

EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books

Ais Navila^{1*}, Dewi Rochsantiningsih², Nur Arifah Drajati³

¹ Universitas Sebelas Maret, Indonesia. e-mail: aisnavila27@student.uns.ac.id

² Universitas Sebelas Maret, Indonesia. e-mail: dewi_roch@staff.uns.ac.id

³ Universitas Sebelas Maret, Indonesia. e-mail: nurarifah_drajati@staff.uns.ac.id

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In the twenty-first century, educators must have competency in technology integration in language classrooms for language learning, which should receive much attention in teacher training programs and professional development. Furthermore, integrating digital multimodal composing into English language teaching through digital storytelling books might assist teachers in building their technological abilities. Therefore, this study aims to investigate the pre-service teachers' experiences in designing digital storytelling books with digital multimodal composing frameworks. The present study adopted narrative inquiry to elucidate pre-service teachers' experiences designing digital storytelling books with multimodal composing framework. This study highlights the experiences of four postgraduate students as pre-service EFL teachers in designing digital books as teaching media. According to the findings, pre-service teachers employ the critical, creative, and technical domains as phases in creating digital storytelling books, which include information from written reflections and interviews. Further research needs to examine the teacher's perceptions of designing digital books as teaching media in real class and students' perceptions when using books designed by the teacher.

1. Introduction

Over the past ten years, writing research has become more interested in digital multimodal composing (DMC). DMC is frequently utilised as a crucial element to improve pedagogy in the instruction of English in the twenty-first century (Hafner, 2015). Given that the effects of the Covid 19 epidemic began roughly two years ago, Activities for teaching and learning

must take place both online and offline, according to the Indonesian government. Because of the widespread usage of technology during the COVID-19 outbreak, Educators continue to instruct learners using this strategy. In other words, educators widely use DMC in this current learning system.

With the use of DMC in learning, Pedersen (1995) stated that stories will consistently be a crucial factor in classroom teaching. Today, storytelling that first emerged when technology was not widely used has evolved into digital storytelling (Çetin, 2021). In other words, Yang et al., (2020) expressed that because technology is utilized to prepare digital storytelling, the distinction between it and traditional storytelling is obvious. Additionally, digital storytelling, which is increasingly used in classroom education, is a creative, efficient, and pleasant strategy that may be used to deliver a meaningful teaching and learning process (Wang & Zhan, 2010). Implementing digital storytelling books in the process of learning would boost students' enthusiasm to study since learning is fascinating.

In increasing learning activities for language classes, the use of technology is highly recommended in this era (Nugroho & Mutiaraningrum, 2020; Voogt et al., 2009; Voogt & Mckenney, 2016). Digital multimodal composition (DMC), an exciting literacy technique that uses digital tools to produce integrated texts utilizing many semiotic sources, is often used in second-language classrooms (Jiang, 2017; Smith, 2020; Zhang et al., 2021). Many semiotic sources are used, including linguistics, visual, audio, gestural, and spatial modalities (Belcher, 2017; Kress, 2010). Therefore, due to the importance of technology integration in language classrooms for language learning, educators in the twenty-first century are required to have this competency, which should receive a lot of attention in professional development and teacher training programs (Galvis, 2012; Lestariningsih, F.E., Madya, S. & Nurkamto, 2020; Nugroho & Mutiaraningrum, 2020). Furthermore, integrating DMC into English language teaching through digital storytelling books might assist teachers in building their technological abilities.

Various empirical studies have discussed the issues of creating digital multimodal text and digital storytelling books with multimodal composing. For instance, Cross (2018) examined how young students utilize writing programs to convey ideas and write in several modes. The results highlight the complexity of young learners' compositional expressions and emphasize the significance of compositional development. Also, the accessibility of digital technologies gives young learners a chance to develop deeper layers of meaning, which are then captured in previously impossible ways. Additionally, Shin et al., (2020) explored how L2 students used linguistic and visual modes in multimedia media to create multimodal compositions. According to the study, students employ verbal and visual modalities while illustrating. Yang et al., (2020) investigate the impact of digital storytelling on English language proficiency and innovation in foreign learners. The conclusion is that digital storytelling helps students develop creative thought and communication abilities.

