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"I Felt Struggle but I Did It!": EFL Pre-Service Teachers Struggles and Solutions During Digital Storytelling Creation to Promote Digital Literacy

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Abstract

In today's education landscape, many educators still struggle with utilizing technology, and educators are required to be digitally literate to use technology effectively. One innovative teaching method that can promote digital literacy is digital storytelling. This study employs narrative inquiry to investigate the challenges and solutions of Indonesian EFL pre-service teachers when designing digital storytelling projects to promote digital literacy. Thirty-six Indonesian EFL pre-service teachers participated in the study, with data collected through narrative frames, interviews, and artifacts in the form of digital stories. This study used thematic analysis and revealed that most participants encountered difficulties crafting engaging story plots, time limitations, and integrating media components such as images and sound effects. There were four challenges found in this study including access to technological resources, collaborative discussions, and learning new skills. This study implies that students and teachers need to understand the technology and that technological proficiency and collaborative learning are important in overcoming obstacles in the digital era.

Keywords: EFL teacher education, digital literacy, digital storytelling, narrative inquiry

Introduction

In the twenty-first century, incorporating digital literacy into the classroom is more important than ever, especially when teaching English as a foreign language (EFL). Digital literacy, defined as the ability to read and comprehend hypertextual and multimedia texts, is essential for efficient information processing, communication, and message comprehension. Digital literacy was first defined by Gilster (1997) and Hobbs (2011), who integrated the cycle of digital literacy into a conceptual framework. The characteristics of digital literacy include access, analyze and evaluate, create, reflect, and act. Access involves using technology to obtain information, analyze and evaluate involves applying higher-order thinking abilities to tasks like analysis, synthesis, and evaluation, create involves creating or developing knowledge or artifacts, and reflect involves critical thinking to promote analyzing digital practices and experiences. Act involves using digital media to communicate information and experiences with others, working together and responsibly. The framework highlights how these abilities are related to one another, emphasizing that obtaining information is necessary but its value comes from efficiently producing, assessing, analyzing, and disseminating it.

In addition, Indonesia is currently experiencing a digital revolution, with the rise of digital industries and the need for new literacy skills (Muliani et al., 2021). Pre-service teachers are expected to adopt innovative teaching methods, such as Digital Storytelling (DST), which integrates creativity, technology, and language learning. This method enhances student engagement and fosters digital competencies, making it an effective approach in modern education. Digital storytelling has emerged as a powerful tool in the educational context, replacing traditional storytelling methods. This technique was designed in the early 1990s by the Digital Media Center in California and combines various digital multimedia, such as audio, video, and images, with storytelling artistry (Hasanah & Nugroho, 2023; Robin, 2006). It is a combination of new and traditional literacies, such as information, technology, and visual literacies, to create knowledge.

DST is useful for language teachers to improve their methods and students' language proficiency. For example, a study by Rutta et al. (2021) found that comic-based DST is interesting, easy to use, and promotes cooperation between educators and learners. In the context of education, book creators, story jumpers, and story birds can be categorized as digital storytelling platforms. Ohler (2013) identified five stages of digital storytelling: story planning, pre-production, production, post-production, and distribution. Story planning involves generating ideas, gathering information, peer feedback, writing the script and storyboard. Pre-production involves listing media components, such as pictures, videos, and voiceovers, to collect raw data. Production involves creating and finishing media components and arranging them into a final product. Post-production focuses on listing citations, final editing, reviewing the product, exporting it, and distributing it through various activities such as showing it in the class community, uploading it on the

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web, or submitting it. In conclusion, digital storytelling has revolutionized traditional methods of literacy instruction by combining new and traditional literacies, offering a wider range of meaning-making potential, and promoting cooperation between educators and learners.

DST (Digital storytelling) is a great tool for knowledge transfer, particularly in classroom settings where students exchange experiences and knowledge (Drajati et al., 2023). Digital storytelling involves finding, evaluating, and consuming digital content, exploring identity and cultural landscapes, creating new digital materials, and communicating with an audience. Digital storytelling effectively utilizes critical digital skills and literacies for diverse, globalized, and technology-infused classrooms (Walters & von Gillern, 2018). DST helps teachers balance the requirement to develop a successful teaching strategy with the use of technology. Digital literacy is also promoted through the usage of DST. The need for them to understand digital literacy is also essential since now both teachers and students must adapt to technology.

