



Culturally Responsive Pedagogy in Primary Education: Leveraging Bima Local Wisdom to Foster Student Learning Independence

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Abstract

The paradigm shift toward the Kurikulum Merdeka in Indonesia demands that primary school students develop strong learner autonomy, yet conventional teacher-centered instructions and generic textbooks often fail to engage young learners. This study aims to develop and evaluate an instructional learning module based on local Bima culture designed to enhance the learning independence of fourth-grade elementary school students. Utilizing a research and development framework guided by the five-stage ADDIE framework (Analysis, Design, Development, Implementation, and Evaluation), this study involved 76 fourth-grade students across four elementary schools in the Soromandi sub-district. Data were gathered through expert validation sheets, teacher and student response questionnaires, and a specialized learning independence scale, and subsequently analyzed using descriptive statistics and a paired t-test. The structural validation yielded a material feasibility score of 87% and a media design score of 95%, classifying the module as highly suitable for classroom deployment. User response questionnaires confirmed that the instructional media was exceptionally practical, accessible, and user-friendly for daily classroom activities. Crucially, the paired t-test revealed a highly significant increase in student learning independence following the modular intervention ($t = 23.102$, $p < 0.001$, $df = 39$), demonstrating marked improvements in student motivation, classroom initiative, self-confidence, and personal accountability. These findings imply that embedding indigenous cultural artifacts and local wisdom into elementary curricula offers a scalable pedagogical mechanism to foster self-regulated learning habits while preserving unique regional heritage.

Keywords: Bima Local Culture, Elementary Education, Learning Independence, Learning Module Development, Pancasila Education

Introduction

The global discourse of modern elementary education, fostering learner autonomy or learning independence has emerged as a cornerstone for academic achievement and long-term learning capabilities. Student learning independence significantly determines academic achievement because the learning process inherently requires self-directed effort. Students with high learning



independence demonstrate better time management, cognitive self-regulation, strategic planning, execution, and self-evaluation. According to Normina (2017), to engage in independent learning, students must possess specific skills and knowledge, which include inquiry, decision-making, critical and creative thinking, self-actualization, and collaboration. Instruction should be student-centered and facilitate optimal learning. Nurhidayanti et al. (2022) state that learning independence is the students' capacity to evaluate their own cognitive processes and exercise self-control. This independence is crucial for supporting effective instruction (Asih et al., 2023). When students can personally control, monitor, and regulate their cognition, it significantly facilitates the teaching and learning process, allowing them the autonomy to make choices based on their own capabilities.

In the contemporary era, primary school students are required to participate autonomously without over-relying on external resources, including their teachers. Learning independence is essential for students to enhance their collaborative skills, self-directed study habits, and personal accountability and discipline. Because these attitudes reflect psychological maturity, they are essential traits for students to possess (Sugandi, 2013). Learning independence occurs when students engage in learning activities driven by intrinsic motivation rather than external coercion. Ningsih (2016) defines learning independence as an internal learning process that requires individual activity and autonomy from others, including teachers, to achieve specific learning objectives. Education itself encompasses a wide spectrum of human development, primarily focusing on holistic growth, ranging from physical health and growth to ideas, emotions, volition, and social interactions, with spiritual development being paramount (Cholilah et al., 2023).

Education in Indonesia currently aligns with the Kurikulum Merdeka or Independent Curriculum. Through this curriculum, education aims to foster the characteristics of Indonesian learners embodied in the Profil Pelajar Pancasila or Pancasila Student Profile, which comprises six dimensions: faith and piety toward God Almighty and noble character, independence, mutual cooperation (gotong royong), critical thinking, creativity, and global diversity. The Pancasila Student Profile serves as a guiding framework for teachers, students, and educational stakeholders in Indonesia. Mulyasa and Aryani (2022) state that the freedom to learn encompasses the freedom to work, think, and adapt or react to global shifts or transformative power. Furthermore, instructional methodologies are projected to shift from traditional classroom settings to outdoor and experiential environments (Purnomo, 2024). To maximize learning outcomes, teachers must construct interactive and educational learning environments.

