

Teachers' Perspectives on Using Interactive Digital Storytelling for EFL Instruction in Rural Indonesia

Tri Pujiani✉¹

¹Universitas Harapan Bangsa, Indonesia

¹Universitas Negeri Semarang, Indonesia

Abstract

Although digital storytelling is greatly promoted for language acquisition, little is known about teachers' perceptions towards its practical application, especially in rural EFL settings. This qualitative study examines how EFL teachers teaching in rural kindergarten of Banyumas Regency perceive the use of interactive digital storytelling to assist young learners' acquisition of language. Through semi-structured interviews, this research identifies perceived benefits in the form of enhanced interaction, recall of vocabulary, and contextual knowledge, and salient obstacles in the form of limited infrastructure, digital competence, and insufficiencies in mapping content to national curriculum levels. The study underscores teacher professional development and localized content alignment needs. This study contributes to the discourse on equitable language learning resources and supports SDG Goal 4 through proposing education innovation that is attentive to education disparities.

Keywords: Teacher Perception; Digital Storytelling; Rural Education; EFL Young Learners;

INTRODUCTION

As early childhood education changes in the face of advancing technology, interactive digital storytelling (IDS) is garnering attention, and presents promising opportunities to support young learners' acquisition of the English language. Unlike traditional approaches, which rely upon non emotive rote learning and decontextualized vocab instruction, IDS allows for emotional evocative, multisensory learning through the fusion of functional narrative, visuals, sound, and interactivity. IDS's effectiveness at fostering motivation, comprehension and vocabulary retention for young learners in international education settings, particularly in the context of English as a Foreign Language (EFL), has been well-documented (Abderrahim & González, 2020). Because of the cognitive and affective relationship between storytelling and early childhood development (Ollerhead & Pennington, 2024), IDS is particularly suitable for children who are at the starting stage of learning to speak a language.

There has been a number of studies that have investigated the pedagogical possibilities of IDS around the world, and most notably, the potential of IDS for promoting language acquisition. For example, introducing short stories into EFL lessons found to improve reading comprehension and learner perceptions of reading using an interesting technique (Eliza, 2020; Irhamni et al., 2025; Mustafa, 2024). In the same vein, digital storytelling has been shown to effectively promote creativity and writing skills for EFL learners (Alemi et al., 2022; Cao, 2024; Fadhilah et al., 2020; Karadoğan, 2023). More than that, some studies revealed that storytelling is effective to improve the language acquisition of the other skills such as vocabulary, listening, and speaking (Loniza et al., 2018; Maya & Halim, 2021; Muzammil & Andy, 2017; Nair & Yunus, 2021; Pujiani et al., 2023; Tran, 2021). These findings collectively underscore the potential of IDS as a powerful pedagogical tool for supporting multiple facets of language development in EFL contexts.

However, IDS implementation in which it involves digital technology may leaves challenges for underresources setting such as rural areas. For example, Ramalepe and Van der Westhuizen (2024) explored the experiences of rural primary school teachers participating in a digital storytelling workshop in South Africa. Their findings indicated that professional development support and targeted digital storytelling (IDS) enabled teachers to develop confidence and capacity to engage with IDS. It was clear the teachers' valued IDS as a means, not just to scaffold reading, but to acknowledge creativity and identity. Importantly, the study does not state that rural teachers reject digital pedagogies; rather, it notes, that with context and support, rural teachers will typically sustain and

integrate their use of digital tools and materials if they find some level of cultural relevancy in the materials.

Although these studies provide useful insights into the possibilities and pitfalls of IDS, they have not filled a gap. Most of this research is focused on either urban school with more consistent access to infrastructure and professional development or on students in primary and secondary education where learners have more autonomy and teachers probably have some pedagogical training regarding the use of technology. Little research looks explicitly at rural Indonesian kindergarten teachers who usually face significant constraints and are working with the most impressionable learners who require developmentally appropriate and tailored instructional methods.

The gap presented here is significant. Young learners in rural kindergartens are one of the most marginalized groups in Indonesia's education system and they are offered limited support for the challenges they face due to socioeconomic status, geographic location, or school type (Khulel, 2021). At the same time, young learners' early childhood is also a key stage for language development where exposure to rich, contextually meaningful input is needed while learners are ready to receive it. IDS fits a good student and pedagogical purpose to suit learners needs; all we need to do is scrutinize how they perceive, understand and put what they have learnt into practice when teaching learners.

In addition, national education policies in Indonesia currently promote digital innovation and literacy, but such policies continually overlook the realities of rural practice. Many of the policies are top-down approaches that focus on expectations of technology adoption neglecting context, teacher input, or sustainable practice simply become what it is (Hazin et al., 2025; Saa, 2024). Often, well-meaning interventions limit the potential to narrow, or more likely exacerbate, the equity gap between urban and rural schools by demanding evidence of successful adoption without the relevant professional development, context, and overall pedagogical support.

