

Teacher's Experiences of Using Digital Storytelling in Early Childhood Education in Indonesia: A Phenomenological Study

Sigit Purnama

UIN Sunan Kalijaga Yogyakarta, Indonesia

e-mail: sigit.purnama@uin-suka.ac.id

DOI: 10.14421/jpi.2021.102.279-298

Received: 3 July 2021

Revised: 25 Aug 2021

Approved: 31 Dec 2021

Abstract

Digital storytelling is an essential component of early childhood education (ECE) because it can help capture and expand their imagination. The purpose of this study was to explain early childhood teachers' beliefs about the use of digital storytelling in their classrooms. This research was conducted in Yogyakarta, Indonesia. Phenomenological methods are used to understand and describe these phenomena and the essence of ECE teachers' experiences. The results showed that the experience of ECE teachers in learning using digital storytelling in the classroom had many benefits in improving the quality of learning. This study provides guidelines for ECE teachers on how technology can be integrated into children's learning activities using digital storytelling. The results of this study can also contribute to teachers to better understand the impact of using such technology to improve the development of technological literacy in early childhood education.

Keywords: *Digital Storytelling, ECE Teacher, Learning, Phenomenological*

Abstrak

Digital storytelling menjadi komponen penting dari pendidikan anak usia dini (PAUD), karena dapat membantu menangkap dan memperluas imajinasi mereka. Tujuan dari penelitian ini adalah untuk menjelaskan keyakinan guru anak usia dini tentang penggunaan digital storytelling di kelas mereka. Penelitian ini dilakukan di Yogyakarta Indonesia. Metode fenomenologis digunakan untuk memahami dan mendeskripsikan fenomena tersebut dan esensi pengalaman guru PAUD dengan fenomena tersebut. Hasil penelitian menunjukkan bahwa pengalaman guru PAUD dalam pembelajaran yang menggunakan digital storytelling di kelas memiliki banyak manfaat pada peningkatan kualitas pembelajaran. Penelitian ini memberikan pedoman bagi guru PAUD tentang bagaimana teknologi dapat diintegrasikan ke dalam kegiatan belajar anak dengan menggunakan digital storytelling. Hasil penelitian ini juga dapat memberikan kontribusi

kepada guru untuk lebih memahami dampak penggunaan teknologi tersebut untuk meningkatkan pengembangan literasi teknologi di pendidikan anak usia dini.

Kata Kunci: *Digital Storytelling, Guru PAUD, Pembelajaran, Fenomenologis*

Introduction

For many years, early childhood education has relied heavily on conventional forms of text-based writing, including storytelling forming, significantly rarely utilizing digital technology.¹ The rapid progress of globalization requires educational institutions always to upgrade their teaching methodologies.² Digital technology can be used in the classroom to help children develop an interest and drive to learn.

In an educational setting, digital storytelling creates short stories that help students and teachers improve their information gathering and problem-solving skills and their ability to work in collaborative teams.³ Many teachers use digital stories to engage students and arouse their interest in new subjects.⁴

Research on the effectiveness of digital storytelling has been carried out in many fields. One study showed that digital story projects by Egyptian teachers supported students' understanding of specific content in academic courses. Therefore, teachers are willing to use digital storytelling to provide more effective teaching.⁵ Valkanova (2008) studied digital storytelling with eight-year-olds in an integrative science classroom environment and suggested that digital storytelling influences self-reflection and science knowledge

¹ Angela Elizabeth Boltman, *Children's Storytelling Technologies: Differences in Elaboration and Recall*, Query date: 2022-01-08 05:57:28 (University of Maryland, College Park, 2001).

² Jannana Nora Saiva et al., "Human Resources Approach for Optimization of Knowledge Management Implementation: A Case Study at Binus University," *Jurnal Pendidikan Islam* 10, no. 2 (2021), doi:10.14421/jpi.2021.102.219-234.

³ Pelin Yuksel-Arslan, Soner Yildirim, and Bernard Ross Robin, "A Phenomenological Study: Teachers' Experiences of Using Digital Storytelling in Early Childhood Education," *Educational Studies* 42, no. 5 (2016): 427.

⁴ Bernard R Robin, "The Effective Uses of Digital Storytelling as a Teaching and Learning Tool," *Handbook of Research on Teaching Literacy through the Communicative and Visual Arts* 2, no. Query date: 2022-01-08 05:57:28 (2015): 429.

