Enhancing Language Skills and Literacy: A Project-Based Approach for English Teachers in Multimodal Pedagogy

Hamamah Hamamah^{1,*}, Zuliati Rohmah¹, Syariful Muttaqin¹, Mochamad Andhy Nurmansyah¹ & Alifa Camilia Fadillah¹

¹Faculty of Cultural Studies, Universitas Brawijaya, Indonesia

*Correspondence: Faculty of Cultural Studies, Universitas Brawijaya, Indonesia, Jl. Veteran, Malang, Indonesia. Tel: 62-341-575-875. E-mail: hamamah@ub.ac.id

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Abstract

To address the gap in English teachers' ability to effectively integrate multimodal literacy in language teaching, especially in socio-culturally diverse and resource-limited contexts such as East Java, this study developed and implemented a project-based mentoring program. The aim was to enhance teachers' competencies in creating and utilizing multimodal texts to improve students' language skills and digital literacy. Grounded in a Research and Development (R&D) approach, the study began with a needs analysis involving 147 English teachers across various school types and regions in East Java. Findings revealed that while over 80% of teachers already employed multiple modes such as text, image, audio, and gesture in classroom practice, formal training on multimodal literacy was limited. The project-based mentoring program incorporated a sequence of stages, including conceptual workshops, exploration of digital tools, mentoring on lesson planning, classroom trials, and reflective sessions. Participants demonstrated improved confidence and capability in integrating multimodal elements, even when constrained by limited digital access. Teachers reported increased student engagement and participation, particularly when combining familiar digital applications with contextually relevant teaching materials. This study highlights the importance of capacity-building initiatives that support teachers in leveraging both digital and non-digital multimodal resources, contributing to more inclusive and effective language learning environments aligned with the evolving demands of 21st-century education.

Keywords: multimodal literacy, English language teaching, project-based teaching method, English language teachers

1. Introduction

1.1 Background of the Study

In today's digital era, the integration of multimodal resources in language education is not merely beneficial but essential. Contemporary learners, often referred to as digital natives, are accustomed to accessing information through a range of modes—text, image, audio, video, and gesture. To engage them effectively, learning resources must reflect these preferences, fostering active participation and deeper comprehension of language and meaning-making processes (Ekşi & Yakışık, 2015; Tobin, 2019). Multimodal-based materials support students not only in acquiring linguistic knowledge but also in developing critical thinking and creativity as they interpret diverse forms of communication.

However, the successful integration of multimodal learning depends heavily on teachers' readiness and capabilities. Teachers must be able to utilize multiple resources and adapt them to specific learning objectives and student characteristics (Howell, 2018). Yet, in many contexts—including Indonesia's multicultural and geographically diverse regions—this remains a significant challenge. Limited infrastructure, unequal access to digital tools, and varying degrees of teacher preparedness contribute to a persistent digital divide (O'Brien & Bauer, 2005).

Indonesia presents a particularly compelling case. Despite teachers' efforts to incorporate visual aids, voice recordings, and gestures in their lessons, many remain unaware that these practices align with multimodal literacy frameworks. Our preliminary observations reveal that while multimodal elements are often present, they are not applied strategically or consciously. This disconnect is compounded by the rapid advancement of digital technologies, which

continually reshapes classroom practices and expectations, often leaving teachers uncertain about how to integrate new tools effectively (Howell, 2018).

Previous research has highlighted the benefits of multimodal literacy in improving student engagement, critical reading, and creative expression (Yi, 2014; Varaporn & Sitthitikul, 2019). However, many of these studies focus on student outcomes, with less attention paid to equipping teachers with the necessary skills to design and implement multimodal instruction effectively. This gap underscores the need for targeted teacher development programs.

Drawing on Howell's (2018) capabilities perspective, this study emphasizes enhancing teachers' ability to maximize the use of existing resources, rather than solely focusing on increasing access to new technologies. Empowering teachers to design multimodal lessons that reflect their socio-cultural contexts and available tools ensures that learning remains authentic, motivating, and contextually relevant (Eryansyah et al., 2019).