The absence of an empirical focus on the experiences of rural EFL kindergarten teachers with IDS is more than a research gap; it is a potentially missed opportunity to develop inclusive and contextualized interventions. Understanding the affordances and constraints that shape these teachers' perceptions of IDS will enable us to identify the practical conditions for usage, and help to create more equitable pathways for digital innovations in early years education.

In order to fill this gap, the present study seeks to investigate how rural EFL kindergarten teachers in Indonesia conceptualised the pedagogical affordances of IDS - specifically, its ability to enhance engagement, vocabulary acquisition, and comprehension of contexts, alongside barriers like infrastructure, technology competence, and curriculum misalignment. The study focuses on teachers as reflective practitioners working within restrictions to show how IDS is negotiated in practice and how local conditions mediate uptake and adaptation.

In terms of Sustainable Development Goal 4 (SDG 4)—ensure inclusive and equitable quality education and promote lifelong learning opportunities for all—the research hopes to ultimately ensure more grounded, contextualised and thus more sustainable uses of IDS in Indonesian early childhood classrooms. It goes on to argue that digital storytelling should not be seen as a universal innovation but as a pedagogical instrument, one that only functions when it is shaped, by its very nature, through the voices, experiences and realities of teachers themselves. Viewed in this way, IDS can become more than just a technology fad; it has the potential to become a lived, equitable, and transformative means for young learners, and their learning language capacities, in some of the most educationally disadvantaged spaces.

METHODS

This research study applied a qualitative descriptive design to investigate the conceptualisation of interactive digital storytelling (IDS) as a pedagogical tool for English for young learners (EYL) among those EFL teachers who teach young learners (such as kindergarten children) in rural Indonesia. A qualitative method was applied, given the study's purpose of capturing teachers lived experiences, beliefs and situational constraints of using IDS in early childhood contexts. The design was suitable considering the exploratory component of the study, noting that we aim to illustrate educators situated and subjective experiences of practicing as teachers in under-resourced education contexts.

The research was conducted in Banyumas Regency, Central Java, Indonesia, which is primarily a rural area and has limited access to digital technology in education that is slowly expanding. Seven

kindergarten teachers were purposively selected from five kindergartens as the participants in this study. The inclusion criteria consisted of (1) being an active teacher at the kindergarten level in a rural area, (2) having limited to moderate knowledge of digital storytelling before this study, and (3) being willing to be interviewed. These seven participants had different lengths of teaching at the kindergarten level, with their experience ranging from 3 to 20 years.

The research process comprised three key phases. The first phase involved a pilot implementation of the interactive digital storybook (IDS) that had been developed by the research team, to assess how IDS might be implemented in actual EFL (English as a foreign language) learning contexts. This provided baseline data on the learners' levels of engagement and also provided teachers with an opportunity to be familiar with the concept and features of IDS. The second phase consisted of a one-day training workshop, for the participating teachers, to guide them through the process of designing and developing their own digital storybooks, using simple digital tools like Book Creator and Canva. The workshop focused on development of IDS linked to language learning objectives and cultural relevance. In the final phase, the teachers were invited to participate in semi-structured interviews to consider their experiences, challenges, and perceived benefits of IDS in their teaching practice.

Data gathering was completed through semi-structured individual interviews that lasted between 30 and 60 minutes in length. The interviews were conducted in Bahasa Indonesia to ensure that participants would be able to speak freely and understand without issues. The interview questions were structured and asking about the teachers' experience with IDS, the impact it had on students' learning, challenges teachers faced implementing IDS and recommendations for future DCPs or training. Field notes and informal observations taken during the training and pilot sessions were also made to provide a degree of data triangulation.

The data were transcribed and then analyzed through a thematic analysis following the six-phase model offered by Braun and Clarke (2006) where with each reciprocity leading back and forth through the phases. The phases served to get familiarized with the data, generate initial codes, search for themes, review themes, define/naming themes, and produce the final report. The researchers completed the initial coding and generation of themes manually and then went back and coded the data and generated themes cross-validated one another. Ethical protocols [(informed consent, confidentiality, voluntary participation)] were adhered to throughout the study.

FINDINGS AND DISCUSSION

This section presents the findings of the study and discusses them in relation to the research questions. The discussion is organized thematically based on key patterns emerging from the interview data, namely: (1) the perceived pedagogical benefits of interactive digital storytelling (IDS), (2) the challenges teachers encountered during implementation, (3) pedagogical and contextual considerations for IDS design, and (4) teachers' recommendations for sustaining IDS integration in rural early childhood education. Table 1 presents the summary of the respondents' demographic data and their perspectives.

