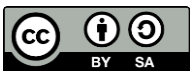
IDEAS

Journal on Language Teaching and Learning, Linguistics and Literature

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Volume 13, Number 2, December 2025
pp. 6294 - 6309



Issued by English study program of IAIN Palopo

Developing Digital Storytelling Based on Indonesian Culture to Enhance Students' Independent Learning in the Society 5.0

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Received: 2025-07-15 Accepted: 2025-11-06
DOI: 10.24256/ideas. v13i2.7519

Abstract

The purpose of this research was to develop a digital storytelling product based on Indonesian cultural heritage (Nusantara) to enhance students' learning independence in the context of Society 5.0. This study employed a research and development (R&D) design using the Borg and Gall model consists of: research and information gathering, planning, initial product development, initial field testing, product revision, main field testing, main product revision, operational field testing, final product revision, and dissemination and implementation. The product development process included expert validation (media, culture, and language), practicality testing by students, and effectiveness testing using a one-group pre-test and post-test design. The results showed that the product improved substantially after expert revisions, with validation scores increasing from below 60% to above 87%. The practicality test involving 25 students yielded an average practicality score of 82%, categorized as "good." Effectiveness testing revealed a statistically significant improvement in students' learning independence, with a mean difference of 22.7 points ($t = 9.85$, $p = 0.000$) between pre-test and post-test scores.

Keywords: *digital storytelling; nusantara culture; learning independence; Society 5.0*

Introduction

21st century education faces a major challenge in preparing students to face rapid and significant changes, especially with the advent of Society 5.0, an era dominated by advanced technologies such as artificial intelligence (AI), big data, and the Internet of Things (IoT) (Mahfirotul Fitria et al., 2022; Wang et al., 2023). To prepare students to face this digital era, higher education in Indonesia must adapt to global needs and increase students' learning independence, which is the key to

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

forming a generation that is more independent, creative, and skilled in utilizing technology (Indrawati, 2020; Milliken & Barnes, 2022; Pinto & Leite, 2020).

Based on the analysis of the needs carried out by the research team on students through a survey, 85% of students stated that they were more interested and easier to understand the learning material presented in the form of storytelling, and 82% of students wanted a learning media that allowed them to learn independently and flexibly. On the other hand, 78% of students are more likely to remember material delivered through digital media that involves visual, audio, and narrative elements, indicating a strong need for technology-based interactive learning media

In addition to conducting a survey on the needs of learning media, the team also conducted a survey on students' needs for content in learning media. The survey results showed that 87% of students agreed that integrating Indonesian culture in learning would make the material more connected to their lives, and 75% of lecturers considered it important to incorporate local culture in English language teaching. The use of Nusantara culture in digital storytelling allows students to not only learn English in a more interesting way, but also to understand and appreciate the local culture. In this context, Nusantara culture-based digital storytelling offers an innovative approach that combines elements of technology and local culture to create an engaging, relevant, and interactive learning experience.

This shows the urgent need to integrate local archipelago culture in education, especially in the context of English language learning so that it can create interesting learning resources for students. It is also relevant that the research team found, about 72% of college students complained about the lack of interesting and quality learning resources that support their learning process so that they struggle to study independently. This shows the need for more interactive learning media that can encourage students to learn independently.

Digital storytelling, as an innovative tool in education, strongly supports this goal, as it allows students to learn independently and develop their abilities in a variety of areas, including communication skills, problem-solving, and creativity (Dewi et al., 2018; Di Blas, 2022; Lestari & Nirmala, 2020; Rosen et al., 2015). On the other hand, by integrating the culture of the archipelago in learning, this approach is also in line with Asta Cita's mission to preserve and introduce Indonesia's cultural richness to the younger generation, as well as integrate local culture in education to strengthen the nation's identity.

The formulation of the problem in the research consists of: 1) how to design the development of digital storytelling learning media based on the culture of the archipelago; 2) how is the validity and practicality of digital storytelling media based on Indonesian culture for student learning independence; 3) how effective is the digital storytelling learning media based on archipelago culture on student learning independence; 4) How do students perceive digital storytelling learning media to increase learning independence.

