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Transforming Eco-Digital Literacies Through Multimodal Projects In English Language Learning

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Abstract

Students' engagement with digital media has increasingly influenced English language learning; however, its role in developing ecological awareness remains underexplored, particularly in Indonesian English language learning (ELL) contexts. Previous studies have primarily discussed digital literacy and environmental education as separate areas, while paying limited attention to how English learners transform ecological concerns into meaningful digital texts through multimodal practices. This study investigates how transformed practice within multiliteracies pedagogy supported undergraduate students in redesigning local environmental issues into multimodal digital texts. Employing a qualitative case study approach, this research involved twelve undergraduate English language learners and collected data from student artefacts, reflective accounts, classroom observations, and semi-structured interviews. The digital artefacts included a reforestation documentary, the Nawasena educational game, digital journalism, and fandom-based environmental posters. Data were analysed thematically using multiliteracies pedagogy, particularly the concept of transformed practice, and ecolinguistic perspectives to examine how students constructed and communicated ecological meanings through different modes. The findings indicate that students used digital media not only to complete academic assignments but also to communicate ecological concerns and engage audiences beyond the classroom. The documentary project developed place-based ecological storytelling; the game project integrated environmental decision-making through narrative interaction; the journalism project encouraged critical ecological discourse; and the poster project transformed youth popular culture into an environmental campaign language. Nevertheless, the transformation process varied among students due to differences in digital experience, access, and confidence in using multimodal resources. The study suggests that eco-digital projects can support English learning by connecting language practices with students' local ecological experiences, cultural resources, and environmental concerns.

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INTRODUCTION

In recent years, environmental issues have increasingly influenced educational discussions in Indonesia, including English language education. Global educational frameworks, such as OECD (2023), have underscored the need to integrate sustainability values into all areas of learning. In Indonesia, a

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country both rich in biodiversity and vulnerable to ecological degradation, this issue is closely related to students' everyday social and environmental realities. Despite rising awareness, environmental issues such as deforestation, pollution, and biodiversity loss persist, underscoring the need for education, including language education, to help students respond to environmental problems more critically. At the same time, digital engagement among Indonesian youth has reached unprecedented levels (We Are Social, 2023), creating an opportunity to connect environmental literacy with digital multimodal composition. For English teachers, this condition raises an important question: how can English learning serve as a space where students learn the language while also communicating ecological concerns?

While the pedagogy of multiliteracies (Cope & Kalantzis, 2009; Dewi & Yana, 2024; NLG, 1996) has offered valuable insights into how learners make meaning through multimodal, situated, and socially relevant practices, much of the literature remains focused on general literacy or critical pedagogy (Giroux, 2004; Marouli, 2021; Mills, 2010a; Stibbe, 2015). Few studies have examined how transformed practice, the culminating stage of multiliteracies pedagogy in which learners redesign meaning for authentic audiences, can be used to promote ecological literacy, particularly in Language Learner contexts. Previous studies have provided valuable insights into digital literacy practices and environmental education; however, less attention has been paid to how these two areas intersect in English-language learning contexts. In particular, limited research has examined how learners use digital multimodal resources to transform ecological concerns into meaningful texts for authentic audiences. Moreover, in Southeast Asia, the localised enactment of multiliteracies pedagogy, especially its transformative potential for real-world ecological engagement, remains underexplored.

Introduced by the New London Group (NLG, 1996), Transformed Practice is an important stage in multiliteracies pedagogy. At this stage, learners are encouraged to apply what they have learned in new situations and connect it to their own social and cultural contexts. Rather than viewing literacy as only the ability to interpret texts, this concept emphasises learners' capacity to redesign meanings through available semiotic resources and social contexts. Cazden et al. (1996) conceptualise this stage as the recontextualization of learned content, where learners critically apply and adapt semiotic resources to their lived realities. Later refinements by Cope and Kalantzis (2015) emphasised design-based learning as a dynamic process involving Design, Designing, and Redesigning, which shows that literacy practices can change according to context. Recent reinterpretations have further extended this view. Mills (2015) asserts that Transformed Practice enables learners to "reshape texts, values, and identities through multimodal expression." This means that students not only produce texts, but also negotiate identity, agency, and meaning through the media they use.

