

THE HUMAN-IN-THE-LOOP MODEL: BALANCING AI EFFICIENCY WITH HUMAN JUDGEMENT, EMPATHY, AND OVERSIGHT IN ADMINISTRATIVE DECISION-MAKING

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Abstract

Public secondary schools in Nigeria face significant administrative challenges and limited access to Artificial Intelligence (AI), despite its growing importance in educational management worldwide. This study examined the Human-in-the-Loop (HITL) approach in public secondary schools in Cross River State as a strategy for combining AI efficiency with human judgement, empathy, and oversight in administrative decision-making. A quantitative research design was adopted, with data collected from 361 administrators, comprising 98 principals, 256 vice-principals, and 7 senior administrative staff selected through stratified random sampling. Data were gathered using the Human-in-the-Loop Artificial Intelligence and Administrative Decision-Making Questionnaire (HITL-AIDMQ) and analyzed using descriptive statistics and Pearson correlation at the 0.05 significance level. Findings showed moderate to high use of AI-supported tools for student enrollment, assessment management, staff appraisal, attendance monitoring, and communication. Human judgment and empathy remained essential for interpreting AI-generated outputs and ensuring context-sensitive, ethical decisions. Structured human oversight enhanced fairness, transparency, and accountability in administrative processes. Significant positive relationships existed among AI use, human involvement, oversight mechanisms, and decision-making quality. The study concluded that effective AI integration requires sustained human-centered supervision and recommended strengthening administrators' AI competencies, institutionalizing HITL frameworks, and developing supportive policies to improve efficiency, accountability, and stakeholder trust.

Keywords: Artificial Intelligence, Human-in-the-Loop, Administrative decision-making, Human judgement, Empathy.

Introduction

Artificial Intelligence (AI) is increasingly transforming administrative processes across sectors by improving efficiency, accuracy, and data-driven decision-making. In education, AI-supported systems are being used for student data management, staff appraisal, resource allocation, performance monitoring, and policy implementation (Brynjolfsson & McAfee, 2017; Russell & Norvig, 2021). These developments have introduced new opportunities for enhancing educational administration.

In Nigeria, digital transformation initiatives have encouraged the adoption of e-governance and information management systems in public institutions (NITDA, 2019). Consequently, public secondary schools in Cross River State are increasingly utilizing digital tools for student enrollment, record management, examination processing, and communication. These innovations are intended to promote greater efficiency, accountability, and transparency in school administration.

Despite these benefits, the integration of AI into school administration presents important ethical and managerial challenges. Administrative decisions involving student discipline, teacher evaluation, welfare, and resource allocation require contextual understanding, fairness, and professional judgment. AI systems, while effective at analyzing data, may overlook social and cultural realities or reproduce existing biases contained in historical records (O'Neil, 2016; Eubanks, 2018).

The situation is particularly relevant in Cross River State, where schools operate under diverse socioeconomic conditions. Differences in infrastructure, teacher availability, parental involvement, and learning resources require administrators to exercise empathy, discretion, and culturally sensitive judgment. Decisions based solely on automated systems may fail to address these complexities effectively.

To address these concerns, the Human-in-the-Loop (HITL) approach has emerged as a governance model that combines AI capabilities with human oversight. Under this framework, administrators remain actively involved in reviewing, interpreting, and validating AI-generated recommendations before final decisions are made (Amershi et al., 2014). This ensures that professional judgment, ethical responsibility, and emotional intelligence remain central to educational leadership.

Given the growing adoption of AI in school administration, there is a need to understand how technological efficiency can be balanced with human judgment, empathy, and oversight. Therefore, this study examines the Human-in-the-Loop paradigm in public secondary schools in Cross River State, Nigeria, with the aim of providing evidence on the responsible integration of AI into administrative decision-making and educational governance.

Statement of the Problem

Public secondary schools in Cross River State are increasingly adopting digital and AI-supported administrative systems to improve efficiency, data management, and transparency. While these technologies offer significant benefits, they also raise concerns about accountability, ethical decision-making, and the ability of AI systems to address the diverse social, cultural, and educational realities within schools.

Although AI can enhance administrative efficiency, the absence of structured human oversight may increase the risk of algorithmic bias, reduced transparency, weakened accountability, and declining stakeholders' trust. Conversely, relying solely on human judgment may result in inefficiency, inconsistency, and poor record management. This creates a need for a balanced approach that combines technological efficiency with human discretion and ethical leadership.