⁵ Alaa Sadik, "Digital Storytelling: A Meaningful Technology-Integrated Approach for Engaged Student Learning," *Educational Technology Research and Development* 56, no. 4 (2008): 487.

construction in elementary school children.⁶ Banaszewski (2005) used digital storytelling to expand the writing experience of fourth and fifth graders and concluded that we strengthen our understanding of our community by using multimedia to develop and share stories.⁷ Bull & Kajder (2005) uses digital storytelling in language arts classes based on the concept that "everyone has a story to tell" and to "allow a writer to experience the power of personal expression".⁸

Digital storytelling apps allow students to understand by leveraging their voice and personal identity. By incorporating their perspective, beings gain a sense of belonging, as their stories incorporate their emotions and are thus expressed in a personal and meaningful way.⁹ Research literature shows that storytelling, an essential component of children's education, helps capture and expand their imagination. Finding developmentally appropriate and meaningful learning technology tools is often a significant challenge for early childhood teachers, especially in kindergarten classrooms.

Teachers need training and time to select appropriate children's software and integrate technology into the classroom.¹⁰ Haugland (1992) found that the development of software that is not suitable for young children can lead to aggressive behaviour inhibition. Consequently, this study provides guidelines for early childhood teachers to integrate technology into children's learning through digital storytelling as a viable alternative teaching method.¹¹

This phenomenological research study describes telling in early childhood education (ECE) classes in Yogyakarta, Indonesia. ECE teachers

⁶ Yordanka Valkanova and Mike Watts, "Digital Story Telling in a Science Classroom: Reflective Self-learning (RSL) in Action," *Early Child Development and Care* 177, no. 6 (2007): 793.

⁷ Thomas Michael Banaszewski, "Digital Storytelling: Supporting Digital Literacy in Grades 4-12" (Georgia Institute of Technology, 2005).

⁸ Glen Bull and Sara Kajder, "Digital Storytelling in the Language Arts Classroom," *Learning & Leading with Technology* 32, no. 4 (2005): 46.

⁹ Joe Lambert et al., "Digital Storytelling Cookbook and Travelling Companion," *Center for Digital Storytelling at the University of CA Berkeley. Digital Diner Press. Retrieved October 17, no. Query date: 2022-01-08 05:57:28 (2003): 2005.*

¹⁰ Sharon Judge, Kathleen Puckett, and Burcu Cabuk, "Digital Equity: New Findings from the Early Childhood Longitudinal Study," *Journal of Research on Technology in Education* 36, no. 4 (2004): 383.

¹¹ Susan W Haugland, "The Effect of Computer Software on Preschool Children's Developmental Gains," *Journal of Computing in Childhood Education* 3, no. 1 (1992): 15.

describe the essence and meaning of their experiences. The purpose of this study was to explain early childhood teachers' beliefs about the use of digital storytelling in their classrooms. The research question posed in this study was "How do ECE teachers perceive and describe the use of digital storytelling in ECE after attending a two-day digital storytelling workshop?"

Theoretical Framework and Literature Review

The growing popularity of digital storytelling as a cultural and educational practice has resulted in a proliferation of definitions for the term. In 2002, the Digital Storytelling Association defined digital storytelling as "...a modern expression of the ancient art of storytelling..." and "...using digital media to create media-rich stories to tell, share and to preserve". Numerous definitions create digital stories through the coherence of images, music, narration, and sound. The social functions of storytelling are emphasized, as are computer technology's multimodal and multimedia capabilities.¹²

Ohler (2013) provides one of the first scientific definitions in Digital Storytelling in the classroom. Digital storytelling, according to Ohler, is a creative process that combines traditional storytelling with personal digital technologies such as computers, video cameras, and voice recorders.¹³ The definition was recently updated to include an educational component. Digital storytelling has evolved into a form of deep reflective learning¹⁴ and self-representation.¹⁵ According to Robin (2015), digital storytelling is the process of making short stories that enable students and teachers to strengthen their information gathering and problem-solving skills and their ability to work collaboratively.¹⁶

¹² Yuksel-Arslan, Yildirim, and Robin, "A Phenomenological Study: Teachers' Experiences of Using Digital Storytelling in Early Childhood Education."

¹³ Jason B Ohler, *Digital Storytelling in the Classroom: New Media Pathways to Literacy, Learning, and Creativity*, Query date: 2022-01-08 05:57:28 (Corwin Press, 2013).

¹⁴ Mark Evan Nelson and Glynda A Hull, "Self-Presentation through Multimedia A Bakhtinian Perspective on Digital," *Digital Storytelling, Mediatized Stories: Self-Representations in New Media*, no. Query date: 2022-01-08 05:57:28 (2008): 123.

¹⁵ Therese Kulla-Abbott and Joseph L Polman, "Engaging Student Voice and Fulfilling Curriculum Goals with Digital Stories," *THEN: Technology, Humanities, Education & Narrative*, no. 5 (2008).

