Indonesian Language Education and Literature
e-ISSN: 2502-2261
https://journal1.uinssc.ac.id/index.php/jeill/index
Vol. 12, No. 1, Desember 2026, 34 – 50

Reconstructing Cyber Literature Pedagogy in the Digital Literary Ecosystem of Society 5.0: A Three-Pillar Conceptual Framework

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A B S T R A C T

The rapid digital shift in Indonesia has transformed reading and writing practices from print-based methods to creative participation involving AI, multiple modes, and platforms. While this change has democratized access, it raises concerns about declining deep reading skills, shallow aesthetics, and uncritical reliance on generative technologies. This paper aims to (1) examine how cyber literature has evolved and fits within the Society 5.0 theoretical framework in today's digital ecosystems, (2) analyze how media changes affect aesthetic experience, reader agency, and literacy development, and (3) propose a human-centered approach to teaching literature. Methodologically, the study employs an interpretive and conceptual synthesis integrating digital humanities, multiliteracies, and posthuman authorship theory, drawing on recent scholarly literature from Indonesia and globally. Findings reveal that cyber literature has developed into four main types: web-based, social media-based, platform-based, and AI-augmented. Each is characterized by progressively hybrid authorship and algorithmically mediated participation, with distinct ways of knowing and engaging readers. Digital transformation significantly impacts multimodal aesthetics, social engagement patterns, and literacy practices, necessitating pedagogical change. In response, the study proposes a comprehensive three-pillar framework comprising deep reading, multimodal creation, and ethical AI literacy, emphasizing that literature education in the digital age must accommodate technological advancements while preserving human critical judgment, interpretive depth, and ethically informed creativity.
Keywords: cyber literature; digital literacy ecosystems; ethical AI literacy; multiliteracies; society 5.0

Rekonstruksi Pedagogi Sastra Siber dalam Ekosistem Sastra Digital Masyarakat 5.0: Suatu Kerangka Konseptual Tiga Pilar dalam Konteks Indonesia

Pergeseran digital yang cepat di Indonesia telah mengubah praktik membaca dan menulis dari metode berbasis cetak menjadi partisipasi kreatif yang melibatkan AI, berbagai mode, dan platform. Meskipun perubahan ini telah mendemokratisasi akses, hal ini menimbulkan kekhawatiran tentang menurunnya keterampilan membaca mendalam, estetika yang dangkal, dan ketergantungan yang tidak kritis pada teknologi generatif. Makalah ini bertujuan untuk (1) meneliti bagaimana sastra siber telah berevolusi dan sesuai dengan kerangka teoritis Masyarakat 5.0 dalam ekosistem digital saat ini, (2) menganalisis bagaimana perubahan media memengaruhi pengalaman estetika, agensi pembaca, dan pengembangan literasi, dan (3) mengusulkan pendekatan yang berpusat pada manusia untuk pengajaran sastra. Secara metodologis, penelitian ini menggunakan sintesis interpretatif dan konseptual yang mengintegrasikan humaniora digital, multiliterasi, dan teori kepengarangan pascamanusia, dengan mengacu pada literatur ilmiah terkini dari Indonesia dan global. Temuan menunjukkan bahwa sastra siber telah berkembang menjadi empat jenis utama: berbasis web, berbasis media sosial, berbasis platform, dan berbasis AI. Masing-masing dicirikan oleh kepengarangan hibrida yang progresif dan partisipasi yang dimediasi secara algoritmik, dengan cara yang berbeda dalam mengetahui dan melibatkan pembaca. Transformasi digital berdampak signifikan terhadap estetika multimodal, pola keterlibatan sosial, dan praktik literasi, sehingga memerlukan perubahan pedagogis. Sebagai respons, studi ini mengusulkan kerangka kerja komprehensif tiga pilar yang terdiri dari membaca mendalam, kreasi multimodal, dan literasi AI yang etis, menekankan bahwa pendidikan sastra di era digital harus mengakomodasi kemajuan teknologi sambil tetap melestarikan penilaian kritis manusia, kedalaman interpretasi, dan kreativitas yang berlandaskan etika.
Kata Kunci: *ekosistem literasi digital; literasi AI beretika; masyarakat 5.0; multiliterasi; sastra siber*

Received: 30th April 2026; Revised: 20th May 2026; Accepted: 29th June 2026; Available online: 31th October 2026; Published regularly: December 2026

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Indonesian Language Education and Literature
e-ISSN: 2502-2261
https://journal1.uinssc.ac.id/index.php/jeill/index
Vol. 12, No. 1, Desember 2026, 34 – 50

INTRODUCTION

Digital technologies have changed the way people read, write, talk to each other, and make sense of things in today's world. The utilization of the internet, mobile technologies, artificial intelligence, and various technology-driven social platforms has cultivated an ecology of participation that transforms literacy practices from passive consumption to active production and co-creation (Darvin & Hafner, 2022; Shen et al., 2024). In this setting, traditional literacy grows to include interacting, creating, and working together to make sense of digital texts and social networks (Jiang & Hafner, 2024). As new forms of digital writing and participatory authorship emerge, contemporary literary education is being forced to rethink its theoretical, cultural, and pedagogical foundations. This shift toward participatory digital literacy is particularly evident in Indonesia. Internet penetration reached approximately 79.5% in early 2024, representing around 221 million users (Asosiasi Penyelenggara Jasa Internet Indonesia, 2024) while Indonesian youth are recognized among the most active digital readers in Southeast Asia (UNESCO-UNEVOC, 2022). Online literary platforms such as Wattpad and Webtoon have become important spaces where learners access literary content while actively interacting, interpreting, and participating in digital reading communities (Sari & Hurley, 2023; Soleh & Pratiwi, 2021). Empirical studies further confirm this transformation: Wattpad-based digital storytelling has been shown to significantly improve university students' narrative writing skills through peer feedback and authentic publication opportunities (Yotolembah et al., 2024) while Webtoon-based learning has enhanced students' multimodal creativity and digital comic writing in higher education settings (Wulan et al., 2024).

Moreover, the growing integration of social media into students' daily lives has reinforced the importance of digital literacy skills for navigating, evaluating, and creating content within digital environments (Ratri & Aviyanti, 2025). Together, these developments signal a decisive transition from print-centered literacy toward multimodal, networked, and participatory literary practices, necessitating corresponding pedagogical adaptation in contemporary literature education. The evolution of literary media illustrates literature's ongoing adaptation to technological and cultural shifts. Oral traditions served as stores of shared memory, tools for bringing people together, and ways to teach morals and strengthen social ties in communal societies. The shift to manuscript and print cultures facilitated the preservation of texts, the rise of authorship, and the establishment of literary canons. In the 1800s and 1900s, printed media, especially newspapers, made literature a public space for political thought and cultural criticism. These historical transitions collectively demonstrate that literary practices are perpetually influenced by technological and cultural transformations (Emigh, 2024). This historical perspective provides a theoretical basis for situating cyber literature as the most recent stage in the evolving ecosystem of literary production and reception.

