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Research Article

AI in School Governance: Efficiency or Dehumanization of Education?

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Abstract

This study aims to explore the lived experiences of educational stakeholders in interpreting the implementation of artificial intelligence (AI) in school governance. Employing a qualitative approach with Husserl's descriptive phenomenological design, this study involved 15 participants consisting of a principal, vice principal, school supervisor, senior and junior teachers, school operator, administrative staff, a student, and a parent. Data were collected through semi-structured in-depth interviews and analyzed using a modified Stevick-Colaizzi-Keen method. The findings identified five major phenomenological themes: (1) administrative efficiency as a transformative experience, (2) relational dehumanization within the school ecosystem, (3) digital pressure and institutional surveillance, (4) intergenerational adaptation gaps, and (5) the dialectic of hope between technology and humanism. Results demonstrate that AI creates an efficiency-dehumanization paradox: it accelerates administrative processes while simultaneously eroding interpersonal relationships and transforming the essence of education into mechanistic practices. This study concludes that a human-centered AI governance framework is needed to maintain the balance between technological efficiency and humanistic educational values.

Keywords: Artificial Intelligence; School Governance; Phenomenology; Educational Dehumanization; Digital Efficiency; Interpersonal Relations; Human-Centered AI

INTRODUCTION

The Fourth Industrial Revolution has driven a fundamental transformation across various sectors of life, including education. Artificial Intelligence (AI) is no longer merely a futuristic discourse; it has become an operational reality in many educational institutions worldwide [1], [2]. In Indonesia, the Merdeka Belajar policy and school digitalization initiatives have paved the way for the adoption of AI technologies in multiple aspects of educational governance, ranging from school management information systems and academic data analysis to algorithm-based decision-making [3].

The implementation of AI in school governance promises significant improvements in efficiency. AI-based systems can automate administrative tasks such as grade recapitulation, attendance management, report generation, and even provide data-driven decision-making recommendations [4], [5]. This potential has encouraged many schools to adopt integrated digital systems with AI capabilities, aiming to enhance productivity and the quality of educational services [6].

However, behind this optimistic narrative, serious concerns have emerged regarding the dehumanizing effects of educational digitalization. Selznick [7] reminds us that education is fundamentally a process of humanization centered on interpersonal relationships. When technology dominates school management practices, there is a risk that interpersonal values such as empathy, dialogue, and togetherness may erode, even though these values form the foundation of education [8], [9]. This phenomenon raises a critical question: does AI in school governance truly deliver meaningful efficiency, or does it instead diminish the human dimension of education?

A review of the literature indicates that most research on AI in education tends to focus on technical aspects and operational efficiency [10], [11], while exploration of the subjective experiences of educational stakeholders in interpreting digital transformation remains very limited, particularly in the Indonesian context. Phenomenology, as both a philosophical and methodological approach, offers a unique perspective for understanding the "lifeworld" (Lebenswelt) of educational stakeholders as they encounter the growing presence of AI in school environments [12], [13].

Giddens' structuration theory [14] serves as the primary theoretical framework for understanding the duality between technological structures and human agency. In this context, AI is viewed as a structure that both enables and constrains the actions of educational actors. Meanwhile, Foucault's [15] concept of panopticism provides an analytical lens for understanding the phenomenon of digital surveillance that accompanies the implementation of AI systems in schools. The Technology Acceptance Model (TAM) by Davis [16] and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. [17] are also relevant for examining the dynamics of acceptance and resistance toward AI technologies among educators.

Based on the above discussion, this study aims to: (1) explore the lived experiences of educational stakeholders in responding to the implementation of AI in school governance; (2) identify the phenomenological meanings emerging from these experiences; and (3) formulate a deeper understanding of the dialectic between technological efficiency and the dehumanization of education in the context of AI implementation in schools. The main research

question of this study is: “How do educational stakeholders experience and interpret the implementation of AI in school governance, particularly in relation to the dialectic between efficiency and the dehumanization of education?”