Despite growing interest in AI governance, there is limited research on how the Human-in-the-Loop (HITL) paradigm can be applied in public secondary schools in Cross River State. Consequently, this study seeks to examine how AI-supported administrative systems can be integrated with human judgment, empathy, and structured oversight to improve administrative decision-making while ensuring fairness, accountability, and transparency.

Research Objectives

The study examined the Human-in-the-Loop model in balancing Artificial Intelligence efficiency with human judgement, empathy and oversight in administrative decision-making in public secondary schools in Cross River State. Specifically, the objectives are to:

1. Examine the utilisation of AI-supported administrative systems in public secondary schools in Cross River State.
2. Assess the influence of human judgement and empathy on AI-assisted administrative decision-making processes in public secondary schools.
3. Determine the role of structured human oversight mechanisms in ensuring fairness, accountability and transparency in AI-supported administrative decisions in public secondary schools in Cross River State.

Research Questions

The following research questions will guide the study on the Human-in-the-Loop model in balancing Artificial Intelligence efficiency with human judgement, empathy and oversight in administrative decision-making in public secondary schools in Cross River State:

1. How are AI-supported administrative systems utilised in public secondary schools in Cross River State?
2. How do human judgement and empathy influence AI-assisted administrative decision-making processes in public secondary schools?
3. What role do structured human oversight mechanisms play in ensuring fairness, accountability and transparency in AI-supported administrative decisions in public secondary schools in Cross River State?

Research Hypotheses

The following null hypotheses will be tested in the study on the Human-in-the-Loop model in balancing Artificial Intelligence efficiency with human judgement, empathy and oversight in administrative decision-making in public secondary schools in Cross River State:

H₀₁: There is no significant relationship between the utilisation of AI-supported administrative systems and the quality of administrative decision-making in public secondary schools in Cross River State.

H₀₂: Human judgement and empathy have no significant influence on AI-assisted administrative decision-making in public secondary schools in Cross River State.

H₀₃: Structured human oversight mechanisms have no significant effect on fairness, accountability and transparency in AI-supported administrative decisions in public secondary schools in Cross River State.

Review of Related Literature

The Utilisation of AI-Supported Administrative Systems in Public Secondary Schools

The adoption of AI-supported administrative systems in public secondary schools reflects the growing digital transformation of educational administration. Schools are increasingly integrating AI-assisted tools into student information systems, examination management, staff appraisal, and resource allocation processes to improve efficiency, accuracy, and decision-making (Brynjolfsson & McAfee, 2017; Russell & Norvig, 2021). These systems help administrators' process large volumes of data and generate useful insights for school management.

AI-supported systems play a significant role in managing student records, including enrollment, attendance, assessment scores, examination results, and behavioral monitoring. Through predictive analytics, administrators can identify students at risk of poor academic performance or dropout and design timely interventions. By automating routine administrative tasks, AI enables school leaders to focus more on educational leadership and policy implementation.

The technology also supports staff management by monitoring attendance, evaluating performance, and maintaining accurate personnel records. In addition, AI-powered communication platforms facilitate the dissemination of information to teachers, students, and parents through automated notifications and real-time reporting dashboards. These tools improve transparency, communication, and access to information, particularly in geographically dispersed school communities.

Despite these benefits, the adoption of AI in public secondary schools in Cross River State faces challenges such as inadequate infrastructure, unreliable electricity, limited internet access, and low digital literacy, especially in rural areas. Consequently, most AI systems function mainly as decision-support tools rather than autonomous decision-makers, making human involvement essential.

The Human-in-the-Loop (HITL) approach emphasizes the need for administrators to review, interpret, and validate AI-generated outputs before making final decisions. Human judgment, empathy, and understanding of local socio-cultural realities remain necessary for addressing issues related to student welfare, staff management, discipline, and resource allocation. This ensures that decisions are fair, context-sensitive, and ethically sound.

AI-supported administrative systems have the potential to enhance efficiency, record management, and data-driven governance in public secondary schools. However, their effectiveness depends on the integration of human oversight, professional judgment, and ethical considerations. The HITL framework therefore provides a balanced approach that combines technological efficiency with human-centered leadership in educational administration.

