Artificial Intelligence Adoption in Public Communication Media Creation

Dina Dwika Oktora[1*], Sony Wibisono[1], Dhety Chusumastuti[2], Krisnawan Hartanto[3], Abang Zikri Al Hafiz[2]

[1]Broadcast Production Management Study Program, Sekolah Tinggi Multi Media, Yogyakarta, Indonesia
[2]Information and Communication Management Study Program, Sekolah Tinggi Multi Media, Yogyakarta, Indonesia
[3]Game Technology Study Program, Sekolah Tinggi Multi Media, Yogyakarta, Indonesia

[*]Corresponding Author Email: dinaoktora@mmtc.ac.id

Abstract. General Background: Digital transformation has reshaped public sector communication through the integration of advanced technologies, particularly Artificial Intelligence (AI), in managing information and services. Specific Background: Within the Yogyakarta City Department of Communication, Informatics, and Encryption, AI has been introduced across multimedia-based educational media workflows to support public communication strategies. Knowledge Gap: Despite increasing implementation, empirical understanding of how AI is applied in local government contexts and its operational challenges remains limited. Aims: This study aims to analyze the implementation, challenges, and outcomes of AI utilization in educational media workflows within a local government institution. Results: Using a qualitative case study approach based on interviews, observations, and documentation, findings reveal that AI is integrated across pre-production, production, and post-production stages using tools such as ChatGPT, Adobe Creative Suite, and CapCut, resulting in improved efficiency, structured output quality, and a fourfold increase in media output frequency. However, issues related to ethics, data security, and absence of formal regulations persist. Novelty: This study provides context-specific insights into AI integration within non-broadcasting local government institutions, highlighting its role as a complementary tool rather than a replacement for human expertise. Implications: The findings underscore the need for institutional guidelines, ethical frameworks, and policy development to ensure responsible and sustainable AI implementation in public communication practices.

Keywords: Artificial Intelligence; Public Communication; Content Production

1 Introduction

Digital technology has significantly changed the face of education for the last twenty years because of its rapid development. It has completely changed how teaching and learning are conducted [1]. Digital technology has a significant and fundamental effect on the way education is delivered and experienced [2]. To successfully adapt to this rapid growth in digital technology, one should build competencies in digital literacy [3]. Digital transformation is frequently associated with digital technologies, such as artificial intelligence in an organization [4]. The core relationship between Artificial

R. Lomotey et al. (eds.), *Proceedings of the 1st International Conference on Communication and Digital Multimedia 2025 (ICCDM 2025)*, Advances in Social Science, Education and Humanities Research 1020,
https://doi.org/10.2991/978-2-38476-589-8_37

Intelligence (AI) and digital literacy education is mutually reinforcing. AI establishes the fundamental structure and boundaries of the digital world, while digital literacy provides individuals with the necessary skills to interpret this environment. Specifically, digital literacy equips learners to responsibly navigate an AI-driven society by training them to ethically use AI-powered tools, critically assess AI-generated information, and recognize inherent biases. Integrating AI into educational practices, therefore, ensures that all members of society, whether they are creating or consuming AI technologies, are well-informed [5].

Digital transformation has precipitated fundamental shifts in how government agencies manage information and deliver services to the public. A crucial development within this trajectory is the adoption of Artificial Intelligence (AI). Beyond its disruptive impact on industrial and business sectors, AI has begun to play a strategic role in enhancing the quality of public communication and information services within the government sector.

Efforts to comprehend this phenomenon were previously undertaken in a study titled "Utilization of Artificial Intelligence (AI) Technology in the Production Process of Non-News Broadcasting Programs at Public Broadcasting Institutions (LPP) TVRI: A Case Study of TVRI Yogyakarta" [6]. This research demonstrated that public broadcasting institutions like TVRI have begun harnessing AI's potential to accelerate production, improve work efficiency, and expand content reach through automation, text-to-speech technology, and the application of machine learning in scriptwriting. These findings serve as a foundational baseline for understanding the dynamics of digital transformation within government broadcasting institutions.

However, the utilization of AI in the public sector is not confined solely to broadcasting organizations. The Department of Communication, Informatics, and Encryption of Yogyakarta City (Dinas Komunikasi Informatika dan Persandian Kota Yogyakarta), as the agency responsible for public communication and information dissemination at the local level, has also commenced implementing similar technologies. The production of multimedia-based educational content has now become an integral part of the government's communication strategy in conveying social programs, public services, and policies that directly impact the community.