METHODS

Research Approach and Design

This study employs a qualitative approach with a descriptive phenomenological design based on the Husserlian tradition. The selection of a phenomenological design is grounded in the need to understand the essence of participants' experiences in interpreting the implementation of AI in their school environments [18]. Descriptive phenomenology is chosen because it allows the researcher to conduct epoché, which is the process of bracketing assumptions, in order to capture participants' experiences in their pure form without premature interpretation [13], [19].

Research Participants

Participants were selected using purposive sampling with the following criteria: having direct experience using or interacting with AI or digital systems in schools for at least six months, representing diverse roles within the educational ecosystem, and willing to participate voluntarily with informed consent. The number of participants was set at 15, following Polkinghorne [20], who recommends 5 to 25 participants for phenomenological studies. Data saturation was achieved at the twelfth participant, but interviews continued until the fifteenth participant to ensure depth and diversity of perspectives. Table 1 presents the demographic profile of the research participants.

Table 1. Demographic Profile of Research Participants

Code	Role	Age	Gender	Work Experience
P1	Senior Teacher	54	Female	> 25 years
P2	Mathematics Teacher	38	Male	10-15 years
P3	Principal	49	Male	> 20 years
P4	School Operator	31	Female	5-10 years
P5	English Teacher	34	Female	8-10 years
P6	Vice Principal	45	Male	> 20 years
P7	New Teacher	26	Female	1-3 years
P8	Counseling Teacher	41	Male	15-20 years
P9	Administrative Staff	36	Female	8-10 years
P10	Science Teacher	39	Male	10-15 years
P11	Elementary Teacher	44	Female	> 20 years
P12	High School Student	17	Male	-
P13	Parent	42	Female	-
P14	School Supervisor	51	Male	> 25 years

Code	Role	Age	Gender	Work Experience
P15	Islamic Education Teacher	33	Male	5-8 years

Data Collection Techniques

Data were collected through semi structured in depth interviews conducted in December 2025. Each interview lasted between 45 and 90 minutes and was audio recorded with participants' consent. The interview guide included seven main questions designed to explore the following aspects: initial experiences using AI systems, perceived changes after digitalization, impact on work efficiency, influence on interpersonal relationships, pressures of digitalization, perceptions of humanization versus mechanization in schools, and expectations for the future of AI in education. All interviews were conducted in a relaxed and informal setting to build trust and obtain authentic data [21].

Data Analysis

Data analysis followed a modification of the Stevick Colaizzi Keen method as outlined by Moustakas [13], which includes the following stages: horizonalization, identifying each significant statement from interview transcripts; reduction and elimination, removing overlapping or irrelevant statements; clustering, grouping statements into meaning units; thematizing, developing textural and structural descriptions of participants' experiences; and composite description, formulating the overall essence of the experience. Data trustworthiness was ensured through source triangulation, member checking, peer debriefing, and an audit trail [22]. Figure 1 illustrates the data analysis process used in this study.

