Integrating Folklore in Modern Education: A Review of Interactive Materials and SDGs Alignment

Hery Nuraini*, Nurhaedah Gailea, & Udi Samanhudi

Department of Education Doctoral Program, Universitas Sultan Ageng Tirtayasa, Indonesia

*Corresponding email: hnuraini@unis.ac.id

Abstract: Integrating Folklore in Modern Education: A Review of Interactive Materials and SDGs Alignment. Objectives: Integrating local culture through folklore is increasingly used to support next-generation learning competencies, here defined as learning performance, language/communication, cultural literacy, creativity, collaboration, critical thinking, ecoliteracy, and basic digital skills, while advancing SDG 4 (Quality Education), especially Target 4.7 on education for sustainable development and cultural diversity. **Methods:** The research employed a Systematic Literature Review (SLR) across Scopus, WoS, SINTA, ERIC, and Index Copernicus, using predefined inclusion criteria and quality appraisal. **Findings:** Across 35 studies, folklore-embedded interactive materials most consistently aligned with gains in learning performance and language/communication, with frequent co-benefits in cultural literacy and critical thinking when tasks were scaffolded through inquiry, story-based reflection, and locally meaningful problems. Evidence clusters were concentrated in Indonesia, which we interpret as a contextual pattern examined in the full paper and possibly reflecting glocalization in educational research ecosystems and/or national research policy incentives rather than a universal dominance. **Conclusion:** Taken together, the reviewed evidence supports a cautious, convergent claim: folklore-based interactive materials are associated with improvements in core competencies linked to SDG 4.1 (effective learning outcomes) and SDG 4.7 (cultural diversity and sustainable values), particularly when paired with teacher scaffolding and authentic tasks. The review contributes a mechanism-oriented synthesis: a "Folklore-as-Context" pathway (cultural familiarity→ relevance engagement→higher-order thinking) that specifies how and under what classroom conditions folklore supports 21st-century competencies, extending prior work that treated "local wisdom" and "innovation" only at a general level.

Keywords: folklore, interactive learning materials, learning skills, systematic literature review.

To cite this article:

◼ INTRODUCTION

Students' academic achievement increasingly indicates the effectiveness of education in addressing the rapid dynamics of globalization. Modern classrooms do not confine learning to the mere memorization of facts or formulas. It necessitates a wider range of skills; students are required to engage in critical thinking, interact effectively, articulate ideas clearly, and devise solutions to intricate problems (Fajari & Meilisa, 2022). These abilities are central to the global education agenda, particularly in the quest for quality learning as outlined in Goal 4 of the Sustainable Development Goals (Sari et al., 2024). However, the reality is considerably less than perfect. Numerous reports continue to indicate that student performance across various schools has not attained the expected criteria

(Polat & Özkaya, 2023). An examination uncovers multifaceted issues: some are grounded in individual motivation, while others stem from the inadequacy of teaching to resonate with students' lived experiences (Pierard et al., 2020).

Contemporary education agendas converge on a common premise: learners must develop higher-order competencies, analysis, communication, collaboration, creativity, and problem solving, rather than rely on rote recall. Quality education under SDG 4 locates these competencies within culturally grounded and future-oriented learning, a view echoed in Indonesia's *Merdeka* Curriculum through the Pancasila Student Profile, which prioritizes relevance, character, and civic responsibility. Consistent with constructivist theory, learning is most durable when understanding is built through authentic tasks, reflection, and dialogue that connect classroom activity to lived experience. Within this conceptual frame, folklore operates as a coherent contextual mechanism. Culturally familiar narratives such as legends, myths, and folktales provide meaning-rich anchors for abstract ideas, stimulate inquiry and perspective-taking, and invite collaborative sense-making. When such narratives are embedded in interactive learning materials, they create cycles of engagement, practice, and feedback while maintaining cultural relevance, thereby supporting the development of targeted competencies and advancing SDG 4 objectives, including effective learning outcomes (Target 4.1) and appreciation of cultural diversity and sustainable values (Target 4.7). These abilities are central to the global education agenda, particularly SDG 4 (Quality Education); with Target 4.1 emphasizing effective learning outcomes and Target 4.7 calling for education that advances sustainable development, cultural diversity, and global citizenship. In this review, next-generation learning skills (used interchangeably with 21st-century skills) are operationalized as learning performance, language/communication, cultural literacy, critical thinking, creativity, collaboration, ecoliteracy, and basic digital skills, which constitute the focal competencies synthesized across the included studies.

Large-scale evidence indicates that declines or stagnation in learning outcomes are multi-causal rather than singular. OECD PISA trend reports document system-wide declines, most notably in mathematics, and widening disparities across jurisdictions following pandemic disruptions. UNESCO's global futures report underscores persistent inequities, relevance gaps, and the misalignment between curricula and learners' lived contexts. Complementing this, the World Bank estimates that roughly seven in ten 10-year-olds in low- and middle-income countries are unable to read a simple text with comprehension, highlighting a structural, multi-factor challenge. Internally, students often wrestle with low motivation, fragile self-efficacy, and weak basic literacy; externally, instructional routines remain rigid, teacher-centered delivery, static materials, and content that rarely resonates with learners' lived worlds, conditions associated with lower engagement and weaker gains in meta-analyses and large-scale reviews (Febriyanti et al., 2021; Tulung et al., 2022). Externally, the teaching landscape is frequently shaped by rigid routines: teacher-centered methods, static teaching tools, and learning content that rarely reflects local cultural wealth. When lessons are detached from familiar cultural contexts, student engagement tends to fade (Moltudal et al., 2022; Mulwa, 2015). Conversely, connecting instruction to cultural narratives can awaken a sense of belonging and sharpen their adaptability in a rapidly changing world (Nur et al., 2020; Suryawati & Osman, 2018).

Research across various educational institutions indicates a clear trend: performance objectives for critical and collaborative thinking, the cornerstone of 21st-century education, have not been met (Djono et al., 2024; Fajari et al., 2020; Sarwanto et al., 2020). This situation

requires teaching methods that go beyond just giving information. A prominent area of interest is the incorporation of folklore into interactive educational experiences (Djono et al., 2024). Combining traditional storytelling with modern technology makes learning less abstract and more connected to local values. This is in line with the Sustainable Development Goals' vision of education that is inclusive, meaningful, and sustainable (Ferrer-Estévez & Chalmeta, 2021; Vykydal et al., 2020).

Simply adding more subjects will not resolve this problem. Educational institutions must reassess the fundamental nature of instructional materials. Many textbooks conform to established frameworks, consistently presenting storylines about global celebrities like Cristiano Ronaldo or famous tourist destinations. Although engaging, these narratives often seem detached from students' realities (Budiman et al., 2020). At the same time, the *Merdeka* Curriculum emphasizes the inclusion of local cultural traditions in education through the Pancasila Student Profile Strengthening Project (P5). The goal is to create people who have strong morals, are willing to talk to others, are creative, and are proud to be Indonesian citizens (Aryani & Rahayu, 2023; Hamzah et al., 2022).

To address these limitations, contextual and culturally relevant materials are needed, including the use of folklore. A systematic literature review (SLR) is therefore warranted to consolidate fragmented findings and move beyond isolated classroom reports. To our knowledge, no prior SLR has synthesized folklore-embedded interactive learning materials with a dual focus on next-generation competencies and alignment with SDG 4; existing reviews tend to treat "local wisdom" generically or remain narrative in scope. This SLR fills that gap by mapping indexed evidence (2012–2025) and deriving a mechanism-oriented synthesis that clarifies *how* and *under what conditions* folklore-linked

materials are associated with improved competencies.

Several contextual approaches have been advanced to connect learning with students' lived realities, including culturally responsive pedagogy and *funds of knowledge*, place-/community-based learning, project-/problem-based inquiry, phenomena-based integration, and service learning (Herdiawan et al., 2023; Masmuzidin et al., 2012). These share commitments to authenticity, relevance, and reflection, but differ in how "context" is represented and mediated in materials. Within this broader family, folklore offers a distinctive entry point: locally resonant narratives (legends, myths, folktales) that can be embedded into interactive formats to scaffold sense-making, language development, and cultural literacy while remaining aligned with SDG 4.

Folklore provides a relevant and potential alternative for development as teaching material (Hudhana et al., 2025). Folklore, including legends, myths, and folktales, represents the identity, moral values, and local wisdom of society (Al Farisi et al., 2024). Legends and folktales are particularly chosen because they remain preserved through oral traditions and are regarded as part of the community's philosophical heritage (Masie et al., 2025). Folklore helps students learn language patterns, become more culturally aware, and appreciate local customs.