Therefore, this study aims to develop a structured, project-based mentoring program that equips English language teachers in East Java, the second most-populous province in Indonesia with 29 regencies and 9 cities, with the knowledge and practical skills to integrate multimodal literacy into their teaching. By conducting a comprehensive needs analysis, this research identifies current practices, gaps in understanding, and opportunities for growth. The ultimate goal is to bridge the gap between teachers' intuitive use of multimodal elements and a more intentional, pedagogically sound approach that supports student literacy development in increasingly digital and multimodal learning environments.

Given these challenges and opportunities, this study responds to the urgent need for structured teacher development in multimodal literacy. This research seeks not only to understand teachers' current practices but also to design a responsive, project-based mentoring program that equips educators with both theoretical understanding and practical tools. The following section outlines the theoretical and empirical foundations that inform this study and maps the role of multimodal literacy in language education. Through this lens, the study positions itself to contribute meaningfully to both scholarly discussions and practical advancements in English language teaching.

1.2 Multimodal Texts to Improve Learners' Literacy

In the digital age, learners are no longer passive recipients of information but active "prosumers"—simultaneously consumers and producers of content distributed across various platforms (Ekşi & Yakışık, 2015; Lim & Toh, 2020; Ryu & Boggs, 2016). Students encounter multimodal compositions daily on social media, combining voice, language, images, movements, and more. However, without proper guidance, they often overlook the meanings embedded within these modes. Understanding the interplay of these semiotic elements is critical for developing literacy that extends beyond traditional texts (Ball et al., 2014; Hines, 2014; O'Brien et al., 2018).

Multimodal learning equips students to navigate and critically interpret these complex texts while fostering creativity, critical thinking, and semiotic awareness (Lim & Toh, 2020; Jiang et al., 2022). When students engage in creating multimodal texts, they not only demonstrate their understanding of language but also learn to select and combine diverse modes to express original ideas. For example, producing a persuasive poster requires choosing images and words that complement one another, sequencing them meaningfully, and considering the cultural relevance for the intended audience. These tasks hone their independence and stimulate deeper learning engagement (Mills & Unsworth, 2017).

However, achieving these learning outcomes hinges on teachers' ability to design and facilitate multimodal learning experiences. Teachers play a central role in helping students explore various modes of meaning-making and in guiding them to produce their own multimodal texts effectively. Yet, as observed in East Java classrooms, many teachers apply multimodal elements intuitively without a comprehensive understanding of how to maximize their pedagogical potential. Despite frequent use of images, audio, or videos, teachers often lack structured frameworks for helping students make meaningful connections between modes (Eryansyah et al., 2019).

Moreover, assessing multimodal outputs requires teachers to move beyond conventional language assessments. Teachers need to evaluate not only linguistic accuracy but also students' creativity, coherence in combining modes, audience awareness, and integration of semiotic resources (Lim & Toh, 2020). For instance, when students produce a digital story, teachers can assess the clarity of the narrative flow, the relevance of visual and auditory elements, and the effectiveness of the overall message conveyed.

To support teachers in fulfilling this role, pedagogical frameworks such as the Systemic Approach and Instructional Dynamics offer valuable guidance. These approaches encourage teachers to develop shared metalanguage with students, empowering learners to articulate their choices in multimodal compositions and to engage in reflective

meaning-making (Lim, 2018; Hassett & Curwood, 2009). Such frameworks transform classrooms into inquiry-driven environments, where students actively negotiate meaning and teachers scaffold learning experiences effectively.

Equipping teachers with the skills to harness these everyday literacies is vital for creating relevant, engaging, and culturally responsive learning environments. Thus, this section underscores that while multimodal texts significantly enrich learners' literacy, their effective use is inseparable from teachers' capabilities to design, implement, and assess multimodal learning meaningfully. Addressing this need forms the core motivation for the present study, which seeks to empower teachers in East Java to elevate their multimodal teaching practices through structured professional development.

1.3 Learning Activities for Designing Multimodal Texts

Designing effective multimodal learning activities requires more than simply combining various media; it demands a clear pedagogical approach that empowers both teachers and students to engage meaningfully with multiple modes of communication. Two well-established frameworks that can support teachers in this endeavour are the Systemic Approach and Instructional Dynamics, both of which offer structured ways to integrate multimodal literacy into classroom practice.

