Developing a Creative Writing Approach to Multilingual Literacy in Language Learning: Insights from Indonesia

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Abstract
This study addresses a critical gap in the integration of multilingual literacy and environmental awareness within writing instruction by developing innovative teaching materials based on the Adventure for Environmental Conservation (AFEC) method. AFEC combines problem-based and project-based learning approaches to enhance language learners' creative and multilingual literacy through ecologically themed writing activities. Grounded in the principles of deep curriculum, this research applies the AFEC method as a pedagogical framework that supports interdisciplinary learning. Employing the R2D2 (Recursive, Reflective, Design, and Development) model, the study involved designing and testing poetry writing materials for multilingual learners. Effectiveness was assessed through pre- and post-tests administered to 30 students, revealing a significant correlation ($r = 0.571$, $p = 0.001$), which indicates a substantial improvement in students' writing performance. The results demonstrate that the AFEC-based materials are highly effective and categorized as "very feasible" for ecological poetry writing. More importantly, they foster multilingual expression by encouraging students to engage with environmental themes across linguistic boundaries. This study suggests the potential of AFEC to support multilingual literacy development in language learning settings, especially in underexplored areas like ecological education and creative writing.
Key words: multilingual literacy, writing skill, material development, AFEC method, environmental education

Introduction

This study focuses on the development of teaching materials for writing activities targeted at basic-level foreign language learners. The approach employed, Adventure for Environmental Conservation (AFEC), integrates problem-based and project-based learning strategies. The development process is rooted in the deep curriculum framework, aligning with Winarni et al. (2021), who stress that curriculum should be the foundation for teaching material design.

The study was prompted by observations of the limited availability of references for teaching writing skills, especially poetry, to foreign language learners. Teachers often face difficulties sourcing engaging and varied materials, leading to repetitive and uninspiring instruction. As Alhinnawy et al. (2019) explain, instructional references can be both implicit and explicit. Writing should therefore be understood as a cognitive and psychomotor activity (Darsono et al., 2018), requiring a balance between theoretical insight and practical engagement.

Interviews with four Indonesian Language and Literature teachers revealed that three expressed a clear need for additional poetry-related teaching resources, especially those that incorporate environmental themes. Supporting this, Winarni et al. (2021) highlight the necessity of well-developed teaching materials for effective learning. Student interviews showed that while 85% enjoyed writing activities, 90% lacked appropriate reference materials. Only 15% preferred genres outside of poetry, reinforcing the need for relevant and engaging resources.

Integrating environmental awareness into education can be effectively achieved through writing. Cejete (1994) emphasized the importance of embedding

environmental knowledge in school curricula due to the escalating degradation of natural resources. The environment not only encompasses essential human needs but also offers a rich context for literacy development, enabling students to build knowledge, shape beliefs, and derive meaningful experiences (Barbas & Rodden, 2016). As Bilianska and Yaroshenko (2020) assert, environmental literacy is essential for equipping students to face future challenges.

Effective teaching materials play a vital role in supporting learning outcomes. Tomlinson (2023) argues that language learning becomes more meaningful when materials connect prior knowledge, experiences, and activities. Quality resources should meet learners' needs and enhance their skills. Such materials are outcomes of thoughtful curriculum development and, according to Chisunum and Nwadiokwu (2024), require creativity to elevate instructional quality.

Writing also offers valuable social benefits. It enables students to reflect on their relationships with themselves, others, and the natural world. Consistent with the deep curriculum's goals, literature education seeks to expand students' horizons, strengthen character, and nurture pride in national culture. Writing fosters emotional expression, promotes higher-order thinking, and builds problem-solving abilities (Brown, 2015). It can also influence public opinion and policy (Reinertsen), underscoring its social impact.

This study introduces innovative teaching materials tailored for beginner-level foreign language learners, using the AFEC method to integrate writing instruction with environmental education. A key innovation lies in its combination of ecological literacy and creative writing, particularly poetry, within a curriculum-based, contextualized approach. Unlike previous studies that treat writing instruction and environmental education separately, this research combines both, presenting writing as a dual-purpose activity that enhances linguistic skills and nurtures environmental consciousness.