Previous studies have demonstrated the effectiveness of integrating folklore into education. Songsirisak et al. (2024) emphasized that folklore plays a vital role in preserving cultural life. Furthermore, Siew Woei et al. (2015) also found that cultural representation in textbooks is the basis for teaching English in Vietnam. Folklore is not just a collection of old stories; it is also a way to learn a lot about cultural identity (Lee et al., 2006). Numerous studies demonstrate its significant impact on stimulating creativity, enhancing writing proficiency, and elevating students' motivation for

learning (Herdiawan et al., 2023; Masmuzidin et al., 2012). Folklore is more than just stories; it weaves values into them, letting students learn about character and meaning in a way that feels natural rather than forced.

Educational technology has made it possible to bring these stories to life in fresh and exciting ways. Think of flipping through interactive books, vibrant digital pages, or playful designs built through Canva. It aligns seamlessly with constructivist principles (Ahmad et al., 2016), emphasizing active learning, and ESP tenets that ensure materials are relevant to students' actual needs (Hasanah et al., 2023). No more reading passively; students jump right into the story.

Beyond improving writing, folklore-based interactive learning materials open the door to essential 21st-century skills: critical thinking, creativity, collaboration, communication, and digital fluency. These abilities prepare young learners to meet global challenges while supporting Sustainable Development Goals, especially those linked to quality education, equity, and cultural heritage. Based on the above background, this SLR adopts a synthesis-oriented agenda: (1) map the domain of folklore-embedded interactive learning materials (venues, levels, methods) to establish scope; (2) synthesize the mechanisms and boundary conditions under which these materials are associated with next-generation competencies (e.g., learning performance, language/communication, cultural literacy, critical thinking); (3) articulate a conceptual framework (the "Folklore-as-Context" pathway) linking cultural familiarity to relevance, engagement, and higher-order thinking; and (4) identify tensions and gaps (e.g., glocalization patterns, design fidelity, assessment validity) to inform a forward research agenda aligned with SDG 4.

■ METHOD
Research Design

This research drew on the Systematic Literature Review (SLR) approach not just as a method, but as a way to clearly see the big picture. Instead of wandering through countless studies, SLR lets everything line up: what has been done, what keeps repeating, and what is still missing. Unlike a regular literature review that can sometimes feel loose or subjective, an SLR works like a carefully arranged roadmap. Every step, from how articles are gathered, how they are filtered, and how the data is handled, can be checked and traced (Xiao & Watson, 2019). The decision to use SLR paired with the PRISMA framework was not random. It is efficient, saves resources, and can bring scattered research threads into one solid, structured story. This method is particularly useful when responding to the growing push for 21st-century skills and sustainability goals, topics that are too broad to rely solely on fieldwork.

The PRISMA framework operates much like a carefully drawn route map. It does not just tell researchers where to end up; it walks them through every turn so they do not stray off course. The process starts quietly, with defining sharp, focused questions and deciding what will be part of the review and what will not. After that, the hunt begins: searching widely, trimming what does not fit, and weighing the quality of what remains. Four big checkpoints shape this entire journey: identification, screening, eligibility, and inclusion. Each gate narrows the path more, sharpening the evidence at hand. The pieces come together one by one, and what comes out is a clear, organized, and traceable synthesis. This structured pathway is laid out visually in Figure 1.

Inclusion and Exclusion Criteria

Establishing criteria for literature selection is an essential phase. This study defined two primary categories in the selection process: inclusion criteria that ascertain which articles are to be incorporated, and exclusion criteria that delineate which articles should be excluded from the analysis. The inclusion criteria define the standards for selecting studies suitable for analysis.
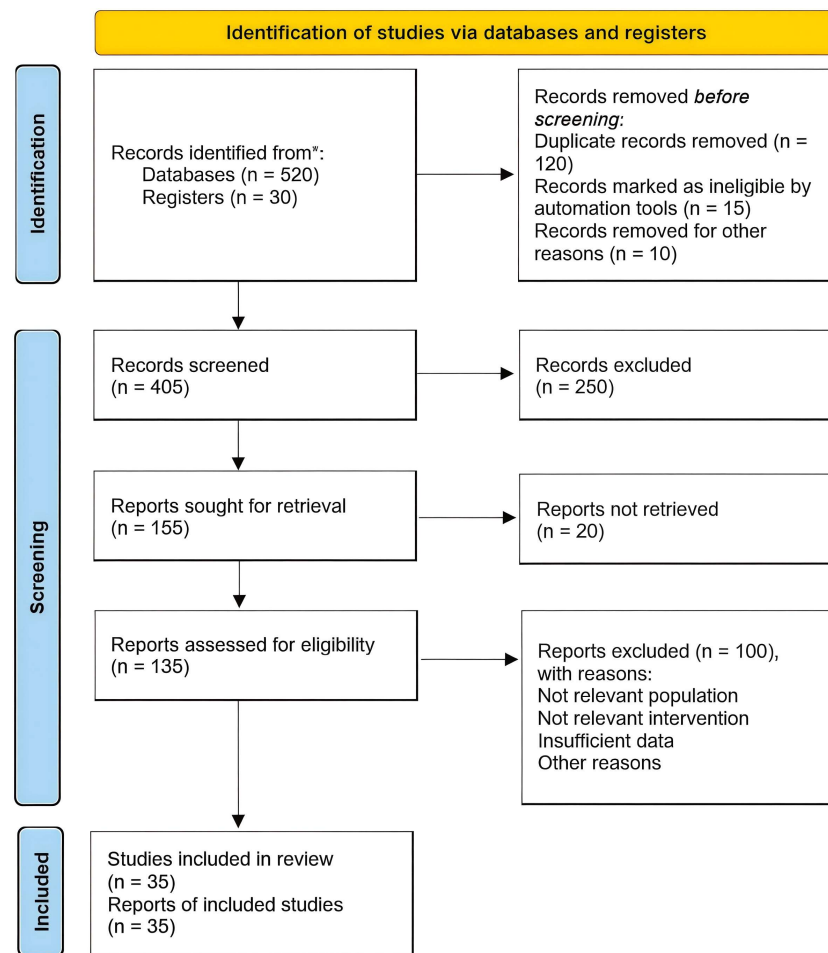
Figure 1. Research flow based on PRISMA guidelines

This ensures that the chosen research is truly relevant to the study's topic.

The criteria for inclusion in this study were as follows: (1) The article investigates the use of folklore as educational material; (2) it is published in reputable journals or proceedings indexed in Scopus, WoS, SINTA, ERIC, or Index Copernicus; (3) it employs subjects within formal education; (4) it utilizes scientifically validated research methodologies; (5) it was published between 2012 and 2025; and (6) it is written in an international language, specifically English. Exclusion criteria are rules used to exclude articles that are not appropriate for inclusion, even if they were initially relevant. These criteria ensure that the results remain focused and high-quality. The criteria for excluding participants from this study were as follows: (1) Articles that only look at folklore as a topic of cultural, literary, or anthropological research and not as a way to teach; (2) articles that are published in journals or proceedings that are not well-known or aren't listed in reputable databases; (3) articles that talk about things that are not formal education, like community organizations, cultural groups, or non-academic activities; (4) articles that do not have clear or proven research methods (like essays, opinions, or narratives); (5) articles that were published before 2012, so they are not relevant to modern educational settings; and (6) articles that are written in local or national languages.

Search Strategy

The assembly of research resources in this study was intentionally structured to adhere to a systematic and cohesive methodology. The

methodology stressed the use of reliable academic sources and focused searches on well-known databases such as Scopus, Web of Science (WoS), SINTA, ERIC, and Index Copernicus. These platforms were intentionally selected for their comprehensive coverage of research on educational innovation, linguistics, and the development of instructional resources. Boolean operators were applied carefully to keep the search focused yet inclusive. Core queries combined "folklore" AND ("learning material" OR "educational media" OR "teaching resources" OR "instructional design") to capture studies embedding cultural narratives into pedagogy. The OR operator broadened the scope with culturally anchored terms, "local wisdom," "traditional stories," "indigenous narratives," "cultural heritage," and "cultural literacy", while the NOT operator excluded work focused exclusively on anthropological analyses outside the educational domain. For transparency, an example string used was: "folklore AND (learning material OR educational media OR teaching resources OR instructional design) OR (local wisdom OR traditional stories OR indigenous narratives OR cultural heritage OR cultural literacy) NOT anthropolog".

Every article that matched the criteria was carefully logged and arranged into a structured dataset. This was not done randomly; the idea was to build a transparent trail so every selection step could be traced and justified. The organized results were later presented in a detailed table, providing a clear foundation for the analytical stage. Table 1 presents the complete compilation of these selected studies.