The Systemic Approach, grounded in Halliday's Systemic Functional Linguistics, emphasizes the importance of making meaning through deliberate choices across different semiotic modes (Lim, 2018). This approach encourages teachers to guide students in selecting appropriate modes—whether text, image, sound, or gesture—to convey intended meanings effectively. A key feature of this approach is the use of shared metalanguage, which enables students to explain and justify their design decisions. For instance, when creating a multimedia presentation, students might articulate, "I chose warm colours to make the message feel welcoming." By fostering this kind of critical reflection, teachers help students develop greater awareness of how different elements contribute to overall meaning-making.

Complementing this, the Instructional Dynamics framework focuses on guided literacy practices that nurture students' metacognitive skills (Hassett & Curwood, 2009). Originally designed for young learners, this framework remains highly applicable for beginner language learners or those unfamiliar with multimodal composition. It supports teachers in scaffolding students' engagement with visual and textual elements, helping them reflect on their design choices and develop independent learning strategies. By structuring classroom activities around inquiry and collaboration, Instructional Dynamics transforms students from passive recipients of information into active participants in constructing and interpreting multimodal texts.

Together, these frameworks position teachers not just as facilitators but as designers of learning experiences that integrate multimodal literacy effectively. In the context of East Java, where classrooms vary widely in terms of resources and student backgrounds, these approaches offer adaptable strategies. Teachers in rural areas, for example, can blend conventional materials like posters and student drawings with digital resources when available, ensuring that learning remains engaging and accessible. Teachers can also incorporate locally relevant images, stories, and design choices to make multimodal learning more meaningful for their students.

Moreover, these frameworks provide valuable guidance for assessing multimodal outputs. Teachers are encouraged to evaluate not only the technical aspects of students' products but also their creativity, coherence, and ability to integrate modes purposefully. For example, when students produce a digital story, teachers might assess how well the narrative flows, whether images and text complement each other, and how effectively the story engages its intended audience.

By understanding and applying these pedagogical models, teachers are better equipped to design multimodal learning experiences that align with their students' needs and classroom realities. This understanding forms a crucial foundation for the project-based mentoring program developed in this study. Building on these frameworks, the mentoring program will support East Java teachers in planning, implementing, and reflecting on multimodal literacy practices, ultimately bridging the gap between intuitive use of multimodal elements and strategic, pedagogically sound integration.

2. Method

This study adopts a Research and Development (R&D) approach, adapted from Borg, Gall, and Gall (2003), to systematically investigate and enhance English language teachers' competencies in multimodal literacy. The R&D framework is well-suited for this study, as it integrates both the identification of needs and the iterative development and implementation of a contextually responsive mentoring program. The overarching goal is to empower teachers to integrate multimodal resources into their English language teaching practices effectively.

The research design comprises three main stages: needs analysis, program development, and implementation. This structured progression ensures that the professional development program aligns with teachers' actual classroom realities in East Java.

2.1 Needs Analysis

The first stage involved conducting a comprehensive needs analysis to understand teachers' existing knowledge, attitudes, and practices regarding multimodal literacy. Data collection was carried out through an online questionnaire distributed to English language teachers across East Java and are members of the East Java TEFLIN Association, encompassing various educational levels and school types. A total of 147 responses were collected, providing valuable insights into the participants' demographic profiles, teaching experiences, and familiarity with multimodal pedagogy.

The questionnaire was divided into four key sections, as detailed in Table 1:

Section	Focus Area	Question Types	Details
Α	Demographic Information and Consent	Dichotomous and Open-Ended	Includes gender, teaching experience, educational background, school name and type, and teaching location (city/regency).
В	Understanding of Multimodal Literacy	Dichotomous (1), Likert-scale (2-5), Guttman (7), Open-ended (6,8)	Assesses teachers' awareness and conceptual understanding
С	Skills in Utilizing Learning Media	Guttman (9), Likert-scale (10-11, 13-16), Dichotomous (12)	Explores teachers' self-assessed proficiency in integrating multimedia
D	Understanding of Digital Technology in ELT	Likert-scale (17-18)	Gauges understanding of digital multimodality in language instruction

 Table 1. Detail of Questionnaire Sections

Questions in Sections B to D were adapted from Ekşi and Yakışık (2015), originally designed for elementary school teachers. The items were further refined to suit the broader context of English teachers in East Java. A 5-point Likert scale (ranging from Strongly Disagree to Strongly Agree) was employed to assess respondents' attitudes and levels of understanding.

