

STORYTELLING MATERIAL DESIGN TO IMPROVE DIGITAL LITERACY AND CRITICAL THINKING

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Abstract. The development of digital technology and changes in post-pandemic learning patterns require learning strategies that are not only oriented towards content delivery but also towards developing students' digital literacy and critical thinking skills. Storytelling as a pedagogical approach offers great potential to bridge this need, as it is able to integrate cognitive, affective, and creative aspects within a single narrative. This study aims to explore how storytelling-based material design can improve the digital and critical literacy of language education students in higher education. The research method used is descriptive qualitative with data collection techniques through classroom observation, analysis of student narrative products, and semi-structured interviews with lecturers and students. The developed materials utilize digital platforms such as Canva, Padlet, and YouTube to support the multimodal storytelling process. Data analysis was conducted thematically to identify patterns of improving digital literacy (e.g., the ability to integrate text, visuals, and interactive media) and critical thinking skills (e.g., the ability to construct arguments, reflect on social issues, and evaluate information). The results show that storytelling encourages students to be more active in exploring ideas, constructing meaningful narratives, and developing digital skills through the use of various media. Furthermore, this approach strengthens learning motivation, builds emotional connections between lecturers and students, and creates a safe space for students to express their identities and perspectives. Storytelling has proven to be an inclusive, flexible, and sustainable strategy in supporting 21st-century learning. This study concludes that storytelling-based material design can be an effective pedagogical approach to improving students' digital and critical literacy. Recommendations include the integration of storytelling into the curriculum, training lecturers to develop digital narrative materials, and strengthening institutional policies that support story-based learning innovation. Thus, storytelling functions not only as a creative method but also as a relevant pedagogical movement to address the challenges of higher education in the digital era.

Keywords: critical thinking, digital literacy, storytelling

I. INTRODUCTION

Post-pandemic changes in learning patterns require students to possess digital literacy and critical thinking as core competencies for the 21st century. Digital literacy encompasses not only the ability to use technology but also the skills to evaluate information, communicate multimodally, and actively participate in digital spaces (Kaptan & Cakir, 2024). Meanwhile, critical thinking is necessary for students to develop arguments, reflect on social issues, and make analytical (Tamimi, 2024) decisions. One increasingly relevant approach is storytelling in learning material design. Storytelling has been proven to integrate cognitive, affective, and creative aspects, enabling students not only to receive information but also to construct meaning through narrative. Recent research shows that digital storytelling can improve students' learning motivation, critical thinking skills, and academic achievement (Tamimi, 2024). Furthermore, storytelling based on digital platforms like Canva and Padlet encourages students to develop richer (Afrilyasanti & Basthomi, 2023).multimodal literacy.

In the context of higher education, storytelling also plays a role in pedagogical transformation.(Zaitseva et al., 2024) emphasized that the COVID-19 pandemic accelerated the adoption of storytelling as an innovative method in universities, encouraging lecturers to shift from their traditional roles. as content deliverers to narrative facilitators. This aligns with findings (Schrum, 2023)that suggest that cross-disciplinary digital storytelling broadens lecturers' pedagogical imagination and increases student engagement.

Identifying forms and strategies for storytelling-based material design that are relevant to the context of higher education. Analyze the contribution of storytelling to improving students' digital literacy, especially in the use of multimodal platforms (e.g. Canva, Padlet, YouTube). Explore how storytelling in learning materials can encourage students to develop critical thinking skills, such as constructing arguments, reflecting on social issues, and evaluating information. Finding supporting and inhibiting factors in the application of storytelling as a learning strategy in higher education.

Challenges of Digital Literacy in the Digital Era Post-

pandemic students now live in a digital ecosystem full of information, but not all have the ability to select, evaluate, and integrate information critical. Recent research confirms that digital literacy is 21st century core competencies must be developed in a systematic in higher education (Kaptan & Cakir, 2024). Without appropriate learning strategies, students at risk of becoming passive consumers of information digital.