Table 1. Summary of reviewed article

No	Author	Subject	Education Level	Method	Country	Index	CASP Rate	Learning Material	Affected Variable	Type of Folklore
1	Wardani (2024)	40	Junior High School	Mixed Method	Indonesia	SCOPUS Q1	5	Comic	Writing Skills	Fairy Tale
2	Hudhana, Sumarlam & Sumarwati (2025)	199	Elementary School	Quantitative	Indonesia	SCOPUS Q1	5	Comic	Eco-literacy	Legend
3	Smith et al. (2022)	6	Elementary School	Qualitative	Ghana	SCOPUS Q1	5	Books	Learning Performance	Myth
4	Yulianeta, Yaacob & Lubis (2022)	11	University	Research & Development	Indonesia	SCOPUS Q1	5	Books	Speaking Skills	Legend
5	Yuopika et al. (2024)	5	University	Qualitative	Indonesia	SCOPUS Q1	5	Story	Knowledge	Legend
6	Lee, Lee & Lau (2016)	454	Junior High School	Quantitative	Hong Kong	SCOPUS Q1	5	Story	Learning Motivation	Myth
7	Li (2022)	419	University	Quantitative	China	SCOPUS Q1	5	Books	Learning Performance	Myth
8	Masie et al. (2025)	52	Senior High School	Research & Development	Indonesia	SCOPUS Q2	4	Module	Cultural Literacy	Legend
9	Onodera & Fuji (2023)	134	Elementary School	Mixed Method	Japan	SCOPUS Q2	4	Books	Traditional Ecological Knowledge	Myth
10	Aniuranti, Rosyidah & Suwartono (2025)	89	Senior High School	Research & Development	Indonesia	SCOPUS Q2	4	Books	Grammar Achievement	Legend
11	Inphoo & Nomnian (2019)	36	Senior High School	Mixed Method	Thailand	SCOPUS Q2	4	Drama Scenario	Communication Anxiety	Legend
12	Songsirisak et al. (2024)	30	Junior High School	Mixed Method	Thailand	SCOPUS Q3	4	Books	Learning Performance	Myth
13	Prahmana et al. (2025)	35	Junior High School	Educational Design Research (EDR)	Indonesia	SCOPUS Q3	4	Learning Materials	Learning Performance	Fairy Tale
14	Ali et al. (2021)	51	Junior High School	Agile Methodology	Malaysia	SCOPUS Proceeding	4	Application	Cultural Literacy	Fairy Tale
15	Chatterjee et al. (2019)	21	Elementary School	Research & Development	USA	SCOPUS Proceeding	4	Website	Feminist Pedagogy	Fairy Tale
16	Rezeki et al. (2020)	60	Elementary School	Research & Development	Indonesia	SCOPUS Proceeding	4	Activity Sheet	Learning Performance	Legend
17	Fakhrutdinova et al. (2019)	200	University	Quantitative	Russia	WoS CPCI Proceedings	3	Prosaic	Moral	Fairy Tale
18	Masmuzidin, Jiang & Wan (2012)	30	Elementary School	Qualitative	United Kingdom	WoS ESCI Proceedings	3	Virtual Reality	Moral	Fairy Tale
19	Nugraheni, Suyitno & Ekowardani (2020)	30	Elementary School	Qualitative	Indonesia	WoS ESCI Proceedings	3	Picture Story	Learning Performance	Myth
20	Amandangi et al. (2020)	65	University	Research & Development	Indonesia	WoS ESCI Proceedings	3	Website	Language Skills	Legend
21	Arrajiv, Huda & Ma'ruf (2022)	70	Senior High School	Research & Development	Indonesia	WoS SCIE Proceedings	3	Module	Learning Performance	Legend
22	Harjono et al. (2023)	15	Senior High School	Research & Development	Indonesia	SINTA 2	4	Application	Learning Performance	Fairy Tale
23	Setiawan, Yuniarti & Rahmadani (2022)	39	Elementary School	Research & Development	Indonesia	SINTA 2	4	Comic	Learning Performance	Legend
24	Prasasti, Sulin & Hadi (2019)	30	Senior High School	Research & Development	Indonesia	SINTA 3	3	Story	Learning Performance	Legend

25	Barli, Surtikanti & Agung (2024)	36	Senior High School	Qualitative	Indonesia	SINTA 3	3	Story	Character	Myth
26	Cojocaru (2018)	305	University	Quantitative	Romania	SINTA 3	3	Books	Language Skills	Legend
27	Kimsesiz (2022)	80	University	Mixed Method	Turkey	SINTA 3	3	Story	Learning Performance	Legend
28	Herdiawan et al. (2023)	35	Junior High School	Qualitative	Indonesia	SINTA 3	3	Virtual Reality	Cultural Literacy	Fairy Tale
29	Woei, Othman & Man (2014)	60	University	Mixed Method	Malaysia	SINTA 4	3	Story	Language Skills	Fairy Tale
30	Rahim, Halim & Mansor (2017)	21	University	Qualitative	Malaysia	Index Copernicus	3	Story	Writing Skills	Legend
31	Ambayon (2020)	85	Junior High School	Quantitative	Philippines	Index Copernicus	3	Module	Learning Performance	Legend
32	Yuliani (2020)	30	Junior High School	Qualitative	Indonesia	Index Copernicus	3	Books	Cultural Literacy	Fairy Tale
33	Pelo, Rasmi & Syam (2020)	20	Junior High School	Quantitative	Indonesia	Index Copernicus	3	Story	Reading Skills	Legend
34	Humpherys & Babb (2020)	33	University	Qualitative	USA	ERIC	3	Activity Sheet	Language Skills	Fairy Tale
35	Sanjaya et al. (2021)	180	Elementary School	Quantitative	Indonesia	ERIC	3	Story	Civic Knowledge	Legend

Research Procedure

The Systematic Literature Review of this research evolved through three interconnected phases. The method began by constructing a foundation: defining the study objective and clarifying the problem statement to ensure the article search remained focused. After determining the topic, a set of significant keywords was identified, along with many esteemed databases: Scopus, WoS, SINTA, ERIC, and Index Copernicus. Subsequently, all written material relevant to those terms was compiled, resulting in a crude collection of literature that would later be refined.

Next came the more selective phase. The massive pile of articles did not go through untouched. They were combed carefully using inclusion and exclusion rules. Anything that did not fit was set aside. Repeated entries were discarded. At the same time, each piece was checked step by step through the PRISMA flow (identification, screening, eligibility) to make sure it held up. Their quality was not taken for granted either; it was weighed with the Critical Appraisal Skills Programme (CASP), filtering out weak methodology and shaky claims. Only the solid studies made it through this gate. Putting all the pieces together was the last step. We extracted key information from the selected publications and organized it into tables or matrices. Names, years, methods, participants, types of learning materials, and main results were all included. This made it easier to see the recurring patterns and differences. Thematic analysis and descriptive synthesis yielded a thorough overview, offering not just a collection of findings but also a narrative of the area's current condition. From that story, clear conclusions were drawn, and new paths for future research were opened.

Data Analysis

This study employed a thematic synthesis to explain how folklore-embedded interactive learning materials cultivate next-generation skills in line with SDG-4. Findings from included studies were open-coded, grouped (axial coding) to link intervention types and interactivity with learner processes and outcomes, then integrated through a line-of-argument synthesis. Five themes emerged: (1) cultural anchoring for relevance, where familiar narratives heighten interest and bolster language/communication and cultural literacy; (2) narrative-driven engagement, with story structures scaffolding sense-making, reflection, critical thinking, and creativity; (3) multimodal interactivity as practice space, as comics/apps/storytelling provide iterative, low-stakes rehearsal that strengthens learning performance and digital skills; (4) guided inquiry via teacher scaffolding, which nurtures collaboration and metacognition; and (5) values-to-action transfer, linking folklore morals to

contemporary issues to encourage ethical application and align with SDG targets. Recurrent mechanism pathways included cultural familiarity relevance persistence; story + prompts reflection critical judgment; interactive practice feedback performance gains; and scaffolded dialogue shared reasoning collaboration. Effects were moderated by education level, teacher inquiry expertise, and device access; thin facilitation raised engagement but dampened higher-order reasoning. Overall, the synthesis offers a coherent account of why and how folklore-based materials are associated with improvements in core 21st-century competencies.