¹⁶ Robin, "The Effective Uses of Digital Storytelling as a Teaching and Learning Tool."

Several studies have been conducted to examine the use of digital storytelling in early childhood education settings. Kildan (2015) examined the digital storytelling experience of prospective early childhood education (ECE) teachers. The researchers provided a technological guide for creating digital stories in this study. Teacher candidates create digital stories to teach ECE students in mathematics. According to the study results, the stories reflect students' daily activities. Students of all ages and disciplines use digital storytelling.¹⁷ In another study, digital storytelling was used to teach geometry to kindergarten students from diverse cultural backgrounds. This study concludes that digital storytelling is an effective medium for teaching mathematics to children.¹⁸

Demirbas (2020) conducted a study on digital storytelling in Turkey using the systematic literature review method. The findings state that digital storytelling increases student motivation, creative and critical thinking skills and problem-solving skills. The study explained that digital storytelling could be used in various fields and disciplines, digital storytelling can be applied to students at different levels.¹⁹

Next, Nair (2021) conducts a systematic review of digital storytelling to improve speaking skills. His findings suggest that teachers can use digital storytelling to improve students' speaking skills at various educational levels, from essential preparation to higher education. Most of the research articles provide empirical evidence that reinforces the advantages of using digital stories in the classroom to help students communicate and speak more effectively.²⁰

From these studies, researchers highlight that the implementation of digital storytelling has become mainstream in education, especially early

¹⁷ Abdullah Oguzhan Kildan and Lutfi Incikabi, "Effects on the Technological Pedagogical Content Knowledge of Early Childhood Teacher Candidates Using Digital Storytelling to Teach Mathematics," *Education 3-13* 43, no. 3 (2015): 238.

¹⁸ Beth Casey et al., "Use of a Storytelling Context to Improve Girls' and Boys' Geometry Skills in Kindergarten," *Journal of Applied Developmental Psychology* 29, no. 1 (2008): 29.

¹⁹ Irem Demirbas and Ayfer Sahin, "A Systemic Analysis of Research on Digital Storytelling in Turkey," *International Journal of Progressive Education* 16, no. 4 (2020): 45.

²⁰ Viknesh Nair and Melor Md Yunus, "A Systematic Review of Digital Storytelling in Improving Speaking Skills," *Sustainability* 13, no. 17 (2021): 9829.

childhood education. Using digital media to apply storytelling strategies is proven to help teachers and students achieve learning goals.

Research Method

This study used a phenomenological methodology to understand and describe the phenomenon and arrive at the essence of the early childhood education (ECE) teacher's experience. Creswell (2016) states that "basic phenomenology is to reduce the individual's experience with phenomena to a description of a universal essence".²¹ The phenomenon is "using digital storytelling in ECE classrooms" for this research.

1. Participants and Procedure

A relatively homogeneous group of participants is required for the phenomenological framework to work.²² Individuals chosen to participate in phenomenological studies must have substantial experience with the investigated phenomenon. Participants in this study created their first digital story during a workshop on digital storytelling. Following the workshop, they collaborate with students to create another digital story in class. This digital storytelling activity took place in Indonesia. This research with a meaningful, significant, and unique phenomenon experience.

2. Digital Storytelling Workshops

Participants were introduced to the research topic during a two-day workshop on digital storytelling. Throughout the workshop, participants create digital stories for their students and learn how to create their own.

3. Method of Collecting Data

Four in-depth interviews were conducted using the phenomenological interview model. The data collection process took two weeks and included a workshop and two digital stories—the first interview conducted following the workshop centred on the participants' initial experiences with digital storytelling. Following the workshop, each

²¹ John W Creswell and Cheryl N Poth, *Qualitative Inquiry and Research Design: Choosing among Five Approaches* (Sage publications, 2016).

²² John W. Creswell and J. David Creswell, *Research Design : Qualitative, Quantitative, and Mixed Methods Approaches*, Query date: 2022-01-08 05:57:28, 2019.

participant created two digital stories over two weeks. Following the creation of each of these stories, interviews were conducted. The second method of data collection is observation. The researcher observed the classroom for each participant during the final digital storytelling presentation phase, which consisted of one hour of class activities, and used a voice recorder to capture student responses. Triangulation was accomplished through focus group interviews.