To ensure the instrument's reliability, a Cronbach's Alpha test was conducted. The results yielded a coefficient of 0.944 (94.4%), or 0.950 (95%) when using standardized items, indicating a high level of internal consistency and reliability.

The responses were analyzed using descriptive techniques, where:

- Likert-scale items were presented in percentages to reflect distribution,
- Open-ended responses were transcribed and thematically categorized to capture detailed insights,
- Guttman and dichotomous responses were summarized through frequency analysis.

The findings from this phase revealed that while teachers frequently used multimodal elements such as text, images, and audio in classroom activities, their understanding of multimodal literacy as a pedagogical concept remained limited. These insights directly informed the next stage of the research.

2.2 Program Development

Building on the needs analysis, the second stage involved the design of a project-based mentoring program. The program was structured to address the specific gaps identified, aiming to enhance teachers' theoretical understanding and practical application of multimodal literacy in the classroom.

The program design drew upon established pedagogical frameworks, including the Systemic Approach (Lim, 2018) and Instructional Dynamics (Hassett & Curwood, 2009), to scaffold teacher learning. The content of the program included:

- Introduction to multimodal literacy concepts.
- Exploration of digital tools and applications for multimodal teaching.

- Examples of best practices from experienced educators.
- Collaborative development of lesson plans integrating multimodal texts.
- Practical strategies for designing and assessing multimodal student outputs.

The design phase also incorporated flexibility to accommodate varying access to technology among East Java teachers, allowing for both digital and non-digital multimodal practices.

2.3 Program Implementation

The project-based mentoring program was designed with a clear sequence of interrelated stages to support teachers' gradual development of multimodal literacy competencies. As illustrated in Figure 1, the program followed seven sequential stages, guiding teachers from conceptual introduction to classroom application and reflection:

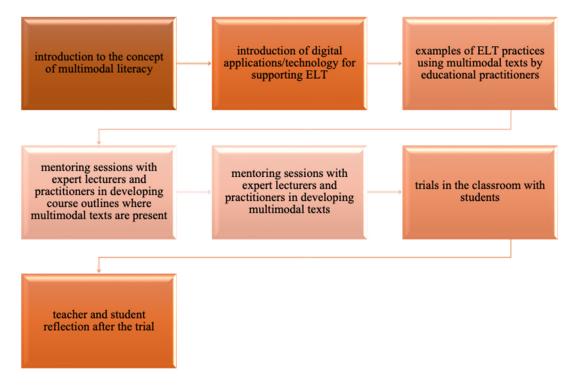


Figure 1. Sequential steps of the Project-Based Mentoring Program for Enhancing Teachers' Multimodal Literacy in East Java

1. Introduction to Multimodal Literacy Concepts

Teachers were introduced to the foundational theories and principles of multimodal literacy, including its relevance for 21st-century language education.

2. Exploration of Digital Tools and Applications

Participants explored a variety of digital resources and applications suitable for multimodal learning, such as Canva, YouTube, Padlet, and others.

3. Showcasing Best Practices

Experienced educators presented practical examples of multimodal teaching in action, providing inspiration and concrete strategies.

4. Mentoring Sessions on Lesson Planning

Teachers received guided support to develop lesson outlines that integrated multimodal texts and tasks, tailored to their specific classroom contexts.

5. Mentoring Sessions on Creating Multimodal Materials

Teachers collaborated with mentors to design multimodal teaching materials, emphasizing both digital and non-digital resources.

6. Classroom Trials

Teachers implemented their newly developed lesson plans in real classroom settings, applying multimodal strategies with their students.

7. Reflection and Feedback Sessions

The program concluded with reflective discussions involving both teachers and learners, evaluating the effectiveness of multimodal lessons and identifying areas for further improvement.

This sequence ensured that teachers progressed from conceptual understanding to practical application, supported by continuous mentoring and collaborative reflection.

3. Results

3.1 Teacher Demographics and Baseline Multimodal Literacy Awareness

The participants in this study consisted of 147 English teachers from across East Java, spanning diverse age groups, teaching experiences, and school types. A substantial portion of respondents (30%) were from Generation Z (ages 20–25), typically with 1–5 years of teaching experience, while more experienced teachers (over 10 years of experience) represented older generations. Most participants (68%) held undergraduate degrees, with 23% holding postgraduate qualifications.