■ RESULT AND DISCUSSION
Trends in the Development of Folklore-Embedded Interactive Learning Materials

The integration of folklore into interactive learning materials marks a new direction in education that increasingly emphasizes local cultural aspects to strengthen both academic skills and character formation. Findings from various countries indicate a consistent interest among researchers in this topic across elementary and higher education contexts. Publication distribution data provide a comprehensive overview of research development over time, geographical distribution, and the educational levels that serve as the primary focus.
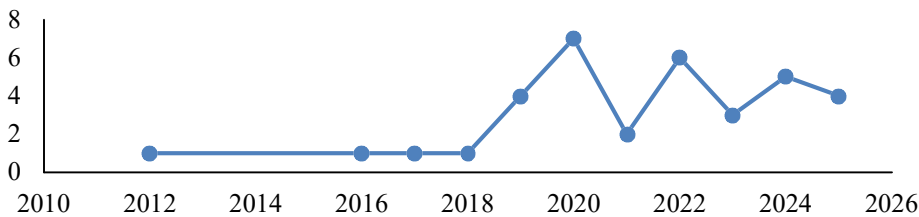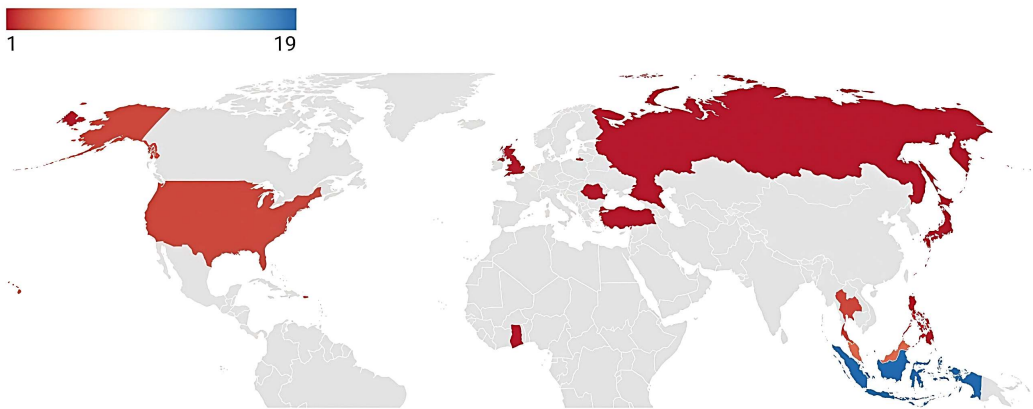

Figure 2. Distribution of trends by year

Based on the information in Figure 2, the annual distribution shows that research trends on folklore-embedded interactive learning materials have increased significantly since 2019. Initially, publications were still very limited, with only one article per year between 2012–2018. However, in 2019, the number of studies rose sharply to four, reaching a peak in 2020 with seven articles. Afterward, the trend remained relatively stable, with six publications in 2022 and five in 2024. Although there was a slight decrease to four in 2025, this still indicates that the topic of folklore continues to receive consistent attention over the past decade.

Created with Datawrapper

Figure 3. Distribution of trends by country

Figure 3 shows that Indonesia has the most publications, with 19, which is more than half of all the studies found. The large number is not surprising because oral traditions are deeply ingrained in Indonesia's culture and education. Malaysia comes in a distant second with three studies, and the United States comes in third with two. A more dispersed contribution comes from several other nations (China, Ghana, Hong Kong, Japan, the Philippines, Romania, Russia, Thailand, Turkey, and the United Kingdom), each appearing just once in the dataset.

The distribution of these studies paints a vivid picture. Although interest in folklore as a learning tool is widespread, the heartbeat of this research area seems to resonate most strongly in Asia. In fact, the center of gravity lies in Southeast Asia, a region renowned for its living, diverse folklore traditions that continue to shape local identity and educational practices.
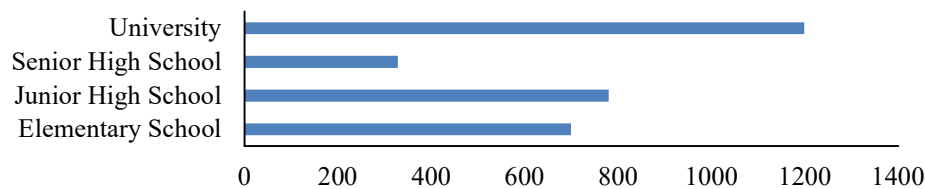

Figure 4. Distribution of trends by research subject

Regarding the distribution of research subjects (Figure 4), most studies focused on university students, with a total of 1,199 participants. This number is far higher compared to junior high school (780 subjects), elementary school (699 subjects), and senior high school (328 subjects). This indicates that, on one hand, folklore is considered important for the academic development of university students within the framework of cultural, literacy, and pedagogical studies. On the other hand, it is also relevant for school-aged learners who require contextual and interactive approaches. This distribution pattern reflects the continuity with which folklore can be adapted across educational levels and purposes, from basic literacy to cultural identity reinforcement to advanced academic competence.

Table 2. Distribution of trends by research method

Method	Design	Frequency
Agile Methodology	Adaptive Design	1
Educational Design Research (EDR)	Plomp	1
Mixed Method	Explanatory Sequential Design	3
	Exploratory Sequential Design	3
Qualitative	Case Study	4
	Descriptive	5
Quantitative	Survey	3
	Quasi Experiment	3
	Comparative	1
	True Experiment	1
Research & Development	4D	4
	ADDIE	3
	Plomp	1
	Borg & Gall	2
Total		35

From the methodological perspective, the variations in research approaches indicate that studies on folklore-embedded interactive learning materials do not rely on a single paradigm but instead employ diverse designs to address different needs. A plethora of academics advocate qualitative research, with 9 papers being particularly significant. Five employed a descriptive methodology that accurately represents classroom scenarios, while four conducted extensive case studies to elucidate how students perceive, interpret, and embody cultural values. These works focus more on meaning than on numbers. They show how learning and folklore are connected.

On the other side, quantitative strategies paint a different picture. A few rely on surveys, some on quasi-experiments, one compares different groups, and a single study goes all in with a true experimental design. It is a multifaceted toolbox that demonstrates a collective objective: not only to describe but also to substantiate the significance of folklore in quantifiable educational advancements. These findings underscore a robust effort to objectively evaluate the efficacy of educational resources through quantifiable improvements in students' competencies and academic achievement.

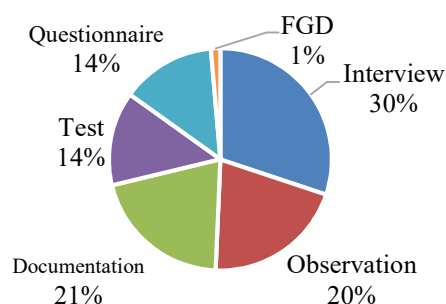Figure 5 shows that the data collection method tells a complex story. Interviews are the

Figure 5. Distribution of trends based on data collection techniques

predominant method used in 22 studies, demonstrating researchers' significant reliance on direct discourse to elucidate the experience and understanding of folklore in educational contexts. Observation and documentation occupy secondary positions, each used 15 times, functioning as instruments to monitor classroom interactions and maintain concrete records, such as notes, archives, or educational resources.

Simultaneously, more systematic procedures are also becoming evident. Tests and questionnaires, present in 10 research studies, have distinct yet complementary functions; tests primarily assess academic performance, whereas questions elucidate learners' perspectives, attitudes, and motivation. Notably, focus group discussions are conducted individually, yet they provide a significant collective perspective,

enabling diverse opinions to emerge within the same setting. This distribution demonstrates a distinct preference for triangulation, integrating interviews, observations, and documentation as the foundation, while quantitative instruments provide a systematic framework to enhance the findings.

From the perspective of indexation, most studies on folklore-embedded interactive learning materials have been successfully published in reputable international journals or proceedings, with SCOPUS as the dominant index, especially in Q1 with seven articles, followed by four in Q2, two in Q3, and three proceedings, demonstrating the strategic role of international conferences as dissemination venues. The Web of Science (WoS) functions as a significant outlet, featuring one article in CPCI Proceedings, three in ESCI
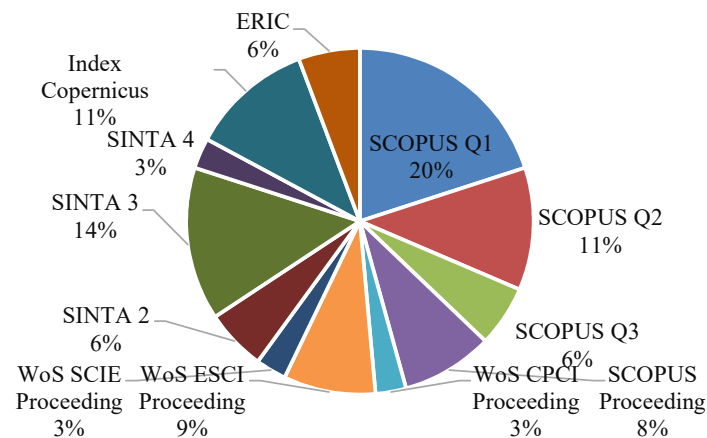
Figure 6. Distribution of trends by indexation