Table 1. Respondents' Demographic and Perspective Summary

Respondent Code	Age	Teaching Experience (years)	School Origin (Initial)	Perceived Benefits of IDS	Challenges in Using IDS	Suggestions / Future Direction
R1	45	20	P1	Engaging and innovative for young learners	Tech adaptation difficulty for senior teachers	More online learning resources
R2	42	15	P2	Enhances motivation and engagement	Limited facilities and prep time	Further teacher training
R3	44	15	HB	Supports language development	Overfocus on tech may neglect pedagogy	Improve pedagogy and tech together
R4	37	10	IM	Introduces new concepts effectively	Lack of relevant learning resources	Mentoring for IDS product creation

R5	35	10	A	Effective for digital-era children	Time, tech skills, and material mastery	Balance tech and real interaction
R6	34	9	P1	Simplifies vocabulary acquisition	Overreliance on tech needs balance	Strengthen storytelling and content creation
R7	27	3	P2	Fun and introduces digital tools	Poor infrastructure and internet access	Improve facilities and resources

The perceived pedagogical benefits of interactive digital storytelling

Rural kindergarten teachers uniformly characterized interactive digital storytelling (IDS) as a potent force for boosting young learners' motivation, engagement, and development of language skills. Their comments made clear that IDS was exciting to learners not only for its visual and auditory sensationalism, but also because it led to incidental language learning opportunities that were derived from a meaningful story context. For example, several participants noted that when learners engaged in IDS lessons, they became obviously more interested and excited, often voicing excitement prior to encountering a storied experience, especially when sound and animated characters and interactive prompts were a part of storytelling. One teacher noted "IDS further increases students' motivation and engagement" (R2/17.6/12.30) by getting learners' attention in ways that more traditional, print-based or teacher-managed approaches cannot.

Teachers similarly indicated that vocabulary learning improved in situations where students encountered (new) vocabulary in the context of digital stories, rather than through stand-alone vocabulary lists or drill learning activities. In other words, students encountered vocabulary items in their story context, and with the added support of visuals and audio, were able to form supportive meaning through contextual usage of the vocabulary items, rather than through methods that demanded memorization or rote repetition of sounds or words. Multimodal elements like expressive narration, background music, and visual story, are said to arouse emotional and imaginative engagement and thus increased retention. This aligns with Mayer's (2024) Cognitive theory of Multimedia Learning, which suggests that when learning materials are age-appropriate and integrated, dual channel processing (visual and auditory) improves understanding and memory retention.

Additionally, the immersive potential of IDS enables learners to tap an approach to language learning which closely resembles the manner of acquisition of their first language. Early childhood is characterized by concrete thinking and high receptivity to input. Therefore, language input that is engaging, meaningful and emotionally based is considered to be more easily remembered. In remote rural kindergarten contexts where instructional materials are constrained and classroom stimuli are homogeneous, introducing novelty and richness through IDS enhances how language is taught. When well crafted universal truths, humanistic presentees, and cultural proximity are curated for digital stories, we have observed learners engage with a literate and cultured realm that feels familiar yet broad in the way in which they learn, specifically for those learners who have minimal or simply no culturally rich language experiences.

Ramalepe and Westhuizen (2024) also provided confirmation regarding the findings produced by this study as they examined digital storytelling in South Africa early childhood education and found the same results even on reduced engagement with technology, which increased language use in the classroom as well as engagement in the classroom in general. Similarly, Saliuk and Shkola (2023) also discovered that students within an Integrated Digital Storytelling (IDS) curriculum improved in their engagement and self-regulation of emotions, suggesting that narrative content may shape students to become more patient, empathetic, and expressive. Likewise, Abderrahim and Gutiérrez-Colón Plana (2021) reported an improvement in motivation and engagement from their diverse student population directly following the implementation of digital storytelling, even without the use of technological tools.

Theoretical frameworks can provide conceptual lenses through which to examine how digital storytelling supports learning opportunities for all students. Vygotsky's sociocultural theory (Irshad et al., 2021) views storytelling as a mediational tool that connects a learner's current skill set with their possible skill set, termed the Zone of Proximal Development (ZPD). Interactive Digital Storytelling

(IDS) which often involves collaborative, scaffolded learning, provided learners with the opportunity to go beyond what they would have been capable of alone, by guiding learners with contextual scaffolds, and providing socially meaningful interaction using language. In other words, when using technology - the learner is not simply learning, but co-creating knowledge through experiences and interactions with others.

Furthermore, using IDS also is consistent with Deci and Ryan's Self-Determination Theory (SDT) (Ryan & Deci, 2000), which states that for intrinsic motivation to be fully realized, there needs to be three basic human needs: autonomy, competence, and relatedness. IDS supports learners' autonomy, because they have the opportunity to engage with source material at their own pace; competence, because visual media reiterates language in a supportive, contextualized way; and relatedness through engagement about narratives that are culturally familiar or tied emotionally.

Further research provided more evidence to support these findings. Tran (2021) found that the learners improved in both vocabulary retrieval and story retelling when their personal narratives were delivered through IDS. Karadoğan (2023) identified that after six weeks of involvement in IDS activities, Turkish EFL learners improved on measures of creative ability and spoken fluency. Altogether these examples demonstrate the adaptability and use of IDS in a variety of social-linguistic and geographically distinct contexts. These studies also indicate that IDS is relevant not only in relatively nimble urban contexts with adequate resources, but also in rural, developing contexts such as those present in Indonesia.

