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Exploring preservice teachers' use of AI-generated media in genre-based English teaching for young learners

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ABSTRACT

Generative AI (GAI) offers opportunities to create personalised, multimodal teaching materials, yet integrating it into English instruction for young learners requires careful consideration of developmental, pedagogical, and ethical factors. This study examines how pre-service teachers designed and integrated AI-generated media into a Genre-Based Approach (GBA) for teaching English to young learners. This study employed a qualitative case study design. Data were collected over sixteen meetings in which students learned to create and integrate AI-generated media into the GBA, two focus group discussions, AI-generated media artifacts, and lesson plans developed by 15 pre-service teachers enrolled in two courses: English for Young Learners Material Development and English for Young Learners Course Design. The data were analysed using thematic analysis to identify patterns in pedagogical and ethical considerations and how participants integrated AI-generated media across the stages of the GBA. The findings show that the participants considered both pedagogical and ethical factors when creating generative AI-based learning media. Pedagogically, they ensured that the media were age-appropriate, aligned with learning objectives, relevant to learners' cultural contexts, and complemented by hands-on learning activities. Ethically, they showed growing awareness of responsible AI use by considering issues such as overreliance on AI, plagiarism, and learner safeguarding. The AI-generated media were primarily integrated by the pre-service teacher students in GBA during the Building Knowledge of the Field, Modelling, and Joint Construction stages. In the Independent Construction stage, AI-generated media were not used. GAI can enhance engagement and scaffolded learning when used as a supportive tool rather than a replacement for teacher-led instruction. Teacher education programs should provide guidance on ethical AI use and pedagogical alignment to optimise benefits while mitigating risks.

Keywords: Generative AI; educational technology; English for young learners; genre-based approach; pre-service teachers

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INTRODUCTION

Generative Artificial Intelligence (henceforth GAI) has developed rapidly in educational contexts worldwide (Low et al., 2025; Ng & Ho, 2025; Yuwono et al., 2024; Zafari et al., 2022), including language teaching (Alkolaly et al., 2025; Zhang & Samsudin, 2026). In language teaching, GAI helps teachers personalise learning by tailoring content and feedback to students' unique needs and offers significant opportunities to create learning materials

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suited to individual learners (Bahroun et al., 2023; Ng & Ho, 2025). For learning materials, GAI can generate multimodal resources such as text, video, images, and audio that support personalised, interactive learning (Akaygun & Kilic, 2025; Zhang & Samsudin, 2026).

Despite its benefits, GAI also has limitations in generating accurate visualisations for developing learning materials. Visualisations can be out of context, which may lead to misconceptions (Akaygun & Kilic, 2025). Moreover, ethical concerns have been raised, including data privacy, digital inclusion, biased algorithms (Alkolaly et al., 2025; Ng et al., 2022), academic dishonesty, and surveillance (Ng & Ho, 2025). Other concerns related to pedagogical risks have also been raised, such as overreliance on AI, the need to maintain critical thinking skills and originality, the risk of diminishing teachers' roles in learning, the need for new literacies for both teachers and students (Ng & Ho, 2025; Syairofi et al., 2025), and the need for maintaining learner-centeredness and learner engagement (Ng & Ho, 2025; Shao et al., 2025). Additionally, the rapid adoption of GAI may outpace institutions' capacity to adapt policies, pedagogy, and curricula, creating an urgent need for informed guidance (Ng & Ho, 2025; Yuwono et al., 2024). To address these concerns, tertiary-level material development courses should guide pre-service teachers in developing learning materials using GAI. Some pedagogical and ethical factors should also be considered in developing the learning materials generated by GAI. Furthermore, AI-generated media should be integrated into different stages of language-teaching learning activities.

Several studies have explored the use of GAI in language teaching, including Allehyani and Algamdi (2023), which found that students have positive attitudes toward using ChatGPT in English language teaching in early childhood settings. This study highlighted concerns about the potential risks of ChatGPT for young children with inadequate digital skills. Moreover, Higgs and Stornaiuolo (2024) conducted a study in two high schools and reported that schools should support the development of AI ethics among young people. At the tertiary level, Hijon-Neira et al. (2024) conducted a study involving undergraduate students enrolled in an Early Childhood Education program, aimed at enhancing students' computational thinking. The results highlighted the need to incorporate AI tools into teacher training programs with appropriate context and support. Additionally, some AI research in education has focused on discrete language skills such as pronunciation, speaking, writing, or reading, as well as general teacher perceptions (Al-Bogami & Alahmadi, 2025; Dewi et al., 2021; Kaharuddin, 2021; Puspitasari et al., 2024; Zhao, 2023).

However, existing research has paid limited attention to how pre-service teachers make these pedagogical decisions when using GAI (He et al., 2025), especially in relation to specific instructional approaches such as genre-based pedagogy. Addressing this gap matters because pre-service teachers shape future classroom practices and must balance AI's potential with pedagogical and ethical considerations in English education. Moreover, since 2005, through the release of the Regulation of the Minister of Primary and Secondary Education No. 13 of 2025, English has been compulsory from grade 3 to grade 12, and the English curriculum has been based on the genre-based approach (Ministry of Primary and Secondary Education, 2025). However, research on how primary school teachers use the genre-based approach to teach English remains limited.

Thus, to fill the gap, this research aims to explore the pre-service teachers' use of AI-generated media in genre-based English teaching for young learners by addressing the following research questions: (1) What factors do pre-service teachers consider in creating media to teach English for young learners using generative AI? and (2) How do pre-service teachers integrate such AI-generated media into genre-based learning activities for young English learners? By focusing on teachers' decision-making processes rather than solely on technological affordances, this study positions GAI as a pedagogical partner. It contributes to a more nuanced understanding of its role in supporting multimodal, scaffolded instruction while maintaining teacher agency, digital literacy, and ethical awareness. The results highlight the importance of equipping future educators with the knowledge and confidence to mitigate potential risks while leveraging generative AI (GAI) as a collaborative partner to support multimodal, play-based, and genre-based instruction for young learners. The study contributes to the theoretical development of GAI integration within the Genre-Based Approach (GBA), particularly in the context of English for Young Learners (EYL), an area that remains underexplored. Furthermore, the findings provide educators and decision-makers with practical insights into preparing pre-service teachers to use GAI effectively, ethically, and responsibly to achieve meaningful learning outcomes.

Generative AI in Education

Generative AI (GAI) refers to AI tools that can generate various multimodal data such as text, images, and videos (Smith et al., 2025; Xu et al., 2025). In language teaching, GAI is beneficial at micro and macro levels. At the micro level, GAI can support grammar, spelling, punctuation, and revision. At the macro level, GAI can also help develop materials, tone, structures, etc. (Mekheimer, 2025; Smith et al., 2025). For teachers, GAI can

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create personalised multimodal learning materials that integrate visual, gestural, and spatial semiotic resources. By generating multimodal content, adapting learning activities, and providing automated feedback, GAI can support lesson planning, classroom instruction, and student assessment. In this study, tools such as ChatGPT, Kling AI, and Manus AI facilitated the development of lesson plans, learning materials, interactive conversations with students, and writing support.