Several studies found that digital storytelling brings benefits in the classroom. Students become more engaged, motivated, and resilient when DST is incorporated (Chen Hsieh & Lee, 2023; Drajati et al., 2023). These studies have regularly demonstrated a considerable improvement in students' grit, motivation, and engagement. Additionally, DST improved linguistic abilities and encouraged the development of creative thinking (Ahmad, 2021; Akyeampong, 2018; Yang et al., 2022). DST shows its existence and benefits for students and teachers. Studies demonstrate how well digital storytelling (DST) works to advance digital literacy at all educational levels. Fisher and Hitchcock (2022) found that digital narrative assignments in higher education also encourage creativity and critical digital literacy. In addition, DST enhances students' digital abilities and critical awareness of technology in grades K–12 (Shinas and Wen, 2022; Hitchcock et al., 2019); Sage et al., 2018). However, the process of creating digital stories frequently poses special problems for EFL pre-service instructors, ranging from pedagogical doubts to technical issues.

Numerous studies such as Vice et al. (2023) highlight the preparedness of graduate-level English teachers to use DST in K–12 classrooms and found both opportunities and difficulties, especially when it came to resolving technical problems and assisting teachers' digital development. Then, Walters and von Gillern, (2018) found that Digital storytelling can be a powerful tool for teacher educators to promote critical digital literacies in pre-service teachers however they found some challenges when implementing it in their students. Although several studies focus on the benefits of DST in the classroom (Ahmad, 2021; Akyeampong, 2018; Chen Hsieh & Lee, 2023; Drajati et al., 2023) and explore how DST and digital literacy work together (Fisher and Hitchcock, 2022; Shinas and Wen, 2022; Hitchcock et al., 2019; Sage et al., 2018) lack of study that focus on the challenges

and solutions when creating digital storytelling to promote the digital literacy on pre-service teachers in EFL setting. Most of the studies above also use quantitative and mixed methods, and fewer studies use qualitative methods.

The current study tries to address the gap and look into the challenges that EFL pre-service teachers encountered when creating digital stories and the strategies they used to get beyond them. This study employs narrative inquiry to answer the following research question: What obstacles and solutions did EFL pre-service instructors encounter when creating digital storytelling projects? By providing insight into their experiences, this study seeks to advance knowledge of the successful integration of digital storytelling into teacher education programs to promote professional development and digital literacy.

Research Methodology

The current study used the qualitative study to explore the pre-service teachers' challenges and solutions when designing digital storytelling to promote digital literacy.

Research Methodology and Design

This study used a narrative inquiry as its research design. It is commonly used in educational research literature and is widely accepted as a methodology for generating new insights and encouraging diverse interpretations of the phenomenon under investigation. Narrative inquiry uses stories as data, and this study focuses on participants describing their experiences (Barkhuizen et al., 2014). This method collects participant narratives to gain a comprehensive understanding of their educational experiences. The current study used narrative inquiry to glean more information from participants' stories while facing difficulties in promoting digital literacy through digital storytelling. According to (Abrar, 2019), narrative inquiry is a qualitative method for presenting participants' lived experiences through narratives. Narrative inquiry was appropriate for this study because it seeks information from 'what and how' questions.

Research Participants and Context

This study used narrative inquiry to collect detailed information about participants' experiences and artifacts. It took place in a large classroom at a university in Central Java, Indonesia, with 36 EFL pre-service teachers (PSTs)—12 males and 24 females—enrolled in a "Teaching English with Technology" course. The participants, aged 20 to 22, studied English for over a decade. Each class had 36 students divided into six groups of six, with one representative from each group interviewed to gain more insight and avoid data overlap. The sample was taken from each group using random sampling since they volunteraly wanted to be the participants. All 36 EFL PSTs finished the narrative frames, and group

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representatives were interviewed for more detailed data collection. The study took 16 weeks, ensuring consistency by placing all participants in the same class and academic level, resulting in an equal learning environment. Participants worked in six-person groups to create digital storytelling projects for use as teaching and learning materials. Ethical guidelines were followed throughout the study, including obtaining permission from gatekeepers and lecturers, as well as informed consent from pre-service teachers via WhatsApp. The researcher addressed concerns, protected participants' privacy, and maintained confidentiality by assigning pseudonyms to each participant.