The digital age has brought another significant shift in literary practice. Digital media enable interactive, participatory, and non-linear narrative forms, challenging conventional assumptions about authorial autonomy (Oke, 2025). Readers increasingly contribute to narrative development through commenting, voting, remixing, and rewriting, practices now standard on platforms such as Wattpad, Webtoon, AO3, and algorithm-driven story applications. These characteristics suggest that cyber literature constitutes a unique literary ecology shaped by participatory agency, algorithmic mediation, and co-authorship, a configuration that calls for new theoretical and pedagogical frameworks in literary studies. The rise of AI-generated literature marks the most recent and consequential development in this ongoing transformation. Rather than replacing human creativity, AI supports hybrid models of authorship in which human intention and computational processes converge (Floridi & Chiriatti, 2020; Rapanta, 2025). Empirical evidence from Indonesia illustrates this tension: students frequently use AI tools to draft poetry rather than independently constructing their own metaphors and imagery, a tendency that can undermine creative originality unless structured critical guidance is provided (Chasanah et al., 2023; Tasya et al., 2025).

DOI: 10.24235/ileal.v12i1.23988

Digital participation has opened literary culture to voices and forms that print culture could not accommodate. Researchers have noted a transition from deep literacy to superficial scanning, with students increasingly favoring concise, quickly digestible digital content over extended texts, a trend aligned with platform-native behaviors defined by swiping, scrolling, and skimming that prioritize visual immediacy over contemplative cognitive engagement (Shen, 2025). This pedagogical imperative also resonates with Sustainable Development Goal 4 (Quality Education), which emphasizes the development of inclusive, equitable, and future-oriented learning systems capable of fostering critical thinking, creativity, ethical responsibility, and lifelong learning. Recent scholarship has increasingly identified digital literacy as a core dimension of educational quality in technologically mediated societies, highlighting the importance of learners' abilities to critically evaluate, create, and engage with digital content in responsible ways (Buchan et al., 2024; Govender, 2025). From this perspective, reconstructing literature pedagogy serves a dual purpose: it responds to technological change while actively contributing to broader educational goals of cultivating reflective, adaptive, and human-centered competencies.

Despite the growing recognition of cyber literature as a legitimate domain for digital creativity, multimodal expression, and AI-assisted literary production, the existing body of research remains notably fragmented. Most studies examine a single platform or skill in isolation, Wattpad for narrative development, Webtoon for visual storytelling, or AI tools for creative experimentation without situating these practices within a coherent theoretical architecture. Theoretical discourse on digital literature, moreover, tends to frame it as a mere technological extension of print culture rather than as a socio-technical ecology co-constructed by human and computational agencies. As a result, limited scholarly attention has been directed toward integrating deep reading, multimodal creation, and ethical AI engagement within a unified, human-centered pedagogical framework a gap that is particularly consequential in the context of Society 5.0, where literature education is expected to balance technological innovation with humanistic values.

Addressing this gap, the present study offers a conceptual redefinition of cyber literature as a human-centered intellectual domain in which deep reading, multimodal composition, and ethical engagement with artificial intelligence are synthesized as competencies that strengthen one another in practice. Rather than treating digital literary platforms as supplementary technological tools, this study repositions them as pedagogical ecosystems where narrative imagination, interpretive depth, and algorithmic cognition can be cultivated in concert. Drawing on digital aesthetic theory, literary humanism, and the human-centered principles of Society 5.0, the study proposes a Three-Pillar Conceptual Framework designed to foster hybrid creative agency, ethical technological discernment, and culturally informed intellectual depth. In doing so, it contributes to ongoing theoretical discourse in digital humanities and modern literary pedagogy, offering a framework that ensures literature education retains its cultural relevance, ethical integrity, and intellectual rigor within progressively algorithmic learning environments.

The principal aim of this study is to develop a conceptual framework that repositions cyber literature as a strategic pedagogical domain for cultivating hybrid literary agency in the Society 5.0 era. Specifically, the study seeks to map the transformative trajectories of cyber literature across aesthetic, social, and literacy dimensions; to analyze how digital literary practices reshape interpretive experience and participatory engagement; and to propose an operationalizable pedagogical reconstruction model that integrates deep literacy, multimodal creativity, and ethical AI use within literature education. Theoretically, this study enriches discourse on digital humanities and multiliteracies by introducing a human-centered framework that connects literary humanism with the socio-technological values of Society 5.0. Practically, it offers educators, curriculum designers, and educational policymakers a coherent conceptual basis for designing literature learning environments that are not only technologically responsive but also ethically grounded, interpretively rigorous, and culturally meaningful.

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METHODS

This study employs an interpretive-conceptual synthesis design to build a human-centered pedagogical framework for cyber literature education. This design suits the study's purpose well: empirical studies generate statistical generalizations, while conceptual research integrates fragmented knowledge and constructs new theoretical understanding of emerging phenomena (Jaakkola, 2020; Snyder, 2019). Following recent conceptual scholarship (Heinonen & Gruen, 2024). The present study synthesizes insights across digital humanities, multiliteracies, AI literacy, and Society 5.0 studies to map relationships that existing research addresses only in isolation. The synthesis draws on both theoretical literature and contextual evidence from Indonesian digital literary practices, producing the Three-Pillar Conceptual Framework of Deep Reading, Multimodal Creation, and Ethical AI Literacy.

Sources were collected through a structured, purposive process consistent with the logic of interpretive-conceptual synthesis. Three explicit criteria guided the selection: theoretical relevance to cyber literature, digital pedagogy, and Society 5.0; contextual specificity to the Indonesian digital literary landscape; and recency, prioritizing publications from 2020–2025 indexed in Scopus or Sinta, or issued by recognized international institutions. In conceptual and interpretive research, a source earns its place by illuminating the phenomenon under study, not by being randomly selected (Memon et al., 2025). Sources covering overlapping themes without adding new conceptual dimensions were therefore excluded, keeping the corpus analytically focused.