When utilising generative AI to create learning materials, He et al. (2025) proposed several pedagogical factors to consider. These include age appropriateness, alignment with learning objectives and the curriculum, cultural responsiveness, critical evaluation of AI-generated outputs, iterative prompt refinement, and the integration of students' prior knowledge. Age-appropriate materials should use language, topics, and learning activities that match students' developmental levels while building on their existing knowledge and skills. Culturally responsive materials should reflect students' lived experiences and avoid stereotypical representations by incorporating local contexts and cultural values throughout the prompting and refinement process. Teachers should also critically evaluate AI-generated content to recognise its limitations and ensure the outputs are accurate, relevant, and pedagogically appropriate.

Effective use of GAI also requires an iterative two-phase process: ideation and material development. During the ideation phase, teachers use AI to generate ideas aligned with the intended learning objectives. In the material development phase, AI-generated outputs are refined to meet pedagogical, curricular, and cultural standards. The final quality depends on teachers' ability to write clear, specific prompts and iteratively refine the outputs. Finally, learning materials should build on students' prior knowledge to provide appropriate scaffolding, promote curriculum coherence, and support meaningful learning. Hence, the pedagogical quality of learning materials depends on teachers actively shaping, evaluating, and refining AI outputs, grounded in their knowledge of their students, subject matter, and the curriculum.

Pedagogical Principles for Teaching English to Young Learners

Teaching English to young learners should follow pedagogical principles aligned with children's developmental characteristics, natural curiosity, and preference for active, play-based learning. Young learners benefit from hands-on, concrete activities that sustain attention and connect language to meaningful experiences. Activities such as movement, drawing, colouring, songs, chants, storytelling, and role-play help reinforce vocabulary, pronunciation, and communication skills. Real-life tasks, including classroom scavenger hunts and pretend shopping, provide authentic opportunities to use English in context, while pictures and strategic support from children's first language enhance comprehension. Because young learners have shorter attention spans and are still developing fine motor skills, lessons should be varied, interactive, and developmentally appropriate. Although early exposure to English can support pronunciation and fluency, effective learning depends primarily on engaging, meaningful, and age-appropriate pedagogical practices (Galeas et al., 2025). These learning experiences align with the principles of the Genre-Based Approach by providing meaningful contexts, scaffolded language support, collaborative interaction, and gradual opportunities for children to develop confidence and independence in using language for authentic communicative purposes.

Regarding teaching materials, the GBA emphasises selecting developmentally appropriate, meaningful resources for young learners (Emilia, 2005; Ministry of Primary and Secondary Education, 2025). Teaching materials should provide rich, comprehensible language input through multimodal supports, such as gestures, pictures, and storytelling, helping children acquire new vocabulary in meaningful contexts. Consistent exposure to both the first language and English further supports the development of school-related vocabulary, especially when learning happens in a safe, playful environment rather than under rigid "English-only" policies. Research also indicates that although young learners often understand more language than they can initially produce, regular and engaging exposure to meaningful input gradually strengthens both their comprehension and spoken vocabulary (Galeas et al., 2025). To support this exposure, GAI can generate multimodal content that integrates visual, auditory, and kinesthetic elements, helping teachers link language to action and play. For instance, AI can create interactive stories, action songs, or task-based missions tailored to the children's interests and proficiency levels. It can also suggest scaffolding strategies for vocabulary development, pronunciation exercises, and role-play scenarios. In this way, GAI acts as a collaborative tool that enhances engagement and supports pedagogical decisions without replacing the teacher's role (He et al., 2025).

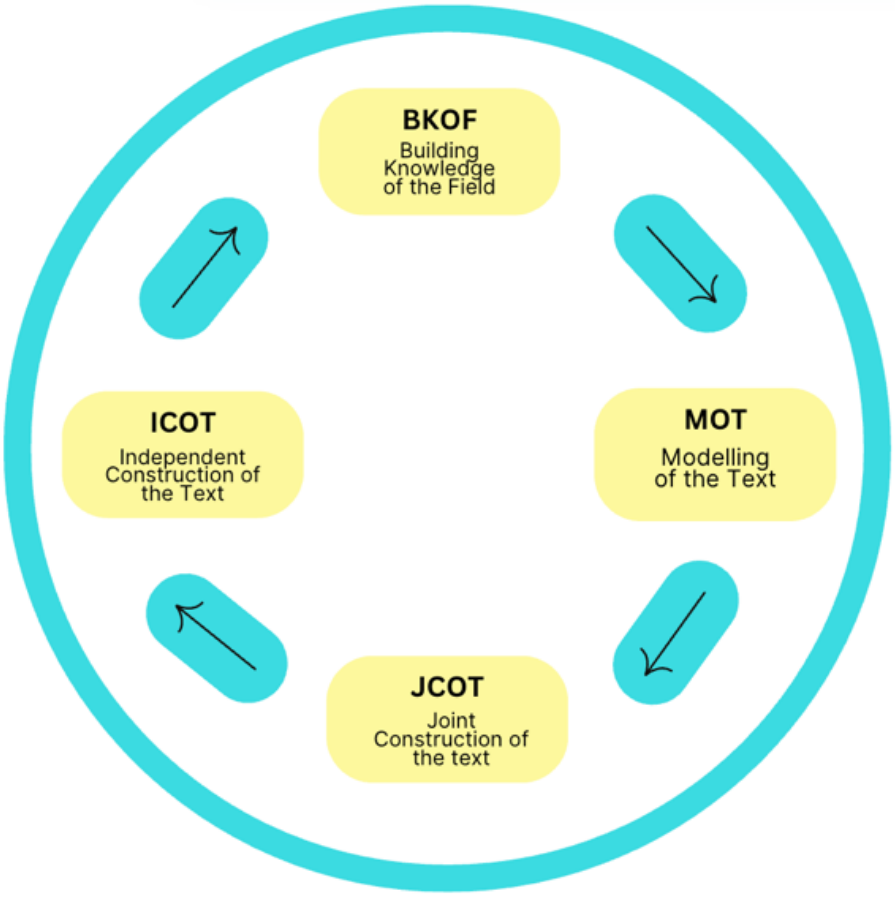
Genre-Based Approach

Indonesia has made numerous modifications to its English language curriculum over the last two decades, starting with the 1994 Curriculum, the 1996 Curriculum, the 2004 Curriculum, the 2013 Curriculum, Curriculum Merdeka, and the National Curriculum released in 2025 (see Emilia, 2025). However, text-based teaching, or GBA, has remained the main focus of English language learning since 2004. This approach necessitates a learning process that follows the Teaching-Learning

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Cycle, which has four primary stages and is not a one-time event: Building Knowledge of the Field, Modelling, Joint Construction of the Text, and Independent Construction of the Text. GBA, informed by Systemic Functional Linguistics (SFL), guides students from contextual understanding to independent text production and encourages multimodal integration. The stages of the genre-based approach are shown in Figure 1.