Çetin, (2021) examines the impact of the digital storytelling process on pre-service teachers' digital literacy abilities and the in-depth production process. Thirty-six future teachers of computer education participated in the research. The methods used in this study to get data include a scale of assessment for digital storytelling, a scale for measuring digital literacy, and an opinion form about creating digital stories. After creating a digital story, research results reveal that pre-service teachers' degrees of digital literacy vary greatly. Digital

stories scored highly, according to the digital storytelling assessment scale. The thoughts of pre-service teachers indicate the excellent impact of the digital storytelling process in educational settings while highlighting particular challenges in creating digital stories. In addition, Kristiawan et al., (2022) investigate how a digital storytelling narrative project based on a local culture might help junior high school students find meaning. The result showed digital storytelling helps express students' identities and give significance to their local cultural stories. Moreover, student motivation is increased by taking part in these activities.

The study on designing multimodal digital storytelling books with students as the study's respondents is still growing. The researcher gathered Pre-service teachers as subjects in this study to fill this research gap. Additionally, most of the research approaches used in this issue are qualitative, and case studies are used as the researchers' techniques (Zhang et al., 2021). To learn more details about Pre-service teachers' experiences in designing digital storytelling books using multimodal composing, many empirical studies only sometimes employ narrative inquiry as a research approach. To fill the methodological gap, this research will use Narrative inquiry to examine pre-service teachers' experiences in designing digital storytelling books using digital multimodal composing framework. Regarding the previously mentioned issue, the research question is How do Pre-service teachers design digital storytelling books with digital multimodal composing framework?

2. Literature Review

2.1 Digital Multimodal Composing in EFL Context: Theoretical Support

Multiliteracy's theory from The New London Group (1996), interpreted as a response to how literacy instruction may prepare students for a changing environment, is connected to the digital multimodal composition in this study. of the changes, and texts, including one or more semiotic systems (such as multimodal), need new approaches to meaning-making. According to Vygotsky's sociocultural theory 1978, the semiotic system facilitates human social and cognitive development through an interactive mediation process involving semiotic resources like language and cultural instruments. For instance, tools for creating videos, resources for work planning, and group task execution. Also, multimodal meaning-making involves language and words and using colors, sounds, images, etc (Tour & Barnes, 2022).

As defined by (Jiang, 2017), a textual practice that combines several semiotic modalities with the use of digital technology to create texts is what digital multimodal composing is generally understood to be. Following Kress (2010) social semiotic theory, meaning may be expressed orally, visually, or through video. Because of the various supporting communication facilities, such as other sounds, color, graphics, and video, digital multimodal composing can also integrate all multimodal linguistics, commonly referred to as the four English language skills (reading, writing, listening, and speaking), in one communicative task. This can help students communicate more confidently (Blake, 2016; Kim & Kang, 2020). As a result, it can boost motivation for language learning and encourage learner autonomy (Hafner, 2014).

Traditionally, a text can be interpreted with three components, namely written, printed, and language, and is related to the linguistic semiotic system (Tour & Barnes, 2022). A text is

defined in a more complex way as time goes on and technology advances since it contains both language and non-linguistic meaning-making resources (such as visuals and verbal) (Yi et al, 2020). Likewise, Kress, (2010) emphasized that a mode is a semiotic tool for creating meaning influenced by social formation and cultural transmission. Image, text, music, and other modes are a few examples of the modalities utilized in representation and communication. The presentation of information using semiotics is another name for the mode (Elola & Oskoz, 2017).