To address the risk of researcher subjectivity, a recognized concern in interpretive studies (Ahmed, 2024) the selection process was conducted iteratively rather than in a single pass. Theoretical claims were cross-checked against contextual evidence from Indonesian platform data, APJII statistics, and Sinta-indexed studies, ensuring no single theoretical framework dominated the corpus. When sources offered competing perspectives, both were retained and their tensions mapped explicitly, following the reflexive stance advocated in recent conceptual scholarship (Laari, 2025).

Table 1. Presents The Resulting Four-Category Data Corpus.

Source Type	Description	Example
Theoretical Studies	International and national journals on electronic literature, digital pedagogy, and multiliteracies	(Hayles, 2008); (Jenkins, H., Purushotma, R., Weigel, M., Clinton, K., & Robison, 2009); (Kalantzis, 2009)
Contextual Studies	Indonesian research (Scopus/Sinta) on Wattpad, Webtoon, and digital literacy practices	(Pratiwi, S., & Dewi, 2023); (Karlinah, K., Nurhasanah, E., & Pratiwi, 2023); (Nugraha, D., & Suyitno, 2020); (Wulan et al., 2024)
Institutional Reports	UNESCO (2021), APJII (2023–2024), OECD (2021), Cabinet Office Japan (2018)	
Platform Data	Wattpad, Webtoon, TikTok literature, local digital reading clubs	

The corpus was analyzed through four recursive stages. First, the researchers conducted literature scoping to identify key theoretical and contextual sources relevant to cyber literature pedagogy. Second, thematic synthesis was applied to derive core themes from both conceptual and empirical sources. Third, conceptual–contextual mapping connected theoretical constructs with Indonesian empirical references, platform cases, APJII statistics, and Sinta-indexed findings to ensure contextual resonance. Fourth, model reconstruction integrated the synthesized insights into a pedagogical framework aligning theoretical perspectives, contextual realities, and educational

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practice. This iterative approach keeps the study conceptually oriented while remaining empirically grounded.

Analytical rigor was maintained through two complementary strategies. For source triangulation, the researchers drew simultaneously from theoretical, contextual, institutional, and platform-based materials at each analytical stage, consistent with guidance on triangulation as a bias-reduction mechanism in interpretive inquiry (Ahmed, 2024; Ahlness & Mog, 2025). For reflexive checking, emerging conceptual claims were returned to the sources before integration into the framework, preventing premature interpretive closure. This practice aligns with the standard of confirmability in interpretive research, which requires findings to remain demonstrably grounded in source material rather than in prior assumptions (Wilson, 2025). Together, these strategies ensure the Three-Pillar Framework is traceable, accountable, and contextually anchored in the realities of Indonesian digital literary education. The following diagram summarizes the methodological logic in figure 1.

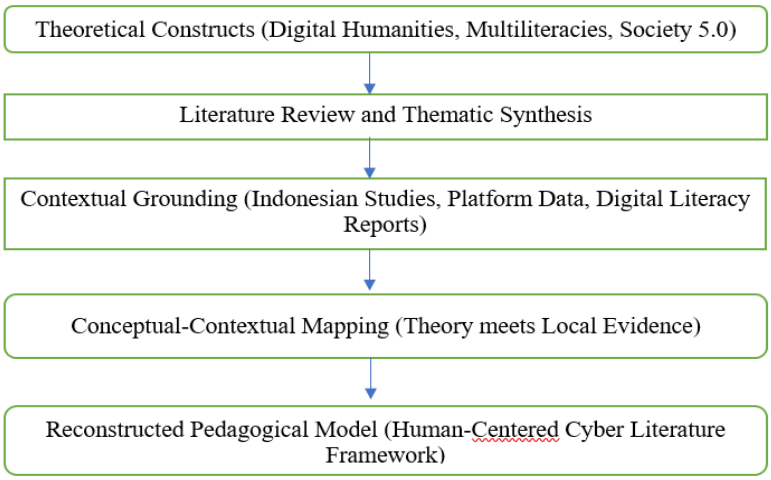


Figure 1. Conceptual-Contextual Research Methodology Flow

RESULTS AND DISCUSSION

Results

The analysis delineates four principal phases in the development of Indonesian cyber literature: the web era, the social media era, the platform era, and the nascent era of AI-, AR-, and NLP-driven writing. Throughout these phases, several defining traits emerge, such as interactivity, multimodality, non-linearity, reader engagement, and algorithmic impact. These characteristics collectively signify a transition towards more collaborative and technology-mediated forms of authorship that correspond with the tenets of Society 5.0. Media transitions significantly reshape the aesthetic character of literary texts, the social dynamics of reading, and the competencies literacy demands. Aesthetic expression moves toward visuality, emotional hybridity, and viral circulation. Reading behaviors are shaped by social media mechanisms, comments, ratings, and algorithmic recommendations. While literacy itself expands to encompass multimodal navigation, AI literacy, and multiliteracies.

This research advocates for a human-centered cyber literature pedagogy that brings together deep reading, multimodal authorship, critical digital literacy, and ethical collaboration with artificial intelligence. In this framework, students are seen as meaning-makers in digital ecosystems. The model offers a conceptual basis for designing literature education that meets the pedagogical demands of the Society 5.0 era.

Indonesian Language Education and Literature
e-ISSN: 2502-2261
https://journal1.uinssc.ac.id/index.php/jeill/index
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Table 2. Synthesis of Key Results Across Research Questions

Research Question	Core Findings	Analytical Dimensions	Evidence Base	Relevance to Society 5.0
Evolution & Characteristics of Cyber Literature	Four-phase evolution (Web to Social Media to Platforms to AI/NLP). Key traits: interactive, multimodal, algorithmic, participatory	Historical progression; Digital textuality; Reader–writer interaction.	Literature review; Platform screenshots (Figures 4.1–4.4).	Demonstrates transition toward human–technology co-creation.
Aesthetic, Social, and Literacy Implications	Shift from print-based depth to digital hybrid aesthetics; rise of social reading; emergence of multiliteracies & AI literacy.	Aesthetic shifts; Social engagement; Literacy transformation.	Studies (Benjamin, NLG, Sinta/Scopus); Platform behaviors (comments, likes, ratings).	Supports human-centered digital competencies.
Pedagogical Reconstruction	Human-centered model: deep reading + multimodal authorship + critical & ethical AI use.	Pedagogy; Curriculum design; Humanism–technology integration.	Synthesis of theory; Classroom practices; Digital literacy initiatives.	Aligns learning with human-centered creativity & ethical AI.