Classroom observations and teacher interviews confirmed a lack of engaging, theme-based poetry resources. Student feedback further emphasized the scarcity of references despite a high interest in writing. Acknowledging that writing involves both cognitive and psychomotor components (Darsono et al., 2018), the study underscores the importance of practical application alongside theory.

Embedding environmental themes in writing tasks supports the idea that language learning can foster ecological awareness, echoing Cejete's (1994) advocacy for environmental education and the perspectives of Barbas & Rodden (2016) and Bilianska and Yaroshenko (2020) on the value of environmental literacy. The materials developed reflect Tomlinson's (2023) vision of learner-centered, experiential resources, aligning with the creative and curricular considerations emphasized by Chisunum and Nwadiokwu (2024).

Through environmentally themed poetry writing, the materials aim to cultivate students' emotional expression, critical thinking, and problem-solving abilities (Brown, 2015), offering a practical model for integrating ecological education into language learning. This dual-focus approach enhances students' language proficiency while encouraging a deeper sense of responsibility toward the environment, an essential contribution in an era of global ecological concern.

Theoretical Frameworks

The nature of teaching materials in multilingual literacy

In the context of multilingual literacy, teaching materials serve as crucial scaffolds for language development, content understanding, and cross-cultural competence. Pannen (2001) defines teaching materials as systematically arranged content designed to support both teachers and students during the learning process. Chisunum and Nwadiokwu (2024) further elaborate that teaching materials

encompass various forms, information, tools, or texts that present comprehensive competencies students are expected to master through planned instructional activities.

Effective multilingual literacy instruction requires materials that address the cognitive, linguistic, and socio-cultural dimensions of learning. Hogenkamp et al. (2021) emphasize the importance of structured learning environments, including both group and individual tasks, to facilitate active engagement and mutual support among learners. In multilingual contexts, this structure is essential to provide differentiated input and practice, which supports the diverse linguistic repertoires of learners.

Furthermore, the development of teaching materials must be aligned with learner needs, instructional goals, and sound pedagogical design (Børte & Lillejord, 2024). In multilingual classrooms, these materials must not only develop linguistic proficiency but also foster intercultural awareness and multiliteracies, students' ability to interpret and produce texts across a range of languages, modes, and contexts.

Previously, Richards (2001) notes that well-designed teaching materials deliver meaningful content through coherent structures and engaging features. In multilingual literacy settings, this means incorporating authentic and culturally relevant materials that connect learners' lived experiences with language use. Saidi and Mokhtarpour (2020) stress that materials should be both authentic and contextual, providing learners with opportunities to interact with real-world texts and tasks that reflect their sociolinguistic environments.

Moreover, the organization of teaching materials should adhere to core instructional principles: progressing from simple to complex, from concrete to abstract, and providing opportunities for feedback and creative thinking. Motivation is a key element in multilingual literacy development. Al Shuaili (2025) argues that while extrinsic factors like teaching materials are essential, intrinsic motivation plays a more significant role in learners' long-term success. Ecological learning, which connects students' learning experiences to their immediate environment and values, can nurture this intrinsic drive. In multilingual contexts, effective materials must therefore:

- Encourage language transfer and translanguaging strategies,
- Foster engagement through culturally responsive and ecologically meaningful content,
- Promote critical thinking and creativity across multiple languages and modes,
- Provide inclusive tasks that acknowledge and leverage students' multilingual identities

The AFEC (Adventure for Environmental Conservation) method in multilingual literacy

The Adventure for Environmental Conservation (AFEC) method combines problem-based learning (PBL) and project-based learning (PjBL**)** to create a holistic approach to literacy instruction rooted in ecological awareness. In multilingual settings, AFEC is particularly effective as it emphasizes experiential and collaborative learning, enabling students to use multiple languages and semiotic resources to explore and express their ideas.

Spannring (2019) emphasizes that learning through ecological themes fosters empathy and social responsibility, values that align well with the goals of multilingual literacy, which include critical engagement with global issues. Chowdhury (2021) highlights that collaboration and coordination in learning tasks are essential for building communication skills, particularly in diverse language classrooms. AFEC, by its nature, requires students to participate in problem-solving

and inquiry-based tasks, thereby enhancing their linguistic output in authentic and meaningful contexts.

