

Human-Centred Artificial Intelligence-Supported Critical Film Literacy Model for SDG 4.7: A Postcolonial Study of Indonesian Cinema

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ABSTRACT

Objective: The study develops a human-centred model of artificial-intelligence-supported critical film literacy for language education and Sustainable Development Goal (SDG) 4.7. It examines how Indonesian biographical cinema constructs critical awareness and how those constructions can organise responsible AI-supported learning. **Method:** A qualitative interpretative-critical reanalysis examined Guru Bangsa: Tjokroaminoto, Kartini, and Sultan Agung: Tahta, Perjuangan, dan Cinta. Verbal, visual, narrative, auditory, and cultural signs were analysed through Peircean semiotics, Freirean critical pedagogy, and Bhabha's postcolonial concepts. Abductive cross-film coding organised the evidence into cognitive, affective, and praxis-oriented dimensions and guided pedagogical model derivation. **Results:** The films construct structural awareness through education, letters, books, public speech, cultural memory, and symbolic spaces; ethical engagement through confinement, exploitation, grief, and responsibility; and transformative agency through organisation, emancipatory literacy, negotiation, leadership, and cultural transmission. These patterns support a six-stage cycle: human first reading, AI-generated alternative interpretation, evidence verification, cultural-bias audit, dialogic synthesis, and independent ethical language production. **Novelty:** The study integrates critical film literacy, language learning, AI literacy, postcolonial interpretation, and SDGs-oriented education in one operational didactic-semiotic model. Human judgement functions as the organising principle of AI use, while SDG 4.7 provides the central educational purpose and SDGs 5 and 16 provide linked contribution pathways..

INTRODUCTION

Generative Artificial Intelligence (AI) has moved rapidly from a specialist technology to an everyday mediator of language learning. Learners now encounter systems that generate explanations, reformulate sentences, translate passages, simulate dialogue, provide feedback, and offer stylistic alternatives within seconds. These affordances can widen access to linguistic support and increase opportunities for rehearsal, particularly where teacher time and instructional resources are limited. At the same time, generative systems relocate parts of authorship, interpretation, and decision-making into an opaque computational process. Contemporary language education therefore requires designs that connect technological access with learner agency, evidential reasoning, and ethical responsibility rather than treating fluent output as an educational outcome in itself (Kasneci et al., 2023; Kohnke et al., 2023; Lo, 2023; Tlili et al., 2023).

The recent literature presents a productive yet demanding picture of AI-supported education. Systematic reviews identify possibilities for personalised assistance, formative feedback, content generation, and adaptive learning, while also highlighting accuracy, bias, privacy, over-reliance, and governance as central design concerns (Chiu et al., 2023; Farrokhnia et al., 2024; Zawacki-Richter et al., 2019). Empirical language-education studies show that generated feedback can support writing development when learners interpret, evaluate, and revise suggestions rather than copying them directly (Mahapatra, 2024; Polakova & Ivenz, 2024). Teacher preparedness and

institutional policy shape this relationship because pedagogical value emerges through task design, disciplinary knowledge, and explicit boundaries for acceptable use (Chan, 2023; Kohnke et al., 2023b; Moorhouse & Kohnke, 2024).

A human-centred position places learners and teachers at the centre of this technological ecology. Ouyang and Jiao (2021) distinguish AI-directed, AI-supported, and AI-empowered paradigms, with the third paradigm assigning learners an active role in directing and evaluating technological support. Godwin-Jones (2024) similarly describes language learning as distributed agency across people, tools, communities, and contexts. This perspective supports AI use that expands the learner's repertoire while preserving visible intellectual ownership. It also encourages assessment of how a learner selects evidence, rejects weak suggestions, revises culturally generic language, and explains the reasoning behind a final interpretation (Jiang et al., 2024; Ng et al., 2021).

AI literacy provides a competency framework for this work. Foundational accounts define it as the capacity to understand what AI can do, interact with it, critically evaluate its outputs, and consider its social and ethical consequences (Long & Magerko, 2020; Ng et al., 2021). Reviews of school-level AI education add data awareness, model limitations, human-AI collaboration, and responsible action to this competency set (Casal-Otero et al., 2023; Su et al., 2022). UNESCO's competency frameworks for teachers and students likewise emphasise human-centred values, ethical judgement, critical understanding, and pedagogical responsibility (Miao & Cukurova, 2024; Miao et al., 2024). In language education, these capacities become concrete when learners compare generated wording with source evidence, test semantic nuance, recognise uncertainty, and disclose the role of digital assistance.

This educational agenda closely corresponds with Sustainable Development Goal (SDG) 4.7. The target positions knowledge, skills, values, human rights, gender equality, cultural diversity, global citizenship, peace, and sustainable development within the purposes of education (United Nations, 2015; UNESCO, 2017). Education for Sustainable Development connects cognitive understanding, socio-emotional engagement, and behavioural or action-oriented competence, while sustainability-competency research highlights systems thinking, values thinking, collaboration, and strategic action (Brundiers et al., 2021; Kioupi & Voulvoulis, 2019; Sinakou et al., 2019). Monitoring research further shows that SDG 4.7 depends on alignment among policy, curricula, teacher education, and student assessment (Holst et al., 2024). AI-supported language learning contributes meaningfully to this target when it develops cultural interpretation, ethical communication, and participation rather than only technical efficiency.

Film offers a rich environment for such integration because meaning develops through language and multiple semiotic modes. Spoken dialogue interacts with written text, gesture, facial expression, costume, framing, editing, music, silence, objects, and spatial arrangement. These modes support listening, speaking, reading, writing, pragmatic interpretation, historical vocabulary, and intercultural learning. Moving-image research demonstrates that film can intensify narrative comprehension and emotional engagement through the coordination of image, sound, and temporal sequence (Jajdelska et al., 2019). Multimodal pedagogy therefore invites learners to explain how a claim arises from an arrangement of signs rather than from dialogue alone (Bezemer & Kress, 2016; Jewitt et al., 2016; Kress, 2010; Nguyen, 2024).

Critical film literacy extends multimodal comprehension towards the social organisation of visibility, voice, and authority. Learners examine whose experiences

receive narrative attention, which perspectives establish credibility, how cultural identities are framed, and how cinematic form guides moral judgement. Critical media-literacy scholarship treats such interpretation as a civic practice because media representations influence public knowledge, identity, and participation (Buckingham, 2019; Bulger & Davison, 2018; Kellner & Share, 2019; Mihailidis & Viotty, 2017). Film analysis can thus join language development with inquiry into power, historical memory, gender, justice, and citizenship. These themes make film literacy especially relevant to SDG 4.7 and its connections with SDG 5 on gender equality and SDG 16 on peaceful, just, and inclusive institutions.

Generative AI can enrich critical film literacy by producing alternative readings, vocabulary clusters, counter-arguments, questions, translations, and possible rhetorical structures. Its value lies in creating contrastive material that learners can interrogate. The technology also carries representational risks. Large language models learn from unevenly distributed data and can reproduce dominant cultural categories, flatten local histories, or present uncertainty as fluent certainty (Bender et al., 2021; Blodgett et al., 2020). Decolonial AI scholarship describes these risks as questions of epistemic authority, data coloniality, and unequal visibility rather than solely technical error (Adams, 2021; Birhane, 2020; Couldry & Mejias, 2019; Mohamed et al., 2020; Ricaurte, 2019). A postcolonial film-literacy design can turn these risks into objects of analysis through evidence verification and cultural-bias auditing.

This critical stance also has consequences for academic integrity. Policy responses based primarily on detection can misclassify human writing and place multilingual learners at particular risk. Comparative testing has found substantial weaknesses in AI-text detectors, while research reports systematic bias against writers who use English as an additional language (Liang et al., 2023; Weber-Wulff et al., 2023). Process-oriented assessment provides a more educational response by documenting initial interpretation, prompts, annotated output, source checks, revision decisions, and final authorship. Such transparency reframes integrity as accountable practice and pedagogical design rather than surveillance alone (Cotton et al., 2024; Perkins, 2023; Rudolph et al., 2023).

Indonesian biographical cinema provides a culturally significant corpus for developing this approach. *Guru Bangsa: Tjokroaminoto* (Nugroho, 2015), *Kartini* (Bramantyo, 2017), and *Sultan Agung: Tahta, Perjuangan, dan Cinta* (Bramantyo, 2018) represent struggles involving colonial domination, patriarchal hierarchy, feudal authority, education, leadership, cultural identity, and collective transformation. Language occupies a central position in these narratives through speeches, letters, teaching, negotiation, religious discourse, political debate, and cultural transmission. The films therefore link linguistic practice with public action and historical memory, creating material for culturally grounded SDGs education.

Existing scholarship confirms the interpretive value of the corpus. Pratidina and Pasaribu (2023) show how cinematic portrayals of Kartini organise women's agency through historically situated narratives of anguish and quiet struggle. Tjahjani and Wibawarta (2025) interpret hijrah in *Guru Bangsa: Tjokroaminoto* as an ideological movement linking Islamic thought, anti-colonial struggle, and criticism of feudal culture. Research on *Sultan Agung* also highlights leadership, resistance, patriotism, and cultural identity as major representational concerns (Aziz, 2021; Noval & Mulyana, 2025). These studies establish substantial foundations for gendered, political, and postcolonial interpretation, while the pedagogical translation of cross-film findings into AI-supported language learning remains open for systematic development.