Source(s): *Processed by Researchers, 2025*

Discussion

Indonesian cyber literature develops through a continuing tension between literary creativity and shifting media infrastructures, moving across four distinct phases: the web era, social media era, platform era, and AI-assisted era. Digital literary production progressively shifts away from decentralized publication toward multimodal, algorithmically mediated, and hybrid forms of authorship. This trajectory aligns with Aarseth's (1997) assertion that digital texts foster novel forms of reader engagement, and with Jenkins et al.'s (2009) concept of participatory culture, where meaning is co-created rather than merely consumed. During the web era, online forums and blogs facilitated early forms of literary democratization. Writers were able to share poems, essays, and short stories without institutional gatekeeping, while readers engaged dialogically through comment threads and hyperlink-based navigation. This initial participatory dynamic is illustrated in Figure 2, which presents examples of Indonesian writers using platforms such as Kompasiana and Blogspot to circulate literary works beyond traditional print channels.

The transition into the social media era further intensified this participatory ethos by embedding literary expression within fast-paced, visually oriented communication environments. Forms such as instapoetry, microfiction, and quote poetry rely on affective resonance, minimalist visual aesthetics, and platform-native formats. These practices exemplify what scholars describe as visual–literary hybridity, in which textual meaning is inseparable from imagery, layout, and platform logic.

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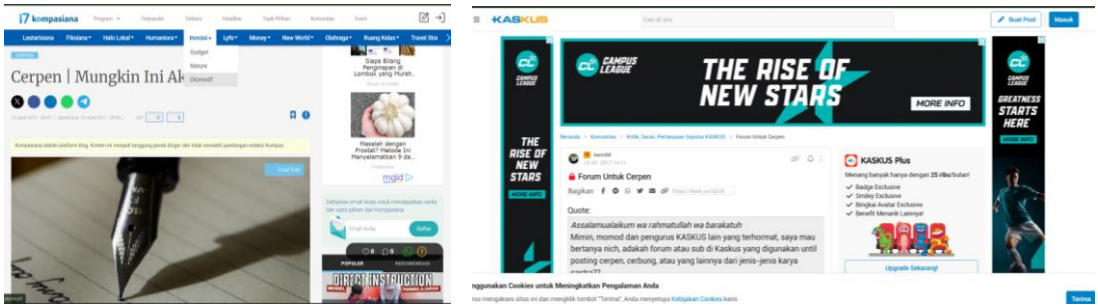


Figure 2. Early Indonesian web-based literary practices demonstrating dialogic engagement and open-access circulation (accessed 2025)

As illustrated in Figure 2, Indonesian examples of instapoetry combine concise emotional language with soft-toned portrait backgrounds and aesthetic minimalism, thereby reinforcing social reading behaviors such as liking, sharing, and commenting. The platform era is a time when digital literary practice is becoming more stable. Platforms like Wattpad and Webtoon, on the other hand, organize stories into serialized and algorithmically curated ecosystems. This is different from blogs or social media. In these settings, engagement metrics mostly decide how visible text is, and readers can change how the story develops by leaving comments, ratings, and voting.

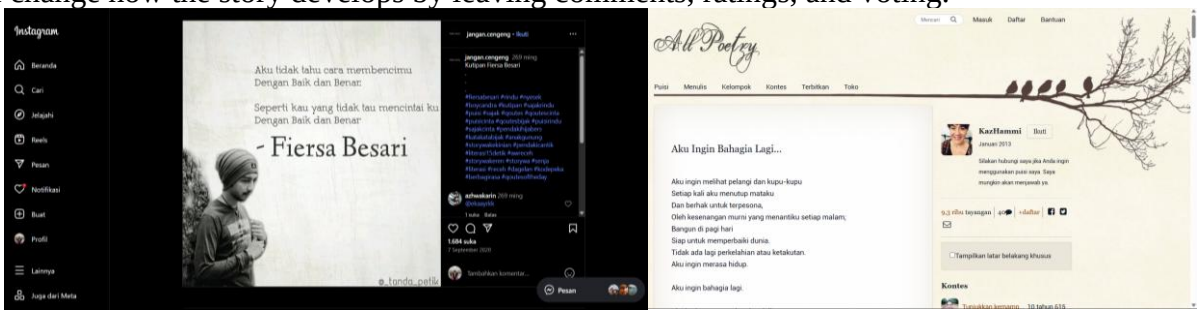


Figure 3. Examples of Indonesian social-media-based digital literature illustrating visual–emotional hybridity in instapoetry and microtexts

Figure 3 shows these dynamics by showing Indonesian works like Dear Nathan (Wattpad) and Eggnoid (Webtoon), both of which use multimodal storytelling, fan interaction, and cross-media adaptation. Nugraha and Suyitno (2022), Cheng and Frens (2022), and Wulan et al. (2024) have all done empirical studies that show that platform-based literature has become a real and important way for Indonesian youth to be creative. The emergence of the AI-, AR-, and NLP-based writing era introduces a new paradigm in which authorship becomes increasingly hybrid and collaborative. AI tools support writers in generating ideas, refining linguistic expression, and exploring alternative narrative pathways, reflecting contemporary debates on posthuman authorship and algorithmic creativity. As illustrated in Figures 4, Indonesian users are increasingly engaging with AI to co-compose poems while simultaneously consulting digital literacy resources that encourage ethical and critical interaction with intelligent systems. Rather than replacing creative agency, these tools reshape how writers conceptualize voice, intention, and originality within digitally mediated literary practices.

In general, the development of Indonesian cyber literature can be seen as a path that goes from decentralizing text to visual and social engagement, then to algorithmic structuring, and finally to working with AI in a hybrid way. This progression confirms that cyber literature is a culturally mediated practice influenced by technological capabilities, participatory behaviors, and the evolving notions of creativity in the Society 5.0 era. This evolutionary trajectory carries significant implications for Sustainable Development Goal 4 (SDG 4, Quality Education), which calls for inclusive, equitable, and lifelong learning opportunities for all.