To summarize, IDS as a media was described by teachers as a highly transformational media that developed both the affective and cognitive dimensions of young learners' English language learning process. With its combination of visual storytelling, emotional feelings, and contextualized vocabulary in its delivery format, IDS articulated its compatibility with pedagogical theorising and teaching experiences in the classroom itself, offering rural classrooms of EFL learners an innovative, practical and compelling alternative to traditional language instruction.

The challenges teachers encountered during implementation

While many kindergarten teachers in rural Indonesia expressed excitement about interactive digital storytelling (IDS), they experienced several interconnected challenges that inhibited her ability to enact it in its fully effective form. Although, the challenges are not impossible to overcome, they illustrate major gaps in infrastructure, professional capability, and curriculum alignment that need resolving to transition IDS from a potentially promising innovation to a developed, sustainable, pedagogical practice.

Through our interviews with teachers, a main theme emerged in the discussion of the technology involved, and how to adapt to it, especially for older teachers. A few teachers noted that IDS could be motivating for young learners, but most teachers recognized that they had a hard time mastering the digital tools, and named challenges like poor technology training prior to the study, overall digital illiteracy, and for some, the learning curve associated with multimedia-based storytelling. As one teacher said: "the preparation time, the learning of technology and relating the content" (R5/20.6/23.02) it can become too much. This thought matched with Ramalepe and Van der Westhuizen (2024), who reported that rural teachers in South Africa only demonstrated successful application of IDS after participating in their intensive workshops designed to develop technical skills and pedagogical content understanding of digital storytelling.

Constraints of infrastructure were another common concern. Teachers often described their school facilities as inadequate (e.g. old computers, no projectors, not enough tablets) and as a limitation to their abilities. Teachers reported further, that unreliable internet infrastructure in rural contexts was another limiting factor for storying online, including difficulties in streaming stories, downloading images, or using cloud-based tools for storytelling. This observation was also found on Maruf and Halyna (2023); the authors noted that while teachers were enthusiastic about adopting an IDS, they were limited in terms of infrastructure, and could not maintain consistent implementation. The authors noted how teachers of early childhood classrooms regularly reverted to traditional practices, or improvised, whenever technology failed.

In addition to the practical challenges of materials and access, teachers had expressed their thoughts on the teaching aspect of IDS. While several teachers did mention the medium was engaging,

they all recognized if educational practices are not sound, the novelty of our technology could also be a source of distraction. One teacher stated, "There's just too much focus on technology we could lose pedagogical approaches" (R3/18.6/33.06). They expressed concern that the more interactive and engaging capabilities of the technology could be used more for leisure rather than learning. The concern echoes the results from Miao and Li (2024) systematic review which reported that while IDS encouraged student engagement, the poor alignment to the learning goals undermined educational application. Without learning objectives and consideration of how the teacher will embed IDS in the lesson, IDS could be an underwhelming use of the technology, or worse, counterproductive.

The need to engage in a well-considered approach to implementing IDS is also recognised in the SAMR model (Substitution, Augmentation, Modification, and Redefinition), which, whilst having more substantial limitations, serves as a framework for educators to expand their practice, progressing away from simply substituting a traditional tool with a digital tool (substitution) to redesigning and transforming meaningful learning tasks. Teachers did seem to be operating mostly in the range of substitution or augmentation, in that they were using IDS to enhance the delivery of content, but the nature the learning task itself was not necessarily changed. Achieving transformation through IDS will require both material support and professional development that deepens teachers' instructional design capacities.

Time constraints, sometimes in the form of course requirements, were also experienced as a significant impediment to IDS. Teachers reported that developing and implementing one IDS-based lesson took a considerably longer time than conventional lesson design and, therefore, seemed to be unsustainable in a teaching program that required them to incorporate so many other things. It took time to choose or create the digital story, to prepare multimodal resources, to fix technology that wasn't working, and on top of that, many teachers had other commitments outside of their classes without institutional support with instructional technologists or teaching teams.

The teachers' reflections on their experience also revealed a strong sense of pedagogical obligation. They were not saying that they were done with IDS, but clearly, they wanted support in order to help them implement IDS better. As Said (2023) explained, rural teachers in Kelantan, Malaysia exhibited an equally strong dedication to implementing IDS, despite being confounded by substantial challenges in terms of the limitations of infrastructure, and the skills required for IDS. The main lesson from this is that barriers to IDS were not unalterable if the teachers have sufficient training, and enough support infrastructure was in place.

In order to conclude, the findings from this research highlight the fact that the challenges faced in integrating IDS in rural early childhood education suggest that successful implementation requires much more than personal commitment and enthusiasm; it also requires commitment at a systemic level. This commitment needs to include ongoing professional development in digital pedagogies, investment in infrastructure, and a curriculum that can accommodate fluid, multimodal forms of storytelling. Without these supporting conditions, the full potential of IDS will remain substantially unbanked, and, in fact, digital innovations are likely to increase educational gap rather than diminish it.