Table 1 Demographic information of participants

No	Pseudonym	Age	Gender
1.	Dika	20	Male
2.	Arin	20	Female
3.	Nini	21	Female
4.	Siska	21	Female
5.	Lifyaul	21	Female
6.	Adi	21	Male

Data Collection

There were two data collections for this study to dig deeper to find the participants' challenges and solutions while digital storytelling enhances digital literacy proficiency, thereby enhancing the depth and credibility of its findings. The primary data included narrative frames utilized as reflective notes and interviews.. The study used these strategies to investigate what challenges the participants found while developing digital literacy through designing digital storytelling and how the participants managed to overcome the challenges. Narrative frames are organized story templates that contain incomplete sentences and varying-length blank spaces providing a full and comprehensive representation of the participants' experiences (Barkhuizen et al., 2014). The researcher used empty narrative boxes with instructions to lead the story frame, allowing participants to freely share their struggles when designing digital storytelling to promote digital literacy. The participants completed the narrative frames by freely sharing their experiences when designing DST through the book creator to facilitate their digital literacy. The researchers gave the participants one narrative frame after they finished the lesson at the end of the semester. Then, the participants shared their challenges and how they overcame them. After completing the narrative frame, the researchers conducted interviews with the participants to verify the data or obtain more in-depth information. The interviews were conducted in two phases consisting of 15 questions. Each interview took 30 -40 minutes. The purpose of the

first interviews was to elicit further details about their challenges and how they overcame them; The researcher then analyzed the data and conducted a final interview to verify the data matched the participants' stories. Besides the narrative frames and the interview, the artifacts were used to strengthen the data, in the form of digital stories designed by the participants to reflect their digital literacy.

Data Saturation

To ensure data saturation, the researcher used multiple data sources, including narrative frames, two-phase interviews, and digital storytelling artifacts. After conducting the first phase of interviews, the researchers analyzed the data and identified recurring themes across participants' responses. Additional interviews were then conducted to verify and clarify the initial findings. Data saturation was considered achieved when no new themes, codes, or significant information emerged from the subsequent interviews, and the data consistently reflected similar challenges and solutions across different participants. The triangulation of data sources (narrative frames, interviews, and artifacts) further strengthened the saturation, ensuring that the collected information was comprehensive and sufficient to address the research questions.

Data analysis

This study used thematic analysis techniques, as described by (Barkhuizen et al., 2014). The process began when the first authors collected the raw data, including reflections in narrative frames from participants and the interview. Then, the first and second researchers carefully reviewed the narrative frame and transcribed the data several times, checking each sentence for consistency. To transcribe each participant's interview, the third researcher listened to the recordings several times. This step improved the researcher's understanding of the data and simplified its interpretation. The researchers then condensed the data to extract the most essential information about the topic. The first researcher then coded the data by highlighting key passages that expressed similar ideas, either directly or indirectly. Following that, the data was categorized into emerging subthemes. To ensure accurate coding, all of the researchers went back and forth several times. Finally, the subthemes were organized into appropriate thematic headings that matched the study's research questions. The researchers coded the data according to the step of creating a digital story and classified the problems that each participant encountered during the procedure. The study met four qualitative rigor criteria: credibility, transferability, dependability, and confirmability. Data triangulation, prolonged involvement, and member checking were used to establish credibility. Transferability was achieved by detailed descriptions of the study setting and methodologies. Audit trails aided dependability, whereas reflexive journaling and peer debriefing improved confirmability.