The Adventure for Environmental Conservation (AFEC) method unfolds in two interconnected phases that together shape a meaningful learning experience grounded in both environmental and multilingual literacy. The first phase, known as the *Adventure Phase*, immerses students in the natural world through direct exploration and experiential learning. Here, learners engage with environmental themes not through abstract theory, but by observing, discovering, and interacting with their surroundings. This active participation allows them to connect classroom learning with real-world ecological issues, triggering prior knowledge and encouraging critical thinking. As students reflect on their experiences, they are prompted to express their thoughts through various languages and communication modes —spoken, written, visual, and symbolic —thus embracing their full linguistic repertoire. In this way, the adventure becomes a multilingual experience, where reflection and storytelling are enriched by the diversity of the learners' linguistic and cultural backgrounds.

Transitioning into the Organizing Phase, the method becomes more structured, focusing on the thoughtful integration of learning outcomes with students' linguistic and cultural identities. This phase involves guided activities that allow learners to process their experiences and channel them into creative outputs, such as writing poetry themed around environmental conservation. Here, language becomes a tool for expression, critique, and imagination, as students draw on their multilingual abilities to craft nuanced, culturally resonant messages. The act of writing, especially within poetic forms, becomes both a cognitive and emotional endeavor, linking ecological insight with personal voice.

These two phases illustrate how AFEC supports multilingual literacy development. It seamlessly blends content learning with language acquisition by embedding ecological themes into tasks that are both meaningful and communicative. Students are not only encouraged to use all their linguistic resources to express themselves but are also empowered to take ownership of their learning through collaborative, real-world projects. The method cultivates intrinsic motivation, fosters reflective practices, and opens space for identity exploration and environmental advocacy. Through situating language instruction within the real-world context of environmental conservation, AFEC presents a dynamic, transformative approach to multilingual literacy. It also equips learners with the linguistic competence needed for academic and social success, while simultaneously nurturing their awareness of global ecological challenges, preparing them to become thoughtful, articulate, and environmentally conscious citizens.

Method

Development model

The development process in this study unfolds through a carefully structured sequence of steps, each designed to ensure the systematic creation and refinement of the teaching materials (Borg and Gall, 2003). This approach ensures that the materials are both effective and relevant to the needs of the learners, and that the entire process remains dynamic, responsive, and grounded in real-world applications. The journey begins with *Identifying Potential and Problems*, the first critical stage in the development process. This step involves an in-depth analysis of the current state of teaching materials and practices, focusing particularly on the challenges and gaps in existing resources for teaching poetry writing to foreign language learners. This phase is essential because it helps pinpoint specific areas where the existing materials fall short, guiding the development of more effective solutions tailored to the unique needs of multilingual learners.

Next is *Data Collection*, a pivotal stage where a range of data is gathered from various sources. Expert evaluations, feedback from students, and observations from classroom settings all contribute to the understanding of how existing materials are functioning in practice. This data not only informs the development of the teaching materials but also helps in shaping the direction of the project to ensure that the final product addresses the identified gaps and challenges. It is during this phase that the voices of both educators and learners are integrated into the development process, providing valuable insights into the materials' potential effectiveness.

Once sufficient data has been collected, the team proceeds to *Product Design*, where the first iteration of the teaching materials is created. Drawing on the findings from the data collection phase, the design focuses on integrating ecological themes with poetry writing activities. This fusion of content areas ensures that the materials are not only educational in terms of language learning but also rich with environmental consciousness, making them both linguistically and contextually relevant to students.

With the product design in place, the next step is *Design Validation*. At this stage, the initial design undergoes a rigorous review by experts in language teaching, environmental education, and curriculum development. These experts provide critical feedback that ensures the materials are pedagogically sound and aligned with the best practices in both language learning and environmental education. The validation process serves as a checkpoint to ensure that the materials meet the necessary standards and will be effective in the classroom.

Following validation, the team moves to *Design Revision*. Based on the expert feedback, revisions are made to improve the materials. This iterative process ensures that any weaknesses identified in the validation phase are addressed and that the final product is as effective and engaging as possible. Once the design has been revised, the Product Trial stage begins. Here, the materials are tested in an actual classroom setting with students. This trial allows the development team to observe the materials' practical application and to gauge how well they work in fostering both language skills and ecological awareness. The trial provides essential insights into how students engage with the materials and whether the learning objectives are being met.

