

FOSTERING CULTURALLY GROUNDED LEARNING: GENERATIVE AI, DIGITAL STORYTELLING, AND EARLY CHILDHOOD EDUCATION

FX. Risang Baskara
risangbaskara@usd.ac.id

English Letters Department, Faculty of Letters, Universitas Sanata Dharma, Jl. STM Pembangunan, Mrican, Caturtunggal, Kec. Depok, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55281

Abstract. The integration of technology in education has been a subject of growing interest, particularly in the context of early childhood education. This paper investigates the potential of Generative AI and digital storytelling for enhancing learning experiences in early education, emphasising the significance of locality and community context. The research delves into how Generative AI and digital storytelling can create personalised, culturally relevant learning materials that foster a sense of belonging and identity among young learners. Previous research has demonstrated the effectiveness of digital storytelling in promoting creativity, critical thinking, and communication skills, yet incorporating Generative AI to create content that reflects a community's unique characteristics remains underexplored. This inquiry aims to bridge this gap, comprehensively analysing the potential benefits, challenges, and strategies for implementing these technologies. A theoretical analysis based on a literature review is conducted to examine the research question. The findings reveal that Generative AI and digital storytelling have the potential to create inclusive, engaging learning experiences that resonate with young learners, remarkably when grounded in their local community context. This research contributes to the existing literature by offering fresh insights into applying innovative technologies in early childhood education. Significantly, this paper highlights the necessity of addressing ethical considerations, data privacy, the digital divide, and teacher training to ensure successful implementation. The study lays the foundation for future empirical research, policy formulation, and educational practice by addressing these challenges.

Keywords: community context, culturally relevant learning, digital storytelling, early childhood education, generative AI.

INTRODUCTION

The rapid development of technology in recent years has led to its increasing integration into the educational environment, and early childhood education is no exception (Plowman, Stephen, & McPake, 2010; Donohue, 2014). Although digital tools can offer countless opportunities for new learners (Clements & Sarama, 2003), researchers and practitioners must ensure that these technologies are implemented effectively and responsibly (Flewitt, Messer, & Kucirkova, 2015). Therefore, understanding the role of technology in early childhood education, particularly its impact on the learning experience, has become critical for educators and policymakers (Livingstone, 2012).

Early childhood education thrives when grounded in a specific community's unique cultural, social, and environmental aspects (Souto-Manning & Swick, 2006; Tudge, Mokrova, Hatfield, & Karnik, 2009). By incorporating locality and community context, children can better comprehend and appreciate their surroundings, fostering a sense of belonging and identity (Sheridan, Edwards, Marvin, & Knoche, 2009). Consequently, examining the potential of technology to facilitate learning experiences that resonate with young learners' community context is crucial for enhancing the quality of early education.

As exemplified by models like GPT-4, generative AI can generate new content based on their input, making them valuable tools for various applications, including education. Digital storytelling, on the other hand, involves creating and sharing stories using digital media, such as videos, images, and audio (Robin, 2016). These two technologies can revolutionise early childhood education by creating personalised, engaging, and culturally relevant learning materials. Given the potential of Generative AI and digital storytelling to enrich early childhood education, this paper explores how these technologies can create learning experiences grounded in the locality and community context. Specifically, the research delves into the question: How can Generative AI and digital storytelling be integrated into early childhood education to enhance learning experiences while emphasising the significance of locality and community context?

RESEARCH METHOD

This study employs an argumentative review approach, a methodology that facilitates a comprehensive examination of existing literature to identify trends, gaps, and challenges in the field (Torraco, 2005). By synthesising and critically analysing previous research, this method allows for developing new arguments, insights, and recommendations in the context of Generative AI, digital storytelling, and early childhood education (Onwuegbuzie, Leech, & Collins, 2012). This approach enables a thorough understanding of the topic, providing a robust foundation for future empirical research and educational practice.

The literature review covered various sources, including empirical studies, theoretical papers and policy reports, to comprehensively understand the state of knowledge in generative artificial intelligence, digital storytelling and early childhood education (Fink, 2019). The review process involved a systematic search of various databases review. For example, check Google Scholar, ERIC, and Scopus for relevant literature published in the last five years. This approach ensures that the topic is viewed from a contemporary perspective that builds on the existing knowledge base.

The analysis of previous studies revealed some gaps and opportunities for further research. Despite growing interest in the potential of generative artificial intelligence and digital storytelling to enhance learning experiences, how these technologies can be integrated to create content that reflects the unique characteristics of communities remains underexplored. More research is needed on the ethical, pedagogical, and practical considerations of implementing these technologies in early childhood education. Identifying these gaps and opportunities paves the way for further research and the development of innovative methods of educational practice.