Proceedings, and one in SCIE Proceedings, demonstrating that this subject can contend in stringent international publication arenas. At the national level, publications in SINTA are robust, with five papers in SINTA 3, two in SINTA 2, and one in SINTA 4, indicating significant academic engagement within Indonesian scholarly circles and contributions to national educational literature. In addition, publications were found in Index Copernicus (4 articles) and ERIC (2 articles), reinforcing this topic's academic contribution to international educational theory and practice. This distribution shows a transnational pattern in which the topic of folklore-embedded interactive learning materials not only grows locally but also expands globally, with a high number of SCOPUS Q1–Q3 publications as indicators of quality and relevance, further strengthened by SINTA articles that enrich the knowledge base within the Indonesian context.
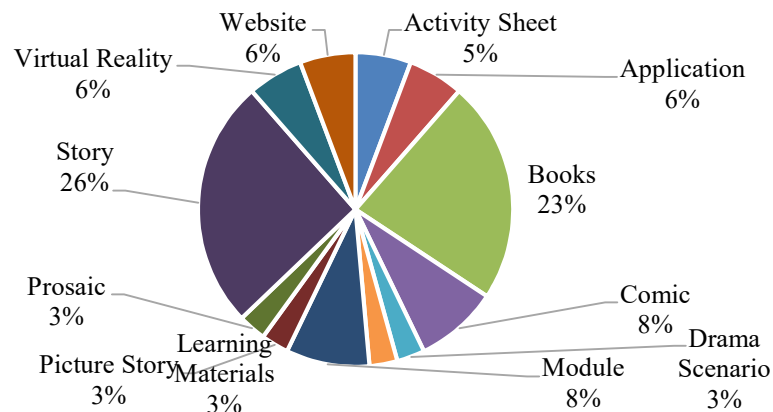

Figure 7. Distribution of trends by learning material form

The mapping of the media used to deliver folklore-inspired learning materials reveals a dynamic, evolving picture. Storytelling is the most popular study with nine, and books are a close second with eight. This implies that these two remain the primary methods for transmitting cultural knowledge in a literary and narrative manner. Alongside them, comics and modules, each featured in three studies, signal an attempt to repurpose traditional tales into more structured, visually engaging formats.

Technology is also starting to have an effect. A couple of studies look at applications, virtual reality, and websites (two studies each). This

shows that there is a growing need for more interactive and immersive learning experiences. Several individuals explore unconventional methods, such as activity sheets, dramas, picture stories, prose, and other materials, each presented individually, showcasing a readiness to transcend traditional limitations. This pattern shows a landscape that still relies on the comforting presence of books and stories, but is slowly moving into visual and digital areas that bring folklore back to life in schools.
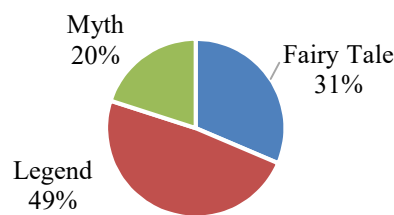

Figure 8. Distribution of trends by type of folklore

When looking at the kinds of folklore chosen as the backbone for interactive learning materials, a clear pattern emerges. Legends are at the top and appear in 17 studies. Because they are so closely tied to local history and cultural memory, they are great tools for teaching kids about who they are and instilling national values in the classroom. Fairy tales, represented in 11 studies, are next on the list. Their whimsical and creative nature naturally appeals to kids, making them easy to turn into engaging, educational material. Myths, while used less frequently (only seven studies), continue to play a subtle yet significant role. These narratives carry moral lessons, spiritual reflections, and philosophical weight that fit well with character-building goals. In essence, the research landscape shows a strong pull toward folklore rooted in history and culture. At the same time, fairy tales and myths are brought in as creative companions, adding layers of richness to culture-based educational experiences.

A closer look at the targeted variables reveals an interesting landscape. Learning

Table 3. Distribution of trends by affected variables

Related Variable	Frequency
Character	1
Civic Knowledge	1
Communication Anxiety	1
Cultural Literacy	4
Eco-literacy	2
Feminist Pedagogy	1
Grammar Achievement	1
Language Skills	8
Learning Motivation	1
Learning Performance	13
Moral	2
Total	**35**

performance clearly takes center stage, appearing in 13 studies. This intense focus shows that folklore has been a valuable tool for improving students' academic performance in a way that can be measured. Language skills come next with eight studies, reflecting the power of storytelling to sharpen learners' listening, speaking, reading, and writing abilities in an integrated manner.

Cultural literacy follows, cited in four studies, showing a growing concern for grounding education in identity and cultural awareness while also encouraging intercultural appreciation. A handful of other aspects emerge as well: eco-literacy and moral values are mentioned twice, while character formation, civic understanding, communication anxiety, feminist perspectives, grammar mastery, and learning motivation each surface once. This spread illustrates that folklore extends beyond enhancing academic skills and subtly influences the emotional, social, and cultural aspects of learning.

Orientation and Objectives of Research on Folklore-Embedded Interactive Learning Materials in Education

Studies on the integration of folklore in education reveal a consistent orientation pattern: preserving culture, strengthening local identity,

enriching pedagogical strategies, and supporting educational policies that emphasize meaningful learning. The available data reveal various foci that can be mapped by thematic orientation. The following section presents the mapping of the orientations and objectives of research on the integration of folklore into education.

One of the most prominent focuses is character education and the reinforcement of cultural values. At least seven studies fall into this category. Youpika et al. (2024) examined character values in Malay folklore at the university level, Sanjaya et al. (2021) integrated the *satua Bali* into civic education in elementary schools, and Harjono et al. (2023) created a folklore-based application, *Cik Upik*, for secondary education institutions. Barli et al. (2024) underscored the character dimension by including local folklore into English language instruction at the senior high school level, while Fakhrutdinova et al. (2019) accentuated the pedagogical significance of prose folklore for pre-service teachers. This group of studies confirms that folklore is regarded as an instrument for the internalization of moral and social values rather than mere entertainment reading. In addition, Masie et al. (2025) developed folklore-based modules to foster students' cultural literacy at the senior high school level, Ali et al. (2020) designed an agile-developed digital game grounded in *Wau* and *Toyol* traditions to cultivate cultural literacy among junior high school students, and Yuliana et al. (2023) employed fairy-tale-based books to enhance cultural literacy in Indonesian junior high schools. Herdiawan et al. (2023) further expanded this strand by using folklore-centric Virtual Reality (VR) to promote cultural literacy in junior high schools. Together, this group of studies confirms that folklore is regarded as an instrument for the internalization of moral, civic, and cultural values rather than mere entertainment reading.

A significant factor is the advancement of technology-driven educational tools. Six studies

have been identified within this framework. Wardani (2024) developed digital comics to instruct junior high school students in fantasy writing, Hudhana et al. (2025) transformed legends into digital comics, emphasizing ecological principles for elementary pupils, and Rezeki et al. (2020) crafted folklore-based mathematical tools for basic education. Furthermore, Setiawan et al. (2022) assessed the viability of a Javanese folklore e-comic for elementary students, Masmuzidin et al. (2012) developed Hikayat Land within the virtual realm of Second Life for elementary education, and Herdiawan et al. (2023) investigated folklore-centric VR learning in junior high schools. Complementing these, Chatterjee et al. (2019) designed a fairy-tale-based educational website framed within feminist pedagogy for elementary learners, and Arrajiv et al. (2023) produced legend-based learning modules for senior high school students that integrate local stories with interactive features. Collectively, these studies demonstrate a robust focus on closing the gap in educational resources via digital and interactive media grounded in local heritage.

The next orientation appears in the reinforcement of language learning. Nine studies are identified within this dimension. Aniuranti et al. (2025) designed folklore-based grammar materials for senior high schools; Inphoo & Nomnian (2019) used the drama Pachit-Oraphim to reduce English-speaking anxiety; and several others examined proverb translation within the framework of folklore. Yulianeta et al. (2022) and Amandangi et al. (2020) created web-based BIPA educational resources employing legends, whereas Abd Rahim et al. (2017) implemented e-stories to improve second-language writing proficiency. Humpherys & Babb (2020) integrated narrative into evaluation, whereas Cojocaru (2018) highlighted folklore in *Erasmus+ mobility* to enhance language proficiency. This group underlines that folklore serves as a bridge connecting language, culture,

and global literacy. Extending this orientation, Li (2022) investigated university students' learning performance when using myth-based books as language input, Yulianeta et al. (2022) examined the effects of folklore stories on language performance in a mixed-method study at the tertiary level, and Siew Woei et al. (2015) explored folklore-based stories to develop language skills among university learners in Malaysia. At the school level, Smith et al. (2022) showed how myth-inspired storybooks contributed to elementary students' learning performance and language development in Ghana, Susani et al. (2020) used legend-based stories to improve reading skills in junior high school, and Prasasti et al. (2019) employed legend narratives to enhance learning performance in high-school language classes. This group underlines that folklore serves as a bridge connecting language, culture, and global literacy across multiple educational levels and national contexts.