However, preliminary observations and interviews conducted by researchers from June 18 to 19 at Grade IV SD Waduopa in Soromandi District revealed contrary field realities. Low student learning independence was evidenced by low motivation, where students lacked enthusiasm during Pancasila Education lessons and perceived the subject matter as boring due to rote-memorization demands. Students exhibited low concentration, passivity, and poor classroom study habits, which directly depressed their independence. Students with low learning independence tended to display lower competitive motivation. High motivation in independent learning typically correlates with better academic performance, relative to the minimum mastery criterion or KKM of 70. Furthermore, field realities showed a severe lack of initiative, where students struggled to develop new concepts or approaches to solve academic problems. Low self-confidence was also prevalent, as students undervalued their own strengths despite possessing underutilized latent potential. Lastly, a lack of responsibility was observed where students relied heavily on notes provided by the teacher, lacked confidence when expressing opinions in class, and lacked personal accountability for their own learning. Consequently, a large portion of students scored below the KKM threshold of 70 in Pancasila Education, necessitating remedial intervention.

Teachers expect students to exhibit high motivation, initiative, self-confidence, and accountability because such traits prepare students for lifelong learning, allowing them to adapt to diverse instructional dynamics and achieve target outcomes. Conversely, students lacking learning independence often experience poor academic performance, low responsibility, and a chronic dependency on others for decision-making and task completion. Cultivating independence allows students to monitor, evaluate, regulate, and direct their learning efficiently. Further field assessments conducted from June 20 to 26, 2023, with fourth-grade teachers at SD

Bajo and SD Inpres Wonto in Soromandi District identified specific systemic issues. Teachers had not integrated supplementary learning materials regarding the local Bima culture into the Pancasila Education curriculum, particularly regarding home and school environments. Instruction relied strictly on government-issued textbooks, highlighting the urgent need for supplementary media such as contextualized learning modules.

Interviews with fourth-grade students at SD Sarita on June 28 and 29, 2023, confirmed these issues, noting that there were no Pancasila Education modules integrated with local Bima culture. The instructional delivery was highly centralized and teacher-centered, relying on single textbooks, which restricted student autonomy and negatively impacted both learning independence and academic performance. Prior studies have attempted to address similar issues through various alternative interventions. Rizta and Annisa (2017) examined the application of decorative learning modules focused on cultural arts and crafts for fifth-grade students, demonstrating that contextual modules are highly viable. The primary distinction between their study and the current research lies in the subject matter, as Rizta and Annisa focused on Cultural Arts, while this study develops a Bima culture-based module specifically for fourth-grade Pancasila Education. Similarly, Rohmaini et al. (2020) developed an ethnomathematics-based module utilizing Wingeom software for fourth-grade students across two regions. While Rohmaini et al. targeted mathematics using ethnomathematics and software tools, the current study centers on Pancasila Education and utilizes student learning independence as its primary metric. Furthermore, Hutama (2016) developed culture-based social studies (IPS) learning materials for fourth-grade students using the Dick and Carey model, whereas this study targets Pancasila Education and utilizes the ADDIE framework.

Developing instructional materials via a Bima culture-based learning module offers an engaging approach to Pancasila Education by drawing on the immediate cultural environment of the students. Local wisdom reflects positive cultural values that serve as excellent instructional tools (Hassan et al., 2023). By integrating regional culture, this module bridges the gap between students and their immediate environments, ensuring that school instruction aligns with regional context and fosters learning independence among fourth-grade students in Soromandi District. The Bima ethnic group is an indigenous community residing in East Nusa Tenggara (NTB), primarily concentrated in the eastern part of Sumbawa Island, including Bima City and Bima Regency. Their rich cultural heritage remains deeply embedded in daily community life. Unique traditions such as wura bongi monca, the buja kadanda dance, mpa'a ntumbu, the traditional sport of tapa gala, and the traditional game tutu kali kuma-ma are preserved yet remain largely unknown to the wider public. This rich cultural fabric should serve as the foundation for developing learning modules in Pancasila Education to enhance learning independence. As a printed instructional tool designed for self-directed study, a learning module offers a viable alternative to traditional teaching, implementing student-centered strategies while positioning the teacher as a facilitator (Salmi, 2019).

Based on these critical empirical and practical considerations, this study systematically undertakes the development and validation of an instructional tool tailored to the local context. To guide this research process and ensure complete alignment with the subsequent methodology, results, and discussion, this study addresses three explicit research questions:

1. How is the feasibility and validity of the developed Bima local culture-based learning module according to material experts and media experts?
2. How is the practicality of the Bima local culture-based learning module based on the responses and readability of fourth-grade elementary school teachers and students?
3. Is the Bima local culture-based learning module effective in significantly increasing the learning independence of fourth-grade elementary school students?