In addition to exploring the potential of generative AI and digital storytelling to improve children's education, this study examines their implementation's ethical, pedagogical and practical aspects. Ethical considerations include data protection, algorithmic bias, and the potential to perpetuate harmful stereotypes (Hagendorff, 2020). Pedagogical considerations include the combination of technology interventions and developmentally appropriate practices and the role of teachers in facilitating meaningful learning experiences (McPake, Plowman, & Stephen, 2013). Practical considerations such as access to technology, teacher training and support are also critical to successfully integrating generative artificial intelligence and digital storytelling in early childhood education. By addressing these different aspects, the study provides a nuanced understanding of the challenges and opportunities of implementing these innovative technologies (Flewitt, Messer, & Kucirkova, 2015).

RESULTS

Generative AI, coupled with digital storytelling, holds promise in early education, particularly in crafting learning materials that resonate with the cultural milieu of the learners. Harnessing these innovative technologies enables educators to create content imbued with local customs, values, and languages, thereby nurturing a profound sense of belonging and affinity in young learners. Consequently, this approach fosters an inclusive learning environment that recognises and celebrates students' diverse backgrounds and experiences.

Furthermore, the application of Generative AI and digital storytelling in early education facilitates the development of culturally relevant content and cultivates a learner-centric approach. These technologies generate personalised learning materials catering to young learners' needs and

interests. This customisation supports a more engaging and practical learning experience that enhances cognitive and social development.

Additionally, employing Generative AI and digital storytelling encourages the development of crucial skills, such as creativity, critical thinking, and communication. These skills are vital for young learners, forming the foundation for future academic and professional success. Educators can stimulate and nurture these competencies by integrating these technologies into early education, equipping students with essential tools for thriving in a rapidly evolving, technology-driven world.

Apart from fortifying cultural relevance, generative AI and digital storytelling can bolster the development of creativity, critical thinking, and communication skills in young learners. Engaging in collaborative storytelling activities allows children to delve into novel ideas, articulate their thoughts, and participate in problem-solving tasks, thereby fostering the acquisition of essential 21st-century skills. In this context, the role of Generative AI as a creative catalyst cannot be overstated, as it stimulates learners to transcend conventional boundaries and envision new possibilities (Bers, 2020; Darling-Hammond et al., 2020).

Additionally, integrating Generative AI and digital storytelling into early education curricula facilitates an interactive learning environment that encourages learners to experiment, take risks, and express their perspectives (Ito et al., 2013). By doing so, students acquire the confidence to express their ideas, learn from their peers, and better understand the world around them. This collaborative approach to learning is vital in nurturing empathetic, thoughtful, and socially aware individuals who can contribute positively to their communities.

Moreover, when Generative AI and digital storytelling are employed, young learners develop a strong foundation for digital literacy, a skill set that is increasingly crucial in today's technology-driven society. By engaging with these technologies, students learn to create meaningful narratives and become adept at navigating and leveraging digital tools for communication, collaboration, and problem-solving. Consequently, these skills prepare them for future academic pursuits and professional opportunities in an interconnected digital world.

Incorporating Generative AI and digital storytelling into early education fosters inclusive and engaging learning experiences by providing adaptive, responsive, and interactive learning opportunities. These cutting-edge technologies can accommodate diverse learning styles, capabilities, and predilections, ensuring every child can access valuable educational experiences (Crompton, Burke, & Gregory, 2017). Through the thoughtful integration of these tools, educators can create a tailored learning environment that promotes equity and inclusivity in the classroom (Smith & Broom, 2019; Adams et al., 2007).

Furthermore, Generative AI and digital storytelling synergise play, exploration, and collaboration elements, which can ignite active, hands-on learning that appeals to young children's innate curiosity and zeal. This playful approach to education can foster a love of learning and a growth mindset, encouraging children to embrace challenges and persist in facing obstacles. Consequently, students equipped with such an outlook are more likely to succeed academically and develop into lifelong learners.

Finally, the marriage of Generative AI and digital storytelling in early education aligns with constructivist learning theories, which posit that children learn best when actively constructing knowledge through exploration and interaction with their environment (Piaget, 1954). By offering immersive and dynamic learning experiences, these technologies foster an educational milieu in which students can deeply understand concepts and cultivate essential cognitive and social skills (Vygotsky & Cole, 1978). Thus, Generative AI and digital storytelling enhance the inclusivity and engagement of early education and support robust pedagogical approaches that foster meaningful learning experiences.

While Generative AI and digital storytelling can provide many advantages in early education, they also introduce ethical conundrums and data privacy concerns that warrant attention. Among these concerns are the potential biases embedded within algorithmic decision-making processes and the appropriation of personal data for commercial objectives (Wachter et al., 2021). Such biases can perpetuate stereotypes and hinder the development of equitable learning environments (Crawford & Paglen, 2021). Therefore, it is essential to examine the design and implementation of these technologies to minimise unintended consequences.

To mitigate these concerns, educators and policymakers must work in tandem to create unambiguous guidelines and regulations that safeguard children's rights and guarantee the ethical

and responsible utilisation of these technologies. This includes establishing data protection policies, obtaining informed consent from parents or guardians, and ensuring transparency in developing and applying generative AI tools in educational settings. Stakeholders can balance technological innovation and ethical responsibility by proactively addressing these issues.