The pedagogical and contextual considerations for IDS design

In this study, all educators expressed consistently and with vigor their wishes to have the design of the IDS content be responsive to the practices and the context of early childhood education in rural Indonesia. Teacher participants indicated that IDS should not just be a nice-looking digital tool; it needed to embody age-appropriate, culturally relevant, curriculum-aligned principles that took young learner's cognitive and emotional development into full account.

A considered theme that resonated with teachers was the important of development appropriateness. Teachers mentioned that story themes need to match the emotional and intellectual capacity of kindergarten-aged learners, with words and structures that they can make sense of and find relevance based on their lived experiences. Texts that were too complicated and linguistically intensive, regardless of how engaging they were visually or linguistically, would be detrimental to learning. In the words of one teacher "Aligning the learning expectation with story structure" (R1/16.6/30.05). As a necessity, not just an option. This follows the principles of Piagetian theory

that acknowledges that learning materials need to be appropriate to children's developmental level so they can maximize both assimilation and accommodation (Berk, 1998; Piaget, 1953).

The significance of cultural contextualization was also a significant part of the discussion. Teachers stressed consistently that it was important to provide IDS with culturally relevant content to begin with. That stories with local characters, local traditions (that linked) and local places would be better at getting student engagement and making their learning more relevant to them. Munajah et al. (2023) offers compelling support for this assertion, suggesting that Indonesian primary school teachers nullified culturally relevant digital storytelling, evaluating it as relevant for literacy development purposes through shared learning but not through a lens of personal identity. Culturally relevant stories helped the students to connect emotionally and cognitively while connecting learning about language and comprehension.

This finding aligns with the results of Nik et al. (2024) and Munajah et al. (2023) who showed that digital storytelling was most effective for low-resource settings when adjusted to align with local culture and simplified to be realistic. Their study revealed that teachers emphasized using traditional tales, local knowledge, and images the students regularly see to create engaging and relevant learning experiences.

Beyond both content issues, the teachers in the present study were clear on instructional integration. They were not in favour of treating IDS as a stand-alone tool, and instead supported a blended learning approach where digital storytelling is intentionally used together with embodied, hands-on activities. One teacher proposed, for example, blending "technology-based media with hands-on activities," (R3/18.6/36.07) informing us of their recognition that young children still rely on tactile, social and physical means of learning. This demonstrates their understanding of the Universal Design for Learning (UDL) approach, which promotes using multiple means to engage, representing, and action/expression to meet the needs of diverse learners (Sanger, 2020; Selvi et al., 2023). According to UDL, it is important that when IDS is within other instructional media, it becomes part of learning efforts that emphasize interactive experiential learning, rather than being a replacement for it.

Moreover, contextual feasibility proved to be an important consideration. The faculty stated the need to tailor IDS use to the infrastructural and human realities of rural schools, such as limited access to the internet, shared devices, and varying degrees of teacher digital competencies. They called for simplified IDS tools that could be offline, easy to use, and required little to no technical skills. Miao and Li (2024) agreed, considering scalability and usability for teachers two of the greatest overlooked barriers in considering educational technologies in low-resourced contexts. If a design is not intentionally designed with respect to those types of limitations, IDS could be potentially underused regardless of the pedagogical potential.

In addition, the findings underlined the need for training and ongoing support. A few teachers reflected on their own struggles with IDS integration, not because they did not value it, but because they were not prepared. Prior experience with IDS, in particular, through professional development and collaboration with peers - was believed to be key. In line with this, Ramalepe and Van der Westhuizen (2024) demonstrated that after participating in structured IDS training workshops, rural teachers significantly improved their digital storytelling competence and confidence in lesson planning.

In conclusion, these findings make clear that for IDS to function as a transformative educational tool in early childhood language learning, it must be carefully designed with developmental, cultural, and contextual considerations in mind. Simply putting technology and digital content into classrooms is not enough, the real issue is whether the content fits within the pedagogical context of the learning environment, sometimes referred to as the "pedagogy feed" of the learning environment, and takes account of learner cognitive and emotional needs (and what they're interested in), as well as the contextual realities with regards to infrastructure and culture. The impact of IDS lies not in the products of technology and digital content, but rather in intentional, situated, and educator-informed practice.

Teachers' recommendations for sustaining IDS integration in rural early childhood education
Teachers participating in this study offered practical and forward-thinking recommendations for

sustaining the use of Interactive Digital Storytelling (IDS) in early childhood English instruction, especially in rural Indonesian contexts. Their insights went beyond mere complaints or isolated wishes; instead, they presented a vision for building an ecosystem of support that fosters not only the initial adoption of IDS but also its meaningful integration into long-term pedagogical practice.

First and foremost, teachers emphasized the need for professional development programs that are continuous, collaborative, and contextualized. While the overwhelming majority of teachers were positive about IDS as an innovative pedagogical practice, many of the participants felt that their limited knowledge about digital literacy and/or lack of experience in the design process of storytelling continued to be an obstacle. They wanted their continued training and mentoring—not just a one-off workshop. These findings corroborate Ramalepe and Van der Westhuizen (2024) who demonstrated that following their digital storytelling training, South African teachers demonstrated a significant increase in skills and confidence from the mentoring circles during the post-training phase. The mentoring circles appeared to have made a difference as teachers moved from an organizational understanding of the construct, to being confidently able to apply the construct in a real classroom setting.