The theoretical synthesis combines four complementary traditions. Peircean semiotics explains how cinematic signs generate interpretation through relations among representamen, object, and interpretant, including iconic, indexical, and symbolic functions (Peirce, 1931-1958). Freirean critical pedagogy frames learning as conscientisation through naming the world, dialogic reflection, ethical engagement, and transformative praxis (Darder, 2014; Freire, 2005). Bhabha's concepts of ambivalence, mimicry, hybridity, and third space illuminate negotiation between colonial and local epistemologies (Bhabha, 1994). Film and postcolonial media theory clarify the affective, historiographic, and ideological force of moving images (Plantinga, 2009; Rosenstone, 2018; Shohat & Stam, 1994). Together, these traditions support a didactic-semiotic model that moves from observable film evidence towards responsible language action.

Three research gaps organise the present study. First, generative-AI research in language education concentrates strongly on writing support, feedback, perceptions, and readiness, leaving culturally situated multimodal interpretation comparatively underdeveloped. Second, film-literacy scholarship explains multimodal meaning and critical representation, while explicit procedures for evaluating generated interpretations remain limited. Third, Indonesian biographical-film studies provide culturally grounded readings of history, gender, ideology, and identity, yet they rarely translate those readings into an operational SDG 4.7 learning sequence. The integration of these domains offers a solution-oriented contribution consistent with JOCSIS's focus on evidence-based SDG implementation (Masulah et al., 2026).

Accordingly, this study addresses three questions: (1) How do the selected Indonesian biographical films construct cognitive, affective, and praxis-oriented dimensions of critical awareness? (2) How do postcolonial and semiotic patterns across the films contribute to language learning and SDGs-oriented cultural education? (3) How can the findings be translated into a human-centred AI-supported critical film-literacy model that strengthens evidence-based interpretation, cultural responsibility, and independent language production? The study contributes a cross-film interpretative analysis, a six-stage didactic cycle, an assessment logic centred on visible human judgement, and an implementation pathway linking SDG 4.7 with SDGs 5 and 16.

RESEARCH METHOD

Research design and epistemological position

The study employed a qualitative interpretative-critical design. Its interpretative dimension examined how meaning is produced through dialogue, visual composition, sound, objects, narrative sequence, performance, and cultural symbolism. Its critical dimension connected these meanings with coloniality, patriarchy, feudal hierarchy, education, leadership, and social transformation. The design treated the films as cultural texts and as potential pedagogical resources. It also maintained a clear distinction between textual findings and proposed classroom applications: the film analysis supplied the empirical foundation, while the AI-supported learning cycle emerged through theory-informed didactic modelling. This distinction protects the analysis from presenting proposed pedagogical outcomes as measured classroom effects.

The research adopted a contextualist epistemological position. Cinematic signs were understood as materially observable features whose meanings arise through historical, cultural, narrative, and theoretical relations. Interpretation therefore involved disciplined movement between textual evidence and conceptual explanation. The

approach corresponds with qualitative standards that value coherence among research questions, epistemological assumptions, analytical procedures, and claims (Braun & Clarke, 2021, 2022; Levitt et al., 2018). An abductive logic guided the inquiry: initial observations generated provisional meanings, theoretical concepts refined those meanings, and recurring tensions prompted a return to the films for closer examination.

Film corpus and case selection

The corpus comprised three Indonesian biographical or historical films: *Guru Bangsa: Tjokroaminoto* (2015), directed by Garin Nugroho; *Kartini* (2017), directed by Hanung Bramantyo; and *Sultan Agung: Tahta, Perjuangan, dan Cinta* (2018), also directed by Hanung Bramantyo. Purposive selection followed five criteria: representation of a recognised historical figure; sustained engagement with education or cultural learning; conflict involving colonialism, patriarchy, feudalism, leadership, or social justice; a rich interaction of verbal and non-verbal signs; and direct relevance to critical awareness and SDG 4.7. The cases were selected for analytic complementarity rather than statistical representativeness.

The three-film design enabled comparison across distinct historical, social, and ideological configurations. *Guru Bangsa: Tjokroaminoto* foregrounds political education, religious-political language, mobility, and collective organisation. *Kartini* foregrounds gendered access to literacy, correspondence, religious understanding, domestic restriction, and educational reform. *Sultan Agung* foregrounds leadership, cultural memory, resistance, sacrifice, and intergenerational transmission. Together, the cases allow cognitive, affective, and praxis-oriented awareness to be examined across varied representational forms while preserving the specificity of each narrative world.

Table 1. Film corpus, analytical emphasis, and SDG relevance.

Film	Year	Primary sign clusters	Educational emphasis	SDG link
<i>Guru Bangsa: Tjokroaminoto</i>	2015	Train, Peneleh house, speech, hijrah, organisation	Political education, colonial critique, civic agency	SDG 4.7; SDG 16
<i>Kartini</i>	2017	Books, letters, window, room, forms of address	Gendered literacy, voice, negotiation, educational access	SDG 4.7; SDG 5
<i>Sultan Agung: Tahta, Perjuangan, dan Cinta</i>	2018	Padepokan, serat, ritual, battlefield, cultural memory	Leadership, cultural continuity, ethical responsibility	SDG 4.7; SDG 16

Units of analysis and data construction

The units of analysis comprised verbal, visual, narrative, auditory, and contextual signs. Verbal units included dialogue, monologue, public speech, letters, narration, rhetorical questions, lexical choices, and forms of address. Visual units included gesture, facial expression, costume, bodily position, objects, spatial organisation, colour, lighting, and composition. Narrative units included conflicts, turning points, character development, causal sequences, and movements from reflection towards action. Auditory units included music, silence, environmental sound, and sound effects that intensified emotional or ideological meaning. Contextual units comprised historical and scholarly sources used to situate interpretation and to distinguish cinematic representation from historical verification.

Data construction involved repeated full-film viewing, selective transcription, scene description, and documentation of dominant signs. The first viewing established plot structure, major character relations, historical setting, and central conflicts. Subsequent viewings focused on scenes associated with structural awareness, emotional engagement, collective agency, emancipatory literacy, cultural resistance, leadership, and sacrifice. The researchers recorded scene descriptors, short dialogue extracts, visual and auditory signs, provisional interpretations, counter-readings, and theoretical links in analytic data cards. Time codes were retained in the working records for traceability, while scene descriptors provide an edition-resilient reporting convention because distribution versions may vary in opening credits or duration.

Each data card separated observation from interpretation. The observation field described what could be seen or heard; the semiotic field identified possible iconic, indexical, and symbolic functions; the critical field connected the scene with structures of power; and the pedagogical field recorded potential language-learning actions. This layered format reduced the risk of moving directly from a general thematic impression to a pedagogical recommendation. It also enabled the researchers to revisit scenes whenever a theoretical claim required stronger filmic support.

Analytical procedure and model derivation

Analysis proceeded through four recursive phases. First, open coding identified recurrent objects, spaces, linguistic acts, emotions, conflicts, and forms of action. Second, axial coding organised these observations through Peircean sign relations, Freirean conscientisation, and postcolonial negotiation. Third, selective coding synthesised cross-film patterns into cognitive awareness, affective awareness, and praxis-oriented awareness. Fourth, pedagogical translation mapped each pattern onto language-learning objectives, AI-supported activities, human-verification procedures, and SDG links. The phases were recursive because emerging cross-film patterns frequently directed attention back to specific scenes and prompted refinement of earlier codes.

The coding strategy used reflexive interpretation supported by structured comparison. The researchers sought conceptual agreement through discussion of the evidence and theoretical rationale rather than treating numerical intercoder coefficients as the sole marker of quality. This choice follows qualitative-methodology debates that distinguish interpretative depth from coding-as-measurement, while still valuing transparent documentation and systematic challenge (Braun & Clarke, 2021; O'Connor & Joffe, 2020). Rival interpretations were recorded when a sign plausibly supported more than one reading, and the final account indicates ambiguity where cultural meaning remained context-dependent.

The didactic model followed a derivational rule: every AI-supported stage had to correspond with an empirical film-analysis finding and a clearly defined act of human judgement. Cognitive findings informed evidence-based interpretation, contextual inquiry, and source evaluation. Affective findings informed descriptive precision, pragmatic interpretation, ethical vocabulary, and perspective-taking. Praxis findings informed persuasive, reflective, deliberative, and action-oriented communication. Meta-literacy emerged from the comparison of cinematic evidence, scholarly interpretation, local knowledge, and generated language. The model therefore functions as an analytical-to-pedagogical bridge rather than as an independently validated intervention.

The six stages were refined through alignment with human-centred AI literacy and sustainability pedagogy. The sequence begins with a learner-generated interpretation, introduces AI as a source of contrast, requires evidential and cultural evaluation, and returns responsibility to the learner through an independent product. This architecture reflects AI-empowered learning, where the tool expands available resources while learners retain authority over goals and judgements (Godwin-Jones, 2024; Ouyang & Jiao, 2021). It also reflects SDG 4.7's integration of knowledge, values, dialogue, and action (UNESCO, 2017).