4. Data Analysis

The general procedure includes eight steps adapted from Yuksel-Arslan (2016)²³:

- 1) Horizontalizing, or list all relevant expressions
- 2) Reduction of experience to invariant constituents
- 3) Thematic grouping to create core themes
- 4) Comparison of multiple data sources to validate invariant constituents
- 5) Making the participant's texture description
- 6) Creation of individual structural descriptions of individual participants
- 7) Construction composite structure description
- 8) Synthesize textures and structures into expressions

Table 1. Elements of Essence, Unit of Common Meaning, and Implication

Essence Element	Unit of Common Meaning	Implication
Digital storytelling as a classroom activity	Provide structural lesson plans	Lesson plan for using digital storytelling in the classroom
	Guiding students during activities	
	Child development level	
	Considering positive messages Problem-based approach	
Digital storytelling as a learning tool	Increase student learning motivation Transferring abstract knowledge to concrete knowledge	Digital storytelling as an alternative problem-based

²³ Yuksel-Arslan, Yildirim, and Robin, "A Phenomenological Study: Teachers' Experiences of Using Digital Storytelling in Early Childhood Education."

	Behaviour modification with digital storytelling	learning tool in the future kindergarten classroom
	Evaluating the learning process with digital storytelling	
	Documenting the development process	
Digital storytelling as a self-reflection tool	Teacher's reflection on action Reflection of the child in action	Increase children's motivation
Parent's cooperation	Communication with parents Parents feedback	The impetus for change in teacher practice
The development of students' self-confidence	Increase self-confidence Be part of the process	Overcoming parental resistance in early childhood education
The principle of equity for children	Equal opportunity for students	Provide equal opportunities for all students
Take advantage of technological advances	Teacher professional development	Supporting the use of technology in early childhood teaching

Adapted from: Yuksel-Arslan (2016)²⁴

Findings

The essence of using digital storytelling education in early childhood education (ECE), according to participants' experience, consists of seven elements. The first column in Table 1 lists the seven essential elements, while the second column identifies the main characteristics of the elements as units of shared meaning. The last column summarizes the implications of the results, which will be discussed in more detail in the discussion and conclusions.

²⁴ Ibid.

1. Digital storytelling as a class activity

The first element essentially provides a structure for ECE teachers' lesson plans. Numerous guidelines can be used to implement digital storytelling in the classroom. The structural lesson plans for digital storytelling as a class activity cover the following topics: (1) establishing the story's starting point; (2) developing a script; (3) gathering audio and visual materials; (4) compiling visual and audio materials into digital story formats; and (5) presenting digital stories. Additionally, teachers should consider the first components when implementing digital storytelling in their classrooms.²⁵

2. Digital storytelling as a learning activity

According to the research results, teachers use digital storytelling as a learning tool in their classrooms because it is a form of realizing the mission of a learning management system with a technology-based curriculum so that children are accustomed to thinking more critically, creatively, and HOTS (Higher Order Thinking Skills). In addition, it can be accessed wherever the child is.

3. Digital storytelling as a reflection tool

Throughout the study's digital storytelling activities, students attempted to change their courtesy, behaviour responsibility, caring, and empathy. Teachers and students alike reflect on their practise through digital storytelling activities.

This third essential characteristic indicates that teachers and students reflect on their practice. Collins (1996) asserts that "the benefit of reflection is that students can see a process for the first time, such as their first exposure to a mirror, and to compare their way of doing things with how other people do things."²⁶

²⁵ Ibid.

²⁶ Allan Collins, "Design Issues for Learning Environments," *International Perspectives on the Design of Technology-Supported Learning Environments*, no. Query date: 2022-01-08 05:57:28 (1996): 347.

4. Parent's cooperation

According to Manullang (2021), using digital storytelling media and educational game applications is appropriate for using online learning in collaboration with parents. Teachers and parents assist children in using digital video storytelling applications and educational games, doing play and learning activities together through Zoom Meetings and Offline Learning to develop cognitive abilities of early childhood.²⁷

Teachers and parents must collaborate closely to make the best use of digital storytelling. Students may face various difficulties at school and home. Teachers may not realize that students' problems originate outside the school. Thus, teachers and parents must collaborate to identify children's real-world problems. In addition, the teacher hopes to get input from parents regarding the student learning process through digital storytelling, based on research results. After the activity ended, the teacher distributed the product to parents, who saw the digital story and shared their thoughts, praise, and concerns.

5. Student self-confidence progress

According to Goodenow (1991), a sense of belonging allows people to identify as members of a social group and share experiences with other group members associated with being liked and accepted.²⁸ The fifth important element shows how digital storytelling can increase students' self-confidence by involving them in the activity. When students observe themselves in digital stories, they develop a sense of ownership of the learning activity, which increases their confidence.