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Limitation

Despite the rigorous processes used in this research, many limitations should be noted. First, the study relied on self-reported data from narrative frames and interviews, which could be influenced by personal bias or memory distortion. Second, the number of questioned participants was limited to six group representatives, potentially reducing the range of experiences. Third, while the study included numerous data sources, the results are context-specific and may not be applicable to other settings. Future research could investigate similar themes in different institutional or cultural contexts, as well as use classroom observations to supplement participant accounts.

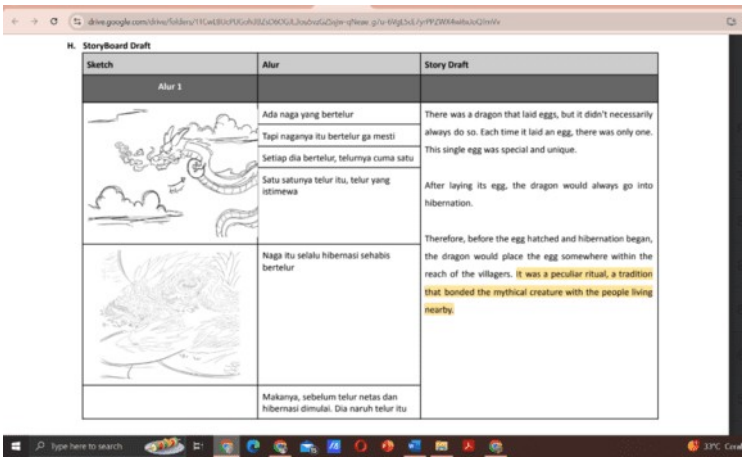
Finding

The study found that all EFL pre-service teachers, designed digital stories through book creators, enhancing their digital literacy significantly following Hobbs' conceptual framework. However, they faced challenges related to digital literacy. Through interviews and narratives, participants shared their experiences and challenges faced while designing digital stories. As the research focused on exploring both challenges and the ways participants addressed them, the findings are presented thematically with integrated solutions to maintain narrative coherence and reflect the natural flow of participants' experiences.

3.1 Creative Ideation Challenges

To begin with, the participants faced several difficulties as they developed their preliminary concepts and created the storyboard. For the first few ideas, most participants said in their narrative frames that they had trouble coming up with a compelling story plot. In the interviews, it was revealed that some of them struggled to make the story more interesting.

Figure 1. The participant's storyboard



From the image above, the participants build their ideas using Google Docs. It made it easy for them to debate and write their opinions. They worked together to come up with suggestions. They also included the manuscript and the plot.

> "We struggled with writing a storyboard, focusing on dialogue for characters. After discussions, we decided on the best plot and dialogues while maintaining moral values.." (Interview 1- Nini)

> "when trying to find ideas, and developing the ideas, I found it difficult to put together an interesting storyline. To overcome this, I discussed with my group of friends and used AI, namely Chat Gpt, to facilitate and support my group's story plan." (Narrative Frame - Lifyaul)

According to the previous data, three participants struggled to formulate their ideas. As they created their own story's plot, Nini, Siska, and Lifyaul found it difficult to connect their storyboards, especially with the learning objective and character dialogues. They employ several tactics to solve the issues. Recalling memories and reading more stories gave Nini and Lifyaul a variety of viewpoints and additional information to help them develop their stories, which helped them solve the problem. Dika then made an effort to find additional information and was motivated by those sources to figure out how to connect their concepts with learning English.

> "I found it difficult to find stories that are both interesting and relevant to English learning. To overcome this, I explored how to create digital storytelling based on student interests while remaining focused on the curriculum and English language learning." **(Dika)**
>
> "I had a difficult time finding information relevant to what I wanted to write. To overcome this, I searched information on various social media platforms." **(Siska)**

Finding interesting content that fits with English learning objectives is a challenge for EFL pre-service teachers. Finding stories that struck a balance between curriculum objectives and student interests proved difficult for Dika and

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Siska. While Siska used a variety of social media platforms to collect content, Dika used digital storytelling to include themes that students found compelling. These incidents show how incorporating digital storytelling into English instruction requires innovative thinking and resourcefulness.