The application of AI in educational content production within this agency encompasses various aspects, including script automation, text-to-speech technology, the use of automated video generators, and message personalization based on community data analysis through machine learning algorithms. These diverse forms of utilization open a realm of inquiry that remains largely underexplored, particularly within the context of local government environments in Indonesia.

Consequently, this study aims to advance the trajectory of previous research by pivoting to a more specific focus on non-broadcasting institutions, namely local government agencies. Employing a case study approach at the Department of Communication, Informatics, and Encryption of Yogyakarta City, this research seeks to identify, analyze, and evaluate the implementation of artificial intelligence in the production of government educational content. Furthermore, this study examines the potential for enhancing public communication strategies through AI integration, addressing aspects of message delivery effectiveness, production process efficiency, and broader audience engagement.

2 Literature Review

2.1 Digital Transformation

Digital transformation is a comprehensive process involving the integration of digital technologies into all operational elements of an organization or institution. This is a complex, multi-layered process [7] that precipitates fundamental shifts in work methods, organizational culture, and the value propositions offered to customers or the public [8]. Digital transformation entails leveraging various modern technologies—such as cloud computing, big data analytics, the Internet of Things (IoT), and artificial intelligence—to revolutionize organizational operations, foster customer relationships, and drive performance improvements amidst the dynamic digital era [9]. Furthermore, digital transformation involves adjusting business processes to harness cutting-edge technologies and accelerate innovation [10].

2.2 Educational Content

Educational content encompasses a wide range of information and knowledge designed as materials or activities for learning purposes, which are accessible online by the audience [11]. It has a wide range, from games [12], robotics [13], mobile application [14], and even social media content [15]. The production of educational content demands creative thinking capabilities, wherein individuals develop new, constructive ideas based on concepts and principles of perception and intuition. These novel ideas and concepts facilitate the creation of effective content serving as a learning medium [16].

2.3 Artificial Intelligence

Artificial Intelligence (AI) is a branch of computer science developed to build systems capable of performing tasks that typically require human intellectual capabilities [17]. Based on functionality, AI can be categorized into four types: reactive machines, limited memory AI, theory of mind AI, and self-aware AI. Meanwhile, regarding capability levels, AI is divided into three categories: Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Super Intelligence (ASI) [18]. AI has been widely used in various fields including financial [19], media and communication [20] [21], government service [22], and communication strategies [23]

2.4 Government Communication

The government plays a pivotal role in disseminating information and educating the public regarding policy. Government official websites, so far, offer expansive interaction, although with its limitation, it has asymmetrical access and resources [24]. To overcome that limitation, public participation is needed in urban planning and governance [25]. The presence of government websites and social media platforms providing clear and comprehensible information can enhance public policy literacy, encourage public participation in decision-making, and improve government transparency and accountability. Through various agencies, the government has begun

to earnestly manage social media by presenting engaging, high-quality content, both in terms of substance and visual presentation [26].

3 Method

This research is a case study design that adopted a qualitative research approach to develop an understanding of AI implementation in education content production at Dinas Kominfo dan Persandian Kota Yogyakarta, Indonesia.

The primary method for data collection was semi-structured interviews conducted with officials and content production staff as sample key responders. The specific questions used are shown in Table 1.

Table 1. Interview Questions of The Research

Aspect	Question
Understanding and Application of AI	a. To what extent do you understand the concept of Artificial Intelligence (AI)?
	b. Has the Department of Communication and Informatics implemented AI in the production of educational content?
	c. What forms of AI implementation are being used?
	d. Who is involved in the implementation of AI within the department?
Content Production Process	At which stages is AI used in the production process
	e. Does AI help accelerate or simplify the production process?
	f. How are human teams and AI involved in the workflow?
Challenges and Limitations	g. What are the main obstacles in implementing AI?
	h. Is there any official training or guideline for the use of AI within the institution?
	i. What is the attitude of employees toward the use of AI (supportive, uncertain, or resistant?)
Impact and Evaluation	j. Has the quality and effectiveness of the content improved after using AI?
	k. Does the implementation of AI affect time efficiency and production costs
Future Strategies and Expectations	l. What steps should be taken to optimize the use of AI within Diskominfo dan Persandian Kota Yogyakarta?
	m. What forms of support are needed (training, policy development, collaboration)?
	n. How do you foresee the future of AI implementation in the governmental sector?

Research flow showed in figure 1. This research follows a systematic, six-step flow starting with Problem Identification and Needs Assessment to clearly define the research focus, followed by a Literature Review to establish theoretical context.. Subsequently, Field Data Collection gathers the necessary primary data, which is then refined and visualized during Data Reduction and Presentation. The core of the study, Data Analysis, examines the processed information to derive meaningful insights and answer the core questions, culminating in the Conclusion and Recommendation stage, where findings are summarized and actionable steps are proposed to address the initial problem.