Although various studies have addressed the use of digital technology in education and its application to support independent learning (Dewi et al., 2018; Milliken & Barnes, 2022), there is still a gap in effectively integrating local cultural elements into digital learning media. Most previous studies have focused on developing digital media to enhance technical or academic skills without considering the importance of introducing local culture in a more contextual and relevant learning environment for students. This research fills that gap by developing a culture-based digital storytelling media, aimed not only at enhancing students' learning independence but also at introducing and promoting Indonesia's cultural heritage in the Society 5.0 era

This research aims to explore how the application of digital storytelling learning media based on Indonesian culture can increase students' learning independence in the Society 5.0 era, as well as introduce them to the richness of Indonesian culture. The urgency of this research lies in the urgent need to create more innovative and flexible learning, which can give students access to independent learning, while enriching their knowledge of local culture and developing digital skills. Thus, this research is not only relevant in the context of higher education that adopts technology, but also supports the achievement of President Prabowo's Asta Cita goal, which is to form human resources who are competent, independent, and ready to face global challenges

Method

This research develops digital storytelling learning media based on archipelago culture to Increase Student Learning Independence in the Society 5.0 Era. The research approach used is research and development (Research & Development with the main model of development procedures in this study using the Borg & Gall model. Borg & Gall's research and development procedure consists of 10 stages consisting of: 1. Research and Information Gathering, 2. Planning, 3. Initial Product Development, 4. Initial Field Trials, 5. Product Revisions, 6. Main Field Trials, 7. Main Product Revisions, 8. Operational Trials, 9. Product Finalization and 10. Dissemination and Implementation (Sugiyono, 2019)

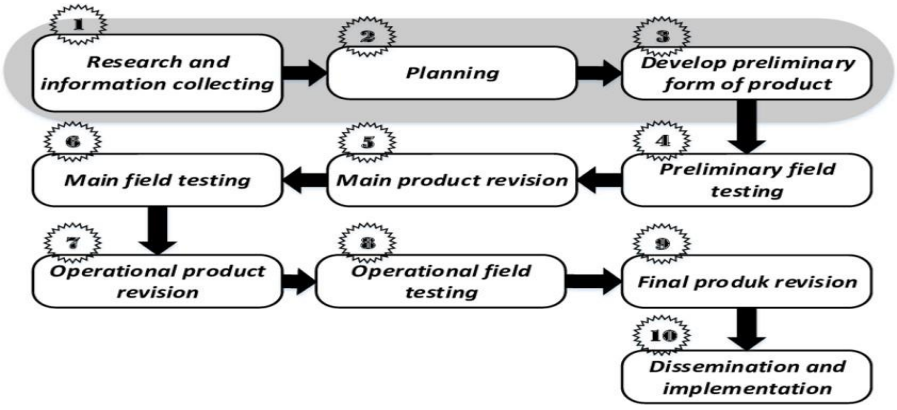

Figure 1. Borg and Gall Research Design

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ISSN 2548-4192 (Online)

In this study, primary data is data collected through tests and surveys to students in the 3rd semester of the English Education Study Program at STKIP Al Maksum, Potensi Utama University and Institute of Education of Tapanuli Selatan which are universities located in the North Sumatra. Before the test, digital storytelling media will be tested for validity through Focus Group Discussion and one to one evaluation. After the validity test is carried out and it is stated that digital storytelling media is valid, the next step for digital storytelling media will be tested for practicality by applying it to students to see how digital storytelling media supports student learning independence.

The test is given to students to measure effectiveness by containing a list of questions containing the culture of the archipelago that has been studied previously through digital storytelling media. The survey was conducted to find out students' perceptions of the application of digital storytelling media to support student learning independence and archipelago cultural literacy. Secondary data is data obtained from curriculum and policy documents related to English language learning that integrate local wisdom and technology

Data Analysis

In this product research and development, the evaluation process is designed with a structured set of steps, including: (a) assessment by content specialists, learning media design, and linguists through one to one evaluation and focus group discussions (FGDs), (b) practicality tests consisting of initial application to individuals to obtain initial feedback (Initial Field Testing), (c) assessment with a small group of users to test the effectiveness of the product more broadly (Primary Field Testing), and (d) large-scale evaluation to measure product performance in a day-to-day operational setting (Operational Field Testing)

Pretest	*Treatment*	*Posttest*
O1	X	O2

Design of learning media effectiveness trials O1 = pretest (before treatment)