3.2 Media Editing and Tool Familiarity Issues

Once their ideas were complete, they attempted to list down the media elements and started editing them for digital stories. Since they all studied English education to become teachers, this is the next and more difficult stage. They now have to deal with technology. Following the study, the majority of participants had similar challenges. These issues mostly deal with the media elements they employ, like pictures, videos, or software. They also had trouble choosing, comprehending, and using these components efficiently. These media components must be created using technological tools or methods, which may include limitations in the tools available, challenges in learning the technology, or technical problems during the creation process. Since they have no idea about the media components to support the digital stories, and the technology to edit the media components.

Figure 2. The process of creating the media components.

The participants were puzzled and struggled to design and find a suitable platform for developing the media components, because they needed to generate it from zero, color it, and make it consistent.

"We faced confusion about image quality, components, and the use of voice-over. They worked individually on each component, discussing and using internet references. When Canva was difficult, we searched for information on YouTube and asked others with experience with voice-over. This approach helped us overcome confusion and ensured a successful project." (Interview 1- Nini)

"I found it difficult to adjust the right image to suit the plot and the expressions were appropriate to overcome the problem we conducted the discussion between me and my friends." (Narrative Frame - Siska)

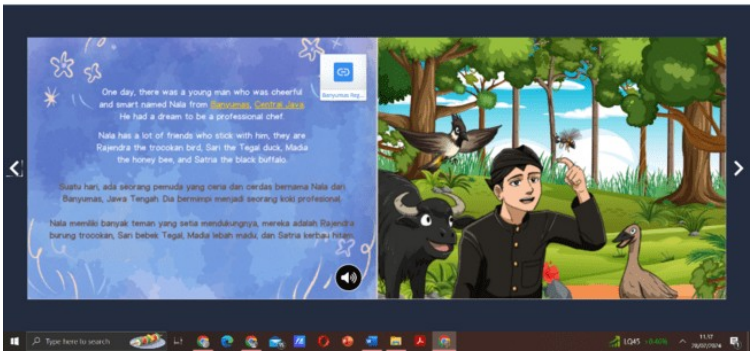
From the data above, EFL pre-service teachers such as Nini and Siska faced

technical and creative challenges in digital storytelling, especially in managing media components. Nini and Siska struggled with image quality, component integration, and voice-overs. The other group or their friends also faced the same problems since they did not have any experience in using technology tool for drawing. To overcome these, their team divided tasks, consulted internet resources and sought guidance from YouTube tutorials and peers. Siska struggled with selecting images that matched the plot and conveyed appropriate expressions. Both participants emphasized the importance of teamwork, resourcefulness, and leveraging external tools and expertise to navigate technical and creative obstacles in digital storytelling.

4.3 Technology Adaptation and Integration Barriers

Following the completion of the media components' drafting and listing, they integrated them into coherent digital narratives. Images, audio, and any other media components that had been produced independently had to be combined at this stage. However, they encountered several challenges when they first began this process, particularly in the final editing and refinement of these elements. These difficulties had a direct connection to the initial phases of their work. For instance, during the integration phase, discrepancies or inconsistencies that emerged during the production of individual media elements—such as variations in quality, format, or style—became more apparent. The study draws attention to the difficulties EFL pre-service teachers encounter when managing and creating media elements for digital storytelling projects.

Figure 3. The Digital Storytelling product through Book Creator



From the picture above, the participants compiled all the media components they felt were difficult, as they used several technology tools, such as Ibis Paint, Book Creator, Canva, and many more. They tried to finish and compiled it together in the Book Creator.