6. Equity principle

The teacher stated that due to many students, traditional storytelling activities experienced difficulties such as having too many, maintaining class control, and ensuring that all students participated equally in the same activities. The teacher stated that they had some

²⁷ Ditta Manullang and Humuntal Banjarnahor2 Lisbet Simanjuntak, "Developing Digital Story Telling and Educational Games to Improve Early Childhood Cognitive Ability," in *6th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2021)* (Atlantis Press, 2021), 710.

²⁸ Carol Goodenow, "The Sense of Belonging and Its Relationship to Academic Motivation among Pre-and Early Adolescent Students," no. Query date: 2022-01-08 05:57:28 (1991).

difficulties, especially listening to the students. However, digital storytelling allows for equal participation and educational opportunities. Its essence shows that children should have equal access to digital storytelling activities. Teachers should emphasize the importance of providing equal opportunities for all students to participate and learn in their classrooms by integrating technology into the learning process.²⁹

7. Using technological advances

Teachers face several difficulties when using digital storytelling in their classrooms, such as access to technology, a small number of students in class, administrative barriers, and time constraints.³⁰ However, according to the participants' final comments in the focus group interview, the next difficulty is not being too creative as a content creator in editing videos and making more exciting shows.³¹

The last element shows that teachers' use of digital storytelling encourages technology in early childhood education. The use and integration of technology in the classroom require time, training, and support for teachers.³² The sole use of a video creation tool, such as Adobe Premiere Pro, can encourage students and teachers to learn in new ways. Although participants have access to various technological tools in their classrooms, they do not always use them. The benefit of using such tools for digital storytelling is that it increases teacher motivation to investigate the benefits of technological advancements.

Discussion

Based on the results of this study, the experience of ECE teachers with education using digital storytelling in the classroom has many benefits (see Table 1). This is digital storytelling as an alternative problem-based learning

²⁹ Judge, Puckett, and Cabuk, "Digital Equity: New Findings from the Early Childhood Longitudinal Study."

³⁰ Bulent Dogan and Bernard Robin, "Implementation of Digital Storytelling in the Classroom by Teachers Trained in a Digital Storytelling Workshop," in *Society for Information Technology & Teacher Education International Conference (Association for the Advancement of Computing in Education (AACE), 2008)*, 902.

³¹ Cut Citra Novita, "What Problems Do You Experience When Creating Digital Storytelling with Children?," no. Query date: 2022-01-08 05:57:28 (2021).

³² Kulla-Abbott and Polman, "Engaging Student Voice and Fulfilling Curriculum Goals with Digital Stories."

tool to increase young children's motivation; the impetus for change in teacher practice; overcome parental resistance to early childhood education; provide equal opportunities for all students; and support the use of technology in early childhood teaching.

In Indonesia, the application of the storytelling method has become mainstream in early childhood education. However, digital media has become a new trend in implementing storytelling methods to replace conventional media. For many years, early childhood education storytelling techniques were limited to traditional text-based reading and writing types, puppets, story-related items, and computerized media used sparingly.³³ Therefore, incorporating storytelling activities into early childhood education can be beneficial by using fairy tale elements related to properties such as pictures and dolls and digital technology, which results in digital storytelling. Digital storytelling is a technique that integrates the art of storytelling with various digital media, including images and sound.³⁴

In his research, Suarjana (2020) argues that aspects of child development can be facilitated by learning storytelling with the help of animated videos of puppet creations. Children can obtain various benefits of storytelling, including the following: (1) can help children develop their imagination, (2) can help children gain experience, (3) can help children improve their concentration, (4) can help children expand vocabulary, (5) can help children develop their grasping power, (7) can help children develop social feelings, (8) can help children develop emotions, (9) can help children practice listening, (10) can help children introduce positive and negative values, and (11) can help children improve their knowledge.³⁵

³³ Irena Y Maureen, Hans van der Meij, and Ton de Jong, "Supporting Literacy and Digital Literacy Development in Early Childhood Education Using Storytelling Activities," *International Journal of Early Childhood* 50, no. 3 (2018): 371; Irena Y Maureen, Hans van der Meij, and Ton de Jong, "Enhancing Storytelling Activities to Support Early (Digital) Literacy Development in Early Childhood Education," *International Journal of Early Childhood* 52, no. 1 (2020): 55.

³⁴ Irena Y Maureen, Hans van der Meij, and Ton de Jong, "Evaluating Storytelling Activities for Early Literacy Development," *International Journal of Early Years Education*, no. Query date: 2022-01-08 05:57:28 (2021): 1.

³⁵ I Made Suarjana and I Gede Astawan, "Pengembangan Media Video Wayang Kreasi Untuk Mendukung Pembelajaran Storytelling Anak Kelompok B Tk Kristen Harapan Denpasar," *Indonesian Journal of Instruction* 1, no. 2 (2020): 66.