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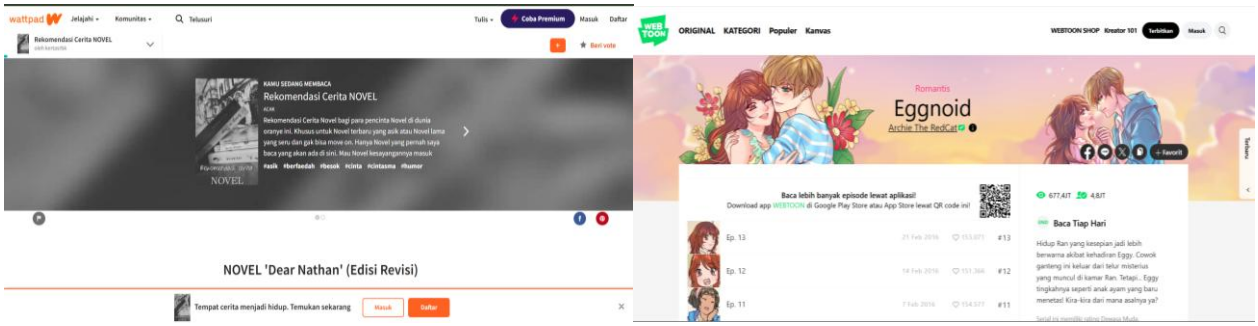


Figure 4. Platform-based Indonesian digital literature illustrating multimodal narrative features and high reader participation

The four-phase development of Indonesian cyber literature, from open-access web forums to AI-augmented creative platforms, directly expands literary participation beyond traditional socioeconomic and geographic barriers, thereby contributing to the inclusivity and equity dimensions of SDG 4 (Buchan et al., 2024; UNESCO, 2021). Shen et al., (2024) show how participatory fandom cultures, mediated by algorithmic platforms, are reshaping the boundaries between human creativity and machine-assisted production. A development that makes ethical discernment an increasingly essential literary competency in the Society 5.0 era. This finding collectively affirms that the evolution of cyber literature is fundamentally a socio-educational transformation, one that carries direct relevance to the global SDG agenda beyond its obvious technological dimensions.

The shift from print-based literary culture to digitally mediated environments produces multifaceted consequences for aesthetics, social interaction, and the development of literacy. Cyber literature changes the very nature of literary texts on an aesthetic level. Benjamin, notion of the waning "aura" of authenticity in the realm of mechanical reproduction is increasingly pertinent in digital environments, where literary works circulate as infinitely replicable images, screenshots, and algorithmically curated fragments (Benjamin, 2008). But digital literature in Indonesia doesn't just lose its aura. Instead, it creates a platform-dependent aura, which is a new kind of value based not on how unique the text is, but on how visible it is, how it makes people feel, and how algorithms can make it more popular.

This phenomenon is clearly observable in Indonesian instapoetry. As illustrated in Figures 5A–5B, the selected posts show how short poetic lines, grayscale color palettes, blurred backgrounds, and stylized typography converge to create a visual–poetic aesthetic that is distinctive to Instagram. Within these texts, meaning is generated not only through linguistic expression, but also through framing, contrast, spatial openness, and emotional atmosphere. Such characteristics closely resonate with multiliteracies theory Kalantzis (2015), which emphasizes that contemporary meaning-making is inherently multimodal, emerging from the interaction of verbal, visual, spatial, and affective elements. Critically, this aesthetic shift represents something more consequential than a technological upgrade of literary form. It signals a fundamental restructuring of what counts as literary value. Whereas print aesthetics privileged authorial uniqueness, typographic consistency, and narrative closure, platform aesthetics reward affective immediacy, visual memorability, and algorithmic shareability.

A research topic edited by Ibáñez, Díaz, and Azagra (2024), bringing together studies on training readers and writers for a multimodal and multimedia society, points to a similar pattern: students immersed in platform-dominated reading environments tend to develop strong visual-decoding competencies while showing weaker inferential and deep-comprehension skills, a pattern that critically challenges romanticized views of digital aesthetics as simply “new” literacies. This aesthetic transformation is directly relevant to SDG 4’s emphasis on quality education. If literary quality is increasingly defined by platform logic rather than interpretive depth, literature education

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faces a structural risk of producing aesthetically fluent but critically shallow learners. The pedagogical implication is that teachers must make aesthetic critique itself an object of study, guiding students to analyze not only the content of instapoetry or micro-fiction, but also the platform architectures that generate and reward particular aesthetic conventions over others.

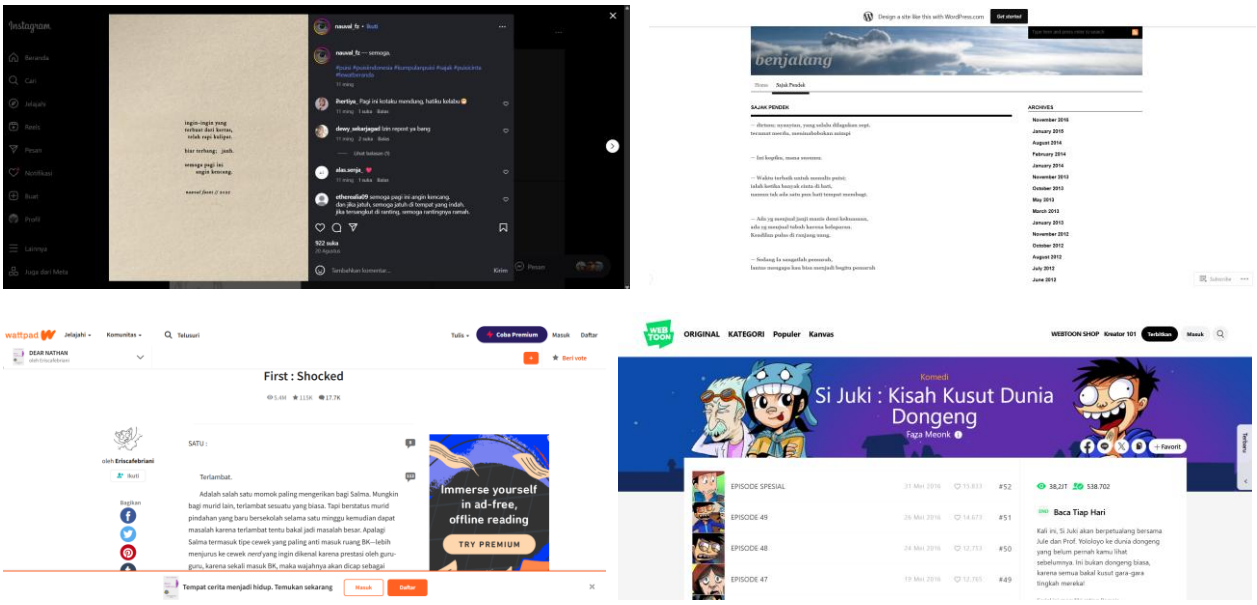


Figure 5. Indonesian instapoetry examples illustrating multimodal semiotic design and affective digital aesthetics

Cyber literature changes reading into an interactive, performative, and participatory activity in society. Jenkins' (2009) notion of participatory culture is manifest in the dialogic comment threads, fandom reactions, and collaborative meaning-making processes that define digital platforms. Instead of interpreting stories alone, readers show how they feel, work together to decide where the story should go, give authors likes or votes, and build group identities around stories they all know. Critically, however, this shift from solitary reading to performative participation must be analyzed with caution rather than celebrated uncritically. Y. Shen, in a Scopus-indexed study on participatory culture and AI-mediated fandom, argues that the emergence of human-community-machine interaction has fundamentally altered the nature of literary engagement (Shen, 2025). Readers are no longer simply co-interpreters of texts, but co-producers within algorithmically governed participation ecosystems.