O2 = posttest (after treatment)

X = treatment (learning used *digital storytelling* media)

The data of the expert validation questionnaire was analyzed using the percentage of the score of the developed learning model. The formula used to calculate the percentage of expert validation questionnaires is

$$Score\ presentation = \frac{Total\ Score}{Maximal\ Score} \text{ x } 100$$

Level of Completeness	Validity Criteria
85,01 % - 100%	Valid
70,01 % - 85,00 %	Enough valid
50,01% - 70,00%	Less valid
01,00% - 50,00%	Invalid

Table 1. Validity Score

Result	Criteria
80% <x ≤ 100%	Very practical
60% <x ≤ 80%	Practical
40% <x ≤ 60%	Enough practical
20% <x ≤ 40%	Less practical
0% <x ≤ 20%	Not practical

Practical score = Total score obtained practical x 100%

Maximum score

Results

1.1. Initial Product Development

The planning stage is a critical foundation in the research and development process. At this phase, the researcher determines the direction and framework for the development of a culture-based digital storytelling media designed to enhance students' independent learning in higher education settings.

This phase was informed by the preceding needs analysis and information gathering, which revealed the urgent need for innovative, engaging, and contextually relevant learning media. Specifically, it showed that students in the Society 5.0 era require media that integrates local cultural values with digital interactivity to cultivate self- regulated learning. The planning activities included formulating learning objectives, identifying target users (college students and instructors), selecting appropriate cultural content from diverse Indonesian traditions, and mapping the competencies related to learning independence. These competencies align with indicators of self- directed learning such as goal setting, self-monitoring, resource management, and reflective thinking. Furthermore, the instructional design was guided by the Borg and Gall model. The media was tailored for students of teacher education programs, aiming to foster behavioral outcomes related to autonomy and persistence in learning through conditions facilitated by

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digital narratives. Each story was carefully designed to represent cultural heritage while embedding educational values.

The cultural content selected includes folktales, traditional rituals, and legends representing various ethnic groups across the archipelago. These cultural elements were chosen not merely as storytelling material, but as pedagogical vehicles to stimulate engagement, promote cultural awareness, and support the development of self-learning capabilities

The initial product development phase involved transforming the planned ideas into a tangible prototype. This began with the creation of a storyboard that illustrated the narrative structure, learning objectives, visual elements, and interactivity design of the digital storytelling product. The storyboard served as a conceptual blueprint for the multimedia content. Stories such as "*The Legend of Toba Lake*", was reconstructed into engaging animated narratives that incorporated voiceovers, visual symbolism, music, and learner prompts. Each story included reflection points and interactive questions to encourage personal engagement and

self-assessment. From a technical standpoint, the media was developed using a responsive web-based platform that supports both desktop and mobile devices. Key features integrated into the product include:

- A culturally themed user interface with intuitive navigation,
- Story modules presented in chapters with embedded multimedia,
- Reflective tasks and short quizzes to assess student understanding,
- A self-reflection log to monitor personal learning progress.

The interface design focused on aesthetics rooted in Indonesian visual identity— featuring traditional patterns, earthy color palettes, and contextual imagery—while maintaining clarity and usability. Pedagogically, the product adopted a constructivist approach that encourages students to build knowledge through exploration and reflection. Tasks embedded within the digital stories were designed to be open- ended and adaptable to individual learning paths. Strategies such as problem-based prompts, scenario simulation, and self-guided learning checkpoints were employed to enhance autonomy.

Once the initial product (alpha version) was completed, it underwent internal validation by subject matter experts and media development professionals. The evaluation criteria included:

- The cultural appropriateness of the content,
- The alignment with self-regulated learning principles,
- The technical feasibility and user accessibility.