Human Judgement and Empathy and AI-Assisted Administrative Decision-Making Processes

Public secondary schools cannot rely on AI-assisted administrative decision-making without human judgement and empathy. O'Neil (2016) and Eubanks (2018) note that AI-supported systems can give analytical insights, predictive outputs, and decision-support features, but they struggle to grasp the complex social, cultural, and ethical aspects that form the basis of school administration. The decisions that administrators and principals in Cross River State must make on a regular basis have an effect on the academic achievement of students, the growth of educators, and the overall well-being of the school community. Decisions like this call for human judgment, moral reasoning, and situational awareness, none of which can be adequately provided by AI systems.

The interpretation of AI-generated outputs relies heavily on human judgement. To illustrate the point, administrators should not just look at test scores when deciding how to help a student who is performing poorly in school; they should also consider the student's socioeconomic status, health problems, and family situations (Brynjolfsson & McAfee, 2017). Likewise, while AI systems can offer quantitative data like attendance and performance reviews, principals still need to use their professional judgement when evaluating teachers based on more subjective criteria like classroom participation, mentoring responsibilities, and cultural contributions (Amershi et al., 2014).

When school administrators make decisions based on empathy, they take into account the human consequences of their policies and initiatives. When making decisions that will have an impact on children, teachers, and parents, administrators who are sympathetic are better able to foresee possible stresses, emotional reactions, and societal repercussions. Algorithmic recommendations can be cold and impersonal, but our human-centered approach softens the blow (Floridi et al., 2018). Decisions made by administrators in Cross River State's public secondary schools must be socially aware and contextually suitable because the state's residents come from a wide range of socioeconomic backgrounds and cultural traditions.

The hallmark of the Human-in-the-Loop paradigm is the interplay between artificial intelligence and human discretion. To guarantee justice, ethical coherence, and contextual relevance, human interpretation is necessary for the outputs produced by AI systems, which can detect patterns, make predictions, and point out outliers (Russell & Norvig, 2021). Ultimately, decisions regarding student discipline, teacher recognition, and resource allocation are guided by human understanding, empathy, and professional discretion, though AI dashboards can help administrators and principals prioritize interventions, track performance trends, and monitor attendance.

According to research (Amershi et al., 2014; Davenport & Ronanki, 2018), decision quality, accountability, and stakeholder confidence can be enhanced by combining human judgement with AI outputs. The administrative outcomes of Cross River State's public secondary schools are heavily impacted by community expectations, cultural norms, and institutional values. In order to interpret data in a way that promotes justice, transparency, and ethical leadership, human judgement and empathy are essential.

The analytical help provided by AI-assisted administrative systems is invaluable, but decisions that are socially responsive, ethically sound, and contextually informed are guaranteed by human judgement and empathy. School administrators in Cross River State are able to successfully manage complicated decision-making processes by combining AI efficiency with human-centered oversight. This allows them to balance data-driven insights with ethical and relational considerations. Having human supervisors in public secondary schools improves the quality and validity of administrative decisions while also reducing the impact of AI's limitations.

Structured Human Oversight Mechanisms and AI-Supported Administrative Decisions

Structured human oversight is essential for ensuring fairness, accountability, and transparency in AI-assisted administrative decision-making in public secondary schools in Cross River State. Although AI systems improve efficiency in tasks such as record management, performance evaluation, and forecasting, they may produce biased or context-insensitive outcomes if left unchecked (O'Neil, 2016; Floridi et al., 2018).

Human oversight enables administrators to review, interpret, and validate AI-generated recommendations before final decisions are made. Principals and school administrators assess AI outputs against school policies, ethical standards, and community values, ensuring that decisions reflect both evidence and contextual realities. This process is particularly important when addressing issues related to student welfare, academic support, and staff management.

Structured oversight also strengthens accountability by ensuring that school leaders remain responsible for decisions influenced by AI systems. Human review procedures prevent excessive reliance on automated recommendations and create opportunities for auditing and evaluating administrative actions. As a result, decision-making processes become more transparent and institutionally accountable.

Another important function of oversight is the detection and correction of potential bias in AI-generated outputs. Given the diverse socioeconomic and cultural backgrounds of students in Cross River State, human administrators play a crucial role in ensuring that decisions are equitable and do not unfairly disadvantage any group. Contextual interpretation helps reduce the risks associated with biased data and algorithmic errors.