"We were unfamiliar with the technology, particularly Ibis Paint. We had to learn how to use the application together because only one of our friends knew how to use it. The primary barrier was a lack of technological knowledge. We had to try multiple times and fail before we could finally create a suitable image because it was a new technology to us. (Interview 3-Dika)

"We felt difficult when trying to use the application since it was new for us

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especially for me. We discussed trying to learn to draw with Ibis Paint via Zoom because initially no one knew about the technology for drawing and that was a problem. but this can be solved by studying together and having friends who tell and teach us (Narrative Frame - Nini)

Half of the participants experienced same difficulties in using technology tools. The participants' goal was to avoid copyright infringement by producing original media components. After that, they found some technological drawing tools. But when they tried to use new technology, like Ibis Paint, which most members had never used before, they ran into serious problems. Before creating suitable images for their project, they had to make multiple trial-and-error attempts due to a lack of knowledge and experience with the technology. To get around this, the group decided to work together and set up Zoom meetings to learn how to draw with Ibis Paint. With the help of a friend who was familiar with the application, this cooperative learning process worked well. The group members were able to learn how to use Ibis Paint by supporting one another and sharing knowledge. Since their initial goal was also to create innovative teaching and learning materials, they focused not only on creating stories but also on creating exercises that were integrated with technology.

“Since we should modify the right questions according to the student's level, we were a little perplexed about what questions were appropriate. To get around this, we had numerous conversations and searched for references, such as in books with native text. I also discovered that choosing the appropriate technology takes time because we are still attempting to use some of the technology that we haven't used frequently. It can be overcome by talking with my group and examining a variety of technological platforms to identify the best one.” (Interview 2: Nini)

"There is no denying the difficulty, particularly concerning technology, which we have to learn and then repeat. We used a variety of technologies, and to select the best one, we should first assess the platform. Naturally, we had a lot of conversations, especially regarding the best and last platform to answer the questions and effectively involve junior high school students. (Lifyaul Interview 2)

Three Participants faced challenges in question creation and technology use, possibly due to lack of experience or understanding. They struggled with designing effective questions and using the necessary tools, adding complexity to the task. These combined challenges made the process more demanding and required extra effort. Nini found the process challenging, as they had to learn and repeat the process. They evaluated various technologies and discussed the appropriate platform to facilitate questions and engage students.

4.4. Time Constraints in Project Completion

The participants struggled not only when adapting to technology, they also felt difficulty since the time given by the teacher was limited.

> "In designing the picture, I got the difficulties since the time was limited. The deadline was set too short. Then I settled to take off all of the drawing session so, it was only me who drew or designed the pictures but I still discussed it with my friends and my lecturers." (Interview 1 - Lifyaul)
>
> "When exploring the application, we didn't fully understand about the application that we wanted to use. We needed more time since we should find the app first and then edit the media components and finish it" (Interview 1- Nini)

From the data mentioned above, two out of six participants came from the time limitation. Tight deadlines made it difficult for Lifyaul to design visual elements, so she had to assume full responsibility and stop group drawing sessions. Because her team was unfamiliar with the selected tools, Nini encountered difficulties when attempting to explore and use digital applications, which resulted in a major delay in progress. This demonstrates how time constraints affect collaboration and creativity in digital storytelling. Lack of familiarity with digital tools can make it more difficult to finish a project on schedule. Lifyaul agreed that the process was time-consuming, but it was worth it as it allowed them to explore various platforms and find the right one for their needs. Furthermore, during the final stages, they encountered the same issue in terms of deciding on the best platform to distribute the final product of their digital storytelling. They also overcame this by widely accessing the information, asking a lot of people, and having discussions with their friends and lecturers.

To summarize the key findings, the following table provides an overview of the major challenges encountered by the participants, the number of participants affected, and the strategies they used to overcome each challenge.

Table 2 Summary of Challenges and Solutions

Theme	**Total of the participant**	**Key Challenges**	**Solutions**
Creative Ideation Challenges	4	Difficulty finding storylines related to English learning	Group discussions, AI tools (ChatGPT), personal experiences
Media Editing Issues	3	Adjusting visuals, unfamiliar with editing tools	YouTube tutorials, peer collaboration
Technology Adaptation	4	Struggled with drawing apps like Ibis Paint	Group learning via Zoom, mentoring
Time Constraints	2	Short deadlines and unfamiliar tools	Delegation, support from peers/lecturers

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Discussion

The findings of the research highlight all of the challenges that EFL pre-service teachers encountered when creating digital storytelling (DST) as well as the methods they used to get past these obstacles. These difficulties, which included everything from technical difficulties to problems with creativity and time management, demonstrate how difficult it is to incorporate digital tools into teaching methods. They also demonstrate the pre-service teachers' adaptability and resiliency in overcoming these challenges. The discussion is organized thematically in accordance with the findings, and supported by relevant theoretical frameworks, prior research, and the specific context of Indonesian EFL education. In the Indonesian EFL context, digital literacy development is shaped by limited access to resources and varying degrees of prior exposure to technology. The findings underscore how pre-service teachers creatively navigated these constraints, reflecting the potential of DST to serve as both a pedagogical tool and a digital literacy enhancer.