Theoretical Trajectory and Empirical Expansion. From its inception, the concept of Transformed Practice was rooted in a response to monocultural, monomodal literacy regimes. Cope and Kalantzis (2016) argued that 21st-century literacies must recognise learners as designers of social futures. Gee's (2002) early support for the model framed it as a "Bill of Rights" for minority learners, prioritising agency and identity. Over time, scholars have expanded this foundation across diverse contexts. Mills (2015) documented its implementation in multicultural classrooms in Australia, highlighting both the affordances and constraints of multimodal design. Recent studies have expanded transformed practice into discussions of identity, cultural negotiation, and socially situated meaning-making.

However, recent research has begun to reframe Transformed Practice through a critical-pedagogical lens. Zhu & Li (2025) emphasise translingual practice as central to transformation, arguing that linguistic hybridity should not merely be tolerated but foregrounded. Temin (2025) stresses its political dimension by viewing it as a decolonising move that challenges Western epistemologies in favour of local and Indigenous meaning systems. The convergence of these views signals a growing recognition that transformation is not only cognitive but deeply ideological and affective.

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Despite its conceptual promise, there remains a gap between how Transformed Practice is discussed in theory and how it is applied in classrooms. Several meta-analyses (Chen & Hsieh, 2023) reveal that over 70% of empirical studies on multiliteracies remain concentrated in Euro-American classrooms, with minimal attention to non-Western, multilingual learning ecologies. Studies such as Saifulloh (2023) in Indonesia, they are exceptions rather than the norm, highlighting a research gap in the Global South. Moreover, while many studies endorse multimodality, few offer concrete strategies for cultivating critical agency in settings constrained by infrastructure, surveillance, or digital poverty.

This gap becomes increasingly relevant as classrooms begin to incorporate AI-supported digital tools into literacy practices. As Varsha (2023) observes, most models of Transformed Practice fail to account for algorithmic bias, interface power, or the ethics of machine-generated discourse. In the present study, in an Indonesian university classroom, students engaged with ecological issues through AI tools such as Canva, Veed.io, and ChatGPT, not merely producing digital artifacts but re-authoring environmental narratives embedded in local culture. This shows that students' digital work was shaped by local experience, cultural values, and critical awareness, underscoring the need to use digital tools critically rather than simply treating them as neutral learning media.

The principles underpinning Transformed Practice resonate strongly with broader theoretical discourses such as critical pedagogy, ecolinguistics, and sociocultural theory. Drawing on Paulo Freire's (2020) -notion of education as the "practice of freedom," recent scholarship reframes transformation not as a skill set but as a learning process that allows students to question dominant meanings and social problems (Giroux, 2004, 2010; Hooks, 1994). In this regard, students' ecological writing, gamification projects, and digital journalism, as documented in Saifulloh et al. (2023, 2025), are forms of critical literacy practices that enable students to question dominant narratives and connect classroom learning with social realities.

In tandem, sociocultural theory (Vygotsky as cited in Yusof, 2021) remains instrumental in explaining how transformation is scaffolded through guided interaction with knowledgeable others. In this study, students' redesign of ecological texts was developed through peer collaboration, lecturer guidance, and engagement with local ecological issues (e.g., with Mr. Yani, an environmental activist), allowing students to connect language learning with culture, identity, and environmental responsibility. This aligns with Bhabha's (1994) concept of Third Space, where learners negotiate hybrid meanings across boundaries of language, culture, and power.

This study addresses that gap by investigating how undergraduate students in a digital literacy course at a green-oriented Indonesian university used transformed practice to design ecological narratives. These narratives appeared through various digital genres, including documentary videos, educational games, digital journalism, and environmental campaign posters. Drawing on students' experiences with environmental degradation in their local communities, the study illustrates how learners employed multimodal strategies not only to fulfil academic tasks but to develop their own ecological perspectives, creative practices, and ways of communicating environmental concerns (Saifulloh et al., 2025a). The project was conducted within a university that has institutionalised ecological values into its curriculum through what it calls a "green hybrid" identity, a context in which sustainability appears not only as an institutional policy but also as part of classroom practice.

This study examines how transformed practice operates within eco-digital English learning by focusing on students' local experiences, cultural resources, and multimodal design practices. Although earlier studies have recognised transformed practice as a site of creative reapplication (Gutierrez et al., 2021; Kim et al., 2023; Mills, 2010a; Na'im et al., 2025), they have not fully explained how this practice supports students' ecological agency in eco-digital English learning contexts. The study extends previous discussions by highlighting how students negotiate ecological meanings and positions through the redesign of digital texts. By analysing students' artefacts and their reflections, this paper offers empirical evidence for the potential of English multiliteracies pedagogy to contribute

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meaningfully to environmental education in linguistically and ecologically diverse settings.