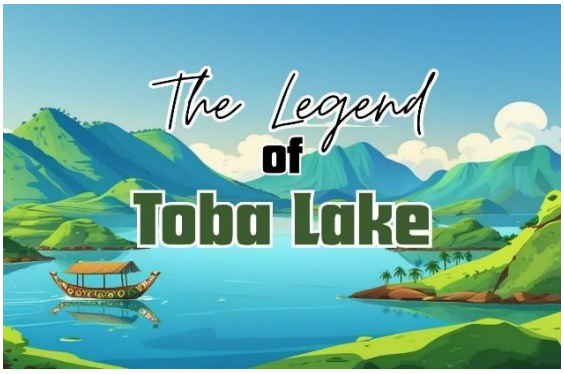

Figure 2. Display the digital storytelling

Expert Validation	Score percentage	
	First stage	Second stage
Expert in learning media	57%	87%
Expert in Culture	56%	89%
Expert in Language	59%	92%
Criteria	Less valid	Valid

Table 2. Validity Score of Digital Storytelling

1.2. Validity of Digital Storytelling

Following the initial development of the digital storytelling product, a structured expert validation process was conducted to assess its quality from multiple dimensions—media design, cultural content, and language use. This validation was carried out in two stages, involving three subject matter experts: one in learning media, one in cultural studies, and one in language. The purpose of this validation was to identify strengths and weaknesses in the prototype, provide constructive feedback, and guide systematic revisions in accordance with the development model proposed by Borg and Gall. In the first stage of validation, the product was evaluated in its early prototype form.

The learning media expert focused on the instructional design, technical usability, and media interactivity. At this stage, the product scored 57%, indicating that certain aspects required improvement. The expert noted that navigation between storytelling modules needed to be more intuitive, and some interactive features were underutilized. Moreover, the reflective activities intended to foster students' self-regulated learning—were not yet well integrated into the storytelling flow. These insights led the developer to revise the interface layout, enhance the feedback components, and ensure that interactive elements were embedded more seamlessly into the user experience. Simultaneously, the cultural expert assessed the accuracy, relevance, and educational value of the cultural narratives embedded in the media.

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The product received a score of 56% in this aspect. While the stories included traditional legends and folklore from several Indonesian regions, the expert observed that some narratives lacked depth and contextual specificity. In addition, the visual representations did not consistently reflect authentic cultural symbols. As a result, revisions were made by enriching the storylines with deeper regional context, incorporating more culturally representative imagery, and re-framing the messages to emphasize values such as perseverance, identity, and moral reflection—key elements in building learner autonomy.

The language expert evaluated the linguistic appropriateness of the digital stories, particularly in terms of clarity, narrative consistency, and accessibility for university-level learners. With an initial score of 59%, several issues were raised, including inconsistencies in verb tense, awkward phrasing, and a disconnection between narrative flow and pedagogical prompts. Based on this feedback, the text was revised extensively for grammar, tone, and coherence. The narrative was also simplified to ensure clarity without losing depth, and the link between story content and learning goals was made more explicit. Following these revisions, a second stage of validation was conducted.

The improved version of the product showed significant enhancement across all domains. The media expert assigned a revised score of 87%, citing improvements in layout clarity, learning activity alignment, and overall usability. The cultural expert gave a new score of 89%, affirming that the cultural integration was now more authentic and pedagogically meaningful. Meanwhile, the language expert reported a score of 92%, recognizing that the revised storytelling had become more coherent, accessible, and effective in supporting independent learning.

Overall, the results of the expert validation confirm the effectiveness of the revision process. The product transitioned from a "less valid" status in the first stage to a "valid" classification in the second stage. This transformation reflects the value of iterative feedback in refining educational products. The validation process itself constitutes a crucial part of the Product Revisions (Step 5) and Main Product Revisions (Step 7) in the Borg and Gall model. It ensures that the digital storytelling media meets high standards of instructional quality, cultural relevance, and linguistic clarity before proceeding to broader field trials and implementation.

The Focus Group Discussion (FGD) during the validity testing phase involved a panel of experts, including specialists in learning media, cultural studies, and language. A total of 3 experts were selected based on their extensive experience and knowledge in these fields. The purpose of this FGD was to evaluate the content, design, and educational relevance of the digital storytelling product. The FGD procedure was conducted in two main steps. In the first step, the experts were introduced to the initial prototype of the digital storytelling media, which included a demonstration of its features, content, and interactivity. During this phase, the experts were asked to provide their initial impressions and feedback on the

product's design, user interface, cultural authenticity, and alignment with pedagogical goals.