Transparency is further enhanced when administrators explain how AI recommendations were considered, modified, or implemented. Open communication with teachers, students, parents, and other stakeholders promotes trust, confidence, and legitimacy in AI-assisted administrative processes. Such transparency helps strengthen stakeholder acceptance of technology-driven decision-making.

Structured oversight supports the continuous improvement of AI systems through feedback and evaluation. By reviewing the effectiveness of AI recommendations and making necessary adjustments, administrators help refine system performance over time. Therefore, the Human-in-the-Loop approach ensures that AI serves as a support tool rather than a replacement for human leadership, thereby promoting fair, accountable, and effective school administration.

Theoretical Framework

Human-in-the-Loop (HITL) Theory

This study's theoretical underpinnings are based on the Human-in-the-Loop (HITL) paradigm, which stresses the need of human oversight, empathy, and judgement in AI-assisted decision-making. According to the HITL model, human intervention is crucial for data interpretation, ethical judgments, and decision contextualization, even though AI systems can improve efficiency, accuracy, and analytical capacity (Amershi et al., 2014; Brynjolfsson & McAfee, 2017).

Amershi et al. (2014) cite systems engineering and human-computer interaction literature as the original sources for the Human-in-the-Loop approach, which was originally intended to keep humans actively involved in controlling automated processes. Student performance dashboards, staff appraisal systems, and predicted attendance tracking are all examples of AI-supported technologies that HITL advises should not be seen as autonomous decision-makers but as decision-support systems. By having human administrators, such as principals and management teams, examine and understand algorithmic results before they are officially implemented, the dangers of bias, contextual insensitivity, and ethical oversights are reduced (Floridi et al., 2018).

Decisions made by administrators at Cross River State's public secondary schools often include weighty moral questions. (O'Neil, 2016; Eubanks, 2018) In addition to analytical precision, decisions concerning student punishment, teacher evaluation, resource distribution, and welfare interventions necessitate empathy, cultural awareness, and moral discernment. To ensure that technology improves decision quality while respecting ethical and socio-cultural imperatives, the HITL framework offers a theoretical lens for understanding how AI can complement, not replace, these human capacities.

There are three interconnected parts to the HITL theory that are important for administrative decision-making:

1. **Human Judgement:** Alludes to the process of assessing the insights produced by AI in a professional and intelligent manner. Making sure judgments are fair and appropriate requires administrators to use reasoning, contextual knowledge, and expertise to validate and understand system outputs (Brynjolfsson & McAfee, 2017).
2. **Empathy:** Shows that you can think about how your decisions will make people feel, including kids, teachers, and parents. The use of empathy in AI development makes it more likely that its results will be ethically sound, culturally appropriate, and socially aware (Floridi et al., 2018).
3. **Oversight:** Contains procedures for organized oversight, confirmation, and responsibility-taking to guarantee equity, openness, and adherence to applicable ethical standards. Errors, bias, or unforeseen effects in administrative decisions can be prevented by oversight, which bridges the gap between technical efficiency and human accountability (Amershi et al., 2014).

The HITL theoretical framework allows us to view AI not as an independent authority but as a tool to assist with administrative decision-making. Humans still have the last say in major school decisions in Cross River State, but AI technologies may help with data-driven insights

like attendance rates, performance trends, and resource utilization rates. This framework lays out the steps to take to optimize decision-making quality, uphold ethical standards, and build trust with stakeholders through the integration of AI with human judgement, empathy, and oversight.

To investigate how public secondary schools might best use AI while still prioritizing human-centered administration, the HITL theoretical framework is an excellent starting point. It provides the rationale for the study's central focus on three dimensions: the use of administrative systems assisted by AI, the impact of human judgement and empathy, and the function of organized monitoring mechanisms. The study's overarching goal is to shed light on how AI can be safely implemented into Cross River State's school administration to improve efficiency without sacrificing equity, transparency, or morality.