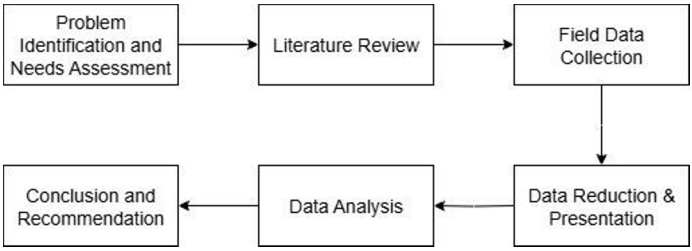

Fig 1. Research Flow

4 Result and Discussion

This research aims to examine how AI is used, what challenges and opportunities appear, and how AI impacts the quality and efficiency of Dinas Kominfo dan Persandian Kota Yogyakarta-produced content.

4.1 AI Integration in Content Production

Data indicates that AI is embedded throughout the content production lifecycle. In pre-production, AI is instrumental for idea generation, topic brainstorming, and identifying trending issues. The department also employs AI analytics for social media monitoring and sentiment analysis to support strategic planning. During production, AI tools facilitate scriptwriting and language refinement. Technologies such as voice-to-text, text-to-speech, and automated video editing (e.g., auto-cut and stabilization) are widely used to streamline multimedia creation. In post-production, AI optimizes captions, hashtags, and publication timing, while automated archiving systems improve documentation efficiency.

4.2 Challenges in Adoption

Despite its benefits, AI adoption faces several obstacles. The primary challenge is the lack of clear regulations regarding AI in government communication. Ethical concerns regarding content authenticity, cultural sensitivity, and accuracy remain significant. Additionally, a digital skills gap—particularly in prompt engineering—and internal

concerns regarding the potential displacement of human creativity hinder full integration.

4.3 Impact and Opportunities

On the other hand, AI offers notable strategic advantages. It enhances efficiency, accelerates production, and ensures the structural quality and consistency of educational content. AI also enables faster detection of public issues, fostering more responsive communication. Moreover, AI strengthens digital services, notably through the "Jessica" chatbot on the JSS platform, which has enhanced public engagement and service delivery.

5 Conclusion

In conclusion, this study reveals that AI adoption is occurring incrementally across the pre-production, production, and post-production stages. Rather than replacing human creativity or judgment, AI functions primarily as a complementary support tool. While the technology has demonstrated a significant capacity to enhance workflow efficiency and elevate the quality of government educational content, human oversight remains indispensable for maintaining ethical standards, cultural relevance, and accuracy. Consequently, to optimize this integration, this study recommends the development of clear institutional guidelines, the strengthening of staff AI literacy through regular training, and the establishment of robust ethical and regulatory frameworks for AI implementation in the public sector.

References

[1] S. Kucuk, S. Ates, and O. Kocak, “Do Teachers Possess the Essential Digital Literacy to Effectively Navigate Through the Digital Era?” in 2024 IEEE 18th International Conference on Application of Information and Communication Technologies (AICT), 2024, doi: 10.1109/AICT61888.2024.10740420.

[2] I. Farkas, A. Kovari, and M. Rajcsanyi-Molnar, “The Impact of the Digital Transformation of Education on Literacy,” in 2024 IEEE 7th International Conference and Workshop Obuda on Electrical and Power Engineering (CANDO-EPE), 2024, pp. 71–75, doi: 10.1109/CANDO-EPE65072.2024.10772854.

[3] W. Qin and S. Zhu, “Evaluation of Students’ Digital Literacy Based on Network Psychometrics,” in 2024 4th International Conference on Educational Technology (ICET), 2024, doi: 10.1109/ICET62460.2024.10868319.

[4] D. Cetindamar, B. Abedin, and K. Shirahada, “The Role of Employees in Digital Transformation: A Study on Digital Literacy Impact,” IEEE Transactions on Engineering Management, vol. 71, pp. 7837–7846, 2024, doi: 10.1109/TEM.2021.3087724.

[5] E. Qumsiyeh, M. Zeer, and M. R. Abu Sara, “Digital Literacy Education: A Deep Analysis Through Machine Learning,” in 2025 Innovations in Intelligent Systems and Applications Conference (ASYU), 2025, doi: 10.1109/ASYU67174.2025.11208448.