In accordance with these research questions, the objective of this study is to produce a learning module product based on Bima local culture to increase student learning independence that is feasible based on material experts and media experts, practical for students and teachers, and effective in increasing the learning independence of grade IV elementary school students.

The theoretical contribution of this study lies in expanding the literature on contextual learning by showing how specific cultural artifacts can be integrated into the independent curriculum to promote self-regulation. Practically, this research provides a validated pedagogical

product that enables primary school teachers in Soromandi District to transition from a teacher-centered paradigm to a student-centered environment, successfully boosting student motivation, initiative, confidence, and responsibility through localized wisdom.

Methods

Research Design

This study employs a Research and Development (R&D) methodology to systematically design, develop, and evaluate an educational product tailored to local context demands. The structural architecture of this research is guided by the ADDIE development framework, which encompasses five sequential and highly interconnected phases: Analysis, Design, Development, Implementation, and Evaluation. This procedural framework is selected due to its structured and iterative nature, which allows for continuous refinement of the instructional media based on empirical feedback at each stage. To rigorously evaluate the effectiveness of the developed product on student learning independence, the implementation phase incorporates an experimental approach utilizing a One-Group Pretest-Posttest Design. According to Purnomo (2024), an R&D framework combined with quantitative validation measures provides a robust foundation for verifying both the practicality and the instructional impact of newly developed learning materials in elementary school settings.

Data Source and Participants

The data sources for this study comprise both expert validators and primary school students to ensure comprehensive triangulation of feasibility, practicality, and effectiveness. This research was conducted across four distinct elementary schools situated within the Soromandi sub-district, Bima Regency, namely Wadukopa Elementary School, Inpres Wonto Elementary School, Bajo Elementary School, and Sarita Elementary School. The target participants for the field implementation and evaluation phases consisted of fourth-grade elementary school students during the 2023/2024 academic year, involving a cumulative sample of 76 students across the locations.

To systematically manage the product development cycle, specific participant allocations were designated for each trial phase. For the initial readability and small-scale testing, 8 students from Inpres Wonto Elementary School were selected to participate in one-on-one testing. Subsequently, 12 students from Inpres Wonto Elementary School were assigned to small-group trials to assess the baseline usability of the module. For the larger field trials, 18 students from Sarita Elementary School were actively involved. Finally, a cohort consisting of 20 students from Wadukopa Elementary School and Bajo Elementary School was mobilized for the definitive practicality testing and quantitative effectiveness evaluation.

Data Collection and Instruments

Data collection was executed using a multifaceted design supported by validated research instruments to capture qualitative feedback and quantitative metrics. The instruments developed for this study include interview guidelines, expert validation sheets, teacher and student response questionnaires, and a student learning independence scale (Table 1-4). The expert validation phase involved two independent evaluators: a subject matter expert and an instructional media expert. The instrument for the subject matter expert is organized into five core evaluation dimensions: self-instruction, self-contained, stand-alone, adaptive, and user-friendly.

The instructional media expert instrument focuses on the structural and visual aspects of the module, covering three major components: module dimensions, cover design, and internal page design. To evaluate the usability and field practicality of the developed module, a student response questionnaire was structured to measure five integrated parameters: material clarity, media design, language transparency, visual appearance, and instructional utility.

For the measurement of psychological and behavioral changes regarding learner autonomy, a student learning independence scale was developed based on four distinct behavioral dimensions: motivation, initiative, responsibility, and self-confidence.

Procedures

The procedural sequence of data collection strictly adhered to the five iterative stages of the ADDIE design framework. During the Analysis stage, field data were gathered via baseline interviews and empirical observations to identify gaps in student learning autonomy and analyze classroom resource constraints. In the Design stage, learning outcomes were formulated, and the structural blueprints of the Bima culture-based module were systematically mapped.

The Development stage involved translating the blueprints into draft instructional media, which was then subjected to rigorous evaluation by the assigned material and media experts. Iterative revisions were executed based on this formative validation feedback. During the Implementation stage, the finalized module was deployed in the real classroom environment, where the teacher acted as a facilitator and students interacted directly with the culturally responsive content. Finally, the Evaluation stage involved assessing the overall quality and measuring differences in learner autonomy by administering the learning independence scale both before and after the classroom treatment.