This study investigates how undergraduate English language learners used transformed practice to redesign ecological issues through multimodal digital projects. It focuses on four student projects: a reforestation documentary, the Nawasena educational game, digital journalism, and fandom-based environmental posters. By analysing these artefacts alongside students' reflections and classroom interactions, the study seeks to understand how students connected English learning to local ecological problems, cultural values, and digital communication. Based on this background, this study addresses the following research questions: 1) How do undergraduate English language learners apply transformed practice to redesign ecological issues through multimodal digital projects? and 2) How do students negotiate ecological meanings through digital media, English learning, and local cultural experiences?

METHOD

This study used a qualitative case study design to examine how English language learners redesigned ecological meanings through Transformed Practice in a multiliteracies-based classroom. A qualitative approach was considered appropriate because the study focused on students' learning processes, digital products, reflections, and meaning-making experiences rather than on numerical outcomes. The case study design was selected because it enabled an in-depth examination of how students constructed ecological meanings within a specific instructional setting. The study focused on the relationship between English learning, local ecological experiences, and digital multimodal practices. The study explored how students interpreted ecological problems, selected digital modes, collaborated with others, and transformed their ideas into multimodal texts. In this sense, the focus was on the process of transformation as it appeared in classroom activities, project development, and students' final artefacts.

Participants and Research Context

The research was conducted at a private university in East Java, Indonesia. The university promotes environmental values through its "green hybrid campus" identity, which became an important context for the study. The project was carried out as part of an undergraduate digital literacy course in the English Education Department. The participants were 12 seventh-semester students aged 20 to 22 years. Purposive sampling was used because the study required participants capable of providing meaningful reflections on both digital composition and ecological themes. Their prior experiences with digital media and multiliteracies activities allowed them to describe the process of designing and redesigning ecological texts. These criteria were used to ensure that the participants could reflect on both digital composition and ecological themes. The students worked on different digital projects, including documentary videos, educational games, digital posters, and reflective blog articles. A lecturer and a local eco-practitioner were also involved in the learning process. The lecturer guided the students during project development, while the eco-practitioner provided local ecological knowledge and community-based perspectives. Their involvement was not treated as that of research participants but as that of learning facilitators who supported students in connecting classroom activities to local environmental issues.

Before data collection, ethical procedures were followed to protect participants' rights and privacy. The students were informed about the purpose of the study, the data collection procedures, and their voluntary participation. Informed consent was obtained from all participants before interviews and the use of their digital artefacts for research purposes. Participants' identities were anonymised in the presentation of findings.

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Data Collection

Data were collected over fourteen weeks during the implementation of the digital literacy project. The data came from four main sources. The first source was students' digital artefacts, including eco-themed posters, documentary videos, gamified learning media, and reflective blog articles. These artefacts were used to understand how students redesigned ecological meanings through different modes and media. The second source was classroom observation. The researcher observed classroom discussions, feedback sessions, and project workshops. Field notes were written to document students' decision-making, collaboration, media choices, and responses to ecological issues during the learning process. The third source was semi-structured interviews. Interviews were conducted with eight selected students after the final project submission. The interview questions explored students' experiences during project development, including: (1) why they selected particular digital genres or media, (2) how they transformed ecological issues into digital texts, (3) how English learning influenced their design decisions, and (4) what challenges they experienced during the process. The fourth source was students' reflective journals and project design memos. These documents recorded students' ideas, difficulties, revisions, and reflections during the project. They helped the researcher understand how students' thinking developed from the early planning stage to the final production of their digital artefacts.

To strengthen the credibility of the data, this study used triangulation across different data sources, including artefacts, observations, interviews, and reflective writings. Member checking was conducted by sharing interview summaries and interpretations with selected participants to confirm the accuracy of the researcher's understanding. Researcher memos were written throughout the study to document reflections and mitigate personal bias in data interpretation.