2.2 Digital Multimodal Composing Framework

Liang & Lim (2020) presented three critical elements that this framework uses to help students' digital multimodal composing, they are 1) The critical domain supports teaching and learning using several meta-languages describing certain aspects of multimodal texts. Additionally, this domain frames students' understanding of how diverse semiotic modes convey meaning through a collection of terminology known as a metalanguage, defining semiotic decisions and their results. 2) The creative domain, in several contexts when problem-solvers are included in the educational process, this domain addresses issues (Aflatoony et al., 2018; Leverenz, 2014; Scheer & Plattner, 2011). Moreover, To encourage students' creativity and cognitive flexibility, the creative domain offers them a five-stage design thinking approach: explaining the aim, brainstorming ideas, prototyping using storyboards, giving peer input, and considering viewers (Soken, 2016). 3) The technical domain is the creation of digital artifacts that are handled in the technology field and give students access to production and editing tools. Students will gain new information about editing, recording, and producing student work by creating artifacts. Additionally, students will learn about methods for editing their work.

2.3 Digital Storytelling Book

Furthermore, a learning technique called digital storytelling may be applied to assist project-based, technologically integrated, and learner-centered activities (Barrett et al., 2006; Robin, 2016). The narrative approach is one of the strategies teachers employ to boost student enthusiasm. Students' skills will advance in addition to their motivation rising (Aksut & Aydin, 2021; Robin, 2008; Yüksel, 2011). The method of telling a story utilizing multimedia elements such as text, animation, photographs, graphics, audio, and music while editing and combining oral narration is called digital storytelling (Hava, 2019).

Hull & Nelson (2005) define digital storytelling as multimedia, including visuals, short movies, soundtracks, and voice narration. Contrary to common misconceptions, digital storytelling upgrades the standard for storytelling by combining highly interactive media, such as audio recordings, video content, and multimedia pictures, to put together digital stories (Thang et al., 2014). Wu & Chen (2020) said that based on empirical studies, artifacts from digital storytelling products are usually produced in short films that have a maximum duration of three minutes. Additionally, digital storytelling may be created by students to process knowledge and develop meaning, as well as by teachers and subject matter experts who want to generate educational materials (Liu et al., 2016; Rance-roney, 2010; Stewart & Gachago, 2016; Verdugo & Belmonte, 2007).

Similarly, the advantages of digital storytelling for teachers include the ability to teach concepts and content using narratives. In contrast, the advantages of digital storytelling for students include the ability to increase student identity when they produce work using

narrative multimodal because they will feel more motivated (Oskoz, 2016; Sadik, 2008; Taylor et al., 2018; Vinogradova et al., 2011). Additionally, Stork (2020) claimed that as students must understand technology to create digital storytelling and creatively transfer traditional resources into digital formats, students who participate in this activity have the advantage of developing their critical thinking skills.

3. Research Methodology

3.1 Research Design

The present study adopted narrative inquiry (NI) to elucidate Pre-service teachers' experiences in designing digital storytelling books with multimodal composing. In recent years, a study using the Narrative Inquiry method has attracted much interest. Although researchers all over the world have widely used this method, this research method is still growing in the research field (Barkhuizen et al., 2013; Holley & Colyar, 2003; Webster & Mertova, 2007). The purpose of narrative inquiry in the field of language education is to assist teachers in their research process in various ways, including discussion and research formats (Barkhuizen, 2008). Wanodya et al., (2020) claimed that a study method known as narrative inquiry involves talking about one's own life experiences. The selection method was considered because this research will explore in detail the experiences that will be in the form of stories from students in making digital storytelling books with the digital multimodal composing method.

3.2 Participants

Data from EFL Pre-service teachers enrolled at one of the higher education institutions in Indonesia were gathered for this study. Postgraduate students who have participated in international workshops become the research participants. The pre-service teachers in this research were postgraduate students who had never taught and were still pursuing master's studies. The researcher chose postgraduate students as research participants because the participant and researcher were on the same institution. Therefore, to facilitate this research, researcher used postgraduate students as research subjects. Then, the context of this research is that Pre-service teachers who have attended international workshops held by the institution became research participants. In a study by Creswell (2007), two participants are the ideal sampling size for narrative inquiry; more participants are appropriate if the purpose is to create a collective story about the phenomena. Four 20 to 30 years old Pre-service teachers enrolled in the English Education Department are the participants. They are willing to submit the necessary, accurate, and relevant information regarding their experience and have voluntarily decided to participate in this research. The participants were given pseudonyms in the entire research process.