Finally, the process culminates in *Product Revision*, where the feedback and data collected from the product trial are used to make further adjustments. This final revision stage ensures that the materials are fully refined and ready for widespread use, with any remaining issues addressed to enhance their quality and usability.

Research instruments

To gather both qualitative and quantitative data, a variety of specialized instruments were employed, each tailored to capture different aspects of the materials' performance (Creswell & Inoue, 2025). The qualitative data instrument consisted of a questionnaire designed to collect suggestions, input, and comments from both experts and students. This instrument focused on capturing subjective feedback on various aspects of the teaching materials, including the accuracy and clarity of the content, the presentation style, the effectiveness of the language, and the relevance of the ecological themes. By allowing for open-ended responses, the questionnaire allowed participants to express their personal experiences, insights, and critiques. This qualitative data was instrumental in providing a deeper understanding of how the materials were received and their impact on the learning process.

The quantitative data instrument included a set of validation questionnaires completed by experts and product-use trial questionnaires completed by students. These questionnaires were structured to assess specific elements of the materials, such as content accuracy, language appropriateness, instructional strategies, and the

integration of ecological themes. Respondents were asked to rate these elements using a Likert scale, which provided four options ranging from “very suitable” to “not suitable.” This scale enabled a systematic and standardized method for measuring participants' evaluations, offering a clear, quantifiable assessment of the materials' effectiveness and suitability.

Data collection

In this study, both qualitative and quantitative data were meticulously collected to provide a comprehensive understanding of the developed teaching materials' effectiveness and reception. This dual approach ensured a fuller picture of how the materials functioned in real-world classroom settings, allowing for an assessment not only of their objective performance but also of their subjective impact on learners and experts.

Qualitative data were obtained primarily through open-ended responses in closed questionnaires. These responses included notes, comments, criticisms, and suggestions provided by the test subjects, experts, and students alike. This type of data was essential as it allowed participants to express their personal reflections on the materials. Experts offered professional insights into the pedagogical value and content accuracy, while students shared their experiences of how the materials engaged them in the learning process. The subjective insights gathered helped uncover the nuances of how the materials were perceived and how they interacted with the learners' needs, preferences, and challenges. This data highlighted areas that may require further refinement or adjustment and provided detailed feedback on both the strengths and limitations of the teaching materials.

In addition to qualitative feedback, quantitative data were collected to provide objective, measurable assessments of the teaching materials' effectiveness. This data was derived from the scores on validation questionnaires completed by experts and product-use trial questionnaires filled out by students. These questionnaires were designed to assess specific attributes of the materials, such as content accuracy, language appropriateness, instructional effectiveness, and the integration of ecological themes. The use of numerical scores allowed for clear, standardized evaluation that could be easily analyzed, providing a data-driven foundation for assessing the overall impact of the materials. This quantitative data helped determine how well the materials met predefined objectives and criteria, offering a solid framework for evaluating their effectiveness and applicability in a teaching context (see Table 1 for the details).

Table 1. Measurement with Likert Scale

No	Likert scale	Results
1	4	Very suitable
2	3	Suitable
3	2	Less suitable
4	1	Not suitable

Data Analysis

A crucial phase of this research involves testing the effectiveness of the developed teaching materials. This step is designed to assess whether the materials meet their intended goals, specifically in enhancing poetry writing skills and fostering ecological awareness among students. As noted by Borg and Gall (2003), product effectiveness testing is a vital aspect of development research, as it serves to confirm

whether the product fulfills its development objectives and achieves its intended outcomes.

To test the effectiveness, a sample of 30 students from a public university in Madura participated in the assessment. The primary aim of the effectiveness test was to evaluate how the teaching materials influenced students' learning outcomes, particularly in their ability to produce poetry that incorporates environmental themes. The effectiveness test employs a pre-experimental design, using a pretest-posttest format within a single group. This approach enables the measurement of students' skills both before and after engaging with the materials, allowing for a direct comparison of their progress.