In this context, social reading behaviors such as liking, voting, and commenting are not neutral expressions of reader response. They are performances shaped and rewarded by platform incentive structures that privilege emotional visibility over analytical reflection. This finding critically extends Jenkins' participatory culture framework, which did not anticipate the degree to which algorithmic recommendation systems would mediate and commodify participatory literary engagement. For literature education, this social shift has direct implications for SDG 4's emphasis on quality learning. When participation becomes performative rather than interpretive, the classroom risk is that students learn to perform emotional responses to literature without developing the deeper hermeneutic capacities, such as comparison, inference, and critical evaluation, that constitute genuine literary competence. Meta-analytic evidence on reading comprehension across print and digital formats similarly cautions that surface engagement with a text does not guarantee depth of understanding (Salmerón et al., 2024). Teachers must therefore create structured conditions in which social reading is scaffolded toward analytical dialogue rather than affective performance alone. These changes have

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big effects on how people learn to read and write. Digital literature requires multiliteracies and algorithmic literacy, skills that help students understand what words mean, move through different types of media, see what a platform can do, and think critically about content that was created or recommended by AI. Digital ecosystems exacerbate issues associated with divided attention and superficial processing. Researchers like Wolf, 2018 warn that spending too much time in fast-paced digital environments may make it harder to read deeply, which is important for analytical thinking, emotional engagement, and developing empathy.

Indonesian data further substantiate these apprehensions. APJII (2023) data show that Indonesian youth predominantly engage in visual-scrolling behaviors, while PISA 2022 results place Indonesia below the OECD average in reading comprehension. School-based assessments also show that students are less interested in long-form literary texts. Literary content mostly comes in the form of 10-second TikTok poems, aesthetic reels, or single-line quotes. These are all formats that are meant to be quick and easy to understand, not deep and thoughtful. Critically, this data pattern must be read not as proof of a generational literacy deficit, but as evidence of a structural mismatch between the linear, sequential competencies privileged by traditional literature education and the non-linear, multimodal, algorithmically navigated practices that define contemporary digital reading environments. Chen & Xiao (2024) says that a multilevel analysis of digital reading literacy drawing on data from thirty-one economies demonstrate that students who lack explicit instruction in hyperlink navigation, distraction filtering, and multimodal text processing perform significantly worse on digital reading tasks, regardless of their print literacy levels. This confirms that digital literary competence is a genuinely distinct cognitive domain. Students cannot simply transfer their print literacy skills into digital environments. They need explicit instruction in the specific practices that digital reading demands.

Furthermore, the growing body of research on AI in academic literacy reveals that while AI tools accelerate textual production, they simultaneously risk displacing the metacognitive processes of planning, revising, and monitoring comprehension that are foundational to deep literary understanding (Shen, 2025). The literacy shift thus demands a curriculum response that explicitly teaches algorithmic navigation, multimodal inference, and critical AI engagement as complementary rather than alternative competencies to deep, linear reading, a response directly aligned with SDG 4's call for equitable, quality, future-oriented learning.

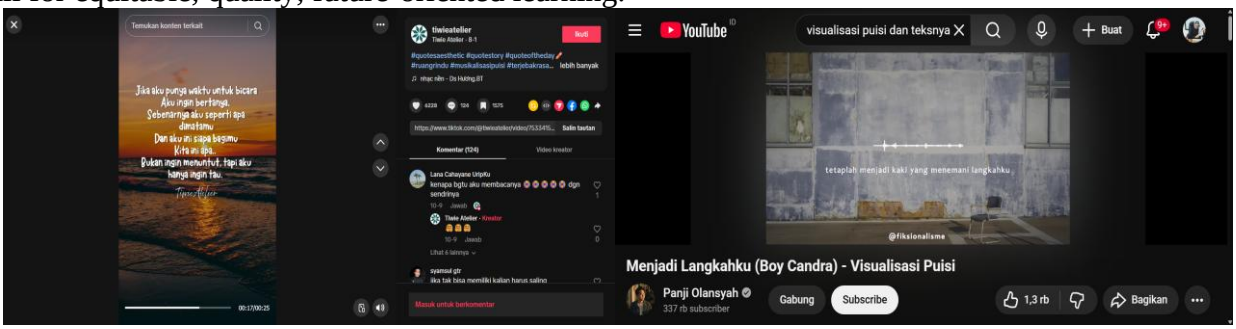


Figure 6. Evidence of rapid-scroll consumption patterns in Indonesian youth, illustrating medium-driven constraints on sustained comprehension

The emergence of AI-assisted writing further complicates the contemporary literacy landscape. AI tools are capable of producing polished poems, metaphors, and narrative outlines with minimal user input. While such tools expand opportunities for fluency and creative experimentation, they also risk diminishing interpretive agency when employed without critical reflection. Figure 6 presents two contrasting dimensions of this development: the generative potential of AI-produced poetry and the parallel growth of digital literacy initiatives that promote ethical and reflective engagement with AI. Recent research in Indonesia (Chasanah et al., 2023) indicates that although

DOI: 10.24235/ileal.v12i1.23988

students readily adopt AI for creative tasks, many experience difficulty explaining the structural, thematic, and stylistic decisions embedded in AI-generated texts. This pattern reveals a widening gap between expressive production and analytical metacognitive awareness.

Indonesian digital readers are, in many respects, genuinely active literary participants. They write microtexts, compose instapoetry, contribute fanfiction, and experiment with AI-generated verse with remarkable ease. What is striking, however, is not their lack of creativity, it is the disconnect between how much they produce and how deeply they engage with what they read. A student who publishes three Wattpad chapters a week may still find it difficult to sit with a poem long enough to trace its imagery, or to articulate why a narrative choice resonates emotionally. Productivity and interpretive stamina are different capacities, and the digital environment tends to develop the former far more than the latter. Literature pedagogy carries a clear responsibility. Digital platforms already cultivate creativity, social engagement, and expressive fluency in students. What they seldom cultivate and what the classroom is uniquely positioned to develop is the habit of sustained, reflective engagement with what a text actually means and how it achieves its effects.