3.3 Research Context

The Indonesian government modified its educational strategy in response to the COVID-19 outbreak in Indonesia in 2020. A new government policy on online learning mandates that teachers be tech-savvy for online learning to run smoothly and keep up with the existing curriculum. To help teachers become more tech-savvy, several educational institutions also hold workshops on authoring digital books. Some teachers continue to use digital books for studying even if the government's face-to-face learning policy has changed after around two years.

Related to the previous discussion, this research was carried out during an international knowledge transfer forum with the theme "Improving Indonesian English Teachers' Digital Storytelling and Literacy Skills." The forum has four meetings overall for a month. Additionally, lecturers from several universities in two countries were invited to the discussion (Indonesia and Hong Kong). 100 Indonesian ELT K–12 teachers and teachers' candidates will participate in the activity, and there are some activities in the forum, such as designing lesson plans and digital storytelling books.

3.4 Instruments

The researcher used two data collection techniques, teachers' reflective diaries and semi-structured interviews. A teacher's journal reflects their teaching practice, emotions during the practice, teaching improvement, and teaching evaluation (Barkhuizen et al., 2014). So, I gathered the data for this research from my participants' diaries, supported by artifacts made by the participants. In writing their diaries, they will recall their experience in designing digital storytelling books and supporting them with artifacts in the digital books they have created. This phase is completed to gather information needed to respond to the research question. An interview is a discussion in which participants are questioned, and participants' responses are recorded to learn more about the subject. A semi-structured interview was conducted to interview four students who had already attended the workshop. The participants' statements regarding their experiences using multimodal composing to create digital storytelling books were revealed during the interview process. To speak with the participants directly, the researcher used the messaging app "WhatsApp" on social media. In this study, the researcher interviewed them by directly interacting with the subject.

3.5 Data Analysis Procedures

Moreover, thematic analysis was used to examine the data in this study. The author used Barkhuizen et al., (2014) narrative inquiry paradigm. The three stages of the model are 1) repeated readings of the material and multiple iterations of analysis are necessary for good thematic analysis (Barkhuizen et al., 2014). In addition, the researcher initially gathered this data from participant interviews and artifacts in the form of written work by students. The researcher then read the data to gain a general understanding of it. The researcher paced back and forth while reading the information several times. 2) The researcher should do coding and categorization. Braun & Clarke (2006) stated that at this stage, the researcher had mastered the research data that had been collected and had initial hypothesis data. Therefore, after repeatedly reading the data in this study, the researcher made notes, underlined the concepts discovered for thematic coding, and categorized them into several categories while reviewing the material numerous times to grasp what it was usually discussing. Moreover, 3) reorganizing the extract based on the thematic category. At this stage, the researcher analyzes all the codes that have been registered in the data that has been collected (Braun & Clarke, 2006).

4. Findings

In this section, the researcher addressed the experiences of pre-service teachers who designed digital storytelling books utilizing digital multimodal composing. The researcher also used teachers' reflective diaries and interviews to gather data for this finding. The

researcher first requested the participants' diaries and then interviewed them to learn more about this issue. Teachers' reflective diaries are classified with "RD," whereas the excerpts from the semi-structured interviews are signed with "Int." In addition, the names of the four pre-service teachers who participated in this study as participants will also be utilized as pseudonyms. Sansa will be participant number one, Arya will be participant number two, Yara will be participant number three, and Khaleesi will be participant number four.