Figure 1
Adapted Stages of Genre-Based Approach (Emilia, 2005)



Each GBA stage shown in Figure 1 serves a distinct purpose in guiding learners from contextual understanding to independent text production. This learning approach requires active engagement from both teachers and students. Stage 1 (BKOF) is when teachers build students' content knowledge, including field-related vocabulary, through presentations and classroom discussions. Multimodal resources are used to stimulate discussion and activate students' prior knowledge, while students explore new information and connect it to what they already know. Stage 2 (MOT) is when teachers present model texts to help teachers and students describe a variety of language used for a particular purpose. These texts can also be called multimodal texts. In stage 3 (JCOT), teachers invite students to work collaboratively in groups or with teachers to contribute ideas or sentences. In this study, students, who also served as pre-service teachers, work in groups to create learning media using generative AI and integrate it into their lesson plans. Finally, in stage 4 (ICOT), students write their own texts, and teachers provide only feedback (Zainurrahman et al., 2026).

In this study, the narrative texts created by the pre-service teacher students were transformed into multimodal learning materials for young learners with the support of generative AI (GAI). The pre-service teacher students first created AI-generated learning media and then developed lesson plans that integrated these media into GBA-structured learning activities. Throughout the process, the teacher-researchers guided the pre-service teacher students not only in creating AI-generated learning media using GAI but also in integrating these media into GBA-based lesson plans, as the Genre-Based Approach is recommended by the curriculum. This process shows that GAI can support both the development of learning materials and their pedagogical integration across the stages of the GBA. More broadly, GAI can enhance teaching and learning activities in any course that adopts a genre-based pedagogy. The potential contributions of GAI to each stage of the GBA are presented in Table 1.

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Table 1
The Contributions of Generative AI (GAI) to Each Stage of the Genre-Based Approach (GBA)

GBA Stage	GAI Contributions
BKOF (Building Knowledge of The Field)	GAI tools provide relevant content and personalise learning (Almutairi et al., 2026; Hu, 2026)
MOT (Modelling of the Text)	GAI tools produce model texts, provide multimodal resources, and model pronunciation (Allashev et al., 2025; Lim et al., 2026; Mirici, 2026)
JCOT (Joint Construction of the Text)	GAI tools support collaborative writing, facilitate interactive activities, and provide creative tools (Mirici, 2026; Yeh, 2025; Mykytiuk et al., 2025; Xin, 2024)
ICOT (Independent Construction of the Text)	GAI tools can provide personalised feedback, support self-directed learning, and facilitate engaging independent tasks (Almutairi et al., 2026; Lim et al., 2026; Younas et al., 2025). At this stage, students are expected to complete tasks independently by applying the knowledge and skills they developed during the BKOF, MOT, and JCOT stages (Emilia, 2005; Zainurrahman et al., 2026).

Table 1 shows that GAI tools can support each GBA stage by providing personalised, engaging, and relevant learning materials. However, successful implementation requires teacher training, careful content review, and ethical considerations to address challenges such as bias and overreliance on technology (Mirici, 2026; Younas et al., 2025).

Additionally, in the Indonesian curriculum, English instruction for young students occurs in three stages. Phases A, B, and C. In Phase A, students concentrate mostly on literacy skills in Bahasa Indonesia. In Phase B, students are mainly focused on spoken English proficiency and an introduction to written English. Hence, teachers must help students realise that English pronunciation differs from its written form throughout this stage. Meanwhile, Phase C, the final level of the elementary school curriculum, focuses on improving oral and written English proficiency through subjects relevant to everyday life. English language proficiency in Phases B and C should be on par with CEFR Level A1. In terms of vocabulary, students must learn high-frequency words applicable to everyday life, academic environments, and professional situations. Phases B-C correspond to Level A1 (1,000 high-frequency words); Phase D corresponds to Level A2 (2,000 high-frequency words); Phase F (general) corresponds to Level B1 (3,000 high-frequency words); and Phase F (advanced) corresponds to Level B2 (4,000 high-frequency words). It is critical to recognise that both teachers and students must be familiar with all these vocabulary words, and that they should be studied in context within texts rather than separately. In other words, vocabulary learning is not isolated from the text. To support this, all Phases (A, B, and C) of learning activities integrate listening-speaking, reading-viewing, and writing-presenting. Because Phase B is the study's primary focus, it concentrates on the following curriculum-stated learning objectives: In Listening–Speaking, students are expected to understand and respond to simple oral or multimodal texts about everyday life, verbally or non-verbally, in line with the context. Meanwhile, in Reading–Viewing, students are expected to understand simple, short written or multimodal texts about everyday life and respond verbally or non-verbally in line with the context. In Writing–Presenting, students are also expected to communicate ideas on everyday life topics in simple written or multimodal texts aligned with the context (Ministry of Primary and Secondary Education, 2025). These learning objectives align with using GAI to develop learning materials.

This study focused on preparing pre-service teachers to develop materials for Phase B; students in Phase B will study a variety of very basic spoken, written, or multimodal texts relevant to everyday living and culture, including Greetings, self-introduction, and place description. Regarding the place description, the Phase B students will be taught to describe an object's position or location in relation to other nearby things. This subject introduces simple prepositions of place, such as on, above, under, in, inside, next to, beside, behind, and in front of. They will be encouraged to create simple sentences such as "the book is on the table". Furthermore, this lesson aims to develop students' ability to recognise object positions and communicate them orally and in writing using clear, basic structures. By honing these abilities, Phase B students become more comfortable describing their surroundings precisely using functional language. This aligns with Phase B's learning objectives, which promote the use of basic phrases and expressions in daily life. Culturally, students' understanding of culture and intercultural knowledge can enhance their critical thinking skills, strengthen their sense of identity, and help them appreciate differences (Ministry of Primary and Secondary Education, 2025).

Despite curriculum changes in Indonesia, the central focus has consistently remained on SFL-informed texts and its genre-based principles (Emilia & Martin, 2023). Therefore, pre-service teachers are expected to create engaging,

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multimodal materials aligned with GBA principles. This is an area where generative AI may offer multimodal learning material.

Ethical Considerations in AI Integration

Four ethical considerations should shape how AI is integrated into the classroom; first, bias in AI algorithms. Students in the study flagged that AI systems can carry embedded biases. Therefore, students should be taught about AI literacy that includes understanding how these biases arise and how to mitigate them. Second, data privacy and security. AI tools process data. As a result, students should learn about data security and how to protect their data. Third, reliability of AI outputs and academic honesty. Students may express worry that AI-generated content is not fully accurate. Therefore, students should learn how to verify AI-generated information. Fourth, over-reliance and surface learning**.** The dependence on AI can encourage surface-level engagement rather than deep understanding and critical thinking skills. Balancing technological proficiency with an understanding of AI's broader impacts is crucial. Students are expected to be responsible and critical users rather than passive consumers of AI-generated content (He et al., 2025; Ng & Ho, 2025; Tzirides et al., 2024).