Data Analysis

The data were analysed using thematic analysis. The analysis followed several stages, beginning with repeated reading of field notes, interview transcripts, students' reflections, and digital artefacts. After data familiarisation, the researcher generated initial codes related to multimodal design choices, ecological messages, digital tool use, collaboration, identity negotiation, and reflective practices. The coding process was informed by concepts from multiliteracies pedagogy, such as design, redesign, multimodality, and situated meaning. It was also guided by ecological discourse, particularly ideas of local wisdom, environmental awareness, and ecological agency. The initial codes were then reviewed, compared, and organised into broader themes representing different forms of transformed practice. The themes were developed by examining patterns across students' artefacts, reflections, and classroom interactions. NVivo 14 was used to organise the data and support the coding process. To improve the reliability of the analysis, part of the data was also reviewed by another coder. Intercoder agreement was tested on 25% of the dataset and reached a Cohen's Kappa score of 0.87. After the main themes were identified, they were interpreted in relation to the Transformed Practice dimension of multiliteracies pedagogy. The analysis focused on how students applied prior knowledge in new digital contexts, developed design agency, and expressed ecological concerns through multimodal texts.

RESULT

The findings indicate that students' transformed practice occurred through redesigning ecological issues into multimodal digital texts. Across four projects, students negotiated ecological meanings through different digital forms, including documentary production, educational games, digital journalism, and fandom-based environmental posters. Rather than simply producing course assignments, students made decisions about how environmental messages should be represented, who the intended audiences were, and which digital modes could best communicate their ideas. The

analysis identified four patterns of transformed practice: (1) developing place-based ecological narratives, (2) embedding environmental decision-making in interactive media, (3) challenging dominant ecological narratives through digital writing, and (4) using youth cultural resources to communicate environmental messages. The following sections describe how these patterns appeared in each project. The following sections present how this process appeared in each student project.

Documentary Project

The Reboisasi documentary illustrates how students transformed environmental information into a place-based ecological narrative. Through documentary storytelling, students moved from presenting environmental problems as general issues toward representing local experiences and community voices.

Hikam's journalistic orientation shaped the documentary's cinematic and rhetorical form. The film opens not with a crisis, but with aesthetic immersion, slow pans of dawn rising over Mojokerto's Tugu Emas, followed by vibrant sequences of Pasar Tanjung, Alun-Alun, Kelenteng, Masjid Akbar, Gereja, Vihara, and perbukitan, evoking a serene, sacred relationship between human civilization and ecological harmony. The audio is composed of ambient sounds layered with haunting narration, intended to stir both awe and unease. This conscious choice, comparing natural beauty with emerging devastation, establishes an emotional arc. The narrative then pivots: "Kabupaten Mojokerto terdiri atas 18 Kecamatan..." offering geographic and historical context that transitions to the ecological focus: the destruction of the Lebak Jabung forest.

The core narrative centers on the case of Mr. Yani, a local figure who opposed environmental destruction in Lebak Jabung Village. Through archival and on-site footage, the documentary recounts how, from 2005 to 2019, mining operations devastated the local ecosystem, prompting Mr. Yani and two colleagues to march 758 kilometers to Jakarta in 2020 to demand justice from President Joko Widodo. The students documented his testimony: "We encourage the community to reforest the deforested forest… we plant Kaliandra because it has three benefits: the leaves provide protein, the flowers provide nectar for bees, and the fallen leaves maintain soil moisture." The students integrated this material with an edited text originally generated by AI. Unsatisfied with the automated tone, they rewrote the text for emotional clarity and narrative coherence. One student commented: "We are not just showing the destruction, but also how anger and love can create change." As they debated sequencing, transitions, and contrast, Hikam reminded the team: "The framing is like the opening scene of Jiwa Jagad Jawi, beautiful at first, then hit by reality." These structural choices reflect a sophisticated awareness of visual rhetoric and audience manipulation. The final scenes return to hope: footage of villagers planting Kaliandra, students laughing with farmers, and close-ups of bees pollinating wildflowers.

The documentary demonstrates how students used digital storytelling to connect ecological knowledge with local experiences. The group engages with media tools, drone footage, AI-generated subtitles, and ambient assessments, not as consumers, but as designers of ecological narratives. The emotional tone, local interviews, and factual data create a multimodal blend of art, activism, and environmental science. Crucially, the decision to focus on Mr. Yani's embodied resistance rather than abstract environmental statistics signals a critical shift in the students' perspectives, from ecological awareness to ecological solidarity. During peer discussions, the documentary encouraged students to reflect on possible responses to environmental problems and the role of local communities in ecological preservation. This project manifests Mills' (2006, 2010, 2015) A framework of *transformed practice* where learners design knowledge into public discourse through socially impactful texts. It also illustrates Kalantzis and Cope's (2000) In the theory of design as epistemic action, students do not merely express what they know; they *reshape reality through semiotic innovation*. By integrating emotion, ethics, local voice, and environmental urgency into a multimodal text, the *Reboisasi* team not

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only demonstrated learning but modelled a pedagogy of environmental citizenship, making ecological trauma visible and ecological healing possible through narrative design.