Furthermore, teachers in this study recommended increasing the availability of online educational resources, such as e-storybook templates, curated libraries of culturally appropriate digital stories, and instructional videos demonstrating effective IDS integration. This supports research done by Said (2023) where access to shared repositories of digital content helped teachers in low resource schools develop innovative pedagogies. Teachers indicated that they could not only save preparation time but also use IDS for much more creative and purposeful blend across thematic units.

Moreover, teachers are reported to have improved their storytelling and content creation proficiency. Teachers indicated they existed in multiple spaces, not only facilitators of digital stories, but content responsive, and pedagogically authentic co-creators of the stories they enacted. This case also aligns to Munajah et al. (2023) study which suggested that stories created by teachers in Indonesia that included local wisdom, could positively impact literacy, and teachers' cultural identity. And that as educators, it had educational vitality to create learning modes based on including the teachers in telling their own interactive educators' stories, to localize and align the IDS materials to their local envelope and curriculum aspirations.

It is also interesting that teachers indicated educators can never replace authentic real or online learning experiences. Teachers acknowledged that IDS is appealing and motivational but warned against over-relying on screen-based instruction. Multiple respondents suggested not just including IDS, but also including tactile or movement-based activities for strengthening vocabulary and understanding. This view resonates with the principles of Universal Design for Learning (UDL), which recommends a variety of means of representation and engagement (Selvi et al., 2023). In particular, at the ages and developmental stages related to early childhood, the importance of balance is essential for supporting and supporting cognitive, emotional and motor development holistically.

The final structural recommendation is the most important one, which is enhanced infrastructure for electricity, internet, and access to digital devices. Miao and Li (2024) and Munajah et al. (2023) municipal studies say that the new best pedagogical tools won't be valued or used with some level of stability regarding technological infrastructure. As such, all teachers called for investments at the government and school levels to at least ensure basic conditions are in place to support effective and consistent use of IDS.

Altogether, these recommendations articulate a recognition that sustainable integration of IDS in rural early childhood education will not be achieved through episodic or singular interventions. What is offered instead, should be thought of as systematic, multi-layered, and involves combining capacity building, infrastructure building, and pedagogical alignment (ecologic model). This model aligns with the vision that educational innovation is not simply about new tools, but rather about re-structuring the support for that same tool so teachers have the ability to adopt, adapt, and sustain tools in ways that have meaning and purpose for them.

At the policy level, these findings are in harmony with the global education agenda, particularly Sustainable Development Goal 4 (SDG 4), which emphasizes the need to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. To achieve this aim,

particularly in neglected rural settings, policies must ensure digital inclusion, equity in professional development, as well as context relevant pedagogical innovation.

In short, the recommendations from the teachers encapsulate an excellent understanding of complex set of circumstances that underpin the success of IDS integration. By foregrounding both human and systemic dimensions - skills and infrastructures, content and context - their consideration represent a holistic framework that can support education policy makers, leaders, and researchers to design innovative interventions that are sustainable, equitable and relevant to classroom life.

This investigation shows how IDS can support early language learning, but one of the main themes is how all this technology is not enough in practice. Teachers in rural Indonesian kindergartens are keen and insightful practitioners who recognize the importance of engagement, relevance, and creative scaffolding; yet, they practice within an infrastructure that does not support digital engagement, little digital fluency, and need pedagogically-informed designs. Their solutions to the problems they encountered in practical use of IDS are summarized as a need for: training, mentoring, co-designing, facilitating, and balancing pedagogical approaches, which suggests a systemic path to educators and students supporting equitable digitization that is local and sustainable.

This research makes a significant contribution to our current literature by exploring the perspectives of rural kindergarten educators—who have been less valued in the literature. More broadly, it extends important, context-based knowledge needed by early education policy and teacher preparation programs and curricular initiatives targeting the digital divide.

CONCLUSION

The study examined rural kindergarten teachers' perceptions concerning interactive digital storytelling (IDS) in early childhood teaching of English language learners in the Banyumas Regency, Indonesia. The all-round positive view on IDS as a means to enhance learner engagement, help vocabulary learning, and build context toward young English language learners (EYL) is clear. Teachers generally provided examples of how IDS presents an affectively powerful rich environment with stimulating visual representations of learning, proportional to the developmental needs of the early language learners, in the context of many early childhood classrooms where direct instructive teaching never captures the attention and motivation of young learners. The emotional and cognitive affordances of multimodal narratives were seen as vital in promoting incidental and meaningful language learning.

Nevertheless, the study was also able to identify several barriers to the sustained fit of IDS in rural contexts, including limited infrastructure, insufficient teacher training, minimal relevant localized content, and issues to align IDS in with the national curriculum. Teachers generally thought a more systemic integration was necessary—one that included technical training and technology support and pedagogically-relevant materials for young learners' developmental stages and cultural context. They noted that while IDS is exciting, the value is not just in rapid technological change but also in how we engage with existing practices and support systems brought about through localized, professional learning communities.