METHOD

Design

This study was a collaborative project involving two lecturers and three generative AI experts, who served as teacher-researchers. It employed a qualitative descriptive case study design to explore the development of English teaching media for young learners using generative artificial intelligence (AI) within the genre-based teaching approach. All authors served as researchers and teachers throughout the process, taking on a teacher-researcher role as suggested by Malik and Hamied (2016). The study included 15 pre-service teachers enrolled in two courses at a state university in West Java, Indonesia: English for Young Learners Material Development and English for Young Learners Course Design. The study was conducted over sixteen meetings, with each session lasting four credit hours (200 minutes). This structure gave participants sufficient opportunities to develop AI-generated learning media, integrate it into genre-based lesson plans, and reflect on both the media development process and its pedagogical implementation. The pre-service teacher students created a narrative-based interactive video for Phase B (Grades 3 and 4) learners, aligned with the English curriculum guidelines issued by the Ministry of Primary and Secondary Education. The narrative follows Danny, an Indonesian third-grade elementary school student, and integrates interactive learning activities throughout the storyline. Some story snippets are presented in Figure 2.

Figure 2

The snippets of the learning media created by the participants



Danny was portrayed by the pre-service teacher participants as a third-grade elementary school student preparing for his first day of school. In the story, he was running late and needed help gathering his school supplies before leaving home. To encourage active participation, learners were invited to help Danny through a hands-on scavenger hunt. The pre-service teachers designed accompanying printed worksheets and prepared authentic school supplies, enabling learners to identify and collect the required items while following the story. At school, Danny met his teacher, Mr Jack, who introduced common classroom objects such as a school bag, a pencil, and a pencil case. Learners then completed a worksheet designed to reinforce the target expressions introduced throughout the story. The story and visual snippets presented in Figure 2 were created by the pre-service teacher participants as part of this study.

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Participants

Before data collection, all participants were informed about the study's purpose and procedures and provided written informed consent. Participation was voluntary. The participants consisted of 15 pre-service teachers enrolled in an English Language Education program at a state university in Indonesia. The recruitment process placed no restrictions on participants' prior experience with generative AI, allowing the study to capture a wide range of experiences and perspectives on using AI in learning media development.

The study was conducted over sixteen meetings, during which two lecturers and three generative AI experts served as teacher-researchers. They facilitated learning activities, guided participants in developing AI-generated learning media, and supported integrating the media into genre-based lesson plans. Their roles are further described in Table 2.

Table 2

Teacher-Researcher Roles in the Classroom

Teacher-Researcher	Roles	Genre-based teaching stages during 16 meetings
TR 1	Built students' content knowledge on the characteristics of young learners, the national curriculum (Phase A, B, C), teaching English for young learners, writing narrative texts for young learners, and lesson planning.	BKOF, MOT, JCOT, ICOT
TR 2	Introduced GAI tools and features, prompting, and guided students on generating learning materials with GAI.	BKOF, MOT, JCOT, ICOT
TR 3	Explained the stages in the genre-based approach.	BKOF, MOT, JCOT
TR 4	explained how to mitigate GAI risks.	BKOF, MOT, JCOT
TR 5	explained case studies regarding GAI.	BKOF, MOT, JCOT

Lecturers with expertise in English language teaching provided pedagogical guidance, especially on implementing GBA and the pedagogical principles of teaching English to young learners. At the same time, three generative-AI experts contributed technical knowledge on AI capabilities, ethical issues, and limitations. This combination of participants ensured that both educational and technological perspectives were incorporated into the design, evaluation, and integration of AI-generated teaching media for young learners in the two courses.

Data Collection

The data were collected from multiple sources to ensure methodological triangulation and provide a comprehensive understanding of the phenomenon. Data collection consisted of four components. First, the researchers served as teacher-researchers for sixteen meetings across two courses, English for Young Learners Materials Development and English for Young Learners Course Design. The courses were conducted over one academic semester using a blended learning format that combined face-to-face and online sessions. This phase enabled the researchers to document the participants' learning processes as they developed AI-generated learning media and integrated them into genre-based lesson plans.

Second, two focus group discussions (FGDs), each lasting one hour, were conducted with all participants during the first and the sixteenth meetings to capture changes in their perceptions and experiences throughout the course. Both FGDs were audio-recorded, transcribed verbatim, and member-checked with participants to ensure the data's accuracy, credibility, and trustworthiness.

Third, the study collected and analysed the prompts pre-service teacher students used when interacting with generative AI tools, including ChatGPT 4.5, Kling AI 2.0/2.1, and Manus IM (Manus 1.4/Pre 1.5), to examine the factors they considered when creating AI-generated learning media for teaching English to young learners. This analysis provided insights into how the participants refined prompts and incorporated pedagogical and ethical considerations into the media development process.

Fourth, the participants and the individual lesson plans they developed were systematically analysed to examine how the media were integrated into the stages of the Genre-Based Approach (GBA). This analysis also explored the pedagogical and ethical considerations reflected in the participants' instructional designs and the practical application of generative AI in teaching English to young learners.

Because Phase B represents the middle level of elementary education, the pre-service teacher students designed all AI-generated learning materials and lesson plans for Phase B learners. This ensured that the media and learning activities were developmentally appropriate and aligned with the intended curriculum outcomes for this learner group.

Procedures

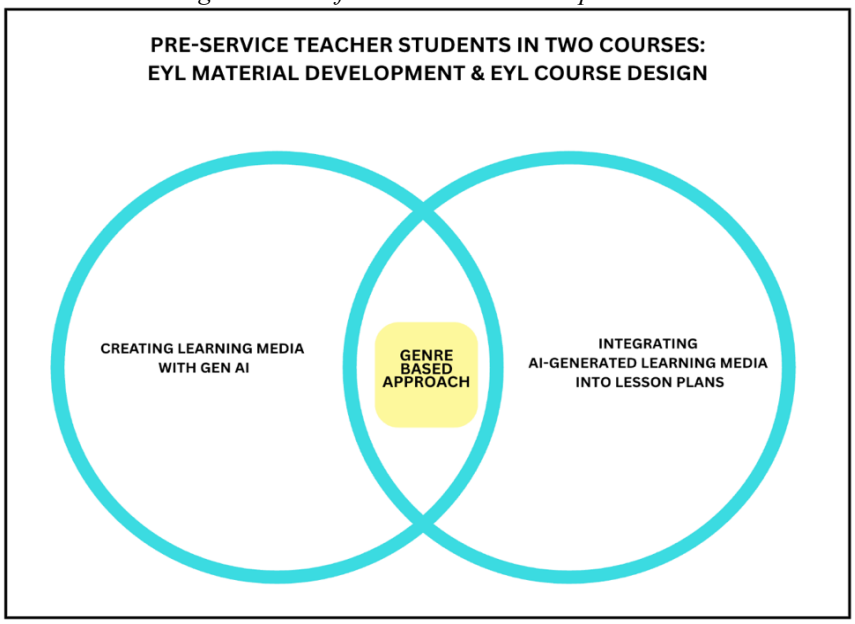
The research began by integrating two courses. The courses were intentionally integrated because their content was closely related, and they were scheduled consecutively, enabling a seamless

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connection between the learning activities. These two courses have two main learning activities. The first activity focused on teaching pre-service teacher students how to create learning media using generative AI (GenAI). The second activity focused on guiding them to integrate the AI-generated media into lesson plans. These two activities complemented each other, as developing learning materials is integral to designing English for Young Learners (EYL) courses. These two main activities were carried out using a genre-based approach, as shown in Figure 3.