The second phase of the FGD focused on in-depth discussions about specific elements of the product. Experts were asked to assess the cultural accuracy of the narratives, the clarity of language used, and the effectiveness of the media in fostering independent learning. The discussions were structured around a set of evaluation criteria and open-ended questions to encourage constructive criticism. All sessions were audio-recorded and transcribed for further analysis. The feedback from the FGD was instrumental in guiding revisions to the product, particularly in improving its cultural content, design, and instructional quality. The insights provided by the experts helped refine the digital storytelling media to ensure that it met the standards of validity before moving on to the next stages of testing and development

1.3. *Operational Field Testing*

A. Practicality Digital Storytelling

To determine the feasibility and usability of the developed digital storytelling product, a practicality test was conducted involving 25 student who were selected using purposive sampling. This phase corresponds to the eighth step in the Borg and Gall development model— Operational Field Testing—where the product is implemented in a real learning setting to observe its practical value from the users' perspective. Each respondent evaluated the media using a questionnaire comprising 15 indicators of practicality, such as ease of access, clarity of instructions, user interface, media attractiveness, content relevance, and the extent to which the media supports independent learning. Each indicator was rated on a scale from 1 (very poor) to 5 (very good). The collected data revealed that the total score per item ranged from 93 to 110, and the average score per item was approximately 4.08 on a 5-point scale. When converted into percentage form, the average practicality score reached 82%, which places the product into the category of "Practical", bordering on "Very Practical" according to the predetermined criteria.

Further analysis of each indicator showed that the highest-rated item was Item 8 (Ease of understanding story flow) with an average score of 4.44 or 89%, indicating very strong agreement. Most other items scored between 3.72 and 4.36, reflecting a consistently positive perception across different practicality aspects. This indicates that the product was well-received by the users, particularly in terms of design attractiveness, usability, and instructional value. The "Positive Response" annotation at the bottom of the table affirms that students found the media beneficial and usable in actual learning activities. Thus, based on these results, the product can be categorized as "Practical", with a strong tendency toward "Very Practical", and is deemed suitable for broader implementation in classroom or blended learning contexts.

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1.4. *Final Product Revision*

Following the operational field-testing phase, in which the digital storytelling product was evaluated for practicality by student users, the development process proceeded to the ninth stage of the Borg and Gall model final product revision. This stage serves as a final refinement process that integrates empirical feedback, user suggestions, and technical adjustments to ensure the product's readiness for broader implementation and effectiveness testing. During the practicality test, the product received highly positive responses, with an average practicality score of 82%, categorized as "Practical" and approaching the "Very Practical" range. While this result reflected a generally favorable perception, several key insights and areas for improvement emerged from the feedback, which informed the final revision process.

1. Content and Narrative Adjustments

Based on students' qualitative responses, certain stories within the digital media were further refined for clarity, engagement, and alignment with learning objectives. Minor revisions were made to improve cultural depth and storyline coherence, particularly in local legends that initially appeared too generalized. Narratives were also enhanced with clearer moral reflection cues to better support self-regulated learning.

2. Interface and Navigation Enhancement

Though overall design and usability were rated positively, some respondents suggested simplifying the menu navigation and improving transitions between story chapters. As a result, several interface elements were redesigned for better user flow. Buttons, icons, and navigation bars were adjusted to reduce confusion and enhance accessibility, especially on mobile devices.

3. Linguistic Polishing

The final revision included further language editing for grammar consistency, tone clarity, and concise expression. The goal was to ensure that all instructions, story texts, and self-assessment questions were easily comprehensible to students from various academic backgrounds. Special attention was given to maintaining a balance between narrative style and instructional clarity.

4. Technical and Multimedia Optimization

During the practicality testing, a few users experienced delays when loading multimedia elements (e.g., audio narration or embedded videos). To address this, media files were optimized for faster load times, and compatibility with lower- bandwidth connections was improved. Moreover, the timing between narration and visual transitions was adjusted to ensure better synchronization.

5. Reflective Features Enhancement

Additional improvements were made to the product's reflective features—such as self-assessment quizzes, journal prompts, and decision-making branches within the stories—to make them more interactive and meaningful. These revisions aimed to further support the development of students' independence in learning, in alignment with the overarching objective of the product. The final product revision served as a critical step to polish and perfect the digital storytelling media prior to effectiveness testing. All adjustments made were grounded in empirical feedback and aligned with the pedagogical framework of self- directed learning and cultural relevance. With these refinements in place, the product was deemed ready to proceed to the next phase—Dissemination and Implementation, in which its impact on student learning outcomes would be systematically evaluated.