4.1. The Critical Domain

4.1.1 Word

There were similarities and differences between Khaleesi and Sansa's experiences inputting words or sentences and choosing the font and font size. The similarity was when they input words or sentences into the book creator application, which starts by selecting the "plus" menu. The difference is also seen in the font choice and font size.

"First, after I opened the book creator page at the top right. There was a "plus" sign then. I selected it, and inside the sign, there were several menus, one of which was the "text" menu. After that, I clicked on it, and suddenly, a template appeared for writing story narration. I also wrote the narrative of my story on the template, and then I selected the "done" menu. The menu indicates that I have finished writing my story narrative. After my narration appeared on the page of the book, I chose "Open Sans" as the font for my book. Then I set the size of the narrative text between the numbers 16/17/18. That size adjusts the image template in my story book" (Khaleesi-RD)

"...Then I chose the typeface of writing with the type "Lato"... One of them is the font selection menu. Besides that, in the menu, there is also a template for editing the size of the writing. The font size I use in my storybook is between sizes 16-19." (Sansa-Int)

4.1.2 Colour

Based on the stories, there was a slight difference in the experiences of Yara and Arya, namely their differences in choosing the color of the writing. Yara chose black for all the writing in the storybook, while Arya chose black and white for her book.

"For the color of the letters, I only use color contrasting with the background to make my writing easy to read. The color that I used is black for all the writing in the book that I made. At first, I typed the text. After that, I selected the "i" sign next to the 'plus' sign. Then there is a "color" menu in the sign I selected. I immediately clicked and chose black." (Yara-RD)

"This method is almost the same as selecting the type of writing, starting with selecting the "i" menu, then a large selection of items will appear, including font, font size, color, background, columns, and shadow. After that, I select the item color, and I choose white and black according to the color of the book template." (Arya-Int)

4.1.3 Image

The two books made by Arya and Sansa go through a process of adaptation to existing story books. So they only edited some of the needed parts and those that were not. The author takes two different types of books as a guideline for making digital storybooks. First, Arya took the book through a website as a PDF, while Sansa adopted a storybook in printed form. In the process of inputting images between the two authors, there is no difference. They input the same way in the book creator application.

"The image in my digital storybook is from the original storybook, which is in pdf format. Then I crop per page using the snipping tool... Then the input process begins by clicking on the "plus" menu and on that menu, there are many menu choices too, including the images, camera, pen, text, and record menus. I select the "image" menu, and right after I click, there is a new template that has two choices. I select "upload from your computer" then I select the image that suits my needs. Then the image will appear on the page of the book." (Arya-Int)

"The story I made is an Adapted story, the same as my children's story, boo... I clicked on the "plus" menu, which is located in the upper right corner of the book page. Then I clicked on the "images" menu, then I also selected the "upload from your computer" menu, and the pictures immediately displayed on the screen." (Sansa-Int)

4.1.4 Video

Based on Sansa's experience selecting videos for her storybooks, she chooses videos related to the story's theme. She explained that she got the video via YouTube. She also shared her experience inputting the videos she obtained on the digital book application.

"I also use videos obtained from YouTube. The video is about children's songs whose theme is still related to the main theme of the book we use. Our videos are uploaded to the book creator in a few steps. First, I clicked on the "plus" menu, and it turned out that in that menu, there are many other menu choices too. Second, I clicked on the "more" menu with a sign showing a rocket. Third, I clicked on the "embed" menu. Next, on the menu, I copy and paste the YouTube video link that I took from YouTube. Then, the video will be displayed on my book page." (Sansa-RD)

4.2 The Creative Domain

4.2.1 Explaining the aim

Taken from Sansa and Yara's stories, it was found that the digital storytelling book they had made was to introduce new technology to students, a digital book made by pre-service teachers for learning media.