Figure 3

Two Main Learning Activities of EYL Material Development and EYL Course Design



The learning activities shown in Figure 3 were conducted over sixteen meetings. This scaffolded both learning activities in the classroom (Smith et al., 2025). The learning content of the GBA cycles in both courses is presented in Table 3.

Table 3

The GBA Cycles in the Two Courses.

GBA Stage	EYL Material Development (Course 1: Creating learning media with GEN AI)	EYL Course Design (Course 2: Integrating an AI-Generated Learning Media into lesson plans)
Stage 1 (BKoF)	Teachers built students' content knowledge by introducing some Generative AI tools.	Teachers built students' content knowledge about designing an English course and lesson planning for young learners.
Stage 2 (Deconstruction or Modelling)	Teachers described features of generative AI tools, explained effective prompting techniques, and discussed the potential risks of generative AI.	Teachers explained pedagogical principles for young learners and a genre-based approach to teach English for young learners.
Stage 3 (Joint Construction)	Teachers and students collaboratively wrote a narrative text and created prompts to generate learning media based on the narrative using Generative AI.	Teachers and students collaboratively formulated learning objectives and integrated the AI-generated learning media into lesson plans.
Stage 4 (Independent Construction)	Students worked in groups to write a narrative text based on pedagogical principles for young learners and generated the media using generative AI. Teachers gave feedback on the learning media.	Students worked in groups to integrate the AI-generated learning media into lesson plans. The teachers gave feedback to the lesson plans.

The learning activities in the two courses, as shown in Table 3, scaffolded pre-service teacher students' understanding of the pedagogical principles of teaching English to young learners and their application in creating AI-generated learning media. The activities included identifying young learners' learning needs by reviewing the national curriculum and relevant textbooks, assessing the readability of narrative texts to ensure they suited Phase B students, and integrating the AI-generated media into individually developed lesson plans. During this integration process, each pre-service

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teacher student independently determined whether to incorporate the AI-generated media into the Building Knowledge of the Field (BKOF), Modelling of the Text (MOT), Joint Construction of the Text (JCOT), or Independent Construction of the Text (ICOT) stage. The study collected and systematically analysed all completed lesson plans as part of the document analysis.

In addition, two focus group discussions (FGDs) were conducted to capture the participants' perspectives throughout the program. The first FGD was held at the beginning of the program to explore participants' initial perceptions and expectations about using generative AI to develop learning media. The second FGD was conducted at the end of the sixteenth meeting to evaluate their experiences in creating AI-generated learning media and integrating it into GBA-based lesson plans.

Data Analysis

The study analysed all qualitative data, including the AI-generated learning media participants created, individual lesson plans, and focus group discussion (FGD) transcripts, using thematic analysis following Braun and Clarke's (2006) guidelines. The analysis aimed to identify patterns and themes related to the practical use of generative AI (GAI) in teaching English to young learners (TEYL), as well as the pedagogical and ethical considerations associated with its integration.

The coding process was guided by three theoretical and analytical frameworks. First, the pedagogical principles of TEYL proposed by Galeas et al. (2025) provided criteria for evaluating whether the AI-generated learning media aligned with young learners' developmental characteristics, engagement strategies, multimodal learning, and play-based pedagogy. Second, Ng and Ho (2025) discussed ethical considerations for creating AI-based teaching materials, which informed the analysis of responsible AI use, including content accuracy, intellectual property, and learner safeguarding. Third, the stages of the Genre-Based Approach (GBA) described by Emilia and Martin (2023) served as an analytical framework for examining how the AI-generated media were integrated into each stage of language instruction, from Building Knowledge of the Field (BKOF) to Independent Construction of the Text (ICOT).

The data were independently coded by two researchers. The initial codes were then compared, discussed, and refined through iterative meetings involving all members of the research team until consensus was reached on the final coding scheme and themes. By applying these three frameworks, the study examined both the design of AI-generated learning media and their pedagogically appropriate integration into genre-based English teaching for young learners.

FINDINGS AND DISCUSSION

Pedagogical and Ethical Factors in Creating Generative AI-Based Media

The participants, pre-service teacher students, collaboratively created generative AI-based media as part of a group project. The media took the form of an interactive, narrative-based video set in a school environment. The main characters were Danny, a third-grade student (Phase B of the national curriculum) learning about various school-related concepts, and Mr Jack, the classroom teacher. Pedagogically, the participants considered several key factors when creating the AI-generated learning media. They ensured that the media were age-appropriate, aligned with the intended learning objectives, relevant to the learners' cultural context, and complemented by hands-on learning activities that actively engaged young learners.

During the ideation phase, participants incorporated students' age, Phase B level, and learning objectives into their prompts to ensure the AI-generated content aligned with the curriculum. For example, one prompt stated: *"What elements should be included in a theme-based narrative story for Phase B with the characters Danny, Miss Siti, and Adam, the theme 'Going to School,' and the title 'Danny's First Day of School'?"* In the Indonesian national curriculum, Phase B refers to students in Grades 3 and 4. By specifying the learners' level, theme, characters, and learning objectives, the participants guided the GAI to generate age-appropriate and curriculum-aligned learning materials.

Moreover, the participants considered the story's cultural context in Indonesia. Therefore, they included an Indonesian elementary school uniform in the prompt, as shown in Figure 4, illustrating the prompt, *"Make me an illustration of Dennis wearing an Indonesian elementary school uniform,"* demonstrating pre-service teachers' awareness of incorporating culturally relevant elements into learning materials. This reflects their effort to ensure that the AI-generated media were meaningful and relatable to young learners by embedding familiar cultural contexts (Satyapratama & Hermawan, 2026).

This aligns with the national curriculum's recommendation to use contexts drawn from the everyday lives of Phase B students. Familiar contexts make learning materials more meaningful and engaging, particularly for young learners. The national curriculum's learning outcomes for Phase B require students to understand and respond to simple oral and multimodal texts related to everyday life. Therefore, including a school uniform in the narrative reflects an everyday experience that is relevant and familiar to learners. However, as shown in the snippet, the main character was initially named Dennis rather than Danny. This

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revision suggests that the pre-service teacher students considered a name more representative of an Indonesian child. At the same time, they chose the spelling Danny instead of the Indonesian spelling Dani because generative AI is more likely to recognise and consistently generate the English spelling.

In terms of setting, the pedagogical consideration of using contexts drawn from Phase B students' everyday lives is reflected in the narrative, which takes place at Danny's home and school. The participants confirmed that generative AI (GAI) helped them create a consistent visual representation by combining the main character's images with the selected settings. This is illustrated in Figure 5.