Researcher reflexivity, trustworthiness, and ethics

Researcher reflexivity addressed the interpretative position of scholars working within Indonesian language, literary, educational, and cultural contexts. Familiarity with local historical narratives supported recognition of culturally dense signs, while theoretical frameworks created a productive distance from taken-for-granted meanings. Analytic memos documented how prior knowledge influenced scene selection, terminology, and evaluative emphasis. The team also examined how a pedagogical interest in AI literacy could encourage premature translation of film findings into classroom stages. Maintaining separate textual and pedagogical fields in the data cards helped regulate that tendency.

Credibility was strengthened through repeated viewing, cross-film comparison, theory triangulation, analytic memoing, peer challenge, and attention to rival interpretations. Dependability was supported by a documented coding sequence, stable analytical categories, and traceable links between scenes, claims, and model stages. Confirmability was pursued through evidence matrices that distinguish observation, interpretation, and pedagogical derivation. Transferability is supported through detailed descriptions of the corpus, sign clusters, and implementation conditions, allowing educators to judge relevance to other films and learning settings. These practices align with established trustworthiness criteria for qualitative analysis (Nowell et al., 2017).

The study analysed publicly released cultural texts, with human-participant procedures falling outside the research design. Film titles, directors, and release years are reported for scholarly identification. Dialogue extracts remain brief and serve analytical purposes, while extended reproduction of copyrighted material is avoided. The report distinguishes cinematic representation from historical fact and from measured audience response. Terms such as awareness, agency, and ethical engagement refer to meanings constructed by the films and to pedagogical opportunities derived from those meanings. Classroom learning outcomes form the next empirical layer and require future implementation research.

RESULTS AND DISCUSSION

Results

Cognitive awareness: Reading structures of domination

The first cross-film pattern concerns cognitive awareness. Each film represents a movement from isolated experience towards structural interpretation. Characters encounter unequal conditions, connect those experiences with institutions or histories, and reposition knowledge as a resource for public understanding. This pattern gives critical awareness an epistemic form through four linked acts: seeing a patterned inequality, naming the relation that sustains it, contextualising that relation historically, and assuming responsibility for what has been understood. The signs that support this

movement differ across the films, yet education and language consistently function as mediators between personal experience and structural knowledge.

In *Guru Bangsa: Tjokroaminoto*, education and mobility function as linked signs. The train carries an iconic relation to movement, an indexical relation to colonial infrastructure, and a symbolic relation to modernity and unequal access. References to a small educated group and the wider Javanese population turn schooling into a political question: knowledge acquires public value when it moves beyond personal advancement and enters collective life. Public speeches, discussions, printed ideas, and the Peneleh house frame language as an instrument for analysing exploitation and organising shared consciousness. The film therefore links intellectual formation with a moral demand for social connection.

The Peneleh house intensifies this cognitive pattern. As a domestic space, it carries associations with shelter and everyday life; as a meeting place, it becomes a civic classroom where competing political and religious vocabularies circulate. Its semiotic force arises from this double function. Private conversation develops into public reasoning, and young intellectuals learn to compare ideological positions rather than receive a single authorised explanation. Bhabha's third-space concept helps clarify the scene's ambivalence: colonial modernity supplies categories and institutions, while local actors rework those resources through religious, cultural, and anti-colonial commitments. Tjahjani and Wibawarta's (2025) interpretation of hijrah as ideological struggle reinforces this reading.

In *Kartini*, books, letters, windows, and enclosed rooms organise a contrast between restricted movement and expanding intellectual horizons. The letter has a symbolic relation to literacy and an indexical relation to networks extending beyond the domestic sphere. Reading and correspondence enable the protagonist to compare inherited arrangements with alternative social possibilities. Questions concerning religious understanding and women's education make literacy an epistemic practice rather than an ornamental accomplishment. The window repeatedly mediates between interior confinement and an exterior world, visually translating the tension between social restriction and intellectual reach.

Forms of address in *Kartini* also carry cognitive information. Titles, kinship terms, and speech registers organise hierarchy within ordinary interaction. Learners can read these linguistic choices as evidence of social structure because deference, distance, and entitlement become audible in patterned language. The film's critical force therefore develops through the interaction of verbal and spatial signs: the room regulates movement, the address system regulates relation, and the letter creates a channel through which these arrangements can be examined. Pratidina and Pasaribu (2023) similarly show that the film's account of empowerment remains embedded in historically specific anguish and constrained agency.

In *Sultan Agung*, the padepokan, serat, ritual practice, and teachings associated with Sunan Kalijaga function as cultural archives. These signs connect memory, spirituality, leadership, and resistance. Knowledge appears through embodied practice, oral transmission, written cultural forms, and disciplined participation rather than through formal schooling alone. The film constructs local knowledge as an active epistemology capable of guiding strategic judgement under colonial pressure. Its cognitive pattern therefore broadens educational literacy to include the interpretation of cultural memory and the responsibilities attached to inherited knowledge.

Across the corpus, cognitive awareness develops through different routes. *Guru Bangsa: Tjokroaminoto* emphasises analysis through political education and collective

discussion; *Kartini* emphasises reading, correspondence, and critique of gendered knowledge access; *Sultan Agung* emphasises cultural transmission and leadership judgement. The shared structure lies in the transformation of signs into relational knowledge. Objects such as trains, letters, books, and *serat* become meaningful because they connect individual perception with systems of mobility, authority, gender, memory, and colonial power.

Affective awareness: Interpreting structural wounds

The second cross-film pattern concerns affective awareness. The films organise emotion as a mode of social knowledge rather than as a purely private response. Suffering, silence, grief, confinement, bodily injury, exhaustion, and moral tension direct attention towards relations that produce vulnerability. Affect gains analytical force when the viewer links an emotional register with the structures represented by the scene. This pattern also creates an ethical demand: recognition of suffering positions the interpreter in relation to responsibility, solidarity, and possible action.

In *Kartini*, separation from the mother, hierarchical forms of address, controlled movement, and recurring enclosed spaces embody patriarchal and feudal power. Emotional weight develops through everyday etiquette rather than through a single spectacular event. The restraint of gesture and speech communicates a social order in which affection, respect, and rank coexist uneasily. Such scenes invite precise description of tone, silence, distance, and posture while also requiring interpretation of the institutional meanings embedded in family language. Affective literacy therefore becomes inseparable from pragmatic and sociolinguistic awareness.

The film's use of letters further joins emotion and analysis. Correspondence carries hope, frustration, intellectual companionship, and strategic self-presentation. The written voice offers room for argument and disclosure that the domestic setting constrains. Yet the letter also reveals the distance between aspiration and available action. This ambivalence matters pedagogically because learners can compare the emotional stance of private reflection with the rhetorical demands of persuasion. They can examine modality, evaluative vocabulary, address, and narrative voice while considering the gendered conditions under which that language becomes possible.

In *Guru Bangsa: Tjokroaminoto*, the whipping of indigenous labourers and the image of blood on cotton connect colonial commodity production with bodily harm. Cotton shifts from an economic object to an index of exploitation. The visual relation among labour, injury, material, and value translates political economy into an affective sign. The scene's ethical power arises from its compression of an abstract system into a visible wound. Language-learning work can recover that relation through accurate description, causal explanation, historical vocabulary, and arguments that connect a concrete image with a wider structure.

Affective awareness in the film also develops through the tension between charismatic public language and the burdens of collective struggle. Speech can generate hope and cohesion, yet leadership carries responsibility for consequences extending beyond the speaker. Moments of disagreement, fatigue, and uncertainty complicate a celebratory account of political mobilisation. The film thus offers an opportunity to analyse stance and rhetorical force alongside the ethical weight of leadership. Emotion supports critical reasoning by revealing where public ideals meet embodied risk.

In *Sultan Agung*, suffering among ordinary people and soldiers' families complicates the heroic register of war. Grief, exhaustion, and loss place political decision-making within a field of moral accountability. The battlefield carries indexical signs of

organised violence, while the faces and bodies associated with its aftermath redirect attention to human consequence. Leadership becomes emotionally legible through the relation between strategic purpose and collective cost. This pattern supports language tasks involving perspective, concession, ethical evaluation, and the articulation of competing responsibilities.

Across the three films, affective awareness follows a semiotics of structural wounds. Confinement makes hierarchy spatially felt; blood makes exploitation materially visible; grief makes the cost of leadership socially present. The films thereby resist a division between emotion and analysis. Emotion directs attention, establishes salience, and motivates the search for explanation. In the proposed pedagogy, learners describe the emotional organisation of a scene, identify the signs that generate it, connect those signs with social relations, and formulate an ethical response grounded in evidence.

Praxis-oriented awareness: From interpretation to transformative agency

The third pattern concerns praxis-oriented awareness. Cognitive understanding and affective engagement acquire transformative direction through action. The films represent praxis through organisation, literacy, negotiation, teaching, leadership, resistance, and cultural transmission. These forms extend action beyond dramatic confrontation and position language as a medium of sustained social agency. Praxis appears when interpretation changes how characters relate to institutions, communities, and future possibilities.