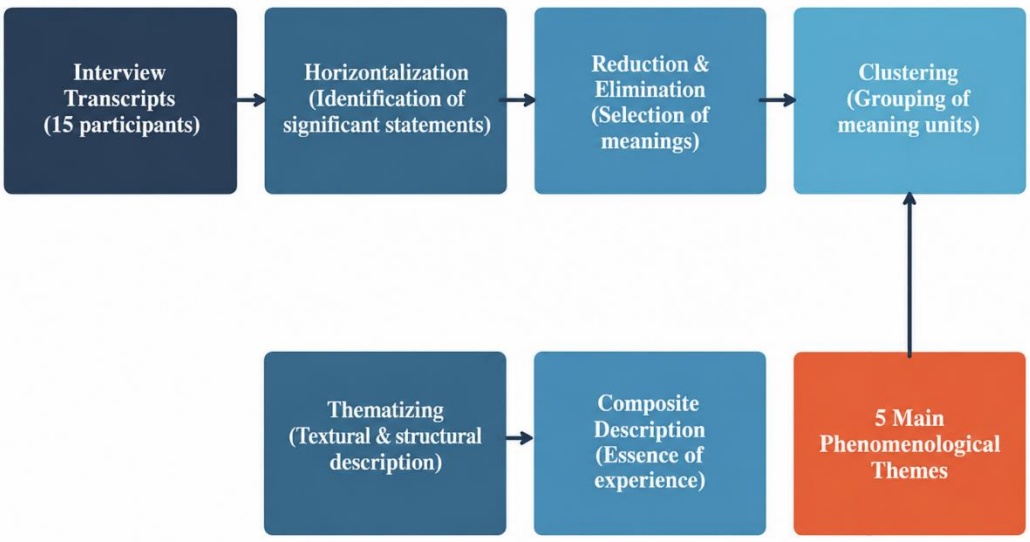

Figure 1. Data analysis flow of the modified Stevick–Colaizzi–Keen phenomenological method

RESULTS AND DISCUSSION

The phenomenological analysis of 15 interview transcripts produced 78 significant statements which, after the processes of reduction and elimination, resulted in 42 meaning units. These meaning units were then grouped into five major phenomenological themes that represent the essence of the participants' experiences. Table 2 summarizes the phenomenological themes along with their sub themes.

Table 2. Phenomenological Themes from Data Analysis

Main Theme	Sub Themes	Frequency of Occurrence from 15 Participants
Administrative Efficiency as a Transformative Experience	Acceleration of administrative processes Automation of decision making Efficiency in meetings and coordination	15/15 (100%)
Administrative Efficiency as a Transformative Experience	Faster processing of grades and attendance Data automatically available for meetings Administrative work becomes quicker	15/15 (100%)
Relational Dehumanization in the School Ecosystem	Reduction of face-to-face interaction Shift in teacher identity into system operators Mechanization of educational processes	14/15 (93.3%)
Relational Dehumanization in the School Ecosystem	More interaction with screens than with students Greater focus on filling dashboards than direct discussion Teachers are required to act as operators	14/15 (93.3%)
Digital Pressure and Institutional Surveillance	Feeling monitored by the system Pressure to remain constantly connected Increased digital workload	13/15 (86.7%)
Digital Pressure and Institutional Surveillance	Feeling monitored by digital systems Pressure to stay connected at all times All reports must be submitted through the system	13/15 (86.7%)

Main Theme	Sub Themes	Frequency of Occurrence from 15 Participants
Intergenerational Adaptation Gap	Difficulty among senior teachers in adapting Anxiety about digital competence Shift in work culture	12/15 (80%)
Intergenerational Adaptation Gap	Senior teachers struggle to adapt Initial feelings of awkwardness Students becoming more dependent on technology	12/15 (80%)
Dialectics of Expectation: Technology versus Humanism	Expectation of AI as a supporting tool Concern about replacing human relationships Need for balance	15/15 (100%)
Dialectics of Expectation: Technology versus Humanism	AI should remain a supporting tool It should not replace human relationships Preserving the meaning of education	15/15 (100%)

Theme 1: Administrative Efficiency as a Transformative Experience

All participants acknowledged that the implementation of AI in school governance has brought significant changes in administrative efficiency. This transformative experience is understood as the acceleration of processes that were previously time consuming into instant and automated operations. This finding is consistent with studies by Chen et al. [4] and Luckin et al. [5], which report improvements in operational efficiency through AI based automation.

"Work has become faster, especially for processing grades and attendance." (P1, Senior Teacher)

"AI helps schools make decisions more quickly." (P3, Principal)

"Technology makes administrative work more efficient." (P4, School Operator)

"Meetings are shorter because data is already available automatically." (P6, Vice Principal)

This transformative experience shows that AI has fundamentally reconstructed administrative workflows in schools. Within Giddens' structuration theory [14], AI functions as an enabling structure that facilitates the actions of educational actors by providing informational resources and automation that were previously unavailable. However, as discussed in the following theme, this enabling structure simultaneously operates as a constraining structure that limits and reshapes other dimensions of educational experience.