Figure 4
A Snippet Showing the Consideration of the Context of the Story



Figure 5
An Example of Combining Pictures in ChatGPT



This figure was generated using the prompt, "combine the images without changing their design," which instructed ChatGPT to merge the images while preserving their original appearance. This example demonstrates that the participants valued generative AI (GAI) for its efficiency and creative support in developing learning media. They used GAI to design the characters, create the story's setting, and combine visual assets into a coherent multimodal narrative. This is supported by the data from the focus group discussion that GAI enabled them to generate images and videos quickly without having to create each element manually, thereby saving considerable time in the development of learning materials. These findings align with previous studies showing that GAI can facilitate the development of personalised learning materials and support the creation of multimodal educational resources (Low et al., 2025; Ng & Ho, 2025; Yuwono et al., 2024).

A key pedagogical principle in teaching English to young learners is incorporating physical movement into learning activities. Consistent with this principle, the participants integrated hands-on

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activities into the AI-generated media. For example, Mr Jack guided Danny and the students through a scavenger hunt in which they found, collected, and sorted printed images of school-related objects into paper bags. The video also included a question-and-answer segment that encouraged interaction between Mr Jack and the students. During FGDs, the participants explained that "the learning media was designed to prevent young learners from experiencing boredom during the learning process. Given that young learners thrive in interactive settings and enjoy games, the video incorporated game-based elements to sustain learning engagement and motivation" (FGD 2). By combining digital content with physical activities, the learning media promoted active participation and learner engagement. These activities reflect recommendations that young learners acquire language most effectively through hands-on activities that connect language with actions (Bahroun et al., 2023; Galeas et al., 2025; Ng & Ho, 2025). GAI supported this approach by generating multimodal content that integrated visual, auditory, and kinesthetic elements, enabling the participants to create interactive narratives that scaffolded vocabulary learning and pronunciation practice. In this way, GAI functioned as a collaborative tool that enhanced learner engagement and supported teachers' pedagogical decisions without replacing their instructional role (He et al., 2025).

The participants also acknowledged several limitations of the generative AI (GAI) tools they used, including restricted access, occasional inaccuracies, and limited control over the generated visuals. Consequently, the outputs did not always align with the intended design. As one of the participants clearly explained, *"I wrote a prompt to make changes or edits, but during the media creation process with Kling AI, I had to go through trial and error. I needed to create more specific prompts, which took about five attempts."* This illustrates that generative AI requires carefully crafted prompts and multiple iterations to produce the desired visuals. The inconsistent visualisation can also be seen in Figure 6.

Figure 6
An Example of Inconsistent Visualisation



Figure 6 shows Danny, the main character, wearing sandals rather than closed-toe shoes. Another character, Mr Jack, also lacks visual consistency across the generated images. The inconsistency is also reflected in the repeated prompts across the three generative AI tools used: ChatGPT, Manus, and Kling AI. The prompt snippets are shown in Table 4.

Table 4
An Example of the Prompt Repetitions

No	Prompt
1.	Make this image show the character wearing a complete elementary school uniform, including shoes, and make the body a little thinner.
2.	Make this image show the character wearing the same elementary school uniform as in the first photo, including shoes.
3.	Make this image show the character wearing a complete elementary school uniform, including shoes.

The prompt repetitions shown in Table 4 indicate that participants needed to refine their prompts to generate more accurate, consistent visual representations. These challenges reinforced the importance of teacher oversight to ensure that AI-generated learning materials remained accurate, developmentally appropriate, and aligned with instructional objectives (Ng & Ho, 2025; Syairofi et al., 2025). Therefore, teachers also need to refine prompts iteratively to ensure AI-generated outputs meet pedagogical, curricular, and cultural standards. The quality of the final output depends not only on the capabilities of the AI tools but also on teachers' ability to write clear, specific prompts and continuously refine the generated content (He et al., 2025). This finding aligns with studies by Tzirides et al. (2024) and He et al. (2025), which reported that developing multimodal artifacts with generative AI often involves trial and error, particularly when refining textual prompts and selecting appropriate

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AI tools. The participants in their study also noted that the generated outputs did not always accurately reflect the visual representations they intended to create. Moreover, some pre-service teachers used their own voices to read the story's dialogues aloud to make the voice more consistent and natural. Smith et al. (2025) also reported that students were dissatisfied with free tools for voicing their text. Some audio files were not free to download. This may create issues of equitable access for all students in the classroom. Students may not have equitable opportunities if some can afford paid access to tools that better mimic human voices, while others can only use free versions that sound robotic.

During the focus group discussions (FGDs), the participants also explained that these limitations encouraged them to expand their use of AI tools beyond ChatGPT and Grammarly to include platforms such as Gemini, Grok, CharacterAI, and Kling AI. They also diversified how they used these tools by integrating AI-generated images into videos, assessing the readability of narrative texts to ensure they suited students' grade levels, applying built-in content filters to produce child-safe materials, scaffolding vocabulary learning, generating ideas for interactive activities, and designing simple question-and-answer exercises. As one participant explained, "We check the readability of online texts to see if they suit a certain grade level" (FGD 1). These findings suggest that participants used GAI beyond content generation to include critical evaluation and pedagogical adaptation of AI-generated outputs. Although they recognised that GAI could support learning media development, language revision, and activity design, they consistently emphasised that it could not replace teachers' pedagogical judgment, creativity, or responsibility for evaluating, adapting, and refining AI-generated materials before classroom implementation.

In addition, the participants emphasised that teacher guidance remained central to effective pedagogy. They viewed generative AI (GAI) as a supportive tool rather than a replacement for teachers, noting that it could assist with lesson planning, brainstorming ideas, and developing learning materials but could not foster the affective relationships between teachers and students. As one participant stated during the FGDs, "AI cannot create the teacher–student emotional connection and adapt to diverse learning styles." The participants' reflections underscore the continuing importance of teachers' pedagogical judgment, emotional support, and contextual decision-making in English language teaching for young learners.

Ethically, the participants' integration of AI-generated media reflected growing awareness of both the potential risks of AI use and the importance of responsible AI practices. Throughout the media development process, they considered issues such as overreliance on AI, plagiarism, and learner safeguarding. This ethical awareness developed progressively over the course, as evidenced by the findings from the two focus group discussions (FGDs).

In the first FGD, participants primarily identified the potential risks associated with using AI in English language teaching. They expressed concerns that excessive reliance on AI could negatively affect students' learning and teachers' professional roles. As one participant explained:

> *Over-reliance on AI can reduce students' interest in reading, as they may prefer short AI-generated answers. AI can also reduce creativity and cultural relevance, weaken teacher–student connections, increase the risk of plagiarism, and reduce teachers' preparedness for unexpected questions.* (FGD 1)

Participants also raised concerns about plagiarism, emphasising the importance of verifying AI-generated content and avoiding direct copying. As one participant stated, teachers should *"always check originality and avoid simple copy-paste"* (FGD 1).

By the second FGD, however, the participants demonstrated a more principle-based understanding of AI ethics. Rather than focusing solely on AI's potential risks, participants emphasised the importance of maintaining human oversight throughout the teaching and learning process. They highlighted that teachers should retain control over AI-generated outputs and establish clear boundaries for students' AI use. As one participant noted, "AI must still be controlled by humans. We need to set clear rules and boundaries for both AI and students, use kids' mode or restricted filters, and give specific prompts and instructions on what students can search" (FGD 2). This finding aligns with Pikhart and Al-Obaydi (2025), who argue that the future of teaching in the age of AI lies in balancing AI's educational benefits with the essential human elements of teaching, including teachers' pedagogical judgment, guidance, and interpersonal relationships.