To analyze the impact of the ecologically-based poetry writing materials on students' poetry writing skills, a difference test analysis is conducted. This analysis compares the pre-test and post-test scores to determine if there is a significant improvement in students' performance after using the materials. The paired sample t-test (paired t-test) is applied to assess whether the change in students' scores is statistically significant. This statistical test helps evaluate whether the materials led to meaningful improvements in students' abilities to write poetry with ecological consciousness. The results of this analysis provide empirical evidence of the effectiveness of the materials in achieving their educational goals.

Results and Discussion

Product design

The process of designing the product in this research was centered around the development of teaching materials aimed at enhancing poetry writing skills through ecological themes. The materials were created using the AFEC (Adventure for Environmental Conservation) strategy, focusing on integrating ecological values into the writing process. The teaching materials developed aim to cultivate ecological awareness among students while refining their ability to compose poetry. A total of four teaching materials were designed, each aligning with the ecological values intended for promotion. These materials were developed following the deep curriculum Basic Competence guidelines, ensuring a structured and comprehensive approach to teaching.

Teaching material design

The design of the teaching materials follows a clear structure, beginning with Unit 1, which focuses on the basic skills necessary for understanding and analyzing poetry. The unit is based on the Basic Competence of identifying the atmosphere, theme, and meaning of various poems found in poetry anthologies that students listen to or read. This unit encourages students to engage critically with the poems, allowing them to recognize and reflect on the underlying ecological themes and the emotional or thematic atmosphere of the poetry. The teaching materials are structured to guide students in exploring the connection between poetry and ecology, while also developing their analytical skills and appreciation for environmental topics presented in literary works.

Unit 1. Basic Competence in identifying the atmosphere, theme, and meaning of various poems

Part	Stages	Activity
Preliminary	Orientation	1. Mapping of Basic Competencies and Indicators.
		2. Presentation of pictures of some natural phenomena.
		3. Brief presentation of writing.
Contents	Organize	1. Presented 3 examples of writing.
	to learn	2. Students are asked to determine the structure of the writing (atmosphere, theme, and meaning)
		3. Students work in groups.
	Guide	1. Students in groups record the diction
	Solving	related to writing.
	individual problem	2. students look for references from various sources.
	or group	3. The teacher assists students in solving problems.
		4. students compile the results of problem solving.
		5. students discuss the characteristics of the contents of the poem in writing.
		6. Students present the results of the discussion in turn.
Closing	Evaluation	1. Self-reflection (fill in the evaluation form)

Unit 2. Basic Competence (Analyzing the elements of the writing builder)

Part	Stages	Activity
Preliminary	Orientation	1. Students are given questions about reading text
		with the theme of concern over the destruction of nature.
		2. Students answer in the column provided.
Contents	Organizing for learning	1. Students are given 2 reading text.
		2. Students are asked in pairs to determine
		poetry building elements (inner and physical structures).
		3. Students determine the meaning of the inner and physical building blocks.
	Guiding the solution	1. Students are given a blank writing text.
	individual problem	2. Students fill in the blank text with diction
	or group	right.
		3. Students revise some dictions that are less precise.
	Presentation of	1. Students in groups determine the results

	works	
	or result	his findings.
		2. Presenting the results of the discussion in turn.
Closing	Evaluation	1. Self-reflection (fill in the evaluation form)

Unit 3. Basic Competence (Writing by paying attention to the building blocks (theme, diction, language style, imagery, structure, appearance)

Part	Stages	Activity
Preliminary	Orientation	1. Students are given views about the importance of
		work as a form of environmental care
Contents	Organizing for learning	1. Environmental damage video is presented
		2. Students are asked to determine the theme that will be
		used as a personal experience writing.
		3. Students explain the reasons for choosing the theme.
	Making plans	1. Students are guided to formulate important things
		related to the theme, diction, style of language,
		image, structure, and appearance.
		2. Students look for supporting references.
	Project completion	1. Students write down every important thing that has been
		found.
		2. Students arrange the writing in the form of
		personal experience verses.
		3. Students edit their writing.
Closing	Carry out an assessment and	1. Students and teachers appreciate their personal experience writing.
	Evaluation	2. Self-reflection (fill in the evaluation form)

Unit 4. Basic Competence (Demonstrating (dynamic stress and tempo pressure)

Part	Stages	Activity
Preliminary	Student orientation on the project to be produced	1. An example of a personal experience writing is presented 2. Presented examples of how to read a personal experience.