In a larger scope, the study substantiates that IDS can have a transformational impact on English teaching quality in early childhood education in rural contexts. It illustrates the possibilities of IDS around the engagement and equity gaps for children who are otherwise disadvantaged by geometric isolation and limited resources. The implications of these findings are pedagogically significant. Teacher training programs need to embed teaching about the design and use of IDS in pre-service and in-service education course and schools should adopt a multidisciplinary model approach towards developing localised e-storybooks that embed the learners' linguistic and cultural backgrounds.

Regardless, the study has limitations. As a qualitative study that focused on a small number of participants in a geographic context, its results cannot be generalized to all rural contexts. Secondly, the study was based on self-reported data which may not reflect all dimensions of classroom practice or learner outcomes. Future research should include mixed methods that include classroom observations, learner assessment, and use longitudinal approaches to study the longer-term influence of IDS on language development.

In terms of recommendations for practitioners, the study offers some key recommendations around continuing professional learning, developing local content, and balancing screen-based

instruction with the embodied learning that is simply a core aspect of how children learn. In terms of recommendations for researchers, there is a need to continue to study IDS using a variety of educational contexts, with a specific focus on underserved populations and looking at how to design digital innovations in complex, real world, learning contexts.

REFERENCES

- Abderrahim, L., & González, D. (2020). The Impact of Digital Storytelling on the Motivation and Engagement of Young Foreign Language Learners. *Technology and the Psychology of Second Language Learners and Users*. https://doi.org/https://doi.org/10.1007/978-3-030-34212-8_20
- Abderrahim, L., & Gutiérrez-Colón Plana, M. (2021). A theoretical journey from social constructivism to digital storytelling. *The EuroCALL Review*, 29(1), 38. <https://doi.org/10.4995/eurocall.2021.12853>
- Alemi, M., Givi, S. S., & Rezanejad, A. (2022). The Role of Digital Storytelling in EFL Students' Writing Skill and Motivation. *Language Teaching Research Quarterly*, 32, 16–35. <https://doi.org/10.32038/ltrq.2022.32.02>
- Berk, L. E. (1998). *Development through the lifespan*. Illinois State University.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/https://doi.org/10.1191/1478088706qp063oa>
- Cao, C. (2024). Acceptability of Digital Storytelling in Language and Literature Education: An Inquiry Based on Teacher and Student Approval. *Journal of Education, Humanities and Social Sciences*, 32, 61–66. <https://doi.org/10.54097/dz7p6z31>
- Eliza, T. (2020). Using Short Stories in EFL Classroom. *Enrich: Jurnal Pendidikan, Bahasa, Sastra Dan Linguistik*. <https://doi.org/https://doi.org/10.36546/pbi.v3i2.612>
- Fadhilah, N., Dewi, H., & Winata, W. (2020). Creativity of Creation and Story-Telling in Open-Ended Learning with Visual Art Media for Early Childhood Education. *Proceedings of the 2nd International Conference on Arts and Design Education (ICADE 2019)*. <https://doi.org/https://doi.org/10.2991/assehr.k.200321.010>
- Hazin, M., Yani, M. T., Trihantoyo, S., Rusdinal, R., Sulastris, S., & Rahmawati, N. W. D. (2025). Analyzing Digitalization in Education Policy in Indonesia through the Policy Analysis Triangle Model. *Journal of Posthumanism*, 5(1), 998–1011. <https://doi.org/10.63332/joph.v5i1.631>
- Irharni, M., Nuzula, N., & Rohmana, W. (2025). The use of short stories in improving reading skills. *Lililacs Journal : English Literature, Language, and Cultural Studies Journal*. <https://doi.org/https://doi.org/10.21009/lililacs.051.05>
- Irshad, S., Maan, M. F., Batool, H., & Hanif, A. (2021). Vygotsky's Zone of Proximal Development (ZPD): An Evaluative Tool for Language Learning and Social Development in Early Childhood Education. *Multicultural Education*, 7(6), 234–242. <https://doi.org/10.5281/zenodo.4940172>
- Karadoğan, A. (2023). A Bridge Between Technology and Creativity: Story Writing with Artificial Intelligence. *İnsan ve Sosyal Bilimler Dergisi*. <https://doi.org/https://doi.org/10.53048/johass.1368950>
- Khulel, B. (2021). TEACHING ENGLISH FOR YOUNG LEARNERS IN RURAL AREA: TEACHERS' CHALLENGES. *Lingua*. <https://doi.org/https://doi.org/10.34005/lingua.v17i2.1558>
- Loniza, A., Saad, A., & Mustafa, M. (2018). The effectiveness of digital storytelling on language listening comprehension of kindergarten pupils. *The International Journal of Multimedia & Its Applications*. <https://doi.org/https://doi.org/10.5121/ijma.2018.10611>
- Maruf, N., & Halyna, K. (2023). Investigating EFL Teachers' Perceptions and Meanings on Digital Storytelling in Language Learning: A Narrative Approach. *Journal of English Education and Linguistics Studies (JEELS)*, 10(2), 357–378. <https://doi.org/10.30762/jeels.v10i2.912>
- Maya, L., & Halim, M. (2021). Effectiveness of Digital Storytelling for Young Learners' Vocabulary Mastery. *Karangan: Jurnal Bidang Kependidikan, Pembelajaran, Dan Pengembangan*. <https://doi.org/https://doi.org/10.55273/karangan.v3i2.93>
- Mayer, R. E. (2024). The Past, Present, and Future of the Cognitive Theory of Multimedia Learning. *Educational Psychology Review*, 36(1), 1–25. <https://doi.org/10.1007/s10648-023-09842-1>
- Miao, X., & Li, L. (2024). Digital Storytelling in EFL Education: Learning Outcomes and Methodologies. *International Journal of English Language Studies*, 6(4), 06–11. <https://doi.org/10.32996/ijels.2024.6.4.2>
- Munajah, R., Sumantri, M., & Yufiarti, Y. (2023). Teachers' perceptions on the need to use digital storytelling based on local wisdom to improve writing skills. *South African Journal of Childhood Education*. <https://doi.org/https://doi.org/10.4102/sajce.v13i1.1314>
- Mustafa, G. K. (2024). Improving EFL Students' Reading Comprehension Skill through Short Stories. *Qalaai Zanist Scientific Journal*, 9(1), 1130–1165. <https://doi.org/10.25212/lfu.qzj.9.1.39>
- Muzammil, L., & Andy. (2017). TEACHING PROFICIENCY THROUGH READING AND STORYTELLING (TPRS) AS A TECHNIQUE TO FOSTER STUDENTS' SPEAKING SKILL. *Jeels*, 4(1), 19–36.
- Nair, V., & Yunus, M. (2021). A Systematic Review of Digital Storytelling in Improving Speaking Skills.