The participants also identified potential risks associated with AI-generated content, including inappropriate language, cultural insensitivity, and exposure to materials beyond young learners' developmental level. To address these challenges, they proposed several mitigation strategies to ensure that AI-generated media remained age-appropriate and pedagogically aligned. One key strategy was incorporating teacher-guided interactions into learning activities. For example, teachers could assume the role of *Mr Jack* during the scavenger hunt, facilitating activities and mediating question-and-answer sessions to maintain human supervision and provide appropriate scaffolding throughout the learning process.

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Overall, these findings reflect a progression from recognising AI's risks to developing practical strategies for responsible classroom use. They also align with broader discussions in the literature, which emphasise the importance of addressing issues such as plagiarism, learner safeguarding, and preserving teachers' pedagogical roles when integrating AI into education, particularly in English language teaching for young learners (Ng & Ho, 2025; Low et al., 2025; Pikhart & Al-Obaydi, 2025).

These findings have twofold implications. Pedagogically, GAI can create multimodal, scaffolded, and play-based learning opportunities that support movement, interaction, and experiential understanding for young learners. However, teachers must retain control over lesson design and activity pacing to match children's developmental needs, learning styles, and attention spans. Ethically, teachers must guide AI use responsibly, ensuring children are protected from inappropriate content, overreliance, or cultural insensitivity. This requires clear rules, filtered access, and careful adaptation of AI outputs. This dual focus on pedagogy and ethics aligns with literature on GAI in education, which emphasises that while AI offers opportunities for personalised and multimodal content, teachers remain central to lesson planning, classroom management, and ethical decision-making (Ng & Ho, 2025; Low et al., 2025; Yuwono et al., 2024). It also highlighted that GAI cannot replace the teacher's role in scaffolding, motivating, and nurturing learners (Galeas et al., 2025; Al-Bogami & Alahmadi, 2025).

Drawing on this discussion, effectively integrating GAI in English for Young Learners (EYL) requires pre-service teachers to act as both active designers and ethical stewards. Teachers strategically use AI to support lesson planning, develop interactive and multimodal materials, scaffold vocabulary, and personalise content while ensuring that the learning instruction remains teacher-led and student engagement is prioritised.

Integration of AI-Generated Media into GBA Stages

After creating the AI-generated learning media, all participants integrated the media into lesson plans based on the Genre-Based Approach. Analysis of the lesson plans indicated that the pre-service language teachers primarily integrated the AI-generated media into BKOF, MOT, and JCOT stages. The summary of the findings can be seen in Table 5.

Table 5

The integration of learning media into Genre-Based Approach

GBA Stage	Number of Participants Using GAI Media	Purpose / Use of AI Media
BKOF (Building Knowledge of the Field)	5	Activate prior knowledge; introduce topics
MOT (Modelling of the Text)	7	Provide vocabulary input; show language models
JCOT (Joint Construction of the Text)	4	Facilitate group work; interactive tasks
MOT + JCOT Combination	1	Source of language input and collaboration tool
ICOT (Independent Construction of the Text)	0	-

Table 5 shows that there are five participants reported using GAI media in the BKOF stage to activate students' prior knowledge and provide an engaging starting point for learning. As Anita explained, "I use the video in the BKOF stage because I want to use it as a starting point to build students' initial knowledge." At the same time, Zulfi noted that narrative-based learning requires sequential exposure, making early use of the video essential. This aligns with GBA principles, which emphasise that BKOF establishes the conceptual and linguistic foundation for students' engagement with the target genre (Emilia & Martin, 2023). The use of AI-generated videos at this stage also reflects the potential of generative AI (GAI) to create multimodal, engaging content that activates learners' prior knowledge, supporting visual, auditory, and kinesthetic modes, which are critical for young learners with limited attention spans (Galeas et al., 2025; Nugraha et al., 2025).

In the MOT stage, seven participants employed AI-generated media to provide language models and vocabulary input. Lia noted that videos help students identify the vocabulary and expressions needed for their tasks, while Kei emphasised that videos and games make the examples more enjoyable. This approach aligns with the literature, which highlights that multimodal AI-generated materials can scaffold students' language learning and enhance comprehension through visual and interactive elements (Bahroun et al., 2023; Al-Bogami & Alahmadi, 2025). In addition, because the media is a narrative-based video, it can encourage students to discuss it with teacher guidance, helping them deepen their understanding of the material. It can also expose the students to new vocabulary (Puspitasari et al., 2024). Thus, by combining teacher guidance with AI media, pre-service language teachers preserved pedagogical factors, ensuring students still received critical explanations while benefiting from AI-supported input (Ng & Ho, 2025).

For the JCOT stage, four participants reported using AI videos to facilitate group work and

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interactive activities. Sasha noted that videos encouraged discussion and collaborative tasks. At the same time, Dayana highlighted the importance of maintaining teacher presence, explaining that videos were preceded by teacher-led joint learning sessions to introduce new items. This finding reflects the importance of teacher scaffolding in early collaborative tasks, consistent with a guided-learning principle of the genre-based approach, where AI serves as a support tool rather than a replacement for the teacher (Low et al., 2025; Ng & Ho, 2025).

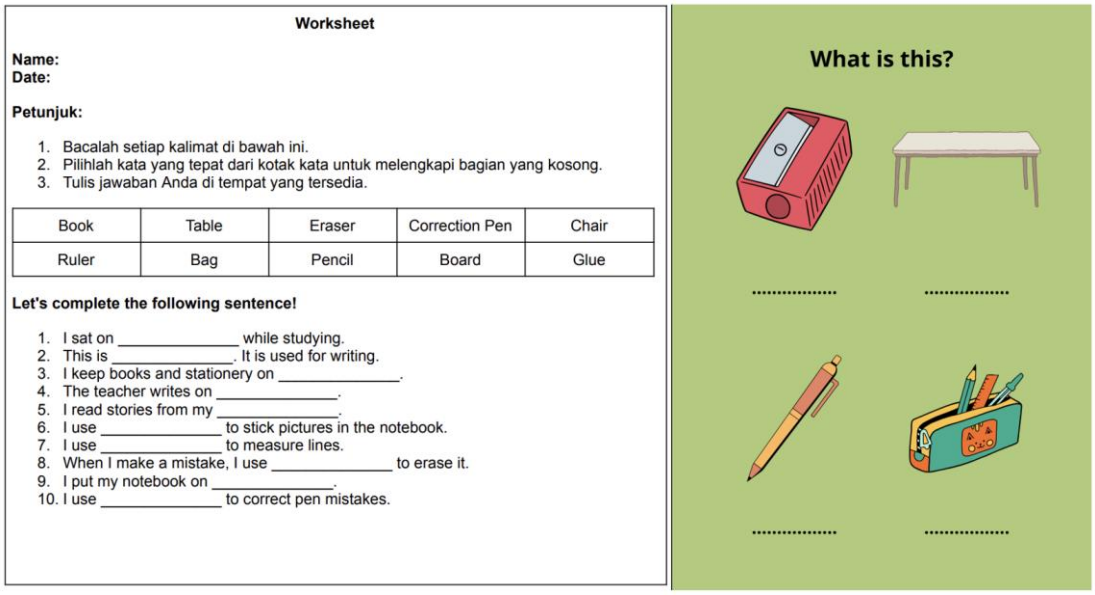
From Table 5, it can also be seen that there was one participant who integrated the AI video into the MOT and JCOT stages. In this case, Fafa said she "wanted to focus on using AI-generated media as language input and to support collaboration among students". Hence, the media is not integrated in the ICOT stage in her lesson plan.