Contents	Organizing to create projects	1. A video of the most impressive personal experience is presented. 2. Students are asked to determine the accuracy vowels, expressions, and intonation of the impressive personal experience story. 3. Students are given assignments about vocal accuracy, expression, and intonation in reading the most impressive personal experience.
	Making plans	1. Students determine the accuracy of vowels, expressions, and intonation in the poem to be read.
	Project completion	1. Students make conclusions about the accuracy of vowels, expression, and intonation in reading impressive personal experience story. 2. Students take turns reading their work.
Closing	Conduct assessment and evaluation	1. Students and teachers appreciate the story that has been read. 2. Self-reflection (fill in the evaluation form).

Eligibility of Content of Teaching Materials

The feasibility of the teaching content was evaluated by experts in teaching materials, practitioners, and environmental specialists. The assessment was based on 15 key criteria, which were used to measure the quality and appropriateness of the developed materials. These criteria include: 1) the alignment of the content with basic competencies, 2) the accuracy of the material's concepts, 3) the effectiveness of the apperception (introductory) section, 4) the clarity of the learning topics, 5) the coherence of the material, 6) the breadth of the content covered, 7) the completeness of the material, 8) the appropriateness of the difficulty level, 9) the relevance of the material examples, 10) the clarity of the examples provided, 11) the accuracy of both material and examples, 12) the quality of the examples presented, 13) the effectiveness of the evaluation methods, 14) the appropriateness of word choice, and 15) the inclusion of affective, cognitive, and psychomotor aspects. This thorough evaluation process ensured that the content of the teaching materials was both educationally sound and relevant, providing a solid foundation for students to engage with the ecological themes in the poetry writing activities.

Table 2. Feasibility test results of teaching materials

No	Test Subject	Percentage	Classification	Follow-up
1	Teaching Material Expert	90.00%	Very Worthy	Implementation
2	Practitioner	93.33%	Very Worthy	Implementation
3	Environment expert	95.00%	Very Worthy	Implementation
	Average	92.78%	Very Worthy	Implementation

Table 2 shows that the content aspect of teaching materials experts scored 90.00%, from practitioners 93.33%, by environmental experts 95.00%. The average result obtained is 92.78, with a very feasible category, so that it can be implemented.

4.1.3 Feasibility Test Results of Teaching Material Design

Assessment of design feasibility aspects by experts in the preparation of teaching materials includes 8 aspects. The aspects of the assessment are, 1) the size of the teaching materials, 2) the cover of the teaching materials, 3) the design of the book pages, 4) the type and size of the letters, 5) the continuity between the pages, 6) the colors that match the representation of nature, 7) the suitability of the story, pictures, and materials, 8) material layout.

Table 3. Feasibility Test Results of Teaching Material Design

No	Test Subject	Percentage	Classification	Follow-up
1	Teaching Material Expert	90.00%	Very Worthy	Implementation
2	Practitioner	93.33%	Very Worthy	Implementation
	Average	91.67%	Very Worthy	Implementation

Based on Table 3, it is indicated that the assessment of teaching materials by experts is 90.00% and 93.33% by practitioners. The average value obtained from the two experts is 91.67% (very feasible) and can be implemented.

4.1.4 Results of the Language Feasibility Test for Teaching Materials

Assessment of linguistic aspects by experts in the preparation of teaching materials includes 7 aspects. The aspects of the assessment are, 1) using a special language in the field of literature (writing poetry), 2) Instructions using clear language, 3) The level of language suitability according to the level of thinking of students, 4) Interactive language, 5) Readability of the text, 6) standardization of terms, 7) readability of the text.

Table 4. Results of the Language Feasibility Test for Teaching Materials

No	Test Subject	Percentage	Classification	Follow-up
1	Teaching Material Expert	90.50%	Very Worthy	Implementation
2	Practitioner	90.00%	Very Worthy	Implementation
3	Environment expert	95.50%	Very Worthy	Implementation
	Average	92.00%	Very Worthy	Implementation

Based on Table 4, it is known that the value of the linguistic feasibility test from teaching materials experts is 90.50%, from practitioners is 90.00%, environmental experts is 95.50%. The average results from the three experts showed 95.50% in the very feasible category and could be implemented.