In *Guru Bangsa: Tjokroaminoto*, hijrah signifies ethical repositioning and public commitment. The concept joins movement, self-transformation, and collective purpose. Political discussion in the Peneleh house becomes action through association, teaching, speech, and organisation. The domestic space functions as a third space where young people encounter competing ideologies, develop political language, and connect private reflection with civic participation. Dialogue and debate are therefore represented as preparatory forms of action, while organisation gives those linguistic practices durable social form.

The film's representation of public speech further clarifies praxis. Rhetoric gains significance through its relation to audience, organisation, and shared grievances. A speech acts symbolically by naming collective identity, indexically by responding to material conditions, and performatively by inviting coordinated action. The film also places limits around charismatic language: words require institutional follow-through and ethical accountability. This relation supports classroom analysis of argument structure, audience positioning, metaphor, modality, and the difference between expressive force and evidential strength.

In *Kartini*, praxis develops through reading, correspondence, persuasive negotiation, and educational initiatives. The protagonist frequently acts within restrictive structures by using language strategically. Letters connect private thought with transnational dialogue; teaching extends personal literacy towards social opportunity; negotiation converts argument into an enlargement of women's choices. This representation of agency is incremental, relational, and communicative. Its force lies in the accumulation of intellectual and educational acts rather than in a single moment of emancipation.

The film also presents education as a form of social reproduction that can be redirected. Access to books, religious meaning, and formal learning shapes who may speak authoritatively and imagine alternatives. By sharing literacy and advocating educational opportunity, *Kartini* transforms knowledge from a marker of privilege into a resource for others. The movement from individual reading to collective teaching

embodies Freirean praxis: reflection on social conditions returns to the world through educational action. It also establishes the clearest pathway from the corpus to SDG 5, particularly gendered access to knowledge, voice, and institutional participation.

In *Sultan Agung*, armed resistance forms one dimension of praxis, while cultural education and intergenerational transmission provide its durable form. The movement from battlefield towards padepokan reframes resistance as the formation of future subjects. Leadership includes strategic judgement, ethical accountability, cultural stewardship, and preparation of successors. The film thereby expands action from immediate opposition to the preservation and renewal of cultural capacity. Recent analyses of the film's leadership representation similarly emphasise responsibility, legitimacy, and collective orientation (Noval & Mulyana, 2025).

Across the corpus, praxis appears through three dominant strategies: socio-political organisation, emancipatory education, and cultural resistance. These strategies share an investment in language. Organisation requires public rhetoric and deliberation; educational reform requires explanation, correspondence, and negotiation; cultural continuity requires narration, teaching, and symbolic transmission. Language education can therefore use the films to move from interpretation towards civic genres such as speeches, reflective letters, moderated debates, policy briefs, and action proposals.

Cross-film semiotic and postcolonial synthesis

The three dimensions form a recursive spiral. Structural interpretation deepens emotional understanding; emotional understanding motivates ethical positioning; action generates new questions and renewed reflection. This relation mirrors Freire's movement between reading the word and reading the world. It also provides the empirical foundation for the proposed learning model because each dimension produces a distinct communicative demand: cognitive awareness requires explanation and evidence, affective awareness requires precise and responsible stance, and praxis-oriented awareness requires deliberation and purposeful expression.

A postcolonial pattern also runs across the films. Colonial power operates through infrastructure, labour relations, knowledge hierarchies, and political authority, while local actors respond through appropriation, negotiation, hybridity, and resistance. Modern education and print culture carry ambivalent meanings: they participate in unequal structures and also provide resources for critique. Religious and cultural traditions likewise appear as dynamic fields of interpretation rather than fixed inheritances. Bhabha's third space clarifies how new political and educational meanings emerge through this negotiation, while decolonial AI scholarship helps translate the same concern into contemporary questions about whose knowledge becomes visible in generated output (Adams, 2021; Mohamed et al., 2020).

The cross-film pattern connects SDG 4.7 with SDGs 5 and 16. *Kartini* foregrounds gendered access to knowledge, movement, voice, and educational participation. *Guru Bangsa: Tjokroaminoto* foregrounds civic organisation, justice, public reasoning, and inclusive political agency. *Sultan Agung* foregrounds leadership accountability, cultural continuity, conflict, and collective responsibility. Across the corpus, language and culture become resources for equitable education, gender awareness, justice, and participatory citizenship.

Table 2. Analytical evidence matrix across the three films

Film and sign cluster	Semiotic function	Critical-awareness dimension	Postcolonial reading	Pedagogical language potential
<i>Guru Bangsa</i> : train, speech, Peneleh house	Icon of movement; index of infrastructure; symbol of collective modernity	Cognitive and praxis-oriented	Colonial modernity is appropriated for anti-colonial organisation	Historical explanation, rhetoric, debate, source evaluation
<i>Guru Bangsa</i> : blood on cotton	Index of bodily injury and commodity exploitation	Affective	Colonial economy becomes visible through an embodied wound	Description, causal argument, ethical stance
<i>Kartini</i> : books, letters, window, room	Symbols of literacy; indexes of connection and restriction	Cognitive and affective	Gendered confinement coexists with hybrid intellectual networks	Correspondence, modality, perspective, persuasive writing
<i>Kartini</i> : teaching and negotiation	Performative signs of educational agency	Praxis-oriented	Agency develops through strategic action within unequal structures	Reflective letter, dialogue, educational proposal
<i>Sultan Agung</i> : padepokan, serat, ritual	Symbols and archives of cultural memory	Cognitive and praxis-oriented	Local epistemology supports resistance and future formation	Cultural explanation, leadership evaluation, oral presentation
<i>Sultan Agung</i> : battlefield and grief	Indexes of organised violence and social consequence	Affective	Heroic resistance is reframed through ethical accountability	Concession, perspective-taking, policy-oriented argument

Table 3. Cross-film synthesis of critical awareness and language-learning applications

Analytical layer	Cross-film finding	Language focus	AI-supported activity	Human judgement
Cognitive awareness	Signs reveal colonial, patriarchal, feudal, and cultural structures.	Critical reading, historical vocabulary, argumentation, source evaluation.	Generate alternative interpretations and contextual questions.	Verify each claim through scene evidence and scholarly sources.
Affective awareness	Emotion operates as social knowledge and ethical	Descriptive language, stance, pragmatic interpretation,	Generate emotional-tone accounts and alternative	Restore omitted visual, cultural, and structural evidence.

Analytical layer	Cross-film finding	Language focus	AI-supported activity	Human judgement
	orientation.	affective vocabulary.	descriptions.	
Praxis-oriented awareness	Reflection and emotion gain direction through organisation, literacy, negotiation, and cultural transmission.	Persuasive writing, discussion, civic genres, reflection.	Generate possible responses, speeches, or policy positions.	Evaluate assumptions, feasibility, ethics, and social consequences.
Meta-literacy	Learners compare cinematic evidence, scholarly interpretation, local knowledge, and generated language.	AI literacy, metacognition, attribution, academic integrity.	Document prompts and contrast outputs.	Explain accepted, revised, and discarded suggestions.

Discussion

A human-centred AI-supported critical film-literacy cycle

The findings support a six-stage didactic cycle that translates film analysis into responsible AI-supported language learning. The sequence begins with human interpretation and returns to independent human production. AI enters as a dialogic resource inside this sequence rather than as the source of an authoritative reading. This architecture makes learner ownership visible and aligns technological support with the AI-empowered paradigm described by Ouyang and Jiao (2021). It also responds to evidence that generative AI produces the strongest educational value when task design requires active evaluation, revision, and reflection (Kasneci et al., 2023; Kohnke et al., 2023a; Mahapatra, 2024).

Stage 1, human first reading, asks learners to watch a selected scene and produce an initial account of its signs, language, emotional tone, and social conflict before tool access. The first reading establishes a baseline of interpretive ownership and activates prior cultural knowledge. It also provides material for later metacognitive comparison. Learners may use a short evidence table that records dialogue, image, sound, and preliminary meaning. The aim is interpretive commitment rather than completeness: students articulate what they currently understand and identify questions that remain open.

Stage 2, AI-generated alternative interpretation, invites a generative system to offer two or more readings, vocabulary resources, rhetorical analyses, counter-arguments, or historical questions. Prompt design remains bounded by the selected scene and the learning objective. Variation is pedagogically valuable because it creates contrastive language and exposes the assumptions embedded in different formulations. Learners compare the generated alternatives with their own first reading, marking additions, tensions, and apparent simplifications. The tool functions as a provisional interlocutor whose output requires disciplinary evaluation.

Stage 3, evidence and context verification, requires learners to connect every generated claim with dialogue, visual composition, auditory cues, narrative context, and credible historical or scholarly sources. Claims receive one of four statuses: supported, partly supported, context-dependent, or unsupported by the available evidence. This stage develops source evaluation and evidential reasoning while addressing the confident fluency of large language models. Learners also distinguish the film's representation from a historical claim, thereby preserving the difference between cultural analysis and factual verification.

Stage 4, cultural-bias and omission audit, asks learners to identify generic framing, missing local knowledge, translation loss, and assumptions concerning gender, religion, colonial history, social hierarchy, or leadership. The audit is central to the postcolonial contribution of the model. Generated explanations may treat batik, Javanese titles, Islamic concepts, ritual spaces, or colonial objects as decorative details, even when the film positions them as culturally active signs. Learners restore situated meaning through local-language resources, scholarly sources, and community knowledge. In this way, possible model limitations become occasions for epistemic participation (Birhane, 2020; Ricaurte, 2019).