Critical thinking is one of the most needed skills in facing global social, cultural, and economic complexities. Digital storytelling has been shown to improve students' ability to construct arguments, reflect on social issues, and develop critical perspectives (Tamimi, 2024). This demonstrates that storytelling can be an effective tool for developing students' reflective thinking skills.

Storytelling is not just a creative method, but also a pedagogical approach that integrates cognitive, affective, and digital aspects. Research in Indonesia shows that the use of digital storytelling applications such as Canva and Adobe Spark significantly improves students' critical thinking skills (Rosyid et al., 2025). Thus, storytelling is relevant to the local context while supporting the transformation of higher education.

The COVID-19 pandemic accelerated the adoption of storytelling as an innovative method in universities, encouraging lecturers to shift from their traditional role as content deliverers to narrative facilitators (Zaitseva et al., 2024). This underscores the urgency of research to support lecturers in designing inclusive and sustainable story based materials. Provides not only theoretical but also practical contributions to curriculum development, lecturer training, and institutional policies. Storytelling can be positioned as a pedagogical movement that supports digital and critical literacy, while also addressing the challenges of higher education in the digital era.

Simultaneous Integration of Storytelling with Digital and Critical Literacy Most previous studies have focused solely on storytelling as a learning motivation or language skill (Giannikas, 2023; Tamimi, 2024). This study presents a novelty by examining how storytelling in material design can simultaneously develop *digital literacy* (multimodal skills, use of digital platforms) and *critical thinking* (argumentation, reflection, evaluation of information).

Higher Education Context Indonesia international study Lots conducted in a global EFL context (Afrilyasanti & Basthomi, 2023; Kaptan & Cakir, 2024). Research This is unique because it places storytelling in context Indonesian higher education, so as to produce finding contextual and relevant with local needs, including resource limitations and Student learning culture. **Use of Creative Digital Platforms in Material Design** Another novelty is the exploration of the use of popular applications such as Canva, Padlet, and YouTube as primary storytelling media. Previous research has mostly used specialized storytelling applications (e.g., Flipgrid or Adobe Spark). By choosing platforms familiar to students, this study demonstrates a more inclusive and easily adopted practical strategy.

Qualitative Approach Deep Different from

research quantitative which emphasizes numerical results, this research using the approach descriptive qualitative for explore student experiences and lecturers reflectively. The novelty lies in narrative analysis of student products and in depth interviews, there by generating understanding the richer about learning process.

Storytelling as a Movement Pedagogical This research positions storytelling not only as a creative method but also as a pedagogical movement that supports the transformation of the lecturer's role into a narrative facilitator (Zaitseva et al., 2024; Schrum, 2023). This innovation emphasizes storytelling as a sustainable strategy, not simply a classroom experiment.

In Indonesia, the use of digital storytelling is increasingly relevant. Rosyid et al. (2025) found that digital storytelling applications such as Canva and Adobe Spark significantly improved students' critical thinking skills. These findings demonstrate that storytelling is not only globally relevant but also contextually relevant in Indonesia, supporting the development of digital and critical literacy that aligns with local needs. Thus, there is an urgent need to explore how storytelling-based material design can enhance students' digital and critical literacy. This research is expected to contribute to inclusive, reflective, and sustainable learning strategies, while addressing the challenges of higher education in the digital age.

Based on the background that has been explained, the problem formulation in this research is how can storytelling-based material design be applied in learning at universities. how does the application of storytelling in learning materials contribute to improving students' digital literacy. how can storytelling in learning material design encourage the development of students' critical thinking skills. What factors support and hinder the effectiveness of storytelling as a learning strategy in the context of higher education.