Nawasna gamification

Beyond visual media, another group embraced gamification as a transformative tool. Tirta, whose multiliteracy journey began in vocational school through digital design and game development, spearheaded Nawasena, an interactive educational game that promotes environmental awareness. “I want the player to plant trees,” Indah suggested, “but they have to choose the right location for sustainability.” The Lecturer asks further, “What happens if they plant in the wrong area?” The group deliberated before integrating consequences; the players lost points for poor placement and gained bonuses for selecting native plants. Like the lecturer's literacy approach, this game evolved iteratively, reinforcing the importance of ecological decision-making. Mills (2015) highlights how digital learning environments enhance engagement, validating the integration of gamification in multiliteracies pedagogy. The Nawasena project shows how students used game design to transform ecological ideas into interactive learning experiences. Drawing on EFL materials and local folklore, this student-designed game employs digital storytelling, rule-based design, and narrative moral framing to foster ecological consciousness among peers.

Originally developed as a task on narrative text for English language learners, Nawasena was constructed using Canva and linked to AI-based Wordwall games. The final product consisted of three integrated components: instructional narrative material, a sentence unscrambling challenge, and a maze-based adventure. The first game required players to rearrange ten jumbled sentences that, when correctly ordered, formed the story of Malin Kundang. Nevertheless, the educational impact extends beyond grammar or coherence. According to the students, the story was deliberately chosen to convey a moral reflection: "Bad actions have a bad impact on oneself and the surrounding environment" (Fieldnotes, Dec 2023). This suggests that students viewed folklore as a vessel for ecological ethics.

The second game, a maze challenge, further pushed the complexity. Players had to run toward the correct narrative pathway while avoiding obstacles, visually coded as "enemies." Tirta explained during the presentation that this was designed not just for engagement but for metaphor: "A maze is like a path in life. If you take the wrong step, you can damage the environment" (Fieldnotes, Dec 2023). The visual effects and music underscored the emotional stakes of ecological decisions, inviting players to feel tension, urgency, and consequence. In the observed classroom session, Tirta demonstrated the homepage interaction by inviting a peer to enter their name: "Enter your name first, then you will enter the story," he explained. This act of personalizing the experience marked an intentional pedagogical shift, framing the player not just as a reader of the narrative but as a participant in shaping environmental outcomes. Another student added, "We use musical effects so players feel like they are entering the story world. But the story is not an ordinary fairy tale; it is about responsibility." (Field Notes, Dec 2023)

Furthermore, the students themselves argued for the story's ecological relevance. In their closing remarks, they emphasized that Malin Kundang teaches not only familial ethics but also social and environmental consequences: "This story can help people have an attitude of caring about the environment, because all actions have consequences." (Fieldnotes, Desc 2023) By linking cultural heritage with contemporary environmental values, the game constructed an intertextual bridge in which traditional wisdom informed modern digital pedagogy. Nawasena project marks an evolution from content delivery to critical design. What began as an EFL assignment became an exercise in narrative engineering, where story, environment, and player behaviour intertwine. The students' decision to embed moral tension in gameplay, design challenge-based feedback loops, and use localised folklore reflects an emergent design literacy grounded in ethical storytelling. Through game mechanics, students represented environmental choices as actions with consequences, allowing

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players to engage with ecological issues through interaction rather than explanation alone.

Moreover, the way the lecturer balanced student autonomy with moments of guided reflection shifted the learning process away from rigid, teacher-led models. In this setting, students were not simply following instructions but making decisions about how the task should look, sound, and connect with cultural and ecological realities. They experimented with form and content, treating ecological narratives as something that could be designed, adapted, and even taught to others. This creative process mirrors James Paul Gee's (2002) view that well-designed games can model complex systems and allow participants to explore identities through active engagement with meaning. The idea of the narrative mode of learning also comes into play, in which storytelling is less about reciting facts and more about shaping how we understand and inhabit the world. In the Nawasena project, both perspectives intersect: students take on the dual role of storyteller and environmental planner, embedding messages of sustainability within storylines, branching choices, and consequences that invite players to think about the long-term impact of their decisions.