Regarding teaching contexts, the majority (70%) taught in high schools (general, vocational, or Islamic-based), with 26% at middle schools and fewer at elementary levels. Additionally, 66% of participants were from public schools, while 34% taught in private institutions.

3.2 Needs Analysis Findings: Teachers' Multimodal Practices and Gaps

The initial questionnaire revealed encouraging patterns: over 80% of teachers already incorporated multiple modes—text, images, audio, and gestures—into their teaching, albeit informally. However, deeper analysis showed that their conceptual understanding of multimodal literacy remained superficial. While 43.9% agreed they understood the concept, many lacked formal exposure to multimodal literacy frameworks or strategies.

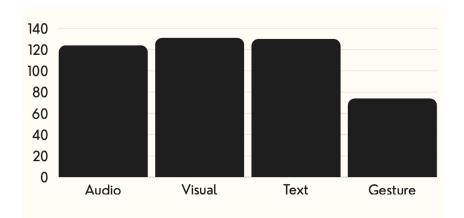


Figure 2. Respondents Who Use Audio, Visuals, Texts, and Gestures or a Combination of Various Modes at Once When Teaching English

Crucially, 80.27% of teachers had never participated in professional training specific to multimodal literacy, although a few (7%) had engaged in similar initiatives at local universities. Notably, despite limited formal training, teachers expressed strong enthusiasm for integrating multimodal texts into their teaching to enhance learner engagement and understanding.

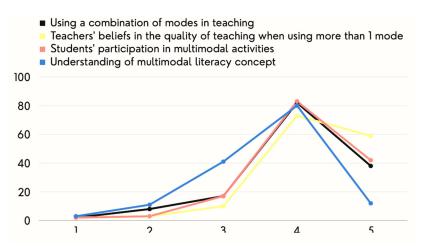


Figure 3. Respondents' Understanding of Multimodal Literacy: Their Beliefs, Past Experiences, and Observations in the Classroom

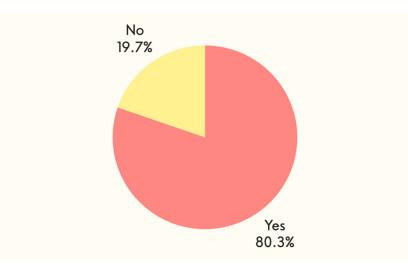


Figure 4. Respondents' Participation in Any Multimodal Literacy Seminars or Workshops in Their Time of Teaching

Even so, as many as 63.95% of respondents admitted that they had attended training on the use of learning application media for teaching and learning activities in the classroom. More than half of the respondents (61.22%) chose a scale of 4 (agree) to represent their experiences in frequently utilizing digital technology in the language learning process. The majority of respondents are also able to choose digital applications that are suitable for language learning needs (70%) and can prepare learning resources that contain various elements of multimodal knowledge (63.94%). Teachers also feel able to integrate various modes such as audio, visual, text, and so on (57.82%) because they often update their knowledge about the latest trends and issues in terms of educational technology (53.06%). This is evidenced by the large variety of digital applications they use in class, such as a combination of more than 3 applications such as PowerPoint (86.6%), YouTube (87%), and Canva (66.67%). Other applications are also often used as an ice-breaking or warming-up tool, or even as additional interactive and fun enhancement materials such as Nearpod, Answer-Garden, Brain Out, Kahoot, Word Wall, Mentimeter, Padlet, Bamboozle, and Pickerwheel. Social media such as Instagram and TikTok also do not escape the attention of teachers to help the teaching and learning process, where students from various levels of education are already very skilled at using social media to communicate. To help with teaching and learning activities, such as completing daily assignments and final assignments, many English teachers also use special digital applications such as Google Classroom and Telegram as material containers, teaching materials, even collections of student assignments, as well as CapCut, Kinemaster, Wondershare, Filmora, My Storybook, Live Worksheet, and Google Workspace for Education.