Measurement and Data Analysis

The validation data and user response questionnaires were calculated using descriptive statistical analysis to convert categorical responses into percentages, allowing for a descriptive determination of feasibility and practicality thresholds. The product validity status is considered acceptable if the percentage values fulfill the established criteria for highly suitable implementation.

To determine the effectiveness of the module in enhancing learner autonomy, the pretest and posttest scores obtained from the learning independence scale were analyzed using inferential statistics. Since the quantitative evaluation utilized an experimental group design, a paired t-test was performed to calculate whether the statistical difference between the pre-treatment and post-treatment mean scores was statistically significant. All quantitative computations were processed to ensure numerical precision regarding the standard deviation, standard error mean, and the confidence intervals of the difference.

Table 1: Subject Matter Expert Instruments

No.	Aspect	Statement	No.Item	Total
1.	<i>Self Instruction</i>	Learning objectives according to the required learning outcomes.	1	7
		The presentation of material in the module is in accordance with the required learning outcomes.	2	
		The material is presented in a coherent manner.	3	
		The material presented is in accordance with the material content.	4	
		Illustrations are presented according to the material content.	5	
		The problems presented can be in the context of the students' tasks and environment.	6	
		The language used in the module is easy to understand.	7	
2	<i>Self contained</i>	The suitability of the material to the required learning outcomes.	8	2
		The material competencies presented contain the required learning achievement units.	9	
3	<i>Stand Alone</i>	The material in the module can be studied without the help of other modules.	10	2
		The material in the module can be studied without any other media.	11	
4	<i>Adaptive</i>	The material is in accordance with science.	12	2
		The material is in accordance with the scope of Bima culture.	13	
5	<i>User Friendly</i>	The material in the module can be studied anywhere.	14	2
		The material in the module can be studied at any time.	15	

Table 2: Media Expert Instruments

No.	Aspect	Indicators and statements	Item No.	Total
1	Module Size	Paper size in mode		2
		Module size conformity to ISO standards: A4 (210 X 297 mm) or B5 (176 X 250 mm)	1	
		Size conformity with module content material	2	
2	Module Cover Design	Module cover layout		5
		The arrangement of layout elements on the face cover is appropriate so that it gives the impression of good rhythm	3	
		The layout is proportional to the size of the module so that it can clarify the function (module content)	4	
		Shows good contrast	5	
		The arrangement of the layout elements on the back cover is appropriate so that it gives the impression of good rhythm	6	
		Displays the exact center of view (point center)	7	
		Module Cover Typography:		
		The title font size is more dominant than (author's name and logo)	8	4
		The module title color contrasts with the background color.	9	
		The font size is proportional to the module size.	10	
		Don't use too many font combinations	11	
3	Module Content Design	Module Cover Illustration:		2
		Illustrations can describe the contents/material of the module	12	
		Illustrations are able to express the character of an object	13	
		Module Content Layout:		6
		Placement of layout elements is consistent based on the pattern	14	
		The separation between paragraphs is clear	15	
		Placement of chapter titles or equivalents (preface, table of contents, etc.) is uniform.	16	
		The distance between text and illustrations is appropriate	17	
		The margins between two adjacent pages are proportional	18	
		The placement and appearance of the layout elements of the title, subtitle, page number, illustration, and image caption are appropriate.	19	
		Module Content Typography		6
		Don't use too many fonts	20	
		Do not use decorative fonts	21	
		Use of letter variations (bold, italic, capital, small capital) is not excessive.	22	
		The font type matches the content of the material	23	5
		Spacing between lines of normal text	24	
		Normal letter spacing	25	
		Illustration of Module Contents:		
		Able to express the meaning/significance of objects	26	
		Proportional form	27	
		Form according to reality	28	
		The whole illustration is harmonious	29	
		Illustration in clear line form	30	

Table 3: Student Response Instruments to Media

Aspect	Statement	Item No.	Total
Material, Media, Language, Display and Usability	I enjoy learning using the Bima local culture-based learning module because the module is interesting.	1	10
	Learning to use learning modules makes me more active	2	
	Bima local culture-based learning modules are easy for me to take anywhere and anytime.	3	
	The pictures (illustrations) in the module really helped me in understanding the material because they looked clear and interesting.	4	
	The language used in the learning module is easy to understand	5	
	The material in the learning module is presented in a coherent and clear manner.	6	
	The instructions or learning activities in the module are easy for me to understand and follow.	7	
	The Pancasila Education material in the learning module is related to my daily life and I can find it in my daily life.	8	
	I find it easier to understand the Pancasila Education material by studying using this module than using other books.	9	
	Learning activities in the learning module make me understand the reading or understand the Pancasila Education material well.	10	

