical implementation of AI, as the majority possess first-hand experience and practical insight into the integration of AI technologies within educational platforms. Moreover, in start-ups, roles often overlap with some employees, even those in non-technical departments, may engage in AI implementation through tasks like user testing, training, feedback integration, or content adaptation (Ozor & Nwakaire, 2023).

Descriptive statistics results: Stakeholder engagement

Stakeholder Engagement was operationalized using the following indicators: stakeholder identification, stakeholder communication, stakeholder participation in decision making, and stakeholder feedback.

Table 4: Descriptive statistics results on Stakeholder engagement

Statements	SD	D	M	A	SA	M	SD
The project team effectively identifies all relevant stakeholders in the AI implementation process.	1.2%	1.2%	27.2%	43.8%	26.6%	3.93	.832
Ethical considerations are prioritized when identifying key stakeholders in AI projects.	1.2%	0.6%	20.7%	63.3%	14.2%	3.89	.685
The organization provides timely and transparent updates regarding AI project developments.	0.0%	1.2%	16.6%	67.5%	14.8%	3.96	.601

Stakeholders are actively involved in decision-making processes related to AI integration.	0.0%	0.6%	7.1%	59.2%	33.1%	4.25	.605
The project incorporates stakeholder feedback to improve the ethical use of AI tools.	0.0%	11.2%	17.8%	53.3%	17.8%	3.78	.871
Stakeholder roles are often unclear during the AI project lifecycle.	1.2%	0.6%	30.8%	52.1%	15.4%	3.80	.745
Communication channels used in the project are not easily accessible to all stakeholders.	0.6%	1.2%	23.7%	59.2%	15.4%	3.88	.692
The project rarely considers stakeholder input when making ethical decisions about AI.	0.6%	0.6%	28.4%	55.6%	14.8%	3.83	.696
Stakeholder concerns regarding AI ethics are frequently ignored.	0.6%	11.2%	29.0%	39.6%	19.5%	3.66	.938
Feedback mechanisms are not confidential, discouraging honest responses.	1.2%	0.6%	23.7%	52.7%	21.9%	3.93	.765

Source: *Field data, 2025*

Stakeholder Communication

Timely and transparent communication was highly rated by respondents, with 82.3% indicating that the organization provides updates about AI project developments (Mean = 3.96, SD = 0.601). However, 67.5% of respondents agreed that stakeholder roles are often unclear (Mean = 3.80, SD = 0.745), and 74.6% noted that communication channels are not easily accessible to all stakeholders (Mean = 3.88, SD = 0.692). These results highlight both strengths and areas for improvement. While transparency is commendable, the lack of role clarity and limited accessibility could hinder full stakeholder engagement. These concerns are supported by Miller (2021), who emphasizes that clarity in responsibilities and equitable access to communication tools are essential for fostering ethical and inclusive AI environments. Qualitative responses from key informants corroborated these findings. One respondent noted,

> *"...We send out memos and updates, but I'm not sure if everyone reads or understands them. Also, some parents and students feel left out because they're not on the mailing list or WhatsApp groups..."* (KII_002, Male, 10th June 2025). Another participant added, *"...Communication exists, yes, but sometimes it's top-down. Teachers and students don't always know their specific roles in the AI systems we're using..."* (KII_005, Female, 10th June 2025).

Stakeholder Participation in Decision-Making

Stakeholder involvement in decision-making processes was notably strong, with 92.3% of respondents indicating that stakeholders are actively involved in decisions related to AI integration (Mean = 4.25, SD = 0.605). However, 70.4% reported that stakeholder input is rarely incorporated into ethical decision-making (Mean = 3.83, SD = 0.696), suggesting a disconnect between participation and actual influence. These results are consistent with Miller (2021), who argues that meaningful participation is not just about being present in meetings but about having a tangible impact on decisions, particularly when ethics are involved. Key informants reinforced these concerns. As one observed,

> *"...We attend the meetings, yes, but sometimes decisions are made before the meetings even begin..."* (KII_004, Male, 10th June 2025). Another remarked, *"...Our input is collected, but you can tell the major decisions are coming from above—so we are just there to rubber-stamp..."* (KII_008, Female, 10th June 2025).