Storytelling in Education Storytelling has long been used as a pedagogical strategy to enhance student engagement and understanding. (Bruner, 1991) emphasized that humans learn through narratives, as stories help organize experiences and knowledge. In the modern context, storytelling functions not only as a traditional method but also as an innovative approach that integrates digital technology (Schrum, 2023) showed that digital storytelling expands lecturers' pedagogical imagination and increases student engagement across disciplines. Storytelling and Digital Literacy Digital literacy encompasses the ability to use, evaluate, and produce information in various digital formats. (Kaptan & Cakir, 2024) found that digital storytelling improves students' digital literacy as well as

21st-century skills, as students learn to integrate text, visuals, audio, and interactivity in a single narrative. Afrilyasanti & Basthomi (2023) added that the use of storytelling through the Flipgrid application effectively supports EFL students' critical media literacy skills, demonstrating the relevance of storytelling in the context of language learning.

Storytelling and Critical Thinking Critical thinking is the ability to analyze, evaluate, and construct arguments

reflectively. (Tamimi, 2024) emphasized that digital storytelling significantly impacts English language students' learning motivation, critical thinking skills, and academic achievement. By composing stories, students are trained to connect personal experiences with social issues, while simultaneously developing reflective and evaluative skills. (Rosyid et al., 2025) also found that digital storytelling applications such as Canva and Adobe Spark significantly improve students' critical thinking skills in higher education. Storytelling not only impacts students but also the role of lecturers and institutions. (Zaitseva et al., 2024) in a literature review stated that the COVID-19 pandemic accelerated the adoption of storytelling as an innovative method in universities, encouraging lecturers to shift from their traditional role as content deliverers to narrative facilitators. This strengthens storytelling's position as part of ongoing pedagogical transformation.

In the local context, storytelling has high relevance. Research in Indonesia shows that storytelling can be used to support digital literacy while preserving cultural values. For example, (Rosyid et al., 2025) emphasized that digital storytelling not only improves critical thinking skills but also strengthens students' identities within the Indonesian socio-cultural context. This demonstrates that storytelling can be a strategy that is both contextual and global.

II. RESEARCH METHODS

Research uses a descriptive qualitative approach. The goal is to explore in-depth the experiences of students and lecturers in applying storytelling to learning material design and to analyze its impact on digital literacy and critical thinking skills. The research subjects were students of the language education study program (middle/final semester) and lecturers in charge of related courses. The research location is a private university in Indonesia that has implemented *blended learning*, with the support of digital platforms. Research Instrument Classroom observation: To see how storytelling is applied in the design of learning materials and interactions. Semi-structured interviews: Conducted with lecturers and students to explore their perceptions, experiences, and reflections. Document/narrative product analysis: Assess student assignments in the form of digital stories (e.g., videos, infographics, or multimodal narratives in Canva/Padlet). Data Collection Technique Triangulation method: Observation, interviews, and document analysis were conducted in parallel to ensure data validity. Purposive sampling: Selecting relevant participants, namely students who actively use storytelling in assignments and lecturers who design story-based materials.

Data Analysis Techniques Analysis was conducted using a thematic approach (Braun & Clarke, 2006). Steps:

- a. Transcription of interview data and observation notes.
- b. Identify initial codes related to digital literacy and critical thinking.
- c. Grouping codes into themes (e.g.: "multimodal creativity", "argumentative reflection", "emotional engagement").

- d. Interpretation of findings by connecting digital literacy theory, critical thinking, and narrative pedagogy.

1. Data Validity Source triangulation: Comparing data from students, lecturers, and narrative products.
2. Research Ethics
Participants were informed and provided informed consent prior to the study. Data was kept confidential and used solely for academic purposes. The study was conducted with respect for the participants' rights and well-being.