Table 4: Learning Independence Instrument

No	Aspect	Indicator	No Item
1	Motivation	Actively involved in learning	1, 2, 3, 4
		Try to do your job to the best of your ability	5
		Have a goal in learning	6
2	Have Initiative	Show curiosity	7
		The desire to find	8, 9
		Dare to convey ideas	10
		Can provide feedback	11, 12
		Be open to new experiences	13
3	Responsibility	Do the task well	14
		Complete the task on time	15
		Ready to accept the consequences of actions taken	16
4	Self-confident	Dare to express opinions, ask questions, or answer questions	17, 18
		Dare to present/appear in front of the class	19
		Be calm when speaking	20, 21

Findings

Based on the results of observations and interviews, the product developed in this research is a learning module based on local Bima culture which has gone through validity, readability and practicality tests. The stages carried out are as follows:

1. Analyze stage

This stage is useful for (a) validating gaps in student learning independence; (b) Determining instructional objectives; (c) Confirm the intended audience; (d) Identification of required resources; (e) Determine potential delivery systems; (f) Project management plan creator.

2. Design Stage

This stage aims to (a) Formulate the objectives of preparing the learning module; (b) Formulate learning activities; (c) Formulate learning modules.

3. Development Stage

The aim of the development stage is to produce and validate learning modules based on local Bima culture to increase the learning independence of fourth grade elementary school students. Validation of research products and instruments is carried out by lecturers who are experts in this field. The stages in development are: (a) Producing Content; (b) Developing Learning Modules; (c) Make Revisions Based on Formative Evaluation and Trial.

4. Implementation Stage

The aim of the implementation stage is to prepare the learning environment and involve students with the following stages: (a) Preparing teachers; (b) Preparing students.

5. Evaluate Stage

This stage aims to assess the quality of learning modules based on local Bima culture to increase the learning independence of fourth grade elementary school students. Both before and after implementation. General procedures related to the evaluation stage can be simplified as follows: (a) Determine Evaluation Criteria; (b) Conduct Evaluation with Appropriate Instruments.

Learning modules that have gone through the development stage can then be tested with the aim of assessing products that have been developed to increase student learning independence. There is a test of the effectiveness of the product "Bima Local Culture Based Learning Module" on student learning independence.

Table 5: Summary of Material Validation

Value	Predicate
87%	Very worthy

Table 6: Media Validation Assessment

Value	Predicate
95%	Very worthy

The validation results from the material experts obtained a score of 87% with a maximum score of 100% while the validation results from the media experts obtained a score of 95% with a maximum score of 100%. Based on the table, it can be concluded that the "Learning Module Based on Bima Local Culture to Improve Learning Independence of Grade IV Elementary School Students is "very suitable" for use (Table 6 and 5).

Table 7: Paired t-test results

	Paired Differences					t	Df	Sig. (2-tailed)
	Mean	Std Devati on	Std.Error Mean	95% Confidence interval of the Difference				
				Lower	Upper			
Pre Test Post Test	21.125	5.783	914	-22.975	-19.275	23.10 2	39	0.000

Based on the paired t-test output table above, the Sig (Table 7). (2-tailed) value is $0.000 < 0.05$, so H_a is rejected and H_0 is accepted. Therefore, it can be concluded that there is a difference between the increase in learning independence of fourth grade students before (pretest) and after (posttest) learning using the learning module.

Discussion

The final product of this research and development is a learning module based on Bima local culture to enhance student learning independence. The Bima local culture-based learning module is a set of teaching materials that organizes subject matter while addressing educational functions. Through this organization, students are expected to master the subject matter in accordance with the established learning outcomes (CP) (Ariawan et al., 2014). (Nurhidayanti et al., 2022). The development of learning modules in elementary schools takes into account the development and character of elementary school-aged students. The development of a learning module based on Bima local culture in this study aims to assess student learning independence (Lumban et al., 2017).

The development of learning modules is one of the supporting materials for learning, and its development must be adapted to the applicable curriculum. This aligns with the statement by Aisyah, Noviyanti, and Triyanto (2020) that teaching materials are a form of evaluation, and their creation must be aligned with Learning Outcomes (CP) and indicators that can be effectively achieved in accordance with learning objectives formulated within the applicable curriculum.