Stakeholder Feedback

The results showed that 71.1% of respondents felt their input was used to improve the ethical use of AI tools (Mean = 3.78, SD = 0.871). Conversely, 59.1% reported that stakeholder concerns about AI ethics are frequently ignored (Mean = 3.66, SD = 0.938), and 74.6% noted that feedback mechanisms are not confidential (Mean = 3.93, SD = 0.765). These findings underscore the need for more secure and

responsive feedback systems. As Bharati and Sandbrink (2024) emphasize, ethical AI governance depends heavily on the ability of organizations to listen to, protect, and respond to stakeholder voices, particularly when feedback challenges the status quo.
Key informants echoed these sentiments. One remarked,

> *"...Some staff fear being victimized if they speak openly about AI misuse, so they stay quiet..." (KII_001, Female, 10th June 2025). Another stated, "...There's a box for feedback, but no one knows who reads it or what happens afterward. It's not taken seriously..." (KII_006, Male, 10th June 2025).*

Pearson correlation analysis was employed to examine the strength, direction, and statistical significance of associations between the two continuous variables at a 95% confidence level. specifically, the analysis revealed a strong positive and statistically significant association between stakeholder engagement and ethical implementation of AI in EdTech start-up projects ($r = .733$, $p < 0.01$). This result indicates that increased engagement of stakeholders through such sub-variables; identification, communication, participation, and feedback is associated with better adherence to ethical AI practices. This finding is consistent with Holmes & Porayska-Pomsta (2023), who emphasized the importance of inclusive stakeholder participation in fostering transparent and accountable AI governance. Additionally, Khan, Taherdoost, Madanchian, Ouaissa, El Hajjami, and Rahman (2024). Future Tech Startups and Innovation in the Age of AI. CRC Press opted that the significant association of project stakeholders and AI ethical implementation reinforces the sensitive nature of educational data and the societal implications of algorithmic decisions in learning environments.

On regression coefficients results, the study analyzed predicted and residual weights to construct the model and compare the predictive power of the independent variable respectively on the dependent variable. The Stakeholder Engagement showed a B coefficient of 0.243, indicating that a one-unit increase in stakeholder engagement results in a 0.243-unit increase in ethical AI implementation. This implies that when stakeholders are properly identified, involved, and communicated with, it positively influences ethical outcomes in Ed-startup projects.

Testing the Null Hypothesis (H01): Statement: There is no statistically significant influence of stakeholder engagement on the ethical implementation of AI in EdTech startup projects in Westlands Sub-County, Nairobi, Kenya. The standardized beta coefficient for stakeholder engagement was $\beta = 0.286$, with a p-value = 0.000. This meant that stakeholder engagement provides statistically significant influence on ethical implementation of AI in EdTech startup projects in Westlands Sub-County, Nairobi, Kenya. On Statistical inference at 95% confidence level: The study rejected H01 and accepted the Ha1 based on $p < 0.05$: There is a statistically significant influence of stakeholder engagement on ethical implementation of AI in EdTech startup projects in Westlands Sub-County, Nairobi, Kenya.

1.10 Conclusion

The study concluded that, stakeholder engagement significantly influences the ethical implementation of AI in EdTech projects. While certain gaps were noted in communication clarity and incorporation of feedback, the hypothesis (H01) that there is no statistically significant influence of stakeholder engagement on ethical AI implementation was rejected. Therefore, involving stakeholders meaningfully in the design, governance, and deployment of AI systems contributes positively to ethical outcomes.

1.11 Recommendations

To improve stakeholder engagement in AI projects within EdTech start-ups, it is essential to enhance the clarity of stakeholder roles by creating and disseminating clear role-specific documentation during onboarding. Establishing accessible communication channels, such as inclusive forums or digital platforms, will enable consistent updates and meaningful discussions. The stakeholder input must be integrated into the processes of ethical decision-making by instituting feedback and participatory boards of governance. Policy-wise, participatory AI governance in EdTech also needs to be institutionalized as a required regulatory feature by emphasizing stakeholder participation during the project lifecycle. Procedures that guarantee the confidentiality of stakeholders in lending their ethical concerns without feeling intimidation should be formulated. Also, the EdTech policies must demand a clear reporting of how the feedback of stakeholders affects the design and the implementation of the AI tools. These results theoretically support the stakeholder theory, which shows that ethical results in an AI project are enhanced with the active participation of the stakeholders. They also refute tokenistic approaches and demand the broadening of the stakeholder theory by giving more prominence to marginalized voices and power relations within digital ecosystems.

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