Theme 2: Relational Dehumanization in the School Ecosystem

The second dominant theme, reported by 93.3 percent of participants, is relational dehumanization, referring to the reduction in both the quality and quantity of interpersonal

interactions due to technological mediation. Participants described this experience through three interconnected sub themes: reduced face to face interaction, shifts in professional identity, and the mechanization of education.

"Sometimes I feel I interact more with a screen than with students." (P1, Senior Teacher)

"Sometimes we focus more on filling dashboards than on direct discussion." (P2, Mathematics Teacher)

"Everything is now data based, so teachers are expected to act like operators." (P3, Principal)

"Relationships among teachers have changed because communication happens more through digital platforms." (P5, English Teacher)

This phenomenon can be understood through Biesta's [8] concept of learnification, which refers to the reduction of education into measurable and technical processes. When teachers interact more with dashboards than with students, there is a fundamental shift in the meaning of educational work. Teacher identity transforms from an educator oriented toward relationships into an operator oriented toward systems, aligning with Williamson's [9] critique of datafication in education.

This finding also supports Selznick's [7] argument that excessive digitalization can threaten the relational foundation of education. In Husserlian phenomenology, face to face interaction represents a primary form of intersubjectivity, which enables mutual understanding and empathy. When such interaction is replaced by digital mediation, it results in what Ihde [23] describes as technological mediation that alters the fundamental structure of human experience.

Theme 3: Digital Pressure and Institutional Surveillance

A total of 86.7 percent of participants reported experiencing digital pressure associated with the implementation of AI systems in schools. This pressure manifests as a sense of being monitored, the demand to remain constantly connected, and an increase in digital workload.

"The feeling of being monitored by digital systems is quite noticeable." (P8, Counseling Teacher)

"I feel the system is helpful, but there is pressure to always stay online." (P3, Principal)

"At first I felt awkward because almost all reports had to be submitted through the system." (P7, New Teacher)

This experience of digital surveillance directly reflects Foucault's [15] concept of panopticism, where AI systems function as mechanisms of monitoring that are invisible yet pervasive. Unlike traditional supervision that requires physical presence, digital surveillance is continuous, automated, and impersonal. Ball [24] refers to this as the digital panopticon, which transforms power dynamics within educational institutions.

From the perspective of the Technology Acceptance Model [16], this digital pressure indicates that while the perceived usefulness of AI is acknowledged, perceived ease of use and attitudes toward its use remain significant challenges. The demand for constant connectivity and increased data input reduces emotional acceptance of the technology, even though its benefits are cognitively recognized.

Theme 4: Intergenerational Adaptation Gap

The fourth theme reveals an intergenerational gap in adapting to AI technologies in schools, reported by 80 percent of participants. Senior teachers with longer work experience face greater challenges in adapting compared to younger teachers who are more familiar with digital technologies.

"Some senior teachers experience difficulties in adapting." (P14, School Supervisor)

"Students also seem increasingly dependent on technology." (P13, Parent)

This phenomenon can be understood through digital divide theory [25], which extends beyond access to technology to include skills and readiness to use technology effectively. Within the framework of UTAUT [17], facilitating conditions and social influence play crucial roles in shaping technology use behavior. Senior teachers who lack sufficient technical and social support tend to experience technology related anxiety that hinders adaptation.

Theme 5: Dialectics of Expectation: Technology versus Humanism

The fifth theme, expressed by all participants, represents a dialectical expectation regarding the future of AI in education. Participants consistently emphasized that AI should remain a supporting tool that serves humanistic educational values rather than replacing human relationships.

"I hope AI continues to be used as a supporting tool, not to replace human relationships." (P1, Senior Teacher)

"There is concern that education may become too mechanical." (P5, English Teacher)

This expectation reflects what Feenberg [26] describes as the democratic rationalization of technology, which refers to society's aspiration to shape technology according to human values. In education, this aligns with the concept of human centered AI promoted by UNESCO [27] and the European Commission [28], where AI is designed and implemented with human well being as the primary goal.