4.1 Creative Ideation and Digital Story Planning

The findings highlight that participant struggled to develop compelling storylines, particularly when aligning their ideas with English language learning objectives. This challenge required them to think critically and creatively, pushing them to explore various sources of inspiration such as memories, AI tools, and collaborative brainstorming. These experiences support the argument that DST enhances critical thinking and information literacy, as stated by Churchill and Barratt-Pugh (2020). The use of AI tools like ChatGPT and the ability to access information through digital platforms aligns with Hobbs' (2010) digital literacy framework, particularly in creating and analyzing digital content. Ball (2019) also emphasizes how learners are encouraged to search, evaluate, and interpret digital texts — practices clearly reflected in the participants' efforts to shape meaningful narratives. The importance of peer collaboration in refining these ideas is consistent with Shinas and Wen (2022), who stress collaborative creativity as central to the DST process.

4.2 Media Editing and Technical Skills

Another challenge encountered by the participants was related to editing media components. Many expressed difficulties in selecting appropriate visuals and integrating voice-overs due to unfamiliarity with tools like Canva. These challenges required participants to enhance their digital editing skills through self-learning and collaboration. Nini and her group's experience exemplifies how digital literacy skills are built through trial and error and supported peer learning. This aligns with the findings of Fisher & Hitchcock (2022) and Vice et al. (2023), who argue that peer support and accessible resources such as YouTube tutorials

contribute significantly to enhancing digital competencies. Participants used online platforms and social networks to access knowledge, which reflects the multidimensional nature of digital literacy in the Indonesian EFL context, where institutional support may be limited.

4.3 Technology Familiarity and Integration

Participants also faced obstacles in adapting to unfamiliar applications, such as Ibis Paint. The lack of prior experience with digital drawing tools required them to collaborate, teach one another, and engage in extended practice to overcome the challenge. Their proactive responses — including Zoom discussions, mentoring, and iterative practice — mirror Ding et al.'s (2023) emphasis on communication and reflection in building learners' autonomy and decision-making. Participants also sought to avoid copyright issues by creating original media, a reflection of increasing digital ethics awareness. Participants further struggled with choosing and implementing the most effective platform to distribute their DST product. Through this, they demonstrated an evolving capacity to assess and evaluate the appropriateness of digital tools — one of the key indicators of digital literacy (Ng, 2012).

4.4 Time Management Constraints

Time limitation was another recurring issue. Lifyaul's case particularly illustrates the pressure of tight deadlines in designing visuals, which required her to take on most of the workload. Similar to Feerrar (2019), this study reveals how time pressure can sometimes affect the creativity and exploration of new tools. Participants like Nini also reported a lack of familiarity with applications during media production, resulting in longer editing times. Despite this, they demonstrated perseverance and adapted their strategies to meet deadlines, often consulting with lecturers and relying on peer support. This echoes Yigit's (2020) findings on how pre-service teachers gain time management and content creation skills through DST tasks. These results reflect the unique context of Indonesian EFL teacher education, where limited exposure to digital tools requires student-teachers to be more resourceful and collaborative in learning.

This study offers several implications for teacher education. First, educators should provide more structured digital tool training for pre-service teachers, especially in under-resourced contexts. Embedding DST projects with scaffolding in both technical and pedagogical aspects can foster digital literacy more effectively. Encouraging peer teaching and collaboration is also vital to support less-experienced students.