Another trend is the integration of folklore into science and mathematics. Three studies demonstrate this orientation. Onodera & Fujii (2024) integrated fairy tales into fifth-grade science lessons in Japan, Prahmana et al. (2025) developed materials on relations and functions using the story of Rama and Sinta within an ethnomathematics framework in junior high schools, and Nugraheni et al. (2020) presented folklore-based picture series to reinforce concept learning in elementary education. The main goal of this orientation is to make exact sciences more contextual, relatable, and grounded in local culture. In parallel, Rezeki et al. (2020) designed legend-based mathematical activity sheets for primary students that contextualize arithmetic and problem-solving. Together, these studies share the main goal of making the so-called "exact sciences" more contextual, relatable, and grounded in local culture, ensuring that scientific and mathematical

ideas are not detached from learners' lived experiences.

Studies also highlight the significance of learning motivation and student involvement. Examples include Lee et al. (2006), who utilized folktales to increase engagement among junior high students; Songsirisak et al. (2024), who investigated ethnic students' perceptions of multilingual folklore-based materials; and Ali et al. (2020), who created a digital game inspired by the Wau and Toyol traditions of Malaysia. This group perceives folklore as a motivational trigger rather than simply content. Additional empirical evidence reinforces this orientation: Ambayon (2020) examined modules based on local legends to improve learning performance and motivation among junior high school students in the Philippines, Smith et al. (2022) showed that myth-based storybooks can heighten elementary pupils' engagement with curricular content, Al Farisi et al. (2024) reported that myth-inspired reading materials positively affected university students' learning performance and attitudes toward coursework, and Arrajiv et al. (2023) observed that legend-based modules encouraged active learning behaviors in senior high school classrooms. This group perceives folklore as a motivational trigger and engagement driver rather than simply an alternative source of content.

Overall, data from 35 studies indicate that the main orientations of research on folklore-embedded learning materials can be grouped into four major categories: (1) preservation of cultural and character values, (2) development of digital and innovative media, (3) reinforcement of language literacy, and (4) integration with science and mathematics. All these directions align with the vision of contemporary education, both *Merdeka Belajar* in Indonesia and global policies, that demand learning processes which are relevant, contextual, and rooted in cultural identity.

Effect of Folklore-Embedded Interactive Learning Materials on Next-Generation Learning Skills

Analysis of previous studies shows that the use of innovative learning materials at the elementary and secondary levels has a measurable impact on students' skill development, including the 4Cs (Critical Thinking, Communication, Collaboration, and Creativity), and is linked to SDG 4.7 outcomes, such as appreciation of cultural diversity and sustainable values. Each material type, whether comic, book, story, module, application, or immersive technology such as virtual reality, contributes significantly to literacy, motivation, and critical thinking while strengthening communication and creativity through narrative production and peer dialogue. There is much focus on reading and writing skills. Several studies that used comics as a medium have shown that they can help students improve their writing skills and their ecoliteracy (Hudhana et al., 2025; Setiawan et al., 2022; Wardani, 2024). Comics are not only visually appealing but also combine digital and contextual learning models, leading to better results and aligning with SDG 4.7 by connecting language tasks to local ecological and cultural themes.

Books have consistently demonstrated their role as a catalyst for educational advancement. Empirical evidence from Yulianeta et al. (2022) and Li (2022) indicates significant enhancement in speaking skills and overall performance mapping to the communication strand of the 4C. The integration of online platforms and MOOCs provides students with continuous access to educational resources, enhancing their abilities through ongoing involvement and enabling collaboration via shared activities and feedback cycles. Self-reported data from interviews and surveys indicate increased motivation and confidence among students in these learning environments, which supports SDG 4.7's emphasis on inclusive, culturally aware learning experiences.

The incorporation of storytelling gives an additional captivating dimension. Research conducted by Lee et al. (2006) and Siew Woei et al. (2015) demonstrates that narrative-driven learning methodologies can significantly enhance students' linguistic proficiency and motivation for learning while fostering creativity through story crafting and perspective-taking. Comparable tendencies are evident in mathematics education, as reported by Prahmana et al. (2025), where story-based, realistic mathematics education (RME) treatments produced superior learning outcomes relative to traditional instruction via contextual problem framing that activates critical thinking. Modules function as a crucial medium in this context. Arrajiv et al. (2023) demonstrate enhanced cultural literacy with flipbook-integrated resources, whilst Aniuranti et al. (2025) highlight grammar advancements facilitated by the PACE approach, indicating communication gains and alignment with SDG 4.7 through culturally grounded tasks. Controlled experimental research, shown by Ambayon (2020), corroborates these advantages, demonstrating superior learning outcomes in experimental groups relative to control groups with effects concentrated on critical thinking and communication indicators.

Applications and web platforms add a new level of innovation. Findings from Harjono et al. (2023) and Chatterjee et al. (2019) highlights that technology-enhanced learning fosters academic performance and inclusive educational methodologies that incorporate feminist perspectives, and creates collaborative spaces that operationalize the collaboration strand of the 4C. Virtual reality applications, as documented Herdiawan et al. (2023) and Masmuzidin et al. (2012), improved cultural and moral literacy, supported by interviews and classroom observations, directly addressing SDG 4.7's cultural diversity and ethics dimensions. These resources also improve civic and character education. Studies by Barli et al. (2024) and Sanjaya et al. (2021) show that adding moral

principles to narrative-based treatments helps students think more clearly about moral issues and better understand their civic duties, reinforcing critical thinking and communication through structured deliberation. This is shown by structured questionnaires and achievement tests.

These findings collectively demonstrate that innovative, folklore-integrated learning media significantly influence various educational dimensions, encompassing basic literacy and communication skills to ecological awareness and moral development, and, taken together, map onto the 4C competencies while advancing SDG 4.7 targets on cultural diversity and sustainability education. Their potential is amplified when paired with pedagogical models such as contextual learning, RME, PACE, and digital storytelling, forming a dynamic, student-centered ecosystem that not only sustains engagement but also drives measurable academic gains in classroom conditions that scaffold critical inquiry, collaborative dialogue, creative production, and culturally aware reflection.

Academic Contributions and Practical Implications of Using Folklore-Embedded Interactive Learning Materials

The research demonstrates how folklore-based interactive learning resources integrate theory and practical application. Folklore is not just a cultural decoration; it is also an intellectual center where language, storytelling, identity, and modern teaching come together. Wardani (2024) and Abd Rahim et al. (2017) illustrate how oral traditions, formerly limited to verbal storytelling, can be transformed into engaging digital narratives that enhance students' writing skills. Their work discreetly challenges the limits of multimodal literacy theory, which has frequently favored contemporary digital texts over traditional ones. Likewise, the research by Prasasti et al. (2019) and Onodera & Fujii (2024) underscores folklore's ability to bridge cultural understanding with scientific logic, offering a more profound interdisciplinary perspective for education.

The technical discussion makes this change even bigger. Herdiawan et al. (2023) and Ali et al. (2020) examine the function of virtual reality and digital games, integrated with folklore, as contemporary educational tools and conduits for cultural heritage. These projects change how people talk about technology-enhanced education by adding local knowledge to digital platforms that are often filled with global information. By doing this, they broaden the field of instructional technology, allowing innovation and cultural preservation to coexist and support one another.

The practical effects are also very important. Teachers offer a more structured way to turn folklore from a fun activity into a tool for learning that supports reading, speaking, and critical thinking. Studies conducted by Yulianeta et al. (2022) and Yuliani (2020) indicate that the integration of folklore with online education or theatrical performance enhances student confidence and communication abilities. The research conducted by Sanjaya et al. (2021) and Barli et al. (2024) provides a notable perspective when examined through the lens of character development. Children seem to easily internalize ethical, civic, and national ideas when they are woven into familiar local stories. The stories have their own unique way of speaking. They do not just see the message; they become it. In this setting, folklore surpasses its role as a mere cultural item. It functions as a deliberate educational catalyst, promoting academic progress while nurturing emotional and moral growth.

Folklore-embedded resources should be positioned as enrichment modules in language, arts, and selected science strands, mapped to explicit outcomes (cultural literacy, critical reading, oral communication, context-based reasoning) and delivered through curated narratives, scaffolded authentic tasks, aligned rubrics, and concise teacher guides. Educational technology ought to mediate rather than replace cultural content, prioritizing lightweight

interactivity, localization (multilingual/dialect options), access-aware design (offline/low-bandwidth/printable), and teacher dashboards; for VR, use time-on-task limits and reflection prompts paired with non-digital work. Theoretically, the review opens a mechanism-focused agenda: specify boundary conditions (scaffolding, task authenticity, collaboration), trace mechanisms (identity affirmation, narrative coherence, situated problem framing), and test design features (story structure, interactivity level, assessment alignment) that predict transfer across subjects. It also raises equity/glocalization questions about how localization practices and policy contexts shape outcomes and the trade-offs between cultural preservation and technology-mediated standardization.