Audio-visual technology in digital storytelling helps develop children's empathy skills. In addition, presenting stories using audio-visual media can help build children's absorption, or ability to hold their attention, as well as their creativity and ability to create exciting scenarios. The goal of using digital storytelling to teach children is to develop their empathy, perspective-taking, self-awareness, and sense of community.³⁶ The use of digital media in early childhood learning through digital storytelling helps develop children's digital literacy skills, which are very important for children's education in the future.³⁷ Proper use of these digital tools can help children's understanding and motivation by making information more comprehensible and inspiring.

In general, the implementation of digital storytelling in early childhood education in Indonesia uses simple digital technology. This technology can make storytelling more entertaining, engaging, communicative, and theatrical.³⁸ Researchers listed several digital technologies used by teachers in applying digital storytelling to children, which included: pictures, PowerPoint presentations, sound systems, microphones, screens, LCD projectors, and laptops. These tools are simple digital technologies, which teachers use to create digital storytelling.

Every individual is unique. Similarly, young children have different identities, perceptions, and emotions in responding to a situation. They show various responses to their problems. All children can benefit from digital storytelling learning materials that incorporate common themes such as calls, colours, and numbers. However, some children may need additional attention to meet their educational needs. Several studies have shown that computer technology can increase students' learning motivation.³⁹ Children were highly

³⁶ Ifti Aisha and Dian Veronika Sakti Kaloeti, "Digital Storytelling Intervention on Prosocial Behavior Improvement among Early Childhood," *Psymphatic: Jurnal Ilmiah Psikologi* 7, no. 2 (2020): 185.

³⁷ Maureen, Meij, and Jong, "Evaluating Storytelling Activities for Early Literacy Development."

³⁸ Maila DH Rahiem, "Storytelling in Early Childhood Education: Time to Go Digital," *International Journal of Child Care and Education Policy* 15, no. 1 (2021): 1.

³⁹ Chun-Ming Hung, Gwo-Jen Hwang, and Iwen Huang, "A Project-Based Digital Storytelling Approach for Improving Students' Learning Motivation, Problem-Solving Competence and Learning Achievement," *Journal of Educational Technology & Society* 15, no. 4 (2012): 368; Gwo-Jen Hwang and Hsun-Fang Chang, "A Formative Assessment-Based Mobile Learning Approach to Improving the Learning Attitudes and Achievements of Students," *Computers & Education* 56, no. 4 (2011): 1023.

motivated and persisted longer in digital storytelling activities than other daily classroom activities in the study. They exemplify perseverance and patience because they are components of a digital end product. According to Winsler (2003), when young children complete a task, they experience a sense of accomplishment, which boosts their motivation. This study shows that digital stories serve as evidence of students' success in completing complex tasks.⁴⁰

When teachers integrate technology into early childhood education, inequality is essential to consider. They should consider providing equal access to the effective use of technology in early childhood education for all children.⁴¹ All students should be treated as capable and entitled to equal access to educational opportunities by teachers.⁴² Teachers can ensure that all students have equal access to technology by incorporating digital stories into kindergarten classes, even if students have limited access to technology tools. When a teacher incorporates all students into a digital story, they all have an equal opportunity to learn.

Conclusion

Early childhood education teachers' experience with digital storytelling has various benefits. This research aims to guide teachers on incorporating technology into children's learning activities through digital storytelling. Study findings can assist instructors in better understanding the impact of incorporating technology into early childhood education to promote the development of technical literacy. Today, most preschool teachers have computers or digital cameras. However, many teachers do not take advantage of this content in their classrooms. The study recommends integrating technology into the curriculum through computers, digital cameras, voice recorders, and projectors.

⁴⁰ Adam Winsler and Martha P Carlton, "Observations of Children's Task Activities and Social Interactions in Relation to Teacher Perceptions in a Child-Centered Preschool: Are We Leaving Too Much to Chance?," *Early Education and Development* 14, no. 2 (2003): 155.

⁴¹ Judy Van Scoter, Debbie Ellis, and Jennifer Railsback, *Technology in Early Childhood Education: Finding the Balance*, Query date: 2022-01-08 05:57:28 (Northwest Regional Educational Laboratory Portland, 2001).

⁴² Glenn M Kleiman, "Myths and Realities about Technology in K-12 Schools," *Leadership and the New Technologies* 14, no. 10 (2000): 1.