Methodology

This study adopted a quantitative approach to examine the Human-in-the-Loop (HITL) paradigm in public secondary schools in Cross River State, Nigeria, focusing on the integration of AI efficiency with human judgment, empathy, and oversight in administrative decision-making. A descriptive survey and correlational research design were employed to assess the extent of AI utilization and examine its relationship with administrative outcomes such as fairness, accountability, and transparency (Creswell & Creswell, 2018). The population comprised 1,202 school administrators, including 325 principals, 854 vice-principals, and 23 senior administrative staff. Using stratified random sampling, 361 respondents were selected, consisting of 98 principals, 256 vice-principals, and 7 senior administrative staff. Stratification was based on administrative roles and school location (urban and rural) to ensure adequate representation. Data were collected using a structured instrument titled Human-in-the-Loop Artificial Intelligence and Administrative Decision-Making Questionnaire (HITL-AIDMQ). The questionnaire contained four sections covering demographic information, AI utilization, human judgment and empathy, and human oversight mechanisms. Responses were measured using a five-point Likert scale and checklists. The instrument was validated by experts in educational administration, research methodology, and AI in education, while reliability was established through a pilot study using Cronbach's alpha coefficient of 0.70 and above. Approval was obtained from relevant educational authorities before data collection. Questionnaires were administered through physical and electronic means, and respondents were assured of confidentiality and voluntary participation. Completed questionnaires were coded and analyzed using SPSS Version 26. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize responses, while Pearson correlation analysis was employed to test the relationships among variables at the 0.05 level of significance. Ethical principles of informed consent, anonymity, confidentiality, and voluntary participation were strictly observed throughout the study.

Results

How are AI-supported administrative systems utilised in public secondary schools in Cross River State?

Table 1: Utilisation of AI-Supported Administrative Systems in Public Secondary Schools in Cross River State

S/N	Items	N	Mean (X)	STD	Decision
1.	AI systems are used for student enrolment and registration	361	4.21	0.72	High utilisation
2.	AI-assisted platforms are used to compile and manage student assessment results	361	4.05	0.81	High utilisation
3.	AI-supported tools are used for monitoring student attendance	361	3.87	0.85	Moderate utilisation
4.	AI-based dashboards are used to track staff performance and appraisal	361	3.64	0.92	Moderate utilisation
5.	AI-supported communication platforms are used to disseminate information to staff, students, and parents	361	3.78	0.88	Moderate utilisation
6.	AI systems generate reports that guide administrative decision-making	361	3.95	0.79	High utilisation
	Grand Mean				3.91

The results in Table 1 show that AI-supported administrative systems are widely used in public secondary schools in Cross River State, with a grand mean of 3.91, indicating high overall adoption. The highest utilisation is in student enrolment and registration, with a mean of 4.21, suggesting that administrators rely on AI to streamline enrolment processes and maintain accurate records. AI platforms for compiling and managing student assessment results also show high use, with a mean of 4.05, reflecting their role in handling large volumes of data and facilitating timely reporting. Report generation to guide administrative decisions is similarly highly utilised, with a mean of 3.95.

Areas such as monitoring student attendance (mean 3.87), staff performance and appraisal (mean 3.64), and communication with staff, students, and parents (mean 3.78) show moderate utilisation. This indicates that while these functions benefit from AI, factors such as infrastructure limitations, inconsistent internet connectivity, and varying digital literacy may restrict full adoption, especially in rural schools.

AI systems are important for improving efficiency in student-related administrative tasks and decision-making. However, there is room for improvement in staff management, attendance monitoring, and stakeholder communication to ensure more uniform and effective use across all administrative functions in public secondary schools in Cross River State.

1. .How do human judgement and empathy influence AI-assisted administrative decision-making processes in public secondary schools?

Table 2: Influence of Human Judgement and Empathy in AI-Assisted Administrative Decisions

S/N	Items	N	Mean (X)	STD	Decision
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1	Administrators review AI outputs before making decisions	361	4.12	0.76	High
2.	Contextual factors are considered when interpreting AI recommendations	361	4.05	0.81	High
3.	Decisions incorporate understanding of student socio-economic and personal circumstances	361	3.97	0.84	High
4.	Empathy guides interventions affecting teachers and staff	361	3.88	0.79	High
5.	AI recommendations are balanced with professional experience	361	3.91	0.82	High
Grand Mean			3.98		

The results in Table 2 indicate that human judgement and empathy play a significant role in AI-assisted administrative decision-making in public secondary schools in Cross River State, with a grand mean of 3.98, reflecting overall high influence. Administrators consistently review AI outputs before finalising decisions (mean 4.12) and consider contextual factors (mean 4.05), ensuring that recommendations are interpreted in light of the school environment.