Table 5 also shows that one participant integrated the AI-generated video into both the Modelling of the Text (MOT) and Joint Construction of the Text (JCOT) stages. Fafa explained in a focus group discussion that she wanted to use AI-generated media as language input and to support collaboration among students. Consequently, the AI-generated video was not integrated into the ICOT stage of her lesson plan.

Notably, no participants reported integrating AI-generated media into the ICOT stage. Document analysis indicated that participants primarily created and integrated AI-generated media during the BKOF, Modelling, and JCOT stages rather than the ICOT stage, as ICOT requires learners to produce texts independently. In this context, the term texts also encompasses videos as multimodal texts (Fu & Zhang, 2026). During the media creation process, pre-service teacher students developed AI-generated videos independently after receiving scaffolding through the BKOF, Modelling, and JCOT stages. Meanwhile, data from group discussions revealed that, when integrating the videos into their lesson plans, the pre-service teacher students viewed them primarily as instructional support to guide learners. Consequently, learning activities in the ICOT stage were designed to provide students with opportunities to independently produce oral or written texts, typically through worksheets prepared by the pre-service teachers. An example of the worksheets can be seen in Figure 7.

Figure 7

An Example of Worksheets in the ICOT Stage Created by the Participants



Worksheet

Name:
Date:

Petunjuk:

1. Bacalah setiap kalimat di bawah ini.
2. Pilihlah kata yang tepat dari kotak kata untuk melengkapi bagian yang kosong.
3. Tulis jawaban Anda di tempat yang tersedia.

Book	Table	Eraser	Correction Pen	Chair
Ruler	Bag	Pencil	Board	Glue

Let's complete the following sentence!

1. I sat on _____ while studying.
2. This is _____. It is used for writing.
3. I keep books and stationery on _____.
4. The teacher writes on _____.
5. I read stories from my _____.
6. I use _____ to stick pictures in the notebook.
7. I use _____ to measure lines.
8. When I make a mistake, I use _____ to erase it.
9. I put my notebook on _____.
10. I use _____ to correct pen mistakes.

The absence of AI-generated videos in the ICOT stage suggests that pre-service language teachers exercised caution with fully autonomous, AI-supported tasks. It also underscores concerns about students' overreliance on AI, the teacher's diminished role, and the need to maintain students' originality and critical thinking (Ng & Ho, 2025; Syairofi et al., 2025). It also highlights the need for careful pedagogical planning to align AI tools with learners' developmental readiness and ethical considerations.

Overall, the findings suggest that pre-service language teachers used AI-generated media primarily in stages that required scaffolding and guided learning (BKOF, MOT, JCOT), aligning with GBA principles and young learners' cognitive and attention needs. The results reinforce literature asserting that AI can enhance lesson planning, multimodal engagement, and collaborative learning, but its integration must be balanced with pedagogical and ethical factors to maintain learner-centeredness and teacher authority (Ahmad et al., 2021; Choi et al., 2023; Yuwono et al., 2024). These findings help explain how future language teachers can thoughtfully integrate GAI into genre-based English teaching for young learners, supporting

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multimodal instruction while safeguarding educational quality and ethical standards.

CONCLUSION

This study examined how pre-service language teachers integrate generative AI (GAI) into English learning for young learners, focusing on pedagogical and ethical factors and the use of AI-generated media across the stages of the Genre-Based Approach (GBA). The findings show that GAI can create interactive, multimodal, narrative-based learning materials that enhance student engagement, motivation, and participation. The participants' AI-generated video, set in a school and featuring characters such as Danny and Mr Jack, exemplified gamified, hands-on activities, including scavenger hunts and interactive question-and-answer segments. This video creation process and the integration of this video into lesson plans align with the principles of the Genre-Based Approach by providing meaningful contexts, scaffolded language support, collaborative interaction, and gradual opportunities for children to develop confidence and independence in using language for authentic communicative purposes (Galeas et al., 2025; Bahroun et al., 2023; Ng & Ho, 2025).

From a pedagogical perspective, participants emphasised that GAI facilitated efficient content creation, idea generation, and multimodal scaffolding, while still requiring active teacher involvement to guide learning, maintain age appropriateness, and ensure alignment with learning objectives and cultural context. Ethically, participants showed an evolving awareness of the importance of human oversight, intellectual property, content accuracy, and responsible AI use to prevent overreliance, exposure to inappropriate content, and erosion of cultural relevance. The FGD discussions highlighted practical strategies such as filtered access, clear rules for AI use, and teacher-guided adaptation of AI outputs to safeguard learners' developmental needs.

Regarding GBA integration, the study found that pre-service teachers primarily incorporated AI-generated media into the BKOF, MOT, and JCOT stages to support scaffolding, guided exploration, and collaborative learning. In contrast, no participants integrated AI-generated media into the ICOT stage. This pattern suggests that the pre-service teachers understood the Genre-Based Approach's pedagogical progression. By the ICOT stage, learners have already received sufficient scaffolding through the preceding stages, where AI-generated media served as instructional support and language models. Consequently, during ICOT, learners are expected to complete tasks independently, while the teacher's role shifts from providing instructional support to monitoring performance and offering feedback. These findings align with previous research emphasising that teachers should remain central to the instructional process by providing appropriate scaffolding throughout the learning sequence and, during the ICOT stage, limiting their role to facilitating independent learning and providing constructive feedback (Emilia & Martin, 2023; Zainurrahman et al., 2026).

In summary, this study confirms that integrating GAI into English for young learners requires a balanced approach in which pre-service teachers act as both designers and ethical stewards. GAI can enhance creativity, efficiency, and multimodal learning opportunities, but its use must be guided by pedagogical principles, developmental appropriateness, and ethical responsibility. The findings contribute to the growing literature on AI in education by illustrating how future language teachers can thoughtfully incorporate generative AI into genre-based English instruction, optimising learner engagement while safeguarding educational quality and ethical standards.

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CONTRIBUTION OF THE AUTHORS

The first author contributed to the conceptualisation of the research and writing, reviewing, and editing of the original draft. The second author contributed to writing (review and editing), writing (original draft), and data analysis. The third author contributed to visualization, software, investigation, data curation, and conceptualisation. The Fourth author served as a resource person for technology and contributed to conceptualization and manuscript revision. The fifth author contributed to data curation, data analysis, and conceptualization.

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