Instilling an independent character is crucial for students because their learning independence is currently declining (Sari et al., 2021). The value of independent character is sought to ensure students develop an independent attitude and demonstrate independent behavior. Independence is an attitude, state, or behavior that does not easily depend on others (Arini et al., 2021). Learning modules are a learning tool for students that can enhance their independence (Linda* et al., 2021). Therefore, developing learning modules can enhance students' independent character in learning.

One way to foster student independence is by integrating it into a subject or topic within the learning module. Learning modules are one of the teaching materials that can foster students' independent character (Nugroho et al., 2021). The learning modules include Pancasila Education subjects integrated with the surrounding Bima culture. The modules are designed and equipped with instructions to facilitate user-assisted practice exercises. The modules are complemented by engaging images. This allows students not only to learn through the modules but also to preserve the surrounding culture.

Independent character is one aspect of the Pancasila Student Profile, programmed by the government in the implementation of the Independent Curriculum, so it is appropriate to integrate independent character into learning (Ramadhan et al., 2022). The analysis results of the pretest and posttest of one group demonstrated independence, which were strengthened by a paired t-test. The pretest is used during the delivery of the material to determine the extent to which students have mastered the material taught in the learning module. The test material provided must be relevant to the material being taught. Meanwhile, the posttest is conducted at the end of the learning process for a subject to determine the extent of student independence in using the learning module. If students are more independent after the learning process, the

teaching program is considered successful (Magdalena et al., 2021). The results of the paired t-test showed a significance value of 0.000, indicating a tailed value of 0.05. This value is smaller than 0.05, thus concluding that there is a significant difference in student learning independence between before and after the learning module treatment.

Conclusion

Based The systematic development and empirical evaluation of the learning module based on Bima local culture provides a definitive answer to the challenges of cultivating student autonomy within fourth-grade Pancasila Education. Guided by the rigid, five-stage ADDIE framework, this research successfully synthesized regional indigenous wisdom with formal curricular mandates. The structural validation from subject matter and media experts confirms that the developed module is highly feasible and instructionally sound, achieving exemplary scores of 87% and 95% respectively. Furthermore, field evaluations among primary school teachers and fourth-grade students demonstrate that the module is exceptionally practical, portable, and accessible for daily classroom deployment, successfully transitioning the learning environment from a traditional teacher-centered approach to an active, student-centered paradigm.

Most importantly, the quantitative effectiveness analysis underscores the profound psychological and behavioral impact of this culturally responsive intervention. The inferential tracking via a paired t-test revealed a highly significant increase in student learning independence following the modular treatment, as evidenced by an extreme t-value of 23.102. Granular behavioral indicators confirm that embedding familiar cultural traditions, such as regional dances, communal sports, and traditional games, directly resolved the baseline crises of low motivation, passivity, and absolute dependency on teacher dictation. By anchoring abstract academic competencies within the immediate sociocultural realities of the learners, the module catalyzed significant advancements across all four pillars of autonomy: intrinsic motivation, classroom initiative, personal responsibility, and oral self-confidence.

The pedagogical implications of these findings are highly significant for the contemporary educational landscape under the mandates of the Kurikulum Merdeka. This study demonstrates that the cultivation of the independent characteristics demanded by the Profil Pelajar Pancasila cannot be achieved through top-down, standardized textbooks that detach young learners from their lived environments. Instead, sustainable learner autonomy is unlocked when regional heritage is structurally leveraged as a cognitive asset. Integrating localized kearifan lokal into self-instructional media reduces instructional uniformity and establishes a scalable model for modern primary schools to achieve national educational benchmarks while simultaneously safeguarding unique regional identities.

Ultimately, this research proves that education does not need to choose between academic modernization and cultural preservation. By transforming ancestral Bima traditions into an interactive engine for self-regulated learning, this study establishes that the roots of a student's local heritage can provide the exact psychological grounding necessary to foster independent, resilient, and globally capable autonomous learners.

Ethics approval

The study was conducted in compliance with the Declaration of Helsinki

Competing interests

All the authors declare that there are no conflicts of interest.

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Underlying data

Derived data supporting the findings of this study are available from the corresponding author on request.

Declaration of artificial intelligence use

This study used artificial intelligence (AI: GPT, Grammarly) tools and methodologies in the following capacities: Language refinement; improving grammar, sentence structure, and readability of the manuscript.

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