Phenomenologically, the essence of these five themes can be summarized as the efficiency and dehumanization paradox, a dialectical condition in which AI simultaneously enhances operational efficiency while diminishing the human dimension of education. This paradox is not a simple binary opposition but a dynamic spectrum that requires continuous negotiation between the demands of efficiency and the need for humanization.

Table 3 presents a matrix of findings that integrates all themes with theoretical perspectives.

Table 3. Matrix of Findings and Theoretical Perspectives

Theme	Essence of Experience	Theoretical Framework	Practical Implications	Representative Participants
Administrative Efficiency	AI accelerates administrative processes and data driven decision making	Giddens' structuration theory [14], enabling structure, and TAM perceived usefulness [16]	System optimization without reducing dialogical space	P1, P3, P4, P6, P9
Relational Dehumanization	Reduction of face-to-face interaction and	Learnification by Biesta [8], datafication by	Establishing a balance between	P1, P2, P3, P5, P11

Theme	Essence of Experience	Theoretical Framework	Practical Implications	Representative Participants
	shift of teacher identity into system operators	Williamson [9], and technological mediation by Ihde [23]	digital and direct interaction time	
Digital Pressure and Surveillance	Feeling monitored and pressure to remain constantly connected create digital anxiety	Panopticism by Foucault [15] and digital panopticon by Ball [24]	Policies for digital well being and limits on online time	P3, P7, P8, P10, P14
Intergenerational Adaptation Gap	Senior teachers struggle to adapt, creating disparities in digital competence	Digital divide by van Dijk [25] and UTAUT by Venkatesh et al. [17]	Intergenerational digital mentoring programs	P1, P7, P12, P13, P14
Dialectics of Expectation	Collective aspiration for AI to function as a humanistic support tool rather than replacing relationships	Democratic rationalization by Feenberg [26] and human-centered AI by UNESCO [27]	Development of human centered AI governance frameworks	P1, P3, P5, P8, P15

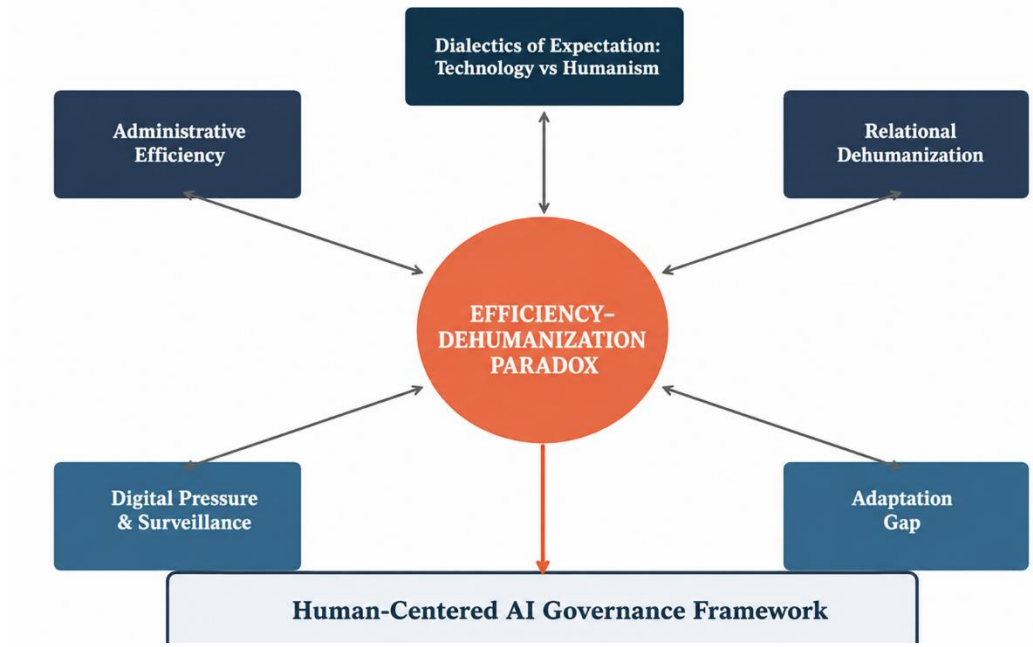

Figure 2. Conceptual framework of the efficiency–dehumanization paradox of AI in school governance