4.1.5 Teaching Material Effectiveness Test Results

The product effectiveness test activity was carried out with the aim of knowing the effectiveness of personal experience writing teaching materials for students. The activity was carried out at a public university in Madura, Indonesia. The

product effectiveness test used a pre-experimental design, namely single-group pre-test and post-test. The following are the results of the product effectiveness test.

Table 5. Results of The Product Effectiveness Test

		Pretest	Posttest
N	Valid	30	30
	Missing	0	0

Different test analysis was conducted to determine the effectiveness of personal experience in writing teaching materials. To determine the accuracy of the data analysis was carried out with a different test. The normality test of the data was carried out using the Kolmogorov-Smirnov test to determine the normality of the distribution of the pre-test and post-test data. The following are the results of the normality test of the pre-test and post-test data.

Normality test results used the Kolmogorov-Smirnov. The difference between the post-test and pre-test is that the data is normally distributed, with an average value of 10.40, a standard deviation of 5.289, and a significance of 0.200. In the pre-test, the data are normally distributed, with an average value of 72.47, a standard deviation of 6.246, and a significance of 0.200. In the post-test, data are normally distributed, with an average value of 82.87, a standard deviation of 4.869, and a significance of 0.052.

Next, the analysis can be continued with a parametric difference test with a paired t-test. The following are the results of the paired different sample test on the ability to write an impressive personal experience.

Table 6. T-Test Results

Paired Sample Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test	72.4667	30	6.24629	1.14041
	Post-test	82.8667	30	4.86885	.88893

The table above shows the average Pre Test score of 72, 4667. The number of samples is 30, the standard deviation is 6.24629, and the average standard error is 1.14041. The average value of the post-test is 82.8667. The number of samples is 30, the standard deviation is 4.86885, and the average standard error is 0.88893.

Table 7. Paired Samples Correlations

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Pre-test and Post-test	30	.571	.001

The table above shows the correlation between the pre-test and the post-test, with a sample size of 30, the correlation coefficient is 0.571 and the significance is 0.001 because it is significantly less than 0.05, indicating that there is a high correlation between pre-test and post-test.

Table 8. Paired Samples Test

Paired Samples Test									
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pre-test	-10.40000	5.28890	.96562	-12.37491	-8.42509	-10.770	29	.000
	Post-test								

The table above shows the average difference between pre-test and post-test -10.40000 (greater than post-test), with a standard deviation of 5.28890 and an average standard error of 0.96562. At the 95% confidence level, the lowest average difference is -12.37491, and the highest average difference is -8.42509.

The results of the T-test obtained a t-count value of -10,770, with a df (degree of Freedom) of 29, and a significant 0.000. Meanwhile, the t-table value for df 29 at the 95% level of significance is 1.699. It can be concluded that there is a significant difference between the pre-test and the post-test, because the t-count value is -10.770 < -1.699, significant 0.000 <0.05.

Discussion

The primary goal of this research was to develop teaching materials that promote writing through the theme of impressive personal experiences, using the Adventure for Environmental Conservation (AFEC) method. The results of the development were tested at a public university in East Java, following an in-depth assessment of both student and teacher needs, as well as an analysis of the curriculum. This approach aligns with research by Safak, Pinar, et al. (2021), which highlights the value of material development that integrates natural settings and environmental awareness. The use of ecological themes and understanding of nature has shown promise in enhancing students' ability to write compelling experiences.

The teaching materials were structured into four units, with each unit designed to align with the basic competencies in the curriculum. These competencies focus on activities related to understanding, writing, and reading about personal experiences. The materials integrate problem-based learning and project-based learning, both of which are key components of the AFEC method. The central ecological issues discussed throughout the units are deeply rooted in the context of Indonesia’s environmental challenges. The resulting student projects take the form of poetry, providing a creative platform for students to explore these themes.

Unit 1 introduces students to identifying problems by analyzing examples of personal experience writing in terms of structure and word choice. One such example is the poem "The View of the Senjakala" by W.S. Rendra, which depicts the beauty of nature contrasted with the ecological imbalance caused by human activity. This unit emphasizes how personal writing, grounded in environmental themes, can raise awareness about ecological issues. This aligns with Winarni's (2020) research, which stresses the need for teaching materials that promote student creativity while integrating character and cultural values.