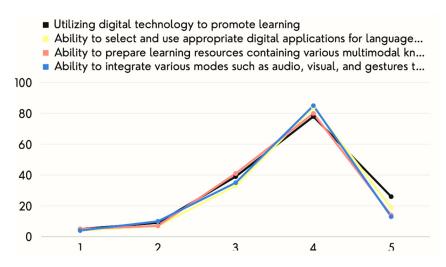


Figure 5. Respondents' Ability to Utilize Multimodal Literacy in the Teaching and Learning Process

Therefore, it can be concluded that English teachers in East Java are quite capable of using digital applications in teaching and learning activities in the classroom. This is proven by the majority of respondents who believe that the use of technology can support authentic language learning, especially when students discover that the language learning process can be facilitated with applications that are very familiar in their lives. Consequently, more than half of the respondents paid attention to how variations in multimodal texts, such as visual, audio, text, and movement, can influence students' learning processes (85%).

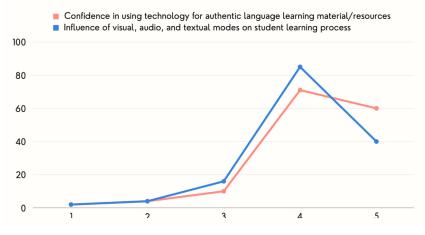


Figure 6. Respondents' Understanding/Knowledge of Using Digital Technology and Multimodal Literacy Simultaneously in the Teaching and Learning Process

3.3 Program Implementation Outcomes: Teacher Development and Classroom Application

The stepwise structure of the project-based mentoring program was instrumental in scaffolding teachers' understanding and application of multimodal literacy. During the initial conceptual introduction and exploration of digital tools, teachers reported gaining valuable insights into the theoretical foundations of multimodality and practical applications relevant to their teaching contexts. Many expressed appreciations for discovering flexible, accessible tools such as Canva and YouTube, which they had previously used primarily for basic tasks but now recognized as powerful resources for multimodal learning.

The best practice sharing sessions were highlighted by participants as especially inspiring, providing concrete examples of successful classroom integration of multimodal texts. These examples sparked new ideas and motivated teachers to experiment with creative approaches tailored to their students' needs.

The mentoring sessions on lesson planning and material development were pivotal in transforming teachers' ideas into actionable classroom plans. Teachers valued the opportunity to receive personalized feedback and collaborate with mentors and peers, which enhanced their confidence in designing coherent, multimodal lessons. Notably, teachers from regions with limited digital infrastructure successfully developed blended lesson plans that combined non-digital resources with minimal digital enhancements, demonstrating adaptability.

During the classroom trials, teachers observed noticeable improvements in student engagement and participation. Students responded enthusiastically to tasks involving multimodal outputs, such as creating visual posters and digital narratives. In the subsequent reflection and feedback sessions, teachers reported that the program had broadened their perspective on teaching strategies and underscored the importance of deliberate planning in multimodal instruction. Teachers also identified areas for continued growth, particularly in designing assessments for multimodal student work and refining lesson flow for better scaffolding of meaning-making. Overall, teachers regarded the sequential steps of the program as cohesive and highly beneficial, progressively building their knowledge and skills from conceptual understanding to practical classroom application.

4. Discussion

The findings from this study affirm the potential of structured, context-sensitive professional development programs in enhancing teachers' multimodal literacy competencies. Building on the needs analysis, the project-based mentoring program effectively addressed the gaps in teachers' theoretical understanding, practical application of multimodal pedagogy, and the emphasis of digital tools and platforms as part of multimodal texts. This aligns with findings by Nugroho & Mutiaraningrum (2020) as well as Fajriah et al. (2021), who noted that limited competence and inadequate integration of digital technology hinder effective use of multimodal texts in classrooms. It also supports the vision articulated by Lim (2018), who advocates for a Systemic Functional approach to multimodal literacy that equips teachers with pedagogical scaffolds, metalanguage, and planning frameworks for both analysis and production of multimodal texts.

Teachers' proactive use of familiar tools, such as YouTube and Canva, demonstrates that with appropriate guidance, educators can repurpose everyday applications for deeper learning. By providing appropriate guidance, teachers are encouraged to plan and implement multiliteracies-based teaching and learning activities (Howell, 2018), which responds to the *Kurikulum Merdeka*, Indonesia's evolving national curriculum. The combination of *Kurikulum Merdeka* and multimodal pedagogy help emphasize digital tool integration, student-centered learning, and the cultivation of higher-order thinking skills in alignment with the demands of Society 5.0 (Novita et al., 2022; Marlina et al., 2023; Langoday et al., 2024).