The Efficiency and Dehumanization Paradox

The synthesis of the five phenomenological themes reveals the essence of experience conceptualized as the Efficiency and Dehumanization Paradox. This paradox is not linear or dichotomous, but dialectical. Efficiency and dehumanization do not exist as opposing poles but are intertwined within the everyday experiences of educational actors. This finding extends existing literature on the impact of AI in education [1], [2] by introducing a phenomenological dimension that has received limited attention.

From the perspective of Giddens' structuration theory [14], this paradox represents the duality of AI as a technological structure that is both enabling and constraining at the same time. AI empowers educational actors by providing efficiency and automation, while at the same time it limits and reshapes their intersubjective experiences. This dialectical relationship confirms the proposition that technology is not a neutral entity but an active agent that shapes social reality [29].

The theoretical implication of this finding highlights the need to develop a new conceptual framework that integrates technological efficiency with humanistic values in education. The Human Centered AI Governance framework formulated from this study offers an alternative approach that places human well being at the center of AI development and implementation in schools, in line with recommendations from UNESCO [27] and the European Commission [28].

CONCLUSION

This phenomenological study reveals the essence of how educational stakeholders interpret the implementation of AI in school governance. Five major themes were identified, namely administrative efficiency, relational dehumanization, digital pressure and surveillance, intergenerational adaptation gaps, and the dialectics of expectation between technology and humanism. Together, these themes represent the phenomenon described as the Efficiency and Dehumanization Paradox. The main finding of this study shows that AI in school governance is not merely a technical issue related to efficiency, but a fundamental issue concerning the meaning of education itself. When technological efficiency is achieved at the expense of human dimensions, the core purpose of education as a process of humanization becomes at risk. This study concludes that a human centered AI governance framework is necessary to maintain a balance between technological efficiency and humanistic educational values. The practical implications of this study include the need for policies on digital well being that regulate the balance between digital interaction and face to face interaction in schools, the development of intergenerational digital mentoring programs to bridge adaptation gaps, the reformulation of the teacher's role to emphasize relational facilitation rather than system operation, and the active involvement of all stakeholders in the design and implementation of AI systems in schools.

LIMITATIONS

This study is limited by its geographic focus on a single region, which means that the transferability of the findings requires further examination. Future research is recommended to conduct longitudinal phenomenological studies that trace the evolution of participants' experiences alongside the development of AI technologies, as well as comparative studies

across different cultural contexts to enrich understanding of the efficiency and dehumanization paradox in diverse settings.

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AUTHOR CONTRIBUTION

B.K. served as the principal author and was responsible for conceptualizing the study, formulating the research focus, developing the theoretical framework, designing the phenomenological orientation, and drafting the initial manuscript. M. contributed to the development of the research design, preparation of the interview protocol, coordination of participant engagement, and organization of the qualitative data collection process. J. contributed to methodological refinement, data validation, interpretation of phenomenological findings, and alignment of the analysis with relevant theoretical perspectives on artificial intelligence, school governance, and educational humanism. R.R. contributed to data organization, thematic synthesis, manuscript editing, reference checking, and refinement of the results and discussion sections. B.K., M., J., and R.R. jointly reviewed the coherence of the manuscript, revised the article for academic clarity and journal suitability, approved the final version of the manuscript, and agreed to be accountable for all aspects of the work.

CONFLICT OF INTEREST

"The authors declare no conflict of interest."

DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

The authors used ChatGPT Plus only to improve the language clarity, grammar, readability, and academic style of this manuscript. The tool was not used to generate data, conduct analysis, or develop the scholarly interpretation of the findings. All content was reviewed, verified, and approved by the authors, who take full responsibility for the accuracy, integrity, and originality of the manuscript.

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