1.5 Dissemination and Implementation

A. Effectiveness of Digital Storytelling

This stage aimed to empirically test whether the integration of Nusantara cultural narratives through digital storytelling could significantly improve students' learning independence, which is a critical competency in the context of Society 5.0 and 21st-century education. To determine the effectiveness of the product, a quantitative one-group pre-test and post-test design was implemented. A total of 15 university students participated as research subjects. Each student completed a pre-test prior to engaging with the culture-based digital storytelling media, and a post-test was administered following the completion of the learning session.

The results show a mean increase of 22.7 points between pre-test and post-test, demonstrating a substantial enhancement in students' learning independence after using the digital storytelling product. The obtained p-value of 0.000 indicates a statistically significant difference at the $\alpha = 0.05$ level, confirming that the improvement was not due to random variation.

Furthermore, the 95% confidence interval for the mean difference ranges from -27.680 to -17.787, which lies entirely below zero. This further supports the conclusion that post-test scores were significantly higher than pre-test scores. These findings validate the effectiveness of the digital storytelling media, not only in delivering cultural knowledge but also in cultivating learners' self-directedness, reflective thinking, and motivation hallmarks of independent learning.

Based on the statistical evidence, the culture-based digital storytelling developed in this research is highly effective in enhancing students' learning independence. The integration of Nusantara cultural elements in a digital, interactive format successfully bridges traditional values and modern learning strategies, aligning with the educational demands of the Society 5.0 era. Having passed the stages of expert validation, practicality testing, and now effectiveness testing, the product is deemed ready for broader educational implementation and dissemination, particularly in higher education contexts that aim to promote

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

culturally embedded, independent learning experiences

Discussion

The discussion of this study centers on the overall process and results of developing a culture-based digital storytelling product aimed at improving students' learning independence in the context of modern education, particularly within the demands of Society 5.0. This development research followed the systematic procedures of the Borg and Gall model, which emphasize iterative refinement through expert input, field testing, and effectiveness evaluation. The initial stages of research revealed that students often exhibit limited learning autonomy and tend to rely on conventional, teacher-centered instructional models.

This situation reflects a critical gap in current higher education practices, especially considering that the demands of Society 5.0 call for learners who are adaptive, reflective, and capable of directing their own learning. Through a needs analysis and literature review, it became clear that there was a strong potential for integrating cultural content—specifically, local Indonesian (Nusantara) narratives—into a digital format that could not only educate but also inspire students to take more responsibility in their learning process.

Planning and product design were conducted with careful attention to cultural accuracy, technological accessibility, and pedagogical alignment. The digital storytelling product was developed using story-based multimedia content rooted in local traditions and folklore, combined with reflective prompts and independent tasks designed to encourage self-directed learning. The product aimed not only to transmit knowledge but also to instill cultural awareness and critical thinking, allowing learners to connect their educational experience with identity, values, and personal growth. Initial validation by media, cultural, and language experts revealed areas requiring improvement, particularly in terms of content clarity, interface usability, and alignment of learning objectives with narrative structure.

The average validation scores during the first stage were below 60%, which categorized the product as less valid. However, after systematic revisions based on expert feedback, the second validation showed a significant increase, with scores reaching over 87% across all aspects. This confirmed that the revised product met the expected quality standards and was ready for broader field testing. The practicality test involved 25 student participants and focused on indicators such as clarity, ease of use, visual appeal, and the media's ability to support independent learning. The average practicality score reached 82%, placing it in the "Good" category. Students responded positively to the media, reporting that it was engaging, easy to navigate, and effective in helping them reflect on their own learning. These findings support the notion that culturally grounded, learner-centered digital media can be highly practical for use in higher education environments.

To evaluate its actual impact on learning outcomes, an effectiveness test was conducted using a pre-test and post-test design. The paired samples t-test yielded a significant result, with a mean score increase of 22.7 points and a p-value of 0.000.