[6] A. M. Murbaningsih, D. D. Oktora, and S. Hastuti, “Utilization of Artificial Intelligence in Non-News Broadcasting Production at TVRI,” eScience Humanity, vol. 5, no. 2, pp. 405–412, 2025, doi: 10.37296/esci.v5i2.

[7] I. Urban and R. Plattfaut, “The Interplay of Digital Responsibility and Digital Transformation,” Information Systems Frontiers, 2025, doi: 10.1007/s10796-025-10610-5.

[8] G. Maulana, E. Wiharjo, A. Haris, and F. Khairati, Digital Transformation in Management. Batam, Indonesia: CV Rey Media Grafika, 2025.

[9] Erwin, M. A. Chatra, N. J. Achmawati Novel, and Sepriano, Digital Transformation. Jambi, Indonesia: PT Sonpedia Publishing Indonesia, 2023.

[10] N. K. Hanna, Mastering Digital Transformation. Leeds, U.K.: Emerald Publishing, 2016, doi: 10.1108/9781785607616.

[11] Z. Setiawan et al., Multimedia Education: Concepts and Applications in the Era of Industry 4.0 Toward Society 5.0. Jambi, Indonesia: PT Sonpedia Publishing Indonesia, 2023.

[12] A. Joshi, S. Tokey, N. Glaser, and D. Kao, “Exploring Content Integration in Educational Video Games,” TechTrends, vol. 69, pp. 1023–1039, 2025, doi: 10.1007/s11528-025-01094-w.

[13] N.-S. Chen and H.-C. Yeh, “Designing Educational Robots for Preschool Classrooms,” International Journal of Social Robotics, 2025, doi: 10.1007/s12369-025-01297-4.

[14] K. K. Kanmodi et al., “Co-Development of Educational Content for Mobile Health Applications,” Scientific Reports, vol. 15, Art. no. 37411, 2025, doi: 10.1038/s41598-025-21339-1.

[15] G. Peng et al., “Evaluating the Reliability and Quality of Bariatric Surgery Educational Content on Social Media,” Obesity Surgery, 2025, doi: 10.1007/s11695-025-08317-2.

[16] A. T. Bustomi and N. Pandrianto, “Analysis of Creative Team Roles in Producing Educational Content ‘Riko The Series’,” Koneksi, vol. 8, no. 2, pp. 481–489, 2024, doi: 10.24912/kn.v8i2.27675.

[17] S. Rifky et al., Artificial Intelligence: Theory and Applications in Various Fields. Jambi, Indonesia: PT Sonpedia Publishing Indonesia, 2024.

[18] M. Fitrah et al., Artificial Intelligence in Education: The Role of Teachers and Digital Literacy. Sukabumi, Indonesia: CV Jejak Publisher, 2024.

[19] Y. Tang, G. L. Mow, and K. M. Chong, “Harnessing AI and Technological Innovation for Financial Development,” Humanities and Social Sciences Communications, vol. 12, Art. no. 1261, 2025, doi: 10.1057/s41599-025-05662-6.

[20] C. L. Singh, “Implications of AI and Metaverse in Media and Communication,” SN Computer Science, vol. 5, Art. no. 1098, 2024, doi: 10.1007/s42979-024-03415-x.

[21] P. V. M. Nascimento et al., “The Future of AI in Government Services and Global Risks,” European Journal of Futures Research, vol. 13, Art. no. 9, 2025, doi: 10.1186/s40309-025-00253-9.

[22] K. Alhosani and S. M. Alhashmi, “Opportunities, Challenges, and Benefits of AI Innovation in Government Services,” Discover Artificial Intelligence, vol. 4, Art. no. 18, 2024, doi: 10.1007/s44163-024-00111-w.

[23] K. E. Sutherland, “Developing Communication Strategies with AI,” in Artificial Intelligence for Strategic Communication. Singapore: Palgrave Macmillan, 2025, pp. 97–134, doi: 10.1007/978-981-96-2575-8_4.

[24] O. Holoborodko, "From State Actors to Citizens: Studying Citizen Cultural Diplomacy," Multidisciplinary Science Journal, vol. 8, no. 4, Art. no. 2026228, 2025, doi: 10.31893/multiscience.2026228.

[25] X. Lu et al., "What Makes E-Participation in Urban Governance Effective?" Cities, vol. 170, Art. no. 106627, 2026, doi: 10.1016/j.cities.2025.106627.

[26] N. Thifalia and S. Susanti, "Production of Visual and Audiovisual Content in Film Censorship Institutions," Jurnal Common, vol. 5, no. 1, 2021, doi: 10.34010/common.