■ CONCLUSION

Based on the results and discussions above, several conclusions can be drawn. First, research trends on folklore-embedded interactive learning materials have grown rapidly over the past decade, with a significant surge after 2019 and a dominant contribution from Indonesia. Second, the orientation of this research is largely toward improving learning performance, language skills, and cultural literacy, while positioning folklore as a contextual medium relevant to students' lives at all educational levels. In addition, this body of research enriches academic discourse on local wisdom–based education and encourages innovation in instructional design. Cautiously, the reviewed evidence indicates an association (rather than a demonstrated causal effect) between folklore-embedded interactive materials and increased student engagement, value articulation, and alignment with 21st-century learning aims, particularly when accompanied by teacher scaffolding and authentic tasks.

Nonetheless, the study possesses specific limitations. The evaluated studies have a limited scope, are predominantly focused on the Indonesian setting, and thus constrain the generalizability of the findings. Methodological variation should be augmented to enhance the validity of the findings. A longitudinal study is essential to evaluate the lasting impacts of integrating folklore into schooling. Moreover, the search strategy, though systematic, may introduce retrieval and indexing bias: reliance on a fixed set of databases, English-language terms, and Boolean filters could under-represent non-indexed, non-English, or interdisciplinary studies. In addition, while study quality was appraised using CASP and higher-rated studies were prioritized, residual subjectivity in appraisal and weighting rules may still shape the synthesis; findings should therefore be read as associative and robust primarily to higher-quality evidence.

Future research should prioritize international collaboration and the development of comprehensive educational frameworks supplemented by advanced technologies such as augmented reality and virtual reality. This review's primary contribution is a mechanism-oriented synthesis (the *Folklore-as-Context* pathway) that specifies how culturally familiar narratives can support targeted competencies under defined classroom boundary conditions (e.g., scaffolding, authentic tasks), aligns the field with SDG 4 (Targets 4.1 and 4.7), and identifies actionable gaps for multi-site, longitudinal, and higher-rigor designs.

■ REFERENCES

Abd Rahim, N., Abdul Halim, H., & Shahila MANSOR, N. (2017). E-story and writing skill among second language learners. *TOJET: The Turkish Online Journal of Educational Technology*, *16*(4), 27–32.

Ahmad, S., Hussain, A., Batool, A., Sittar, K., & Malik, M. (2016). Play and cognitive development: formal operational perspective of piaget's theory. *Journal of Education and Practice*, *7*(28), 72–79.

Al Farisi, M. Z., Maulani, H., Hardoyo, A. B.,

Khalid, S. M., & Saleh, N. (2024). Investigating Arabic language teaching materials based on Indonesian folklore: an ethnographic study on the folktale of "Bandung." *Asian Education and Development Studies*, *13*(2), 134–149. https://doi.org/10.1108/AEDS-07-2023-0082

Ali, M. F., Jeu, N. P., & Teeng, C. H. (2020). Enriching Malaysian cultural and folklore through mobile game learning development: Wau & Toyol. In *2020, IEEE Graphics and Multimedia, GAME* (pp. 1–6). IEEE. https://doi.org/10.1109/GAME50158.2020.9315081

Amandangi, D. P., Yulianeta, Mulyati, Y., & Prasetyo, S. E. (2020). Web-based learning design on folklore text for intermediate Indonesian language for foreign speakers (BIPA). *In Proceedings of the 4th International Conference on Education and Multimedia Technology (ICEMT 2020) (pp. 150–155).* ACM International Conference Proceeding Series. https://doi.org/10.1145/3416797.3416810

Ambayon, C. M. (2020). Modular-Based approach and students' achievement in literature. *International Journal of Education and Literacy Studies*, *8*(3), 32–36. https://doi.org/10.7575/aiac.ijels.v.8n.3p.32

Aniuranti, A., Rosyidah, N., & Suwartono, T. (2025). Designing local folktales based english grammar instructional materials with the PACE model procedure. *Educational Process: International Journal*, *14*(e2025036), 1–20. https://doi.org/10.22521/edupij.2025.14.36

Arrajiv, D. A., Huda, M., & Al Ma'ruf, A. I. (2023). Development of teaching materials based on javanese culture on folklore materials in vocational high schools. In *Proceedings of the International Conference on Learning and Advanced Education (ICOLAE 2022)* (pp. 510–526). Atlantis Press. https://doi.org/10.2991/978-2-38476-086-2_43

Aryani, N., & Rahayu, S. (2023). *Kearifan lokal dalam pembelajaran PAUD untuk memfasilitasi profil pelajar pancasila* [local wisdom in early childhood education to facilitate the pancasila student profile]. *Early Childhood: Jurnal Pendidikan*, *7*(1), 50–60.

Barli, J., Surtikanti, M. W., Sugeng, A. S., & Agung, N. (2024). The utilization of local folklore as teaching material: students' viewpoint and character education. *Journal of English Educational Study (JEES)*, *7*, 82–91.

Budiman, A., Samani, M., Rusijono, R., Setyawan, W. H., & Nurdyansyah, N. (2020). The development of direct-contextual learning: a new model on higher education. *International Journal of Higher Education*, *10*(2), 15. https://doi.org/10.5430/ijhe.v10n2p15

Chatterjee, P., Mishra, D., Padhi, L. K., Ojha, J., Al-Absi, A. A., & Sain, M. (2019). Digital story-telling: a methodology of web based learning of teaching of folklore studies. *In 2019 21st International Conference on Advanced Communications Technology(ICACT)* (pp. 573–578). IEEE. https://doi.org/10.23919/ICACT.2019.8702047

Cojocaru, F.-C. (2018). Developing (new) language skills through student mobility-the impact of an Erasmus+ experience. *Journal of Educational Sciences*, *1*(37), 53–65.

Djono, Sudiyanto, Sukmawati, F., & Salimi, M. (2024). Systematic literature review: effects of digital teaching materials on learning achievement. *International Journal of Evaluation and Research in Education*, *13*(4), 2678–2688. https://

doi.org/10.11591/ijere.v13i4.26357

Fajari, L. E. W., & Meilisa, R. (2022). The development of augmented reality to improve critical thinking and digital literacy skills of elementary school students. *Dwija Cendekia: Jurnal Riset Pedagogik*, *6*(3), 1–23.

Fajari, L. E. W., Sarwanto, & Chumdari. (2020). Improving elementary school's critical thinking skills through three different PBL-assisted learning media viewed from learning styles. *Journal of E-Learning and Knowledge Society*, *16*(1), 55–64. https://doi.org/10.20368/1971-8829/1135193

Fakhrutdinova, A., Chumarova, L., Belyaeva, E., & Sagitova, R. (2019). Pedagogical value of folklore prosaic genres in intellectual and moral education of future teachers at the foreign language lessons. *ARPHA Proceedings*, *1*, 183–197. https://doi.org/10.3897/ap.1.e0111

Febriyanti, R., Mustadi, A., & Jerussalem, M. A. (2021). Students' learning difficulties in mathematics: how do teachers diagnose and how do teachers solve them? *Jurnal Pendidikan Matematika*, *15*(1), 23–36. https://doi.org/10.22342/jpm.15.1.10564.23-36

Ferrer-Estévez, M., & Chalmeta, R. (2021). Integrating sustainable development goals in educational institutions. *International Journal of Management Education*, *19*(2), 1–19. https://doi.org/10.1016/j.ijme.2021.100494

Hamzah, M. R., Mujiwati, Y., Khamdi, I. M., Usman, M. I., & Abidin, M. Z. (2022). *Proyek profil pelajar pancasila sebagai penguatan pendidikan karakter pada peserta didik* [the pancasila student profile project as a means of strengthening character education for students]. *Jurnal Jendela Pendidikan*, *2*(04), 553–559. https://doi.org/10.57008/jjp.v2i04.309

Harjono, H. S., Hariyadi, B., & Yugo, P. (2023). Cik upik application as learning media to identify and describe the hikayat values. *Journal of Education Technology*, *7*(2), 269–278. https://doi.org/10.23887/jet.v7i2

Hasanah, U., Astra, I. M., & Sumantri, M. S. (2023). Exploring the need for using science learning multimedia to improve critical thinking elementary school students: teacher perception. *International Journal of Instruction*, *16*(1), 417–440. https://doi.org/10.29333/iji.2023.16123a

Herdiawan, R. D., Afrianto, A., Nurhidayat, E., Nurhidayah, Y., & Rofi'i, A. (2023). Folklore-Based virtual reality as a teaching media in the secondary school viewed from its implication and multimodal aspects. *IJLECR - International Journal of Language Education and Culture Review*, *9*(1), 85–96. https://doi.org/10.21009/ijlecr.v9i1.37646

Hudhana, W. D., Sumarlam, & Sumarwati. (2025). Digital comics of folktales as learning media to strengthen elementary school students' ecoliteracy. *Theory and Practice in Language Studies*, *15*(2), 443–451. https://doi.org/10.17507/tpls.1502.14

Humpherys, S. L., & Babb, J. (2020). Using folklore, fables, and storytelling as a pedagogical tool in assessment exams. *Information Systems Education Journal (ISEDJ)*, *18*(5), 34–54.