References

- Aisha, Ifti, and Dian Veronika Sakti Kaloeti. "Digital Storytelling Intervention on Prosocial Behavior Improvement among Early Childhood." *Psymphatic: Jurnal Ilmiah Psikologi* 7, no. 2 (2020): 185.
- Banaszewski, Thomas Michael. "Digital Storytelling: Supporting Digital Literacy in Grades 4-12." Georgia Institute of Technology, 2005.
- Boltman, Angela Elizabeth. *Children's Storytelling Technologies: Differences in Elaboration and Recall*. Query date: 2022-01-08 05:57:28. University of Maryland, College Park, 2001.
- Bull, Glen, and Sara Kajder. "Digital Storytelling in the Language Arts Classroom." *Learning & Leading with Technology* 32, no. 4 (2005): 46.
- Casey, Beth, Sumru Erkut, Ineke Ceder, and Jessica Mercer Young. "Use of a Storytelling Context to Improve Girls' and Boys' Geometry Skills in Kindergarten." *Journal of Applied Developmental Psychology* 29, no. 1 (2008): 29.
- Collins, Allan. "Design Issues for Learning Environments." *International Perspectives on the Design of Technology-Supported Learning Environments*, no. Query date: 2022-01-08 05:57:28 (1996): 347.
- Creswell, John W., and J. David Creswell. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Query date: 2022-01-08 05:57:28, 2019.
- Creswell, John W, and Cheryl N Poth. *Qualitative Inquiry and Research Design: Choosing among Five Approaches*. Sage publications, 2016.
- Demirbas, Irem, and Ayfer Sahin. "A Systemic Analysis of Research on Digital Storytelling in Turkey." *International Journal of Progressive Education* 16, no. 4 (2020): 45.
- Dogan, Bulent, and Bernard Robin. "Implementation of Digital Storytelling in the Classroom by Teachers Trained in a Digital Storytelling Workshop." In *Society for Information Technology & Teacher Education International Conference*, 902. Association for the Advancement of Computing in Education (AACE), 2008.

- Goodenow, Carol. "The Sense of Belonging and Its Relationship to Academic Motivation among Pre-and Early Adolescent Students," no. Query date: 2022-01-08 05:57:28 (1991).
- Haugland, Susan W. "The Effect of Computer Software on Preschool Children's Developmental Gains." *Journal of Computing in Childhood Education* 3, no. 1 (1992): 15.
- Hung, Chun-Ming, Gwo-Jen Hwang, and Iwen Huang. "A Project-Based Digital Storytelling Approach for Improving Students' Learning Motivation, Problem-Solving Competence and Learning Achievement." *Journal of Educational Technology & Society* 15, no. 4 (2012): 368.
- Hwang, Gwo-Jen, and Hsun-Fang Chang. "A Formative Assessment-Based Mobile Learning Approach to Improving Students' Learning Attitudes and Achievements." *Computers & Education* 56, no. 4 (2011): 1023.
- Judge, Sharon, Kathleen Puckett, and Burcu Cabuk. "Digital Equity: New Findings from the Early Childhood Longitudinal Study." *Journal of Research on Technology in Education* 36, no. 4 (2004): 383.
- Kildan, Abdullah Oguzhan, and Lutfi Incikabi. "Effects on the Technological Pedagogical Content Knowledge of Early Childhood Teacher Candidates Using Digital Storytelling to Teach Mathematics." *Education 3-13* 43, no. 3 (2015): 238.
- Kleiman, Glenn M. "Myths and Realities about Technology in K-12 Schools." *Leadership and the New Technologies* 14, no. 10 (2000): 1.
- Kulla-Abbott, Therese, and Joseph L Polman. "Engaging Student Voice and Fulfilling Curriculum Goals with Digital Stories." *THEN: Technology, Humanities, Education & Narrative*, no. 5 (2008).
- Lambert, Joe, A Hill, N Mullen, C Paull, E Paulos, T Soundararajan, and D Weinshenker. "Digital Storytelling Cookbook and Travelling Companion." *Center for Digital Storytelling at the University of CA Berkeley. Digital Diner Press. Retrieved October 17*, no. Query date: 2022-01-08 05:57:28 (2003): 2005.
- Manullang, Ditta, and Humuntal Banjarnahor2 Lisbet Simanjuntak. "Developing Digital Story Telling and Educational Games to Improve Early Childhood Cognitive Ability." In *6th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2021)*, 710. Atlantis Press, 2021.