- Sustainability*. <https://doi.org/https://doi.org/10.3390/su13179829>
- Nik, E., Gauci, R., Ross, B., & Tedeschi, J. (2024). Exploring the potential of digital storytelling in a widening participation context. *Educational Research*, 66(3), 329–346. <https://doi.org/10.1080/00131881.2024.2362336>
- Ollerhead, S., & Pennington, G. (2024). Starting small: Engaging young learners with literacy through multilingual storytelling. *Journal of Early Childhood Literacy*. <https://doi.org/10.1177/14687984241303390>
- Piaget, J. (1953). The origins of intelligence in children. In *Journal of Consulting Psychology* (Vol. 17, Issue 6). <https://doi.org/10.1037/h0051916>
- Pujiani, T., Zuhrufillah, I., & Dian Sukmawati, I. (2023). The Effectiveness of E-storybook in Improving Young Learners' Vocabulary Mastery. *Proceedings of the 69th TEFLIN International Conference in Conjunction with the 3rd English Education International Conference (EEIC)*.
- Ramalepe, M. L., & Westhuizen, G. Van der. (2024). The use of digital storytelling in the teaching of reading at a rural primary school. *International Journal of Educational Technology and Learning*, 17(2), 9–16. <https://doi.org/10.55217/101.v17i2.831>
- Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037//0003-066X.55.1.68>
- Saa, S. (2024). Merdeka Curriculum: Adaptation of Indonesian Education Policy in the Digital Era and Global Challenges. *Revista de Gestao Social e Ambiental*, 18(3), 1–24. <https://doi.org/10.24857/rgsa.v18n3-168>
- Said, K. M. (2023). A Case Study On the Adoption of Digital Storytelling in ESL Classrooms to Induce Learning Motivation Among School Children in Rural Kelantan, Malaysia. *International Journal of English Language Teaching*, 11(6), 1–21. <https://doi.org/10.37745/ijelt.13/vol11n6121>
- Saliuk, B., & Shkola, I. (2023). Digital storytelling as a tool for socio-emotional competencies development in the English language classroom. *Scientific Papers of Berdiansk State Pedagogical University Series Pedagogical Sciences*. <https://doi.org/https://doi.org/10.31494/2412-9208-2023-1-2-298-305>
- Sanger, C. (2020). Inclusive Pedagogy and Universal Design Approaches for Diverse Learning Environments. *Diversity and Inclusion in Global Higher Education*. https://doi.org/https://doi.org/10.1007/978-981-15-1628-3_2
- Selvi, G., Mary, A., Anita, S., & Mary, G. (2023). Universal Design for Learning (UDL) in Diverse Classrooms. *Shanlax International Journal of Arts, Science and Humanities*. <https://doi.org/https://doi.org/10.34293/sijash.v11is1-nov.7102>
- Tran, D. (2021). Storytelling to Enhance Speaking and Listening Skills for English Young Learners: A Case Study at Language Centers in Binh Duong Province. *Vietnam Journal of Education*. <https://doi.org/https://doi.org/10.52296/vje.2021.64>