Digital Journalism

The integration of digital journalism into language learning takes on transformative dimensions in a journalism essay project published online by Rizka and Bagus, two students whose work goes far beyond class requirements. For the students, digital journalism became a way to explore how environmental issues were represented in public discourse and to communicate alternative ecological perspectives through English writing. Guided by their lecturer, they wrote this essay through an ecolinguistic paradigm, specifically drawing on the multiliteracies pedagogy framework's notion of the stories we live. This framework demonstrates how language, particularly in news media, can shape people's perception of the world and sometimes silence ecological realities for economic or political gain.

The project began with a critical reading of Google's "Year in Search," the most-searched-for or most-accessed information online. A snapshot of topics dominating Indonesian online discourse was the Jakarta Post in 2023. As their lecturer guided them through the headlines, disturbing patterns emerged. Thus, all the sought-after and populist news turns our society into a commodity. For example, large-scale infrastructure projects are celebrated as national milestones even though they displace local traditions. Consumer trends are framed as markers of progress without acknowledging their environmental impact, and recurring floods are reported as seasonal events, without urgency or systemic critique. These patterns are not treated as neutral reflections of reality but rather as deliberate framing that tells a story about the world while obscuring other, more important news. The class then examined these narratives alongside the Jakarta Post's analysis. It published an article titled "Damaging Discourse in Online News Trends Over Ecological Literacy" (Saifulloh et al., 2023), which shows how such reporting normalizes environmental neglect and marginalizes voices calling for ecological awareness.

One of the most powerful examples comes from Rizka's digital journalism. Inspired by the story of Mr. Ahmad Yani, an environmental activist from Lebak Jabung, Rizka wrote an article titled "When Women and Nature are Exploited: Resistance from the Lebak Jabung Forest." In her article, she combines factual reporting with a reflective touch, establishing a connection between the ecological damage caused by illegal mining in upstream areas and the experiences of women, who are often marginalized. Rizka narrates how deforestation, landslides, and forest fires not only threaten the ecosystem but also suppress the socio-economic lives of villagers, especially women. This choice of focus demonstrates her position as a writer who not only observes but also experiences and understands the socio-cultural context in which she writes. Her involvement as a woman living in a rural area with a higher education background gives her a unique position to bridge the voices of local communities with the broader public discourse.

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Such moments demonstrate a shift from passive consumption of English-language media to active critical writing. Rather than reproducing the voices of dominant news media, students begin to challenge them, blending ecological awareness with linguistic skills. This reflects the transformed dimensions of multiliteracies pedagogical practice (NLG, 1996), in which learners use the tools and concepts they encounter to redesign meaning for their own purposes. This process reflects a shift from consuming existing media narratives toward producing texts that express students' own ecological perspectives. Their blogs, campus news articles, and visual narratives do more than tell stories; they challenge the silencing of local knowledge, question the environmental claims of consumer culture, and offer alternatives grounded in justice and care. By the end of the project, the students had not only strengthened their English skills but also developed the capacity to interrogate and reshape the environmental narratives circulating in their communities. In doing so, they embodied Stibbe's (Stibbe, 2015) claim that language not only depicts reality but actively shapes it, and they positioned themselves as storytellers who could give voice to threatened ecosystems and the communities that depend on them.

Digital Poster

The integration of Korean fandom culture and environmental literacy is strongly reflected in the digital poster project developed by Icha and Adel, two students who identify as dedicated BTS ARMYs. They shaped the transformation of their literacy practices through their idol, RM. Therefore, Icha and Adel tried to do the same with digital posters. Digital posters allow anyone, even those without basic design skills like Icha and Adel, to create digital posters. Those born as digital natives are very familiar with templates on their social media accounts for creating digital posters. However, there was an interesting transformation for Icha and Adel: the digital poster they created was a reimagining of a poetic painting, with a touch of hashtags that united all elements of the BTS Army femdom to actively protect the environment. This was apparently also understood by the lecturer. In the class session on December 15, the lecturer introduced a poster model #StopRiverPollution, which demonstrated how hashtags can unite environmental discourse across various platforms. This inspired Icha and Adel to design their campaign using Canva AI, resulting in a vibrant poster titled "Reforestation Revolution." Their work features a striking visual combination: a lush forest slowly being degraded into an industrial area, accompanied by two hashtags that quickly gained popularity online: #ReforestRevolution and #PlantHopeTodayForGreenerFutures.