"The book that I made aims to introduce digital storytelling books to students, and besides that, is to introduce the use of new technology to students in learning" (Sansa-Int)

"The aim is for learning media..." (Yara-Int)

4.2.2 Brainstorming ideas

Based on Arya and Sansa's experience determining story topics in digital storytelling books, they chose fable stories taken from internet sources and storybooks. The fable is fascinating to make a digital storytelling book because it has exciting and easy-to-understand pictures for the learning targets intended by each author.

"It was the first discussion we told each other about the themes used in our digital books... My consideration in choosing a fable is the easiest theme to turn into a digital book. There are many interesting fable stories and easy sources of images to look for, especially for junior high schools; fable stories are still fun to read." (Arya-RD)

"At that time, we took the material about "taste." Incidentally, I already have a child. So I have many storybooks. So one of my child's storybooks has a story related to the "taste" material. The story tells of a hedgehog, he is looking for an apple..." (Sansa-Int)

4.2.3 Prototyping using storyboards

Both Sansa and Yara made a draft in the form of a storyboard on Google Documents. They type several narrations according to their learning material which will be inputted on the digital book platform.

"To make the digital book, first I made a kind of framework in a table which contains pages and narration in Google Documents. Oh yeah, those are called storyboards. On the storyboard, I make a story outline divided into pages. I made the storyboard framework to make it easier for me to make the digital book." (Sansa-RD)

"So after I found the story, I made a draft in the form of a framework in Google Docs. However, I only make stories that are already in the book. So, my story is rather simple, so I type some parts of the narration that follow the book I am adapting and add some new narration to adapt the material to our learning targets." (Yara-Int)

4.2.4 Giving Peer Input

Seeing the difference in how the two participants discussed and provided input to each other in making books with their group mates, it can be concluded that they used several different collaborative platforms, namely the WhatsApp group application and the collaborative menu on the book creator application. Apart from that, in the discussion process, individuals change their ideas by receiving input from colleagues.

"The platform that I use to provide feedback to each other in the process of making a book, I activate the collaborator feature on our digital book platform called "book creator" so that my colleagues can also add or replace parts in the book that I am currently making." (Arya-RD)

"After I typed the narration for the story that was part of my assignment, I shared the results of the narrative outline to our Whats App Group to get feedback from colleagues. However, my colleague gave me the idea to change several parts of the narrative, namely by adding several things about taste." (Sansa-RD)

4.2.5 Considering viewers

Based on the target readers chosen by Arya and Yara according to their experience designing digital storytelling books, they have the same target, namely young learners but at different levels.

"In the process of determining the target audience for the books I made, I got a section for junior high school students. More specifically, I made a book for grade 7 junior high school students." (Arya-RD)

"The target audience for the book I made is elementary school students (young learners), especially grade 5 students..." (Yara-Int)

4.3 The Technical Domain

4.3.1 Editing

The difference between Sansa and Arya's experiences was when editing the digital storybook they made. Each of them edited a different section. Sansa edited the video and audio portions of the narration. Meanwhile, Arya edited the color of the storybook title and placed the audio narration symbol.

"The YouTube video is included in the editing section. Because the video was not in the initial outline of my book. So when I looked again at the book I made, it was not perfect. Finally, I decided to add a video for the song. Apart from that, I edited the audio narration part..." (Sansa-Int)

"First, I changed the title color to match the font color to the background; it was on the first page I edited. Then apart from that, I saw the audio narration symbol in the middle position; I thought it was not neat, so I edited the symbol to the side to make it look neater." (Arya-Int)

4.3.2 Recording

All pre-service teachers use AI assistance with the name of the Voice Maker application on the web. They use the application because the audio that makes sense is perfect.

"So I opened the web. If I am not mistaken, it is named voice maker. So I went into the voice maker. Then there is a text box like that. Then I enter the narration by copying and pasting the narration that I have adapted... After I select the voice character I need, I download it. After downloading it, I input it into the book creator application." (Arya-Int)

4.3.3 Producing

Based on pre-service teachers' experiences, they have similarities in producing or publishing the books they make on the book creator application in the same way; namely, they get a book creator's link to share with their target readers and can access it wherever the target readers are.