Stage 5, dialogic synthesis, uses peer discussion and teacher mediation to compare interpretations and construct a shared evidence map. Dialogue enables learners to test how well each claim accounts for verbal, visual, auditory, and contextual evidence. The teacher supports equitable participation, clarifies disciplinary standards, and introduces counterpositions where consensus forms too quickly. This stage reflects Freirean dialogue because knowledge develops through accountable exchange rather than transmission. It also supports collaborative and interpersonal competencies associated with sustainability education (Brundiers et al., 2021).

Stage 6, independent ethical language production, asks learners to create a final essay, presentation, debate, podcast, reflective commentary, or policy-oriented response. The product includes a concise AI-use statement and an explanation of how evidence and human judgement shaped revision. AI may support final language checking within the declared protocol, while the learner remains responsible for claims, structure, sources, and cultural accuracy. The sequence therefore returns technological assistance to a subordinate role within human authorship and ethical communication (Chan, 2023; Jiang et al., 2024).

Table 4. Six-stage human-centred AI-supported critical film-literacy cycle

Stage	Learner activity	AI function	Teacher mediation	Primary outcome
Human first reading	Observe a scene and draft an initial interpretation.	Tool access begins after the first reading.	Frame questions and activate prior knowledge.	Interpretive ownership
Alternative generation	Request multiple readings, vocabulary, or counter-arguments.	Generate contrastive language.	Model precise, bounded prompts.	Interpretive plurality
Evidence verification	Match claims with dialogue, image, sound, narrative, and sources.	Support comparison and search planning.	Provide verified contextual sources.	Evidential reasoning

Stage	Learner activity	AI function	Teacher mediation	Primary outcome
Cultural-bias audit	Identify generic framing, omissions, and cultural assumptions.	Serve as an analysable discourse object.	Guide postcolonial and gender-sensitive inquiry.	Critical AI literacy
Dialogic synthesis	Discuss interpretations and build a shared evidence map.	Supply counterpositions when useful.	Facilitate equitable dialogue.	Collaborative judgement
Independent ethical production	Create a final product and disclose AI use.	Support language checking within protocol.	Assess evidence, ethics, language, and reflection.	Autonomous communication and SDG-oriented agency

Distributed agency, authorship, and critical AI literacy

The cycle operationalises distributed agency by assigning different roles to learners, teachers, peers, films, scholarly sources, and AI systems. Distribution does not imply equal authority. The learner directs the task and owns the final judgement; the teacher establishes epistemic and ethical conditions; the film supplies primary cultural evidence; scholarship provides contextual challenge; peers provide dialogic testing; and AI supplies contrastive possibilities. This differentiated ecology avoids both technological determinism and a simplistic image of independent authorship. It recognises that learning always uses tools and communities while preserving accountability for how resources enter a final claim (Godwin-Jones, 2024).

Critical AI literacy develops through situated practice rather than through a detached explanation of algorithms. Learners experience that a fluent response may contain unsupported inference, culturally generic wording, uneven emphasis, or persuasive but imprecise vocabulary. They learn to ask what evidence a claim requires, which source can verify it, what the output leaves invisible, and how a different prompt changes the framing. These activities integrate functional interaction, critical evaluation, and ethical reflection, corresponding with multidimensional accounts of AI literacy (Casal-Otero et al., 2023; Long & Magerko, 2020; Ng et al., 2021).

The cultural-bias audit adds a distinctive postcolonial dimension. Language technologies operate within global data economies whose representational distribution reflects historical and contemporary inequalities. Data colonialism and algorithmic colonisation describe how extraction and computational classification can reinforce dominant centres of knowledge (Birhane, 2020; Couldry & Mejias, 2019). In a film-literacy classroom, these large-scale concerns become visible through specific interpretative moments. A generated answer that describes the Peneleh house simply as a residence, for example, may miss its political and pedagogical function; an account of padepokan as a generic school may reduce its spiritual and cultural relations. Learners respond by supplying evidence and situated vocabulary.

This practice also develops epistemic humility. Students learn to mark uncertainty, recognise when a meaning depends on cultural context, and keep several plausible readings in productive tension. The capacity to suspend premature certainty is especially important when AI output adopts an authoritative tone. Rather than rewarding a single polished answer, the model values the quality of the evidence trail

and the learner's explanation of interpretative choices. Such assessment supports authorship as traceable intellectual responsibility and provides a constructive alternative to reliance on detection technologies (Liang et al., 2023; Weber-Wulff et al., 2023).

Language-learning affordances and multimodal progression

The model integrates linguistic development with multimodal interpretation. Cognitive awareness supports critical reading, historical vocabulary, thesis development, causal explanation, comparison, and source evaluation. Affective awareness supports descriptive precision, evaluative language, pragmatic interpretation, stance, and empathy-sensitive communication. Praxis-oriented awareness supports persuasive writing, public speaking, deliberation, reflective writing, and civic genres. These domains are mutually reinforcing because learners need language to articulate what signs reveal, how a scene positions viewers, and what ethical or civic response follows.

AI can generate vocabulary clusters, paraphrase culturally dense passages, model alternative thesis statements, simulate questions, and provide contrastive explanations. Each affordance is paired with a human judgement task. Learners select relevant vocabulary, check semantic nuance, test a thesis against scene evidence, evaluate a question's assumptions, and revise an explanation for cultural accuracy. This pairing converts tool use into language awareness and metacognition. It also addresses research showing that AI feedback supports learning most effectively when students actively process suggestions and retain revision agency (Mahapatra, 2024; Polakova & Ivenz, 2024).

Film supports multilingual and inclusive learning through subtitles, translation, visual context, repeated viewing, and the interaction of speech with gesture and setting. AI can provide graded explanations, alternative expressions, pronunciation support, and preliminary translation. A gradual-release design transfers increasing responsibility to learners through initial scaffolding, collaborative verification, and independent production. Access is therefore connected with autonomy. The model also encourages comparison between Indonesian, Javanese, and English expressions where relevant, enabling learners to notice culturally specific meanings that direct translation may compress.

A progression across educational levels can retain the same cycle while varying analytical and linguistic demand. Upper-secondary learners may focus on one three- to seven-minute scene, a concise historical note, and a paragraph, speech, or reflective letter. University learners may compare scenes across films, evaluate scholarship, and produce a multimodal analysis, policy brief, podcast, or teaching design. Advanced tasks can require explicit semiotic terminology, postcolonial concepts, and source triangulation. The common principle remains stable: linguistic quality grows through observation, verification, dialogue, revision, and responsible authorship (Nguyen, 2024).

Teacher mediation, assessment, and academic integrity

The teacher functions as designer of interpretive conditions, curator of scenes and sources, facilitator of dialogue, and assessor of accountable reasoning. This role requires knowledge of language pedagogy, film form, cultural history, and AI literacy. Teacher-preparedness research indicates that confidence with generative AI depends on targeted professional learning and opportunities to connect tool knowledge with pedagogical purpose (Kohnke et al., 2023b; Moorhouse & Kohnke, 2024). A teacher

therefore needs more than prompt techniques: the central expertise lies in selecting evidence-rich scenes, anticipating cultural simplifications, and designing tasks that make judgement visible.

Assessment in the model values process, evidence, reflection, and language quality. A portfolio can contain the learner's first interpretation, selected prompts, annotated AI output, an evidence-verification table, a cultural-bias audit, peer-discussion notes, and the final independent product. Five criteria organise evaluation: evidential accuracy, interpretive depth, ethical-cultural awareness, communicative clarity, and reflective AI literacy. The fifth criterion evaluates how the learner explains accepted, transformed, and discarded suggestions. This design aligns assessment with the actual learning process and reduces the incentive to submit an unexamined generated product.

Process documentation also offers a fairer academic-integrity strategy than automated detection. The recent literature cautions that detector accuracy remains inconsistent and that multilingual writing can be disproportionately labelled as machine generated (Liang et al., 2023; Weber-Wulff et al., 2023). Clear task boundaries, prompt disclosure, source attribution, and oral or dialogic follow-up provide stronger pedagogical evidence of learning. Integrity becomes the capacity to use assistance transparently, preserve the distinction between sources and claims, and remain accountable for the final text (Cotton et al., 2024; Perkins, 2023).

Institutional policy should support this process orientation. Chan's (2023) ecological framework shows that effective AI policy requires coordination among pedagogy, governance, and operations. For critical film literacy, this coordination includes approved access arrangements, privacy guidance, copyright-sensitive practices, source-verification routines, culturally responsive prompt banks, and shared disclosure language. Policy should also protect teacher judgement and allow tasks to vary in the degree of AI support. A uniform prohibition or unrestricted adoption would overlook the disciplinary purposes that determine whether a particular use advances learning.

Contribution to SDG 4.7, SDG 5, and SDG 16

The model positions SDG 4.7 as an educational process embedded in language and cultural interpretation. Learners encounter human rights, cultural diversity, gender equality, peace, citizenship, and historical responsibility through specific scenes and communicative acts. The cognitive dimension develops knowledge of structural relations; the affective dimension develops socio-emotional engagement and ethical orientation; the praxis dimension develops action-oriented communication. This architecture closely matches ESD frameworks that integrate cognitive, socio-emotional, and behavioural learning domains (Kioupi & Voulvoulis, 2019; UNESCO, 2017).