Inphoo, P., & Nomnian, S. (2019). Dramatizing a northeastern thai folklore to lessen high school students' communication anxiety. *PASAA Journal*, *57*(1), 33–50.

Lee, J. H.-M., Lee, F.-L., & Lau, T.-S. (2006). Folklore-based learning on the web (pedagogy, case study and evaluation). *Journal Educational Computing Research*, *34*(1), 1–27.

Li, R. (2022). Chinese folk music: Study and

dissemination through online learning courses. *Education and Information Technologies*, *27*(7), 8997–9013. https://doi.org/10.1007/s10639-022-11003-w

Masie, S. R., Malabar, S., Mulyanto, A., & Lantowa, J. (2025). Development of e-module for learning folklore based on local wisdom. *Journal of Ecohumanism*, *4*(1), 1565–1577. https://doi.org/10.62754/joe.v4i1.5967

Masmuzidin, M. Z., Jiang, J., & Wan, T. (2012). Learning moral values through virtual technology: The development and evaluation of Malaysian virtual folktales-Hikayat Land. *Procedia - Social and Behavioral Sciences*, *31*, 315–322. https://doi.org/10.1016/j.sbspro.2011.12.061

Moltudal, S. H., Krumsvik, R. J., & Høydal, K. L. (2022). Adaptive learning technology in primary education: implications for professional teacher knowledge and classroom management. *Frontiers in Education*, *7*, 1–18. https://doi.org/10.3389/feduc.2022.830536

Mulwa, E. C. (2015). Difficulties encountered by students in the learning and usage of mathematical terminology: A critical literature review. *Journal of Education and Practice*, *6*(13), 27–37.

Nugraheni, L., Suyitno, Ekowardani, N., & Waluyo, H. J. (2020). Pictures series as learning media of folklore at elementary school. In *Proceedings of the 4th International Conference on Learning Innovation and Quality Education (ICLIQE 2020)* (pp. 1–4). ACM International Conference Proceeding Series. https://doi.org/10.1145/3452144.3453760

Nur, A. S., Waluya, S. B., Rochmad, R., & Wardono, W. (2020). Contextual learning with Ethnomathematics in enhancing the problem solving based on thinking levels.

JRAMathEdu (Journal of Research and Advances in Mathematics Education), *5*(3), 331–344. https://doi.org/10.23917/jramathedu.v5i3.11679

Onodera, K., & Fujii, H. (2024). Learning about the coexistence between nature and humans in elementary science education: developing lessons using folktales that reflect ancestors' views on nature. *Education Sciences*, *14*(1), 1–15. https://doi.org/10.3390/educsci14010028

Pierard, C., Svihla, V., Clement, S. K., & Fazio, B.-S. (2020). Undesirable difficulties: investigating barriers to students' learning with ebooks in a semester-length course. *College & Research Libraries*, *81*(2), 1–32.

Polat, H., & Özkaya, M. (2023). The effect of problem posing-based active learning activities on problem-solving and posing performance: The case of fractions. *Journal of Pedagogical Research*, *7*(1), 67–81. https://doi.org/10.33902/JPR.202317880

Prahmana, R. C. I., Risdiyanti, I., Peni, N. R. N., Ristiana, N., & Ramadhani, R. (2025). Javanese folklore with moral values: An impactful context in learning relations and functions. *Journal on Mathematics Education*, *16*(1), 197–224. https://doi.org/10.22342/jme.v16i1.pp197-224

Prasasti, T. I., Solin, M., & Hadi, W. (2019). The effectiveness of learning media folklore text of north sumatera based on blended learning by 10th grade students of vocational high schoolharapan mekar-1 medan. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, *2*(4), 480–490. https://doi.org/10.33258/birle.v2i4.548

Rezeki, S., Andrian, D., Wahyuni, A., & Nurkholisah, H. (2020). The sustainability concept of Riau cultures through development of mathematics learning

devices based on Riau folklore at elementary schools. *Journal of Physics: Conference Series*, *1538*(012066), 1–11. https://doi.org/10.1088/1742-6596/1538/1/012066

Sanjaya, D. B., Suartama, I. K., Suastika, I. N., Sukadi, & Mas Dewantara, I. P. (2021). The implementation of balinese folflore-based civic education for strengthening character education. *Cypriot Journal of Educational Sciences*, *16*(1), 303–316. https://doi.org/10.18844/cjes.v16i1.5529

Sari, Y., Marini, A., Rahmawati, Y., Fitriasari, E., Wardhani, P. A., Safitr, D., Dewiyani, L., & Muda, I. (2024). Emerging technologies of interactive learning media with wordwall for students' interest as an impact on SDGS. *Journal of Lifestyle and SDGs Review*, *5*(2), 1–18. https://doi.org/10.47172/2965-730x.sdgsreview.v5.n02.pe03268

Sarwanto, Fajari, L. E. W., & Chumdari. (2020). Open-Ended questions to assess critical-thinking skills in indonesian elementary school. *International Journal of Instruction*, *14*(1), 615–630. https://doi.org/10.29333/IJI.2021.14137A

Setiawan, D., Yuniarti, Y. D., & Rahmadani, N. K. A. (2022). E-Comic of folklore in the javanese language to increase 4th graders' learning outcomes. *Tadris: Jurnal Keguruan Dan Ilmu Tarbiyah*, *7*(1), 91–101. https://doi.org/10.24042/tadris.v7i1.11596

Siew Woei, L., Othman, I. H., & Kee Man, C. (2015). Learning programming using objects-first approach through folktales. *Jurnal Teknologi*, *75*(3), 2180–3722. www.jurnalteknologi.utm.my

Smith, T., Eeva, Anttila., Bylica, K., Sunday, K., & Higgins, J. (2022). Examining the use of folk resources for creative arts education in ghana's basic schools. *International Journal of Education & the Arts Editors*, *23*(4), 1–27.

Songsirisak, P., Jitpranee, J., Saejao, Y., & Singsutin, N. (2024). Ethnic folktale-based materials development for secondary students' learning. *Humanities, Arts and Social Sciences Studies*, *24*(1), 132–144. https://doi.org/10.69598/hasss.24.1.263505

Suryawati, E., & Osman, K. (2018). Contextual learning: Innovative approach towards the development of students' scientific attitude and natural science performance. *Eurasia Journal of Mathematics, Science and Technology Education*, *14*(1), 61–76. https://doi.org/10.12973/ejmste/79329

Susani, I., Rasmi, P., & Syam, H. (2020). Improving reading comprehension through folklore story at man 1 palu. *Datokarama English Education Journal*, *1*(2), 56–65.

Tulung, J. M., Waney, M., Mailool, J., Rogahang, H. J., Weol, W., & Wuwung, O. (2022). Teachers' difficulties in implementing classroom action research: Experiences of elementary school teachers. *Cypriot Journal of Educational Sciences*, *17*(6), 1957–1971. https://doi.org/10.18844/cjes.v17i6.7486

Vykydal, D., Folta, M., & Nenadál, J. (2020). A study of quality assessment in higher education within the context of sustainable development: A case study from Czech Republic. *Sustainability (Switzerland)*, *12*(11), 1–22. https://doi.org/10.3390/su12114769

Wardani, N. E. (2024). The influence of digital comic folktale learning media on fantasy text writing skills in junior high schools. *Journal of Language Teaching and Research*, *15*(6), 1828–1834. https://doi.org/10.17507/jltr.1506.08

Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of Planning Education and Research*, *39*(1), 93–112. https://doi.org/10.1177/0739456X17723971

Youpika, F., Sumiyadi, Permadi, T., Sunendar, D., & Yandryati, J. (2024). The Endangered central malay folklore: a medium for internalizing character values in indonesian language and literature. *International Journal of Language Education*, *8*(1), 48–63. https://doi.org/10.26858/ijole.v8i1.60908

Yuliana, Y., Fathurohman, A., & Siahaan, S. M. (2023). Analysis of needs for the development of local wisdom-based junior high school science e-modules related to ethnoscience in south sumatra. *Jurnal Penelitian Pendidikan IPA*, *9*(10), 7865–7870. https://doi.org/10.29303/jppipa.v9i10.5292

Yulianeta, Yaacob, A., & Lubis, A. H. (2022). The development of web-based teaching materials integrated with indonesian folklore for indonesian language for foreign speakers students. *International Journal of Language Education*, *6*(1), 46–62. https://doi.org/10.26858/ijole.v6i1.22957

Yuliani, S. (2020). Initial need assessment on english teaching based on riau malay folklore: digital innovation in preserving culture. *Education Quarterly Reviews*, *3*(1), 66–71. https://doi.org/10.31014/aior.1993.03.01.118