"The steps are; first, I select the "share" menu, and I select the "publish online" menu. In that menu, I set the name of my book, the name of the author of the book, and the description of my book too. After I set up my book, I chose the "publish online" menu. And then I will get my book creator link. Besides I publish my book online, I also save my book by selecting the "share" menu, and then I choose the "print" menu. Then my book will be a pdf book." (Arya-Int)

5. Discussion

In this study, pre-service teachers gain the ability to use new technology to design digital storytelling books using the framework of (Liang & Lim, 2020). Li (2020) defines *Multimodality* as the use of several forms of communication and meaning-making, including textual, auditory, linguistic, spatial, and visual. Also, in line with the theory of Kress (2010), some semiotic modes they use to communicate the meanings made in digital storytelling books include audio, visual, and video. This study found that pre-service teachers used more than two modes in designing their books: image, text, voice, and video. This is supported by Jiang (2017), who claimed that designing a book involves using digital technology they use several semiotic modes. Therefore, upgrading the ability of pre-service teachers to make digital books through digital technology and involving them in using several semiotic modes as a means of communication media in the digital books they produce is very important in the current era of technology and information.

In a study by Stamm (2021) on demystifying students' multimodal digital composition processes, he identified 12 process activities, such as selection, text entry, manipulation, referencing, environment setting, review, contemplation, waiting, breaks, transitions, and completions that students must engage in. This study shows similarities with the process activities, such as selection (selection of text or words, selection of visual elements or images, information selection or brainstorming ideas), text entry processes (word),

manipulation (editing), and completion (producing). Additionally, Wu & Chen (2020) also researched a systematic review of educational digital storytelling, and they found the most emphasized outcomes as affective, cognitive, conceptual, academic, technological, linguistic, ontological, and social. Somewhat different from the findings of the study, such as technological (technical and media skills), linguistics (writing), and social (teamwork skills or giving peer input).

As stated by Kristiawan et al., (2022) using images to visualize the story enabled students to achieve a deeper level of meaning-making. The study showed that pre-service teachers input images from the storybook and e-book related to the narrative they created. This confirms Weninger & Kiss (2013) perspective that the interplay between text and images can be an essential tool in language learning. Moreover, there are eight steps in designing a digital storytelling book, according to (Liang & Lim, 2020; Soken, 2016) including explaining the aim, brainstorming ideas, prototyping using storyboards, giving peer input, considering viewers, editing, recording, and producing. It is rather different from Çetin (2021) that digital story creation consists of choosing a topic, researching the selected topic, writing a script, creating a storyboard, collecting audio-visual items, and creating and publishing the digital story.

One of the steps in designing a digital storytelling book using the digital multimodal composing framework is giving peer input, which is similar to research findings by Jiang & Luk (2016) claimed the importance of multimodal skills in encouraging peer mentorship for cooperative learning. This process is also supported by Cross (2018), which said that the composer tested their ideas with peers and often made changes based on their peers' reactions. Moreover, in the technical domain process, pre-service teachers use the web book creator application as a template for designing digital storytelling books, making it easier to edit, record, and produce the books. It aligns with Yang et al., (2020) that telling stories with Web 2.0 technology allows for a more flexible arrangement of story elements and more creative expression of personal taste (for example, zooming in and out).

6. Conclusion

This study provides new insights for pre-service teachers to improve their technological ability in making teaching media in the form of digital storytelling books using several semiotic modes as a communication tool. On this occasion, pre-service teachers had the opportunity to prepare their knowledge and skills regarding teaching media using digital technology for their future careers. This life experience will be helpful for their future careers as teachers who are technologically literate in this era of the Industrial Revolution 4.0. Regardless of the significance of the research, further research needs to investigate teachers' perceptions in designing digital storytelling books as teaching media using digital multimodal composing framework in real class. Also, for the future research should investigate how students perceive the use of teaching media designed by pre-service teachers.

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