SDG 5 enters most directly through *Kartini*. Analysis of literacy, movement, voice, forms of address, and educational participation enables learners to examine how gender inequality operates through everyday language and space. The final language products can include gender-sensitive scene analyses, comparative arguments, reflective letters, or proposals for inclusive educational practice. The aim is to connect historical representation with the communicative ability to recognise and challenge contemporary patterns of exclusion. Gender equality therefore functions as an interpretative and action-oriented learning pathway rather than an appended topic.

SDG 16 enters through representations of colonial exploitation, civic organisation, political education, justice, conflict, leadership, and accountability. *Guru Bangsa: Tjokroaminoto* provides material for analysing public rhetoric, collective mobilisation, and the relation between leadership and organisation. *Sultan Agung* provides material

for evaluating strategic decisions, cultural legitimacy, and the social costs of conflict. Learners practise the language of evidence, deliberation, concession, accountability, and public reasoning, all of which support participation in peaceful and inclusive institutions.

The model's contribution to SDG implementation lies in its operational detail. Holst et al. (2024) emphasise alignment across curricula, educator preparation, and assessment. The proposed cycle addresses each level: it supplies a curriculum sequence, identifies teacher-mediation responsibilities, and provides portfolio-based assessment criteria. Programme teams can also map selected scenes and outputs to institutional learning outcomes. This solution-oriented structure complements values-based literature education already reported in JOCSIS by adding multimodal evidence and explicit critical-AI procedures (Masulah et al., 2026).

The model also supports key sustainability competencies. Systems thinking develops when learners connect a scene's objects and language with wider structures of colonial economy, gender hierarchy, or political authority. Values thinking develops through ethical evaluation of suffering, leadership, and responsibility. Interpersonal competence develops through dialogic synthesis and peer challenge. Strategic competence develops through speeches, educational proposals, and policy-oriented products. These competencies remain grounded in the cultural specificity of the films, which helps prevent sustainability education from becoming a decontextualised list of universal slogans (Brundiers et al., 2021; Sinakou et al., 2019).

Theoretical, methodological, and practical contributions

The theoretical contribution is a postcolonial didactic-semiotic account of AI-supported critical film literacy. Peircean semiotics supplies a method for tracing interpretations to verbal, visual, auditory, and narrative signs. Freirean pedagogy supplies the movement from reading structures towards dialogue and praxis. Postcolonial theory supplies attention to hybridity, ambivalence, cultural authority, and unequal epistemic representation. AI literacy supplies procedures for evaluating generated language, agency, and authorship. SDG 4.7 supplies a public educational purpose that connects knowledge, values, diversity, citizenship, and action.

This integration advances film literacy by adding an explicit workflow for generated interpretations. It advances language education by connecting multimodal evidence with genre-based production. It advances AI literacy through source verification, cultural-bias auditing, and transparent authorship. It advances SDGs education through culturally grounded encounters with gender, justice, peace, and historical responsibility. The contribution is especially relevant to humanities-based SDG research, where symbolic interpretation and ethical formation complement quantitative monitoring and policy analysis.

Methodologically, the study demonstrates a disciplined route from textual analysis to pedagogical modelling. The derivational rule links each model stage with cross-film evidence and a named act of human judgement. This procedure clarifies where empirical interpretation ends and didactic proposal begins. It also provides a replicable structure for comparative work across films, languages, postcolonial contexts, and AI platforms. Future researchers can preserve the six-stage logic while testing different corpora and learning outcomes.

A feasible implementation begins with one short scene and one language-learning objective. The teacher prepares the scene, a concise historical note, two verified sources, an AI-use protocol, and a rubric. Students complete the human first reading, request

alternative interpretations, annotate the output, verify claims, and conduct the cultural-bias audit. Group dialogue produces a shared evidence map, followed by an individual final product. This modest starting scale supports classroom feasibility and allows teachers to build confidence before using cross-film comparison.

Programme-level implementation can develop shared scene banks, local-history notes, prompt exemplars, verification templates, and assessment rubrics. Teacher-development sessions can use the same six-stage cycle, enabling educators to experience the learner role and analyse the consequences of each design choice. Institutions can also collect anonymised portfolio patterns to refine support, while evaluation should focus on interpretive quality, evidence use, language performance, and ethical reasoning. Tool novelty alone provides an insufficient criterion for success; educational value arises from strengthened human capability.

The proposed model has clear boundary conditions. Its empirical foundation is a qualitative analysis of three Indonesian films, and its classroom effects remain available for validation. The cycle requires teacher access to reliable contextual sources and sufficient knowledge to guide cultural interpretation. It also assumes that learners can access an AI system under an ethically acceptable data arrangement. These conditions shape transferability and should be reported in implementation studies. The model is best understood as a structured, evidence-derived design proposition whose educational consequences require iterative testing.

Cultural-historical verification and local knowledge

Evidence verification in this model extends beyond checking dates or names. Historical films combine documented events, dramatic condensation, symbolic objects, fictionalised dialogue, and contemporary representational choices. Learners therefore need to ask two related questions: what does the scene claim within the film, and how does that representation relate to historical scholarship? Film-history studies describe moving images as forms of historiography that organise the past through narrative and cinematic form, while transmedia narratology shows that each medium configures storyworlds through distinctive affordances (Rosenstone, 2018; Ryan & Thon, 2014). The verification stage preserves this distinction and helps students avoid treating cinematic plausibility as direct documentary evidence.

Local knowledge has an equally important role. Teachers can curate short historical notes, glossaries of culturally specific terms, archival images, scholarly excerpts, and credible local-language sources. Learners can compare these materials with AI-generated explanations and identify where a response translates a concept too broadly, loses social register, or detaches an object from its historical relations. UNESCO's guidance for generative AI emphasises cultural and linguistic diversity, human agency, and protection of educational values (Miao & Holmes, 2023). In this model, local knowledge functions as an evidential resource that strengthens interpretation and as an epistemic counterweight to culturally generic generation.

This approach also supports global citizenship education through a movement between situated history and wider ethical questions. Global citizenship becomes educationally meaningful when learners connect local narratives with rights, gender equality, peace, justice, and interdependence while retaining historical specificity (Goren & Yemini, 2017). Indonesian biographical cinema offers this movement because the films address local actors, languages, cultural institutions, and colonial relations while raising questions with wider civic relevance. The classroom task therefore begins

from a culturally grounded scene and develops towards comparative public reasoning, rather than beginning with an abstract global category.

Classroom validation and research agenda

The model's next stage is empirical classroom validation. A pilot study can begin with a single scene, one target genre, and a brief portfolio completed across two or three lessons. Baseline and final products can be compared for evidential density, multimodal reference, source quality, cultural specificity, argumentative coherence, and language accuracy. Learner interviews or stimulated-recall discussions can examine why particular AI suggestions were accepted, revised, or rejected. Teacher logs can document mediation decisions and moments where contextual expertise became essential. Such mixed evidence would test the model's feasibility while preserving the interpretative complexity of humanities learning.

Subsequent design-based research can compare variations in sequencing and support. One iteration might provide a teacher-curated prompt, while another asks learners to design and justify their own prompts. One group might use an evidence-verification table, while another uses collaborative annotation. Research can also compare human-first reading with immediate AI access to examine effects on interpretive ownership and idea diversity. Learner perspectives deserve direct attention because students commonly recognise both the convenience and the ethical, privacy, accuracy, and developmental concerns of generative AI (Chan & Hu, 2023). Their experiences can refine task boundaries and disclosure practices.

Validation should also examine teacher learning and institutional conditions. Critical reviews of AI in higher education show that technological discourse can privilege efficiency and automation while reducing attention to educational purpose and professional judgement (Bearman et al., 2023). Professional development can counter this tendency by asking teachers to analyse a scene, inspect generated alternatives, complete a cultural-bias audit, and design an assessment trail. Film clips have long supported engagement and concept development when selected and framed deliberately (Berk, 2009); the present model adds an explicit critical-AI and SDG architecture to that practice.

Longitudinal research can investigate whether repeated participation develops transferable AI literacy. School-level frameworks propose that AI understanding should progress from awareness of system functions towards critical evaluation, ethical reasoning, and purposeful human-AI collaboration (Casal-Otero et al., 2023; Touretzky et al., 2019). Learners who repeatedly verify claims, audit cultural framing, and explain revision decisions may carry these routines into other genres such as news, social media, historical sources, and civic documents. This possibility remains an empirical proposition and provides a clear agenda for studying transfer, durability, and independent judgement.

A validation rubric should make the model's central construct-human judgement-observable. Evidential accuracy can be assessed through the proportion and quality of claims linked to dialogue, image, sound, narrative context, and credible sources. Interpretive depth can be assessed through the learner's capacity to connect signs, structures, emotions, and possible action while acknowledging ambiguity. Ethical-cultural awareness can be assessed through recognition of omitted local knowledge, stereotypical framing, translation loss, and consequences for represented communities. Communicative quality can be assessed through genre control, coherence, lexical precision, and audience awareness. Reflective AI literacy can be assessed through the

learner's explanation of prompt choices, output evaluation, revision, and disclosure. Analytic scores should be accompanied by qualitative feedback because the dimensions interact: a linguistically fluent text may have weak evidence, while a culturally insightful interpretation may require further language support. Portfolio moderation among teachers can build shared standards and reveal which descriptors need adaptation for different learner levels. This assessment logic preserves the formative purpose of the cycle and supplies measurable indicators for future implementation research.