In Unit 2, students engage with the poem “Lestari Alamku,” where they analyze the inner and outer structures of the text. The students then fill in gaps based on their analysis and present their work, allowing them to understand the author's

message from both a textual and ecological perspective. This approach supports Richards' (2016) findings, which suggest that writing personal experiences is driven by emotions stemming from environmental concern. It encourages students to connect their thoughts with real-world issues and express them through creative writing.

Unit 3 introduces multimedia learning, where students watch videos showcasing Indonesia's natural beauty, from lush forests to the challenges of air pollution. Based on these visual stimuli, students select a theme for their poetry and develop it by structuring their work, choosing appropriate diction, and considering form. This approach reflects Rogayan et al.'s (2021) research, which emphasizes how students' life experiences, such as internships, can inspire writing. Using videos as part of this process taps into the multimodal nature of learning, where students draw from multiple modes of communication, visual, auditory, and textual, aligning with the principles of multilingual literacy.

The integration of videos, images, and textual discourse as learning media also supports the findings of Satinem (2018), who highlighted the effectiveness of using images to enhance personal writing materials. The research demonstrated that image-based teaching materials significantly improved students' ability to write poetry. The use of diverse media, including videos and images, facilitates engagement with ecological issues while promoting multilingual literacy, allowing students to express their thoughts creatively across different languages and media.

The teaching materials were designed to foster student motivation and engagement. The final activity in each unit involves students presenting their poems, paying attention to aspects such as vowels, expressions, and intonation. This encourages students to express themselves with linguistic precision and emotional depth. Research by Liao (2017) supports this approach, indicating that writing about personal experiences can help second-language learners develop their language skills and gain confidence in their writing abilities.

The content feasibility test revealed that the teaching materials scored high in terms of suitability, with experts, practitioners, and environmental specialists providing scores of 90%, 93.33%, and 95% respectively. The overall score of 92.78% indicates that the materials are highly feasible for implementation. However, experts recommended making revisions to ensure the material starts with simpler concepts before progressing to more complex topics, especially in the writing process. Practitioner feedback also suggested revising examples and practice questions to allow for more independent student work.

In terms of design feasibility, the materials scored highly, with experts rating them at 90% and practitioners at 93.33%. Revisions were suggested regarding color selection and the layout of content to better align with the ecological themes represented in the materials. Linguistic feasibility was also assessed, with scores of 90.50% from experts, 90% from practitioners, and 95.50% from environmental specialists, averaging 95.50%. This indicates that the materials are linguistically suitable for the intended audience and are ready for implementation. The effectiveness test of the materials showed a strong correlation between pre-test and post-test scores, with a correlation coefficient of 0.571 and a significance level of 0.001. This suggests a significant improvement in students' poetry writing skills after using the materials. The t-test results further confirmed a significant difference between pre-test and post-test scores, with a t-value of -10.770 ($p < 0.05$), indicating that the ecologically-based poetry writing materials had a positive impact on students' writing abilities.

Conclusion

Learning to write personal experiences is a higher-order thinking activity that necessitates both external and internal motivation, especially in the context of multilingual literacy. External motivation is fostered through teacher guidance, well-crafted teaching materials, and collaborative peer interactions, which are essential for

learners to navigate diverse linguistic resources. Internal motivation, however, is driven when the material's content resonates with students, sparking empathy and encouraging them to reflect on their own experiences across multiple languages. The teaching materials developed in this research aim to enhance students' multilingual literacy by integrating ecological themes and fostering empathy toward nature conservation. By engaging students in problem-based learning combined with project-based learning, the materials stimulate both cognitive and emotional responses. The poetry writing activities enable students to convey their understanding of ecological issues through their linguistic repertoire, encouraging them to reflect on multiple languages while drawing on their personal experiences. This approach not only deepens students' understanding of environmental issues but also encourages them to use their multilingual skills creatively. As students analyze and respond to ecological problems, they can produce poetry texts that reflect their unique perspectives, both linguistically and culturally. The integration of various languages in the writing process enhances students' ability to communicate nuanced ideas, thereby improving their multilingual literacy and writing skills. Consequently, students' writing scores improve, demonstrating the effectiveness of these materials in fostering both linguistic competence and ecological awareness.

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