That being said, the program's emphasis on flexibility proved crucial. Acknowledging disparities in technological access across East Java, teachers were encouraged to creatively combine available resources—whether printed visuals or digital applications (Nugroho & Mutiaraningrum, 2020; Kusuma, 2022)—to construct meaningful multimodal learning experiences. This aligns with Howell's (2018) capabilities perspective, advocating for empowering teachers to maximize existing resources rather than depending solely on technological upgrades. Encouraging teachers to make use of YouTube videos and memes, for example, opens up possibilities of increasing awareness of culturally relevant content inside the classroom, and in return, making the engagement more "relatable" to digitally-native students (Jiang, 2017; Eisenlauer, 2020; Smith, 2021; Jeong, 2023). This flexibility is consistent with Lim and Toh's (2020) position that multimodal practices should emerge organically from learners' and teachers' lived experiences rather than be imposed through rigid digital mandates.

Importantly, this study demonstrates that project-based mentoring provides a sustainable model for teacher development. By positioning teachers as active designers of their learning environment, the program fostered both confidence and professional agency. This aligns with the broader educational shift toward collaborative, reflective teaching practice, as recommended by Wünsch-Nagy (2020) and Yi & Angay-Crowder (2016). Nevertheless, challenges remain. Teachers expressed the need for continued support, especially in assessing multimodal student outputs and refining their lesson designs. Institutional support, ongoing mentoring, and communities of practice are essential for sustaining these gains and fostering a culture of multimodal pedagogy in East Java and beyond.

In conclusion, this study not only highlights the positive impact of multimodal literacy development for English teachers in East Java but also underscores the necessity of scalable, responsive professional development models. These findings offer valuable insights for policymakers, educational leaders, and researchers aiming to bridge the gap between technological potential and classroom realities.

5. Conclusion

This study highlights the crucial role of equipping English language teachers with multimodal literacy competencies to meet the evolving needs of today's students in digitally connected classrooms. The implementation of a project-based mentoring program demonstrated that structured support and reflective collaboration can empower teachers to effectively integrate multimodal resources into their teaching practices. Although many participants were already using multiple modes of communication, the lack of formal training in multimodal literacy had limited their capacity to maximize its pedagogical potential. The program addressed this gap by guiding teachers through a staged process—from concept introduction to classroom trials and reflection—supporting them in developing and delivering multimodal lessons aligned with the *Kurikulum Merdeka* and the demands of 21st-century education.

To ensure the sustainability and scalability of such initiatives, several recommendations are proposed. First, multimodal literacy should be integrated into regular lesson planning, with multimodal texts viewed not as add-ons but as essential tools for fostering critical, reflective, and creative literacy skills. Teachers should be encouraged to utilize both digital and non-digital resources, drawing on students' everyday experiences to enhance lesson relevance. Approaches like the "problem anticipation and solution" framework should be embedded in professional development to promote teacher agency and adaptive planning. Additionally, institutions and policymakers must play an active role by providing access to infrastructure, including multimodal strategies in professional development agendas, and creating communities of practice where teachers can collaborate and share resources. Asynchronous modules and follow-up mentoring can further support time-constrained educators, while teacher involvement in co-developing local materials can foster ownership and contextual relevance.

Future research should explore the long-term effects of multimodal literacy training, including how teaching practices evolve and how students perceive and benefit from multimodal instruction. Comparative studies across school types and regions, as well as investigations into specific tools and assessment frameworks, would also provide valuable insights into how multimodal pedagogies can be implemented equitably and effectively.

In conclusion, it is crucial that teachers receive support in creating the pedagogical strategies that will enable them to use digital tools effectively, on top of providing them with the tools they need, as educational practices continue to change in response to technological advancements. The present study's findings add to the rising amount of information that bolsters the incorporation of multimodal literacy into language instruction, with the ultimate goal of enhancing students' literacy and learning outcomes in progressively varied and digital learning settings.

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Authors contributions

Associate Professor Hamamah Hamamah (PhD) and Professor Zuliati Rohmah were responsible for study design and revising. Dr. Syariful Muttaqin and Dr. Mochamad Andhy Nurmansyah were responsible for data collection. Alifa Camilia Fadillah drafted the manuscript and Associate Professor Hamamah Hamamah (PhD) revised it. All authors read and approved the final manuscript.

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