CONCLUSION

Fundamental finding: Indonesian biographical cinema constructs critical awareness through a recursive relation among cognitive interpretation, affective engagement, and transformative praxis. Education, letters, speeches, cultural memory, bodily suffering, organisation, negotiation, and leadership operate as multimodal signs that connect language with historical and ethical understanding. Across the three films, critical awareness develops when characters and viewers move from recognising patterned inequality to interpreting its causes, responding to its human consequences, and imagining forms of collective action. **Implication:** These findings support a human-centred AI-supported critical film-literacy cycle organised through human first reading, AI-generated alternative interpretation, evidence verification, cultural-bias audit, dialogic synthesis, and independent ethical language production. The cycle links language learning with critical AI literacy and advances SDG 4.7 through cultural diversity, global citizenship, gender equality, peace, justice, and responsible participation. It also offers specific pathways for SDG 5 through gendered literacy and voice, and for SDG 16 through civic reasoning, leadership accountability, and deliberative communication. **Limitation:** The empirical foundation centres on interpretative analysis of three Indonesian films, while the pedagogical model represents a theory-informed derivation. The study reports meanings constructed by the films and educational opportunities inferred from those meanings. Learner performance, classroom interaction, prompt histories, teacher decision-making, and assessment outcomes constitute a further empirical layer. Cultural interpretations also remain responsive to historical sources, local knowledge, and the particular distribution version of each film. **Future research:** Classroom implementation can examine changes in source evaluation, multimodal interpretation, metacognitive awareness, ethical reasoning, cultural responsiveness, and language performance. Design-based research can refine prompts, teacher mediation, verification templates, and rubrics across iterative cycles. Comparative studies can extend the model to other postcolonial cinemas, languages, learner groups, and generative-AI platforms. Longitudinal work can explore whether repeated participation strengthens independent judgement and transfers to other digital, civic, and sustainability-related texts. Cross-institutional studies can also examine how infrastructure, teacher preparation, curriculum policy, and local cultural resources shape implementation. Reporting these conditions will help distinguish the stable principles of the cycle from adaptations required by particular educational settings.

AUTHOR CONTRIBUTIONS

Frikho Fernando Polii contributed to conceptualisation, data curation, formal analysis, visual-textual interpretation, methodology, and preparation of the original draft. **Suyatno** contributed to supervision, methodological refinement, validation, and critical

review. **Darni** contributed to theoretical framing, validation, supervision, and manuscript editing. All authors reviewed and approved the final manuscript.

CONFLICT OF INTEREST STATEMENT

The authors report an absence of competing financial or professional interests that could have influenced the study, analysis, or reporting.

ETHICAL COMPLIANCE STATEMENT

The study follows principles of research integrity, accurate attribution, transparent interpretation, and responsible use of copyrighted cultural materials. The research design centres on publicly released films and scholarly sources, with human-participant procedures falling outside the study design. Short references to film content serve analytical and educational purposes, and the authors retain responsibility for contextual accuracy.

DATA AVAILABILITY STATEMENT

The films are available through their authorised distribution channels. Analytic data cards, coding matrices, and model-derivation materials may be requested from the corresponding author, subject to copyright, licensing, and scholarly-use conditions.

STATEMENT ON THE USE OF AI OR DIGITAL TOOLS IN WRITING

A generative-AI system supported language refinement, structural checking, and formatting review during manuscript preparation. The authors reviewed the complete text, verified the cited sources and interpretative claims, revised generated suggestions, and retain full responsibility for the final content.

REFERENCES

- Adams, R. (2021). Can artificial intelligence be decolonized? *Interdisciplinary Science Reviews*, 46(1-2), 176-197. <https://doi.org/10.1080/03080188.2020.1840225>
- Aziz, M. I. (2021). Representasi nasionalisme dalam film *Sultan Agung: Tahta, Perjuangan dan Cinta* (2018). *IMAJI*, 12(3), 104-111. <https://doi.org/10.52290/i.v12i3.56>
- Bearman, M., Ryan, J., & Ajjawi, R. (2023). Discourses of artificial intelligence in higher education: A critical literature review. *Higher Education*, 86(2), 369-385. <https://doi.org/10.1007/s10734-022-00937-2>
- Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? In *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency* (pp. 610-623). Association for Computing Machinery. <https://doi.org/10.1145/3442188.3445922>
- Berk, R. A. (2009). Multimedia teaching with video clips: TV, movies, YouTube, and mtvU in the college classroom. *International Journal of Technology in Teaching and Learning*, 5(1), 1-21.
- Bezemer, J., & Kress, G. (2016). *Multimodality, learning and communication: A social semiotic frame*. Routledge.
- Bhabha, H. K. (1994). *The location of culture*. Routledge.
- Birhane, A. (2020). Algorithmic colonization of Africa. *SCRIPTed*, 17(2), 389-409. <https://doi.org/10.2966/scrip.170220.389>
- Blodgett, S. L., Barocas, S., Daumé III, H., & Wallach, H. (2020). Language (technology) is power: A critical survey of bias in NLP. In *Proceedings of the 58th Annual Meeting*

- of the Association for Computational Linguistics (pp. 5454–5476). Association for Computational Linguistics. <https://doi.org/10.18653/v1/2020.acl-main.485>
- Bramantyo, H. (Director). (2017). *Kartini* [Film]. Legacy Pictures; Screenplay Films.
- Bramantyo, H. (Director). (2018). *Sultan Agung: Tahta, Perjuangan, dan Cinta* [Film]. Mooryati Soedibyo Cinema.
- Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 18(3), 328–352. <https://doi.org/10.1080/14780887.2020.1769238>
- Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, 9(1), 3–26. <https://doi.org/10.1037/qup0000196>
- Brundiers, K., Barth, M., Cebrián, G., Cohen, M., Diaz, L., Doucette-Remington, S., Dripps, W., Habron, G., Harré, N., Jarchow, M., Losch, K., Michel, J., Mochizuki, Y., Rieckmann, M., Parnell, R., Walker, P., & Zint, M. (2021). Key competencies in sustainability in higher education: Toward an agreed-upon reference framework. *Sustainability Science*, 16(1), 13–29. <https://doi.org/10.1007/s11625-020-00838-2>
- Buckingham, D. (2019). *The media education manifesto*. Polity.
- Bulger, M., & Davison, P. (2018). The promises, challenges, and futures of media literacy. *Journal of Media Literacy Education*, 10(1), 1–21. <https://doi.org/10.23860/JMLE-2018-10-1-1>
- Casal-Otero, L., Catalá, A., Fernández-Morante, C., Taboada, M., Cebreiro, B., & Barro, S. (2023). AI literacy in K–12: A systematic literature review. *International Journal of STEM Education*, 10(1), 29. <https://doi.org/10.1186/s40594-023-00418-7>
- Chan, C. K. Y. (2023). A comprehensive AI policy education framework for university teaching and learning. *International Journal of Educational Technology in Higher Education*, 20(1), 38. <https://doi.org/10.1186/s41239-023-00408-3>
- Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, 20(1), 43. <https://doi.org/10.1186/s41239-023-00411-8>
- Chiu, T. K. F., Xia, Q., Zhou, X., Chai, C. S., & Cheng, M. (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence*, 4, 100118. <https://doi.org/10.1016/j.caeai.2022.100118>
- Cotton, D. R. E., Cotton, P. A., & Shipway, J. R. (2024). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, 61(2), 228–239. <https://doi.org/10.1080/14703297.2023.2190148>
- Couldry, N., & Mejias, U. A. (2019). Data colonialism: Rethinking big data's relation to the contemporary subject. *Television & New Media*, 20(4), 336–349. <https://doi.org/10.1177/1527476418796632>
- Darder, A. (2014). Conscientização: Freire and the formation of critical awareness. *REALIS*, 4(2), 6–32.
- Farrokhnia, M., Banihashem, S. K., Noroozi, O., & Wals, A. (2024). A SWOT analysis of ChatGPT: Implications for educational practice and research. *Innovations in Education and Teaching International*, 61(3), 460–474. <https://doi.org/10.1080/14703297.2023.2195846>
- Freire, P. (2005). *Pedagogy of the oppressed* (30th anniversary ed.; M. B. Ramos, Trans.). Continuum. (Original work published 1970)