- Maureen, Irena Y, Hans van der Meij, and Ton de Jong. "Enhancing Storytelling Activities to Support Early (Digital) Literacy Development in Early Childhood Education." *International Journal of Early Childhood* 52, no. 1 (2020): 55.
- . "Evaluating Storytelling Activities for Early Literacy Development." *International Journal of Early Years Education*, no. Query date: 2022-01-08 05:57:28 (2021): 1.
- . "Supporting Literacy and Digital Literacy Development in Early Childhood Education Using Storytelling Activities." *International Journal of Early Childhood* 50, no. 3 (2018): 371.
- Nair, Viknesh, and Melor Md Yunus. "A Systematic Review of Digital Storytelling in Improving Speaking Skills." *Sustainability* 13, no. 17 (2021): 9829.
- Nelson, Mark Evan, and Glynda A Hull. "Self-Presentation through Multimedia A Bakhtinian Perspective on Digital." *Digital Storytelling, Mediatized Stories: Self-Representations in New Media*, no. Query date: 2022-01-08 05:57:28 (2008): 123.
- Novita, Cut Citra. "What Problems Do You Experience When Creating Digital Storytelling with Children?," no. Query date: 2022-01-08 05:57:28 (2021).
- Ohler, Jason B. *Digital Storytelling in the Classroom: New Media Pathways to Literacy, Learning, and Creativity*. Query date: 2022-01-08 05:57:28. Corwin Press, 2013.
- Rahiem, Maila DH. "Storytelling in Early Childhood Education: Time to Go Digital." *International Journal of Child Care and Education Policy* 15, no. 1 (2021): 1.
- Robin, Bernard R. "The Effective Uses of Digital Storytelling as a Teaching and Learning Tool." *Handbook of Research on Teaching Literacy through the Communicative and Visual Arts* 2, no. Query date: 2022-01-08 05:57:28 (2015): 429.
- Sadik, Alaa. "Digital Storytelling: A Meaningful Technology-Integrated Approach for Engaged Student Learning." *Educational Technology Research and Development* 56, no. 4 (2008): 487.
- Saiva, Jannana Nora, Sulistya Heru, Qowim Muhammad, and Murfi Ali. "Human Resources Approach for Optimization of Knowledge Management Implementation: A Case Study at Binus University." *Jurnal Pendidikan Islam* 10, no. 2 (2021). doi:10.14421/jpi.2021.102.219-234.

- Scoter, Judy Van, Debbie Ellis, and Jennifer Railsback. *Technology in Early Childhood Education: Findings the Balance*. Query date: 2022-01-08 05:57:28. Northwest Regional Educational Laboratory Portland, 2001.
- Suarjana, I Made, and I Gede Astawan. "Pengembangan Media Video Wayang Kreasi Untuk Mendukung Pembelajaran Storytelling Anak Kelompok B Tk Kristen Harapan Denpasar." *Indonesian Journal of Instruction* 1, no. 2 (2020): 66.
- Valkanova, Yordanka, and Mike Watts. "Digital Story Telling in a Science Classroom: Reflective Self-learning (RSL) in Action." *Early Child Development and Care* 177, no. 6 (2007): 793.
- Winsler, Adam, and Martha P Carlton. "Observations of Children's Task Activities and Social Interactions in Relation to Teacher Perceptions in a Child-Centered Preschool: Are We Leaving Too Much to Chance?" *Early Education and Development* 14, no. 2 (2003): 155.
- Yuksel-Arslan, Pelin, Soner Yildirim, and Bernard Ross Robin. "A Phenomenological Study: Teachers' Experiences of Using Digital Storytelling in Early Childhood Education." *Educational Studies* 42, no. 5 (2016): 427.

Appendix 1. Examples of Teacher-Generated Digital Stories

The Digital Story of "Netiz and Gogo's Friendship"



Appendix 2. Interview Guidelines, adapted from (Yuksel-Arslan et al., 2016)

Full Name :
ECE Institutions :
Teaching Period :
WhatsApp Number :

- (1) Are you able to share your digital storytelling experience with others?
- (2) How much time is spent integrating technology into developing digital storytelling?
- (3) What are your thoughts on your role as a teacher in incorporating digital storytelling into your classroom?
- (4) How are your students involved in the process of creating digital storytelling?
- (5) What impact do you believe digital storytelling has on your instructional practice?
- (6) How do you incorporate digital storytelling into your classroom instruction?
- (7) What is your objective in incorporating digital storytelling into your classroom instruction?
- (8) What is the impact of digital storytelling on student learning? Kindly explain.
- (9) How do children react to the digital storytelling activity?
- (10) How does digital storytelling affect students' motivation and level of engagement?
- (11) What challenges did you encounter when introducing digital storytelling to your students, and how did you overcome them?
- (12) How do you manage time constraints when working with your children to create digital storytelling?
- (13) What difficulties did you encounter while developing digital storytelling with children?