The rapid evolution of literary culture towards multimodal, platform-oriented, and AI-enhanced contexts necessitates a departure from conventional methods of textual transmission in literature education. It calls for a human-centered pedagogical framework that combines interpretive depth, creative expression, and ethical interaction with technology. In the Society 5.0 framework, technology is perceived not only as a cognitive enhancer but also as a tool for dignity, empathy, creativity, and the collective flourishing of humanity (Cabinet Office, 2018; OECD, 2021). This shift is especially pressing in Indonesia. While digital ecosystems are now culturally embedded in everyday life, critical, reflective, and ethical thinking capacities have not developed at the same pace as digital participation (Asosiasi Penyelenggara Jasa Internet Indonesia, 2024; Kemdikbudristek, 2023; OECD, 2023). So, the main teaching problem in literature education is no longer how to use technology, but how to develop people's ability to make meaning, have agency, and imagine in environments that are becoming more algorithmic.

To tackle this issue, this research presents an integrative pedagogical framework consisting of three interconnected and mutually supportive components: deep reading, multimodal creation, and ethical AI literacy. Deep reading offers the interpretive and analytical groundwork necessary to uphold inferential reasoning, symbolic interpretation, and empathetic immersion, even in rapidly scrolling and visually dense contexts (Wolf, 2018). Deep reading is not a departure from traditional literary practices; instead, it is recontextualized through comparative meaning-making between print-based and digital-born texts, facilitated by layered annotation, extended interpretive cycles, and cross-platform narrative mapping. These strategies are meant to keep people mentally engaged even though digital consumption happens quickly. Multimodal creation moves authorship into a post-textual design paradigm, allowing students to make sense of things through visual-spatial organization, sequencing logic, interface interaction, audio-visual resonance, and participatory publication. These kinds of activities fit with the ideas behind Kurikulum Merdeka, especially its focus on happy learning and real, project-based ways to show what you know. They also reflect how digital literary ecosystems work today. Ethical AI literacy serves as the philosophical and epistemic framework of the model, guaranteeing that AI technologies are regarded not as replacements for imagination, but as collaborative enhancers of human creativity. Learners are taught how AI makes language, how to judge the coherence of a story, how to spot bias and hallucination, and how to use machine-generated suggestions in human-led revision processes while keeping track of who is responsible for what and keeping the story's unique identity (Floridi & Chiriatti, 2020).

The way these three pillars work together creates a coherent, human-centered teaching structure in which content, platform, pedagogy, and AI awareness are not seen as separate parts of the lesson, but as parts of a vertically aligned developmental continuum. In this model, learning cyber literature is seen as a cognitive, emotional, and technological process that starts with reading and writing, moves

Indonesian Language Education and Literature
e-ISSN: 2502-2261
https://journal1.uinssc.ac.id/index.php/jeill/index
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on to creating stories in different ways, and ends with working with AI in a way that is morally acceptable. To elucidate this structural logic, the pedagogical design is depicted via a hierarchical pyramid model that differentiates foundational, operational, and ethical–reflective layers.

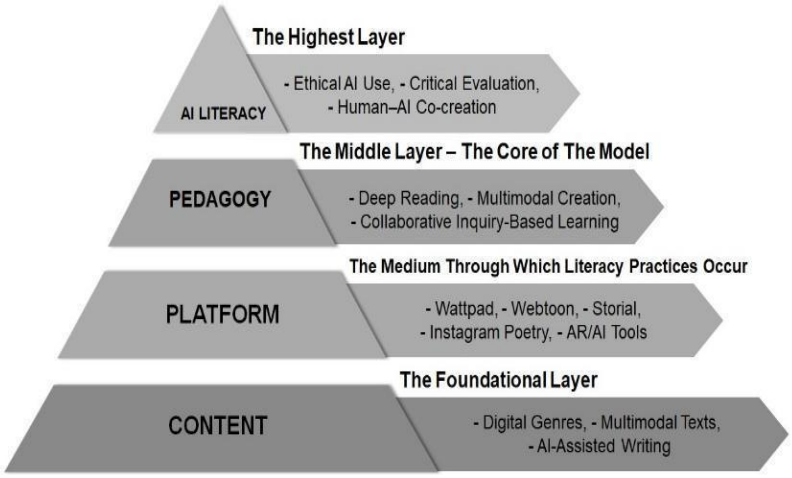


Figure 7. Hierarchical Pyramid Model

As illustrated in the visual model, content constitutes the foundational layer of literacy exposure through digital genres, multimodal texts, and AI-assisted writing. The platform dimension functions as the ecological arena in which literary practices become participatory, interactive, and community-oriented. Pedagogy then mediates interpretive and creative learning processes through deep reading, multimodal composition, and collaborative inquiry. At the apex, AI literacy operates as an ethical and reflective safeguard that ensures human-centered authorship and meaningful interpretation. The upward movement within the pyramid symbolizes progressive learning elevation, while the hierarchical structure represents cognitive and ethical maturation aligned with the humanistic objectives of Society 5.0. To operationalize this model beyond abstract conceptualization, Table 3 below specifies the concrete pedagogical actions of teachers and students within each of the three pillars, grounding the framework in implementable classroom practice.

Recent Scopus-indexed research confirms the urgency of such operationalization: Memon et al. (2025) and Laari (2025) emphasize that theoretical frameworks in educational research achieve practical impact only when they are translated into explicitly actionable instructional sequences. Furthermore, Rapanta et al. (2025) confirm that competency frameworks in digital education achieve transformative impact only when translated into explicitly actionable instructional sequences; frameworks that remain at the level of aspiration rather than specification tend to be adopted symbolically rather than substantively in curriculum development. The Three-Pillar Framework presented here therefore requires, and provides, operationalized instructional specifications to qualify as an applicable pedagogical model for the Society 5.0 classroom context, where SDG 4's commitment to quality education demands not only conceptual clarity but evidenced implementability (Buchan et al., 2024).

This new way of teaching literature does more than make it work with technology; it also changes the way we think about what literature education should be in the age of AI. Instead of seeing literature as a cultural artifact that should just be kept safe, it sees it as a framework for human ability that looks to the future. This framework helps students learn how to understand complexity, create meaning, navigate digital culture, and work with intelligent systems in an ethical way. From this point of view, cyber literature is not only a way to learn to read and write, but also a place where people

DOI: 10.24235/ileal.v12i1.23988

can imagine and act ethically with machines. It prepares students for a future where creativity, interpretation, and humanity are still very important.