- Godwin-Jones, R. (2024). Distributed agency in language learning and teaching through generative AI. *Language Learning & Technology*, 28(2), 5–30. <https://doi.org/10.64152/10125/73570>
- Goren, H., & Yemini, M. (2017). Citizenship education redefined: A systematic review of empirical studies on global citizenship education. *International Journal of Educational Research*, 82, 170–183. <https://doi.org/10.1016/j.ijer.2017.02.004>
- Holst, J., Singer-Brodowski, M., Brock, A., & de Haan, G. (2024). Monitoring SDG 4.7: Assessing Education for Sustainable Development in policies, curricula, training of educators and student assessment (input-indicator). *Sustainable Development*, 32(4), 3908–3923. <https://doi.org/10.1002/sd.2865>
- Jajdelska, E., Anderson, M., Butler, C., Fabb, N., Finnigan, E., Garwood, I., Kelly, S., Kirk, W., Kukkonen, K., Mullally, S., & Schwan, S. (2019). Picture this: A review of research relating to narrative processing by moving image versus language. *Frontiers in Psychology*, 10, 1161. <https://doi.org/10.3389/fpsyg.2019.01161>
- Jewitt, C., Bezemer, J., & O'Halloran, K. (2016). *Introducing multimodality* (2nd ed.). Routledge.
- Jiang, J., Vetter, M. A., & Lucia, B. (2024). Toward a more-than-digital AI literacy: Reimagining agency and authorship in the postdigital era with ChatGPT. *Postdigital Science and Education*, 6(3), 922–939. <https://doi.org/10.1007/s42438-024-00477-1>
- Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., ... Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
- Kellner, D., & Share, J. (2019). *The critical media literacy guide: Engaging media and transforming education*. Brill Sense.
- Kioupi, V., & Voulvoulis, N. (2019). Education for Sustainable Development: A systemic framework for connecting the SDGs to educational outcomes. *Sustainability*, 11(21), 6104. <https://doi.org/10.3390/su11216104>
- Kohnke, L., Moorhouse, B. L., & Zou, D. (2023a). ChatGPT for language teaching and learning. *RELJ Journal*, 54(2), 537–550. <https://doi.org/10.1177/00336882231162868>
- Kohnke, L., Moorhouse, B. L., & Zou, D. (2023b). Exploring generative artificial intelligence preparedness among university language instructors: A case study. *Computers and Education: Artificial Intelligence*, 5, 100156. <https://doi.org/10.1016/j.caeai.2023.100156>
- Kress, G. (2010). *Multimodality: A social semiotic approach to contemporary communication*. Routledge.
- Levitt, H. M., Bamberg, M., Creswell, J. W., Frost, D. M., Josselson, R., & Suárez-Orozco, C. (2018). Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology. *American Psychologist*, 73(1), 26–46. <https://doi.org/10.1037/amp0000151>
- Liang, W., Yüsekönül, M., Mao, Y., Wu, E., & Zou, J. (2023). GPT detectors are biased against non-native English writers. *Patterns*, 4(7), 100779. <https://doi.org/10.1016/j.patter.2023.100779>
- Lo, C. K. (2023). What is the impact of ChatGPT on education? A rapid review of the literature. *Education Sciences*, 13(4), 410. <https://doi.org/10.3390/educsci13040410>

- Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (pp. 1–16). Association for Computing Machinery. <https://doi.org/10.1145/3313831.3376727>
- Mahapatra, S. (2024). Impact of ChatGPT on ESL students' academic writing skills: A mixed methods intervention study. *Smart Learning Environments*, 11(1), 9. <https://doi.org/10.1186/s40561-024-00295-9>
- Masulah, M., Kurnia, F. D., & Mustofa, A. (2026). Teaching literature, teaching values, and advancing SDG 4: A case study of UNESCO core values in an Indonesian Islamic university. *Journal of Current Studies in SDGs*, 2(3), 236. <https://doi.org/10.63230/jocsis.2.3.236>
- Miao, F., & Cukurova, M. (2024). *AI competency framework for teachers*. UNESCO.
- Miao, F., & Holmes, W. (2023). *Guidance for generative AI in education and research*. UNESCO.
- Miao, F., Shiohira, K., & Lao, N. (2024). *AI competency framework for students*. UNESCO.
- Mihailidis, P., & Viotty, S. (2017). Spreadable spectacle in digital culture: Civic expression, fake news, and the role of media literacies in post-fact society. *American Behavioral Scientist*, 61(4), 441–454. <https://doi.org/10.1177/0002764217701217>
- Mohamed, S., Png, M. T., & Isaac, W. (2020). Decolonial AI: Decolonial theory as sociotechnical foresight in artificial intelligence. *Philosophy & Technology*, 33(4), 659–684. <https://doi.org/10.1007/s13347-020-00405-8>
- Moorhouse, B. L., & Kohnke, L. (2024). The effects of generative AI on initial language teacher education: The perceptions of teacher educators. *System*, 122, 103290. <https://doi.org/10.1016/j.system.2024.103290>
- Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence*, 2, 100041. <https://doi.org/10.1016/j.caeai.2021.100041>
- Nguyen, N. N. (2024). Film in university teaching: Optimising multimodal pedagogies through film literacy. *Teaching in Higher Education*, 29(8), 1934–1955. <https://doi.org/10.1080/13562517.2022.2163161>
- Noval, A. F., & Mulyana, A. (2025). Representasi kepemimpinan Sultan Agung dalam film *Sultan Agung: Tahta, Perjuangan dan Cinta*. *Abstrak: Jurnal Kajian Ilmu Seni, Media dan Desain*, 2(5), 104–118. <https://doi.org/10.62383/abstrak.v2i5.932>
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1–13. <https://doi.org/10.1177/1609406917733847>
- Nugroho, G. (Director). (2015). *Guru Bangsa: Tjokroaminoto* [Film]. MSH Films; Picklock Production.
- O'Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: Debates and practical guidelines. *International Journal of Qualitative Methods*, 19, 1–13. <https://doi.org/10.1177/1609406919899220>
- Ouyang, F., & Jiao, P. (2021). Artificial intelligence in education: The three paradigms. *Computers and Education: Artificial Intelligence*, 2, 100020. <https://doi.org/10.1016/j.caeai.2021.100020>
- Peirce, C. S. (1931–1958). *Collected papers of Charles Sanders Peirce* (Vols. 1–8). Harvard University Press.

- Perkins, M. (2023). Academic integrity considerations of AI large language models in the post-pandemic era: ChatGPT and beyond. *Journal of University Teaching & Learning Practice*, 20(2), Article 7. <https://doi.org/10.53761/1.20.02.07>
- Plantinga, C. (2009). *Moving viewers: American film and the spectator's experience*. University of California Press.
- Poláková, P., & Ivenz, P. (2024). The impact of ChatGPT feedback on the development of EFL students' writing skills. *Cogent Education*, 11(1), 2410101. <https://doi.org/10.1080/2331186X.2024.2410101>
- Pratidina, I. S., & Pasaribu, R. E. (2023). R.A. Kartini (1982) and Kartini (2017): Anguish and silent struggles in the narratives of Indonesian women's empowerment role model. *Wacana, Journal of the Humanities of Indonesia*, 24(1), 87–121. <https://doi.org/10.17510/wacana.v24i1.1219>
- Ricaurte, P. (2019). Data epistemologies, the coloniality of power, and resistance. *Television & New Media*, 20(4), 350–365. <https://doi.org/10.1177/1527476419831640>
- Rosenstone, R. A. (2018). *History on film/film on history* (3rd ed.). Routledge.
- Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning & Teaching*, 6(1), 342–363. <https://doi.org/10.37074/jalt.2023.6.1.9>
- Ryan, M.-L., & Thon, J.-N. (Eds.). (2014). *Storyworlds across media: Toward a media-conscious narratology*. University of Nebraska Press.
- Shohat, E., & Stam, R. (1994). *Unthinking Eurocentrism: Multiculturalism and the media*. Routledge.
- Sinakou, E., Boeve-de Pauw, J., Goossens, M., & Van Petegem, P. (2019). Designing powerful learning environments in Education for Sustainable Development: A conceptual framework. *Sustainability*, 11(21), 5994. <https://doi.org/10.3390/su11215994>
- Su, J., Zhong, Y., & Ng, D. T. K. (2022). A meta-review of literature on educational approaches for teaching AI at the K–12 levels in the Asia-Pacific region. *Computers and Education: Artificial Intelligence*, 3, 100065. <https://doi.org/10.1016/j.caeai.2022.100065>
- Tjahjani, J., & Wibawarta, B. (2025). Hijrah, an ideological representation of Tjokroaminoto's struggle in the biopic *Guru Bangsa: Tjokroaminoto*. *Cogent Arts & Humanities*, 12(1), 2506319. <https://doi.org/10.1080/23311983.2025.2506319>
- Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments*, 10(1), 15. <https://doi.org/10.1186/s40561-023-00237-x>
- Touretzky, D., Gardner-McCune, C., Breazeal, C., Martin, F., & Seehorn, D. (2019). A year in K–12 AI education. *AI Magazine*, 40(4), 88–90. <https://doi.org/10.1609/aimag.v40i4.5289>
- UNESCO. (2017). *Education for Sustainable Development Goals: Learning objectives*. UNESCO.
- United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. United Nations.
- Weber-Wulff, D., Anohina-Naumeca, A., Bjelobaba, S., Foltynnek, T., Guerrero-Dib, J., Popoola, O., Sigut, P., & Waddington, L. (2023). Testing of detection tools for AI-generated text. *International Journal for Educational Integrity*, 19(1), 26. <https://doi.org/10.1007/s40979-023-00146-z>

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education: Where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 39. <https://doi.org/10.1186/s41239-019-0171-0>

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