This study is limited to a single class of participants and relies heavily on self-reported data. Narrative inquiry captures depth but may not generalize across contexts. Future studies may include classroom observation, digital artifacts analysis, and diverse participant backgrounds to provide more robust insights.

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Future research can explore the long-term effects of DST training on classroom teaching practices. Comparative studies between institutions with varying levels of digital infrastructure would help identify equity gaps. Additionally, investigating the role of institutional and peer support in shaping digital literacy would be beneficial.

5. Conclusion, Implication, and Limitations

In order to foster digital literacy, this study looked at the challenges and solutions faced by EFL pre-service teachers when developing digital storytelling (DST) projects. The results showed that pre-service teachers demonstrated resilience and adaptability despite facing numerous challenges, including technical difficulties, limited technological proficiency, time limitations, and uncertainties in creating pedagogically content They overcame these challenges and successfully finished their DST projects by working together as a team, exploring resources, and engaging in reflective practices. These findings demonstrate DST's potential as a useful instrument for promoting critical thinking, creativity, and career advancement in addition to digital literacy skills development. Pre-service teachers improved their comprehension of how to successfully incorporate technology into language instruction by taking part in this process, which helped to close the gap between

The current study's finding has major implications for teacher education programs. To begin with, it highlights how pre-service teacher curricula must include organized lessons on digital storytelling and other technology-enhanced teaching techniques since the need for them to catch up the technology development. future teachers can be empowered to confidently adopt DST in their classrooms with the help of workshops, practical training sessions, and easily navigable digital resources. Furthermore, including peer review and collaborative activities in the DST development process might improve pedagogical and technological abilities even more. This study also emphasizes how crucial it is to create a welcoming classroom where aspiring educators can try new technology, exchange ideas, and learn from mistakes.

Due to its exclusive focus on EFL pre-service teachers, the study on digital teaching techniques (DST) has constraints that may restrict its applicability to other fields or situations. The study's brief length might have limited its ability to fully capture DST's long-term effects on instructional strategies and student learning results.

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Appendix
Interview Protocols

1.4.2 Apa saja hambatan yang anda hadapi ketika mencoba menavigasi teknologi, sumber online dan platform digital, mencari informasi yang relevan,menganalisis, menilai dan mensitesis informasi dari berbagai sumber?
1.4.3 Bagaimana cara anda menghadapi permasalahan di atas? Apakah ada strategi yang anda terpakan untuk mengatasi masalah tersebut?
2.4.1 Bagaimana Anda mengevaluasi dampak penggunaan teknologi dan efektivitas strategi yang dipilih saat Anda melakukan tahap penyusunan komponen media seperti gambar, audio, dan video, serta pengumpulan bahan mentah dan pengorganisasian file, untuk mendesain Book Creator?

Narrative Frame Templates

_____. Kami berdiskusi terkait _____ secara_____. Melalui pengalaman ini, saya menyadari_____.

Saat mulai menulis script untuk dialogues dalam digital story saya, saya menemukan_____ karena_____. Sehingga saya juga (mencantumkan/tidak) beberapa fitur hyperlink. Alasannya _____. Untuk melatih kemampuan berfikir saya agar lebih kritis saya_____. Untuk mengcompile media file menjadi satu kami menggunakan _____. Saya menyadari bahwa dalam membuat media ajar, _____ Pengalaman ini menyadarkan saya bahwa _____ Dalam penggabungan dan pemindahan media components kami banayk berunding atau berdiskusi _____. Tantangan yang saya lalui saat menyusun konten ada_____. Untuk mengatasi masalah tersebut, saya _____.

Setelah selesai, Untuk konten yang terletak pada Digital storytelling nya kami (*menggunakan/tidak) teknologi semacam kahoot, canva, nearpod, dsb. Kami memilihnya_____Alasaan pemilihan platform tersebut karena_____. Setelah mendapatkan platformnya, hal yang kami lakukan adalah _____Saya merasa kesulitan dalam _____hal yang saya lakukan untuk mengatasinya adalah _____. Kami (berdiskusi/tidak) dalam menentukan platform penyempurnaan DST, jika tidak lalu berdiskusi tentang apa?_____

Sample Digital Stories

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