Table 3. Operationalization of the Three-Pillar Cyber Literature Pedagogy Framework

Pillar	Learning Objectives	Teacher Actions	Student Activities
Pillar 1: Deep Reading	Cultivate sustained interpretive attention; develop inferential reasoning, symbolic comprehension, and empathic imagination with literary texts (digital and print).	Designs slow-reading activities comparing print poems with instapoetry; facilitates Socratic seminars on cyber literary texts; provides layered annotation protocols; assigns cross-platform narrative analysis (e.g., Wattpad vs. print short story).	Reads extended digital literary texts without interruption (timed deep-reading sessions); writes interpretive reading journals; participates in structured analytical discussions; produces comparative close-reading essays on digital versus print texts.
Pillar 2: Multimodal Creation	Develop multimodal authorship competencies; integrate verbal, visual, spatial, audio, and interactive design modes in purposeful literary creation for real digital audiences.	Guides project-based literary creation tasks (e.g., digital comic, instapoetry series, Webtoon chapter); scaffolds semiotic design choices; facilitates peer critique sessions using multimodal analysis frameworks; integrates Kurikulum Merdeka's project-based learning structures.	Creates original multimodal literary works using digital tools (Canva, Webtoon Studio, Wattpad); writes design rationale reflections explaining aesthetic choices; presents and receives structured peer feedback; publishes to authentic digital platforms for real-audience response.
Pillar 3: Ethical AI Literacy	Build critical understanding of AI as a collaborative literary tool; develop capacity to evaluate AI-generated content for bias, coherence, and originality; maintain ethical authorial identity in AI-assisted creation.	Designs AI-assisted writing workshops with explicit ethical framing; guides comparative analysis of human-written vs. AI-generated literary texts; facilitates critical discussions on algorithmic authorship, bias detection, and hallucination identification; models transparent AI use in creative revision processes.	Collaborates with AI tools to generate literary drafts and then critically revises them with personal voice; writes reflective logs documenting AI decision-making and ethical choices; presents analysis of AI poem vs. personal poem distinguishing structural and stylistic decisions; participates in ethics discussions on authorship and originality.

Source(s): Processed by Researchers, 2025. Framework informed by Wolf (2018), Cope & Kalantzis (2015), Floridi & Chiriatti (2020), and aligned with SDG 4 (UNESCO, 2021).

This pedagogical orientation is directly aligned with the aspirations of SDG 4, Quality Education, which calls for the promotion of inclusive, equitable, and future-oriented learning environments capable of developing critical thinking, digital competence, and ethically responsible citizenship (UNESCO, 2021). Recent research affirms this alignment. A systematic review published in the International Journal of Artificial Intelligence in Education demonstrates that AI literacy

education achieves its deepest impact when it is embedded within subject-specific disciplinary contexts, such as literary education, rather than delivered as a standalone technical curriculum (Biagini, 2025). This confirms that the Three-Pillar Framework proposed in this study represents not merely a pedagogical innovation for literature teachers, but a meaningful contribution to the broader SDG 4 agenda of cultivating critical, creative, and ethically literate learners for the Society 5.0 era.

CONCLUSION

This study demonstrates that cyberliterature in Indonesia has undergone a four-phase transformation, from web-based democratization to AI-enhanced authorship, resulting in a new aesthetic orientation toward platform virality, a social shift from solitary interpretation to performative participation, and literacy demands from linear reading to multiliteracies and algorithmic navigation. These transformations expand creative participation while simultaneously posing risks to deep reading, reflective interpretation, and ethical engagement with generative technologies. In response, this study proposes a Three-Pillar Pedagogical Framework that integrates deep reading, multimodal creation, and ethical AI literacy as mutually reinforcing competencies. It also offers three theoretical contributions: reconceptualizing cyberliterature as a socio-technical literary ecology, introducing an operationalized Three-Pillar framework, and mapping aesthetic, social, and literacy shifts as an original analytical scheme. This study is conceptual in nature and does not yet include empirical classroom implementation, thus encouraging the integration of cyberliterature through structured pedagogical design, ongoing professional development, a multimodal assessment framework, and ethical guidelines for the use of AI. It also recommends collaboration with digital platforms, literacy communities, and AI developers. Future research is expected to validate this model empirically, examine the development of identity and ethical reasoning in AI-mediated authorship, and conduct cross-regional comparisons, as the future of literary education in the digital age depends not only on the level of technology integration, but on how effectively pedagogy sustains human judgment, ethical imagination, and reflective meaning-making in a technology-enriched learning ecology.

Author Contribution Statement

Enung Nurhayati conceptualized the study, designed the interpretive-conceptual synthesis method, constructed the Three-Pillar Framework, wrote the original draft, and supervised the overall research process. **R. Ika Mustika** conducted literature scoping, selected the theoretical sources, and carried out the thematic synthesis. **Ramlee bin Tingkong** validated the theoretical constructs on cyber literature and posthuman authorship and critically reviewed the manuscript from a Southeast Asian perspective. **Alfa Mitri Suhara** collected the contextual evidence from Sinta- and Scopus-indexed Indonesian studies and APJII statistics and performed the conceptual-contextual mapping. **Aji Septiaji** compiled the platform data from Wattpad, Webtoon, and TikTok and prepared the tables and the methodological flow diagram. **Wikanengsih** conducted source triangulation and reflexive checking, managed the references, and edited the manuscript. All authors discussed the findings, revised the manuscript critically, and approved the final version for publication.

Funding Statement

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The study was carried out with the authors' own resources and the academic support of IKIP Siliwangi, Universiti Brunei Darussalam, and Universitas Majalengka.

Conflict of Interest Statement

The authors declare no conflict of interest. None of the authors has financial, institutional, or personal ties to the digital platforms discussed in this article, including Wattpad, Webtoon, and TikTok, or to

any developer of generative AI tools. No external party took part in the design of the study, the selection and analysis of sources, the interpretation of findings, or the decision to publish.

Data Availability Statement

This study is a conceptual synthesis and did not generate any new empirical dataset. All data analysed were derived from published and publicly accessible sources. These comprise journal articles indexed in Scopus and Sinta, institutional reports issued by UNESCO, OECD, APJII, and the Cabinet Office of Japan, and publicly available literary content on Wattpad, Webtoon, and TikTok. Every source is cited in the text and listed in the References. The analytical materials produced during the study, namely the source selection log, the thematic synthesis notes, and the conceptual-contextual mapping matrix, are available from the corresponding author upon reasonable request.

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