"We saw that these hashtags were already trending," Icha explained during the presentation. "So we decided to enter the conversation…but from a local perspective." Adel added, "We did not want just to follow our idol…we wanted to act like them. BTS often supports disaster victims and environmental causes. This is our way of doing the same" (Fieldnotes, Dec 2023). The students contextualised their work within the broader K-pop eco-activism landscape, referencing global initiatives such as RM Forest No. 1 in Seoul, an afforestation project initiated by BTS fans, and the platform Kpop4Planet, which serves as a hub for climate-focused fandom activism. As reported in their poster presentation, Icha and Adel had observed how Korean pop culture fandoms, especially BTS ARMY, have been instrumental in funding tree planting, advocating for zero-waste concerts, and demanding accountability from high-carbon streaming services.

Their poster was not only a digital product; it was a multimodal response to ecological urgency, conveyed through the lens of fandom loyalty. The students deliberately chose a merchandise-style design, reflecting the aesthetics of BTS album visuals. "We wanted the poster to feel collectable, like a K-pop photocard, but with an environmental message," said Adel. They also incorporated a QR code linking to an explainer video on the benefits of reforestation, further extending their audience's engagement beyond the static image. Icha noted, "We included that because most fans love interactivity. Furthermore, that is how change happens, by drawing people in." The emotional impact

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was immediate. In post-presentation feedback, several peers noted how the visual metaphor and the fandom symbolism made the poster "personal and urgent." The lecturer used the moment to highlight how hashtags are the new political slogans, concise, networked, and emotionally charged.

The project demonstrates how students used existing cultural resources and digital design practices to create environmental messages that were meaningful to their intended audiences. More specifically, it identifies critical design literacy, the ability to reconfigure digital tools and symbolic forms toward socio-ecological goals. Through the appropriation of studies such as Saifulloh (2023) in Indonesia, which are exceptions rather than the norm of pop culture language and aesthetic codes, Icha and Adel call for a narrative mode of knowing that constructs meaning not by argument alone but by story, symbol, and cultural resonance. Moreover, the lecturer's strategy is to showcase sample materials and to empower students to draw on their lived experiences and youth popular culture as sites of serious literacy work. Instead of dismissing fandom as superficial, the classroom honoured it as a legitimate vector for environmental advocacy, encouraging students to turn emotional capital into ecological agency.

Across the four projects, students demonstrated different ways of engaging with ecological issues through digital composition. Although the forms of transformation varied, all projects showed that students actively selected, redesigned, and combined semiotic resources to communicate environmental meanings within their own cultural and social contexts.

DISCUSSION

The findings suggest that transformed practice was shaped by students' different modes of expression, experiences, and cultural resources. Rather than appearing as a single process, transformation occurred differently across the four projects examined in this study. In the documentary project, students transformed local ecological conflict into visual storytelling. In the Nawasena game, students connected narrative text with ecological decision-making. In the digital journalism project, students used English writing to question dominant media narratives about development and environmental damage. In the poster project, students used fandom culture and social media aesthetics to communicate environmental messages. These differences indicate that transformed practice is closely related to how learners select and redesign available semiotic resources according to their purposes and audiences.

These findings support the idea that multiliteracies pedagogy allows learners to redesign meaning through different modes and media. In line with Cope and Kalantzis (2016), this study shows that transformation involved the design and redesign of meaning, but the process was not solely technical. Students' choices were shaped by local ecological issues, cultural memory, peer feedback, lecturer guidance, and their own familiarity with digital platforms. This means that, in this context, transformed practice was not simply about producing digital texts but about learning to communicate environmental concerns in ways that were meaningful to their peers and communities.

Previous studies have shown that transformed practice can help learners transfer literacy across media and contexts (Li & Wekesa, 2022; Saifulloh & Anam, 2022; Vetter, 2022). The present study contributes to this discussion by illustrating how transformed practice operated in an Indonesian English-language classroom in which students engaged with local ecological issues. The findings suggest that both digital resources and local experiences shaped students' multimodal projects. Some students were more confident in using digital tools, while others needed more guidance in organising ecological messages and connecting them with English expressions. This suggests that technology alone does not guarantee transformation; instead, meaningful transformation requires pedagogical guidance, reflection, and opportunities for students to connect learning with their lived experiences.