These results statistically confirmed that the digital storytelling product significantly improved students' learning independence. The use of narrative, cultural immersion, and interactive reflection proved effective in shifting students from passive recipients of information to active, self-regulated learners. Overall, the findings of this study affirm the relevance and value of combining cultural content with digital learning strategies to enhance student autonomy.

In an era where learners are expected to be technologically literate yet rooted in cultural values, this digital storytelling product offers a meaningful response to both educational and societal challenges. The development process demonstrates that educational innovation grounded in local wisdom and strengthened by iterative testing can produce learning tools that are valid, practical, and effective for 21st-century learners.

Conclusion

Based on the entire process and findings of this research and development study, it can be concluded that the culture-based digital storytelling product developed in this project is both pedagogically meaningful and technically effective in enhancing students' learning independence. From the initial needs analysis to the final implementation phase, each stage contributed significantly to refining a media product that responds to the challenges of modern education in the Society 5.0 era. The digital storytelling media, which integrates cultural narratives from the Indonesian archipelago, was carefully designed to align with instructional goals and to foster self-directed learning behaviors among university students. The development process followed the Borg and Gall model, involving systematic steps of planning, initial development, validation by experts, field testing, and final revisions based on both expert and user feedback.

This iterative process ensured that the final product was grounded in both theoretical frameworks and empirical evidence. Expert validation in the fields of learning media, culture, and language initially indicated areas for improvement, particularly regarding the clarity, cultural accuracy, and linguistic quality of the product. Through thorough revision, the validity of the product improved significantly, with second-stage scores exceeding 87%, demonstrating that the product had reached an acceptable standard for practical use. The practicality testing showed that students responded positively to the media, with an average practicality percentage of 82%. They found the product to be clear, culturally engaging, and effective in supporting independent learning. This indicates that the product is well-received in real classroom settings and is suitable for integration into modern teaching practices.

The effectiveness testing provided strong statistical evidence of learning improvement. The paired samples t-test revealed a significant increase in students' post-test scores, with a mean difference of 22.7 points and a significance value of 0.000. This result confirms that the digital storytelling product successfully supports

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

students in developing higher levels of learning independence, critical thinking, and self-regulation. In conclusion, the development of this culture-based digital storytelling media has produced a valid, practical, and effective learning tool that meets the demands of higher education in the digital age. By combining traditional cultural values with interactive digital formats, the product not only enhances learning outcomes but also fosters a deeper connection between students and their cultural heritage. This innovation contributes meaningfully to educational transformation, especially in promoting autonomous learning in line with the goals of Society 5.0.

The findings of this study align with previous research on the effectiveness of digital storytelling in enhancing students' learning independence. For instance, Dewi et al. (2018) found that digital storytelling significantly improved students' metacognitive abilities and engagement with the learning material. Similarly, our study demonstrated a significant increase in students' learning independence after using the digital storytelling product, confirming the effectiveness of digital storytelling as a tool for fostering self-directed learning. However, while previous studies have highlighted the role of digital storytelling in improving students' academic skills and engagement (Lestari & Nirmala, 2020; Di Blas, 2022), this research extends the current literature by integrating local cultural content, specifically Indonesian cultural narratives, into the digital storytelling process.

Unlike many previous studies that focused primarily on the technical and academic aspects of digital storytelling, this research emphasizes the integration of cultural heritage as a means of enhancing students' learning experiences and promoting cultural awareness. The integration of Nusantara culture into the digital stories was found to be an effective strategy for making learning more relevant and meaningful, as students felt a stronger connection to the material. Thus, while the results of this study are consistent with earlier findings on the benefits of digital storytelling for independent learning, it provides a novel contribution by showing how culturally relevant content can further enhance students' engagement and learning outcomes in the context of Society 5.0

This study makes a significant contribution to educational practice, particularly in integrating digital technology with local cultural heritage to enhance students' learning independence. By developing a culture-based digital storytelling media, this research not only introduces students to Indonesia's cultural heritage but also strengthens the self-directed learning skills that are crucial in the Society 5.0 era. This provides new insights for educators to adopt innovative culture-based approaches in their curriculum.

Acknowledgement

The author expressed gratitude to Directorate of Research, Technology, and Community Service, Ministry of Higher Education, Science, and Technology which funded this research in 2025 in scheme *penelitian dosen pemula* . May this research

give contribution to the EFL context, especially in developing learning media.

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