III. RESULT AND DISCUSSION

Results based on data analysis from classroom observations, semi-structured interviews, and analysis of students' narrative products, several main findings were obtained:

1. Application of Storytelling in Material Design
 - a. Lecturers use the platform digital like Canva and padlet to design materials story-based.
 - b. Students are asked to compose multimodal narrative (text, images, videos) that raising social issues, culture, or experience personal.
 - c. Observation shows that storytelling increase engagement students, marked by active participation in discussions and creativity in assignments.
2. Improving Digital Literacy
 - a. Students demonstrate better ability in integrate various digital formats (text, visual, audio).
 - b. Student narrative products show skills in selecting sources information, data processing, and present interactively.
 - c. The interview reveals that storytelling makes students are more confident in using digital applications for academic purposes.
3. Development of Critical Thinking
 - a. Students are able to constructing an argument that more reflective in narrative they.
 - b. Storytelling assignment encourage students to evaluate the issue social (e.g. literacy) media, hoaxes, and culture digital).
 - c. Class discussions show that there is increased capabilities students in connecting experiences personal with a critical perspective towards digital phenomena
4. Supporting and Inhibiting Factors
 - a. Supporting: Availability of digital platforms easily accessible, motivational students, as well as lecturer support as a facilitator.
 - b. Inhibitors: Limited internet access stable, difference in ability digital between students, and limited time for narrative exploration.

Storytelling as a Strategy Digital Literacy This finding is in line with research (Captain & Cakir, 2024) which confirms that digital storytelling improving digital literacy and 21st century skills. Students in this study able to integrate text, visual, and audio in the narrative, shows the existence of mastery of multimodal literacy. Storytelling and Reinforcement Critical thinkin Ability

enhancement students in compiling critical arguments and reflection supports the findings (Tamimi, 2024), which states that digital storytelling have a significant impact on motivation and critical thinking skills. The narratives produced by students are not only descriptive, but also analytical on issues social. Pedagogical Transformation: The role of lecturers as narrative facilitators reinforces research findings (Zaitseva et al., 2024), which emphasizes that storytelling encourages lecturers to shift from their traditional role as content deliverers to learning facilitators. This is evident in the way lecturers design story-based materials and provide space for students to explore.

Indonesian context Local findings support research (Rosyid et al., 2025), which showed that digital storytelling applications like Canva and Adobe Spark improve the critical thinking skills of Indonesian students. This confirms that storytelling is contextually relevant and adaptable to local needs. Synthesis of Results and Theory Overall, this study shows that: a. Storytelling is not only a creative method, but also an effective pedagogical strategy for developing digital literacy and critical thinking. b. Digital platform integration popular (Canva, Padlet, YouTube) makes storytelling is more inclusive and easy to adopt. c. Storytelling serves as a bridge between students' personal experiences and critical reflection on social issues, thus supporting meaningful learning.

IV. CONCLUSION

Based on the research results and discussion, it can be concluded that: Storytelling as a design strategy the material has been proven effective in increasing student engagement. Lecturers who use multimodal narratives through digital platforms (Canva, Padlet, YouTube) are able to create more interactive, reflective, and meaningful learning; Student digital literacy increase through storytelling practice. Students capable integrate text, visual, audio, and interactivity in One narrative, at the same time show skills in selecting, processing, and serving information in a way critical; Skills think critical develop through storytelling. Students No only compile story descriptive, but also capable connect experience personal with issue social, composing argument reflective, as well as evaluate information in a way more deep; Factors supporters implementation storytelling includes motivation students, easy availability of digital platforms accessible, as well as role lecturer as facilitator narrative. While factor inhibitor covers limitations internet access, differences digital capabilities between students, and limitations time exploration; Research This confirm that storytelling is not just method creative, but

movement supportive pedagogical transformation education high in the digital era, in line with needs digital literacy and thinking critical 21st century. Based on the above conclusion, some suggestions that can be submitted is Integrating storytelling in curriculum as a learning strategy regular, not only as method addition; Utilizing digital platforms that are familiar to student (eg. Canva, Padlet, YouTube) for support narrative multimodal; Giving room reflection and discussion so that students can develop skills think critical through the story they for; Use storytelling as means For express ideas, experiences, and reflections critical to issue social; Improving skills digital with control various application creative For support multimodal narrative; and developing ability think critical with connect experience personal with perspective academic and social.

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