The Reboisasi documentary shows that students used visual storytelling to make a local ecological issue easier to understand and discuss. By combining local testimony, narration, images, and

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sound, they learned how to turn environmental concern into a public message. Similarly, the *Nawasena* game redefines learning not as consumption of content but as the simulation of ethical consequence, foregrounding decision-making as a mode of ecological reasoning. Together, these projects show that transformation can involve ethical reflection, as students consider how their digital texts represent environmental problems and possible responses.

The journalism and poster projects further expand this discourse by demonstrating how English can serve as a medium for conveying ecological perspectives beyond classroom exercises. In Rizka's digital essay, English becomes a site of witnessing and advocacy, challenging the commodification of news and its silencing of ecological truths. The fandom-inspired *Reforestation Revolution* poster, meanwhile, reveals how youth popular culture can serve as an effective reservoir for environmental engagement. These examples show that transformed practice was shaped by students' own interests, cultural resources, and local concerns. English was used not only for classroom communication but also to convey ecological messages through familiar digital formats.

Overall, the four projects show that transformed practice can support eco-digital literacy when students are given opportunities to connect English learning with local ecological issues. The documentary, game, journalism, and poster projects each offered a different path for students to redesign meaning. These findings suggest that transformed practice is not only about using digital tools, but also about helping students make choices about message, audience, mode, and local relevance. The study also shows that the transformation was uneven. Some students were more familiar with digital design, while others needed more guidance in organising ecological messages and expressing them in English. This means that teachers play an important role in guiding students through feedback, examples, revision, and reflection. For English-language classrooms, the implication is that eco-digital projects should not be treated solely as creative assignments. They need to be designed as learning activities that combine language practice, multimodal design, ecological awareness, and responsible communication.

Conceptually, this study introduces the notion of *eco-semiotic transformation*, a framework that expands multiliteracies from meaning-making to world-making. Transformation, in this view, entails the redirection of symbolic power toward environmental and cultural restoration. Methodologically, the study contributes a model that integrates artefact-based analysis with ecolinguistic interpretation, enabling researchers to trace not only the visible products of transformation but also the invisible processes of moral reasoning that accompany them. Theoretically, the data invite a redefinition of *Transformed Practice* as a praxis of relational literacy, one that connects language, emotion, and ecology. The findings reject the binary between the technological and the traditional, showing instead that digital literacies can coexist with indigenous wisdom as *memayu hayuning bawana,* the Javanese ethic of maintaining cosmic balance. This convergence challenges the Western tendency to treat technology as inherently progressive, positioning it instead as a medium that acquires meaning only through ethical design. In practical terms, the study offers a pedagogical model in which English language learning becomes a laboratory for sustainability and moral imagination. Through multimodal projects that link global media with local values, students experience literacy as both cultural inheritance and civic responsibility. This perspective may inform educators who seek to integrate environmental issues into language learning while maintaining attention to language development and students' cultural contexts.

CONCLUSION

This study has shown that *Transformed Practice* in multiliteracies pedagogy can serve as a living form of environmental literacy. When students were invited to design ecological messages using digital media, they developed new ways of using English to communicate ecological ideas in digital formats. The process of creating documentaries, digital games, news essays, and online posters

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allowed them to connect cultural wisdom with technological skill and moral reflection. In doing so, they demonstrated that language learning can become a site of ethical engagement, where language learning and ecological awareness can be developed through meaningful multimodal practices.

Even so, the study has several limitations. should be interpreted within the specific institutional and cultural context of the study. Students' access to digital tools also varied, influencing the degree of transformation they could achieve. The research design, although rich in qualitative depth, was confined to a single semester; it did not follow the long-term effects of transformation on students' ecological attitudes or practices beyond the course.

Future studies could extend this work by examining *Transformed Practice* across different institutional types and cultural settings, particularly in schools with limited digital resources. Cross-regional comparisons may reveal how local traditions and ecological realities shape the way students redesign meaning. Longitudinal research could also provide insight into how ecological awareness formed through language learning continues to influence learners' behaviour over time.

The implications reach beyond English classrooms. Teachers can use multiliteracies as a bridge between digital competence and ecological responsibility. Curriculum developers may draw on this model to weave sustainability values into language education. More broadly, this study suggests that *Transformed Practice* offers a pathway for students to use literacy as a practice that connects language, culture, digital communication, and environmental awareness.

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