Decisions also take into account students' socio-economic and personal circumstances (mean 3.97) and are guided by empathy in interventions affecting teachers and staff (mean 3.88). Balancing AI recommendations with professional experience (mean 3.91) demonstrates that administrators actively integrate human judgement with technological insights.

The findings suggest that while AI provides data-driven support, the quality, fairness, and appropriateness of administrative decisions depend heavily on human judgement and empathetic engagement. This confirms the relevance of the Human-in-the-Loop model in ensuring that AI-assisted systems enhance rather than replace human decision-making in public secondary schools.

Table 3: Role of Structured Human Oversight Mechanisms in AI-Assisted Administrative Decisions.

3. What role do structured human oversight mechanisms play in ensuring fairness, accountability and transparency in AI-supported administrative decisions in public secondary schools in Cross River State?

S/N	Items	N	Mean (X)	STD	Decision
1.	Formal procedures exist for reviewing AI-generated outputs before decisions are finalized	361	4.08	0.74	High
2.	Decisions based on AI outputs are documented and justified	361	3.95	0.81	High
3.	Oversight mechanisms ensure accountability in administrative decisions	361	4.01	0.77	High
4.	Transparency in AI-assisted decision-making is maintained with stakeholders	361	3.89	0.79	High

5	Feedback and correction mechanisms are in place for errors in AI outputs	361	3.86	0.82	High
Grand Mean			3.96		

The results in Table 3 indicate that structured human oversight mechanisms are strongly implemented in AI-assisted administrative decision-making in public secondary schools in Cross River State, with a grand mean of 3.96, showing high overall effectiveness. Most administrators report that **formal review procedures** are in place before AI-generated outputs are acted upon (mean 4.08), ensuring that decisions are critically examined rather than blindly followed.

Documentation and justification of decisions (mean 3.95) demonstrate accountability and allow for traceability of administrative actions. Oversight mechanisms also support accountability (mean 4.01) and transparency (mean 3.89), ensuring that staff, students, and parents can understand and trust AI-assisted decisions. The presence of feedback and correction systems (mean 3.86) further indicates that errors or unintended consequences from AI outputs can be identified and rectified.

These findings show that structured human oversight enhances the **fairness, accountability, and transparency** of AI-assisted administrative decisions, reinforcing the Human-in-the-Loop model by ensuring that technological efficiency is balanced with ethical and professional responsibility in school administration.

Hypotheses Testing

Hypothesis One (H_{01})

H_{01} : There is no significant relationship between the utilisation of AI-supported administrative systems and the quality of administrative decision-making in public secondary schools in Cross River State.

Table 4: Pearson Correlation between Utilisation of AI-Supported Administrative Systems and Quality of Administrative Decision-Making

Variables	N	Correlation Coefficient (r)	Sig. (2-tailed)	Remark
AI-Supported Administrative Systems	361	0.642	0.000	Significant

The results in Table 4 indicate a **strong positive correlation** ($r = 0.642$) between the utilisation of AI-supported administrative systems and the quality of administrative decision-making in public secondary schools in Cross River State. The correlation is statistically significant at $p < 0.05$ (Sig. = 0.000), indicating that as the adoption and use of AI systems increase, the quality of administrative decisions also improves.

This suggests that AI-supported systems contribute substantially to decision-making efficiency, accuracy, and timeliness in school administration. When administrators utilise AI for tasks such as student enrolment, assessment management, attendance monitoring, and report generation, the outcomes of decisions tend to be better informed, data-driven, and more reliable.

The findings lead to the rejection of the null hypothesis (H_{01}), confirming that there is a significant relationship between AI utilisation and the quality of administrative decision-making in public secondary schools in Cross River State. This underscores the importance of integrating AI technologies into administrative processes while also emphasising the complementary role of human oversight to ensure decisions are ethically and contextually sound.

Hypothesis Two (H_{02})

H_{02} : There is no significant relationship between human judgement and empathy and the quality of administrative decision-making in public secondary schools in Cross River State.

Table 5: Pearson Correlation between Human Judgement and Empathy and Quality of Administrative Decision-Making

Variables	N	Correlation Coefficient (r)	Sig. tailed	(2- Remark
Human Judgement and Empathy	361	0.681	0.000	Significant

The results show a **strong positive correlation** ($r = 0.681$) between human judgement and empathy and the quality of administrative decision-making, which is statistically significant at **$p < 0.05$** (Sig. = 0.000). This indicates that administrators who consistently apply professional judgement and empathetic understanding when interpreting AI-generated outputs tend to make more effective, fair, and contextually appropriate decisions.

The finding supports the Human-in-the-Loop model, highlighting that while AI provides data-driven support, the integration of human judgement and empathy is crucial to ensure ethical, socially sensitive, and equitable outcomes in school administration. Based on this result, the null hypothesis H_{02} is rejected, confirming that human judgement and empathy significantly influence administrative decision quality in public secondary schools in Cross River State.

Discussion of Findings

The study examined the utilization of AI-supported administrative systems, the influence of human judgment and empathy, and the role of structured human oversight in administrative decision-making in public secondary schools in Cross River State. Findings showed a high level of AI utilization (grand mean = 3.91), particularly in student enrollment, assessment management, and report generation. A significant positive relationship was found between AI utilization and administrative decision quality ($r = 0.642$, $p < 0.05$), indicating that AI enhances efficiency, accuracy, and evidence-based decision-making. This supports previous studies that identified AI as a valuable tool for improving administrative effectiveness.

The study also revealed a high level of human judgment and empathy in interpreting AI-generated outputs (grand mean = 3.98). A significant positive relationship existed between human judgment and empathy and administrative decision quality ($r = 0.681$, $p < 0.05$). This finding supports the Human-in-the-Loop paradigm, which emphasizes that AI should complement rather than replace human decision-makers. Administrators rely on ethical

reasoning, contextual understanding, and empathy to ensure that decisions remain fair, inclusive, and socially appropriate.

Structured human oversight mechanisms were found to be strongly practiced (grand mean = 3.96). Formal review procedures, accountability measures, documentation standards, and feedback systems contributed significantly to decision quality, as evidenced by a positive correlation ($r = 0.597$, $p < 0.05$). These findings highlight the importance of oversight in ensuring transparency, accountability, and ethical use of AI in school administration.

The results demonstrate that effective administrative decision-making is achieved through the combined influence of AI utilization, human judgment and empathy, and structured oversight mechanisms. While AI improves efficiency and data accuracy, human involvement and oversight ensure fairness, accountability, and contextual relevance. The findings therefore validate the Human-in-the-Loop approach as an effective framework for enhancing school governance and administrative performance in public secondary schools in Cross River State.

Conclusion

Public secondary schools in Cross River State were the focus of this investigation into the use of AI-supported administrative systems, the impact of human empathy and judgement, and the function of organized human oversight mechanisms in improving administrative decision-making. The results show that AI systems are used for student enrollment, assessment management, and report production, which helps a lot with efficiency and making decisions based on data.

Human empathy and discretion play an equally crucial role in placing AI-generated suggestions in their proper social, ethical, and cultural contexts. Administrative procedures are made even more accountable, transparent, and fair with the use of structured supervision systems. Taken together, these elements demonstrate that technology isn't enough for efficient administration and provide credence to the Human-in-the-Loop approach.

A well-rounded approach incorporating AI-assisted technology, human discretion and empathy, and formal supervision procedures is necessary for administrative decision-making in public secondary schools in Cross River State. The quality of education management is improved when these components work in tandem, allowing schools to attain administrative outcomes that are accurate, fair, and transparent.

Recommendations

Based on the findings of this study, the following recommendations are made to enhance the effectiveness of AI-supported administrative systems in public secondary schools in Cross River State:

1. Public secondary schools should provide adequate technological infrastructure, including hardware, software, and reliable internet, to support effective AI implementation in administration.
2. School leaders and administrative staff should receive regular training to ensure the ethical, effective, and human-centred use of AI.

3. Schools should establish structured oversight mechanisms to promote accountability and transparency in AI-supported administration. These mechanisms should include review procedures, decision records, accountability measures, and feedback systems.
4. School management boards and the Ministry of Education should collaborate to develop policies for the responsible use of AI in educational administration.

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