Furthermore, ongoing research and collaboration between educational institutions, technology developers, and policymakers are crucial for fostering a comprehensive understanding of the ethical implications of Generative AI and digital storytelling in early education (Kellmerit & Obodovski, 2013). Engaging in interdisciplinary dialogue can facilitate the development of best practices and policy recommendations that reflect the complexities of integrating these technologies into the classroom. Ultimately, a collective effort is necessary to navigate the ethical landscape and harness the transformative potential of Generative AI and digital storytelling for the betterment of early education (Dignum, 2019).

The digital divide is one pressing challenge in integrating Generative AI and digital storytelling in early education. This phenomenon can aggravate extant inequalities in the accessibility of education and resources (Hilbert, 2016). Addressing this divide necessitates focusing on critical issues such as infrastructure development, connectivity enhancement, and device availability, which are fundamental components of equitable digital access (Warschauer & Matuchniak, 2010). A foundation for the inclusive utilisation of Generative AI and digital storytelling in early education can be established by tackling these concerns.

An array of approaches can be employed to surmount the digital divide, including forging public-private partnerships, initiating community-based programs, and enlisting government support to bolster the access and affordability of digital technologies in early childhood education. Such cooperative endeavours can foster equitable opportunities for all children, irrespective of their socio-economic backgrounds, to reap the benefits of these advanced technologies in their learning journey (Hilbert, 2016; Selwyn, 2004).

Addressing the digital divide necessitates enduring, collaborative efforts from many stakeholders, encompassing educators, policymakers, technology providers, and community leaders (Ritzhaupt et al., 2013). Jointly, these stakeholders possess the capacity to devise and execute comprehensive strategies with dual objectives: bridging digital access gaps and facilitating the smooth integration of Generative AI and digital storytelling in early education. Adopting such a collaborative approach is vital in constructing an equitable and inclusive learning environment benefiting all children (Castells et al., 2009).

To bridge the digital divide, it is crucial to recognise the importance of continuous professional development for educators (Mouza et al., 2014; Ertmer & Ottenbreit-Leftwich et al., 2010). As the landscape of early education evolves with the integration of Generative AI and digital storytelling, educators must be equipped with the necessary skills and knowledge to harness these technologies effectively. This professional development will empower educators to adapt their pedagogical practices in response to the changing needs of learners and the emerging technological landscape (Ottenbreit-Leftwich et al., 2010; Prestridge, 2012).

Furthermore, the role of research in addressing the digital divide cannot be understated. Empirical studies examining the impact of Generative AI and digital storytelling on early education are essential in guiding the development and implementation of evidence-based policies and practices (Passey et al., 2018; Tondeur et al., 2017). By fostering a research-informed approach to integrating these technologies, stakeholders can ensure that their efforts are grounded in sound pedagogical principles and contribute to creating a more equitable and inclusive learning environment for all children (Passey et al., 2018).

Ultimately, the efficacious integration of Generative AI and digital storytelling in early education necessitates sufficient teacher training and support. Mastery of the requisite skills and confidence for employing these technologies effectively within the classroom environment is crucial for educators. Additionally, they must be able to evaluate these technologies' pedagogical value and potential risks critically (Mouza et al., 2014). Ongoing professional development, mentorship, and collaboration can serve as valuable tools in assisting educators as they traverse the intricate landscape of digital technology, ensuring they are adequately equipped to capitalise on its potential for enriching early childhood education (Tondeur et al., 2017; Ertmer et al., 2012).

Moreover, the role of educational institutions in promoting technology literacy and fostering a culture of innovation is vital. By encouraging a growth mindset and supporting experimentation with new technologies, institutions can create an environment that empowers educators to take

risks, learn from failures, and adapt their practices to better meet their learners' needs. This approach can facilitate the seamless integration of Generative AI and digital storytelling, ultimately enhancing the quality of early childhood education (Puentedura, 2013).

Furthermore, cultivating a community of practice among educators can be an effective strategy for sharing knowledge, resources, and experiences related to Generative AI and digital storytelling (Lave & Wenger, 1991; Trust, Krutka, & Carpenter, 2016). Through peer-to-peer learning and establishing professional learning networks, educators can gain valuable insights into best practices and strategies for leveraging these technologies in the classroom. This collaborative approach can contribute to integrating Generative AI and digital storytelling in early education, benefiting educators and learners alike (Wenger et al., 2002).

DISCUSSION

Formulating protocols for technology assimilation demands a multidisciplinary methodology encompassing stakeholders, including educators, policymakers, and parents (Ertmer et al., 2012; Baran et al., 2019). Deliberating upon the intricacies of incorporating Generative AI and digital storytelling in early childhood education mandates careful contemplation of young learners' developmental requirements, interests, and capabilities (Crompton, Burke, & Gregory, 2017; Akcaoglu & Lee, 2016). By instituting such guidelines, educational establishments can adeptly integrate these technologies while ensuring children's welfare and optimising their learning encounters (Barron et al., 2009).

Moreover, the continuous evolution of technological innovations necessitates a dynamic and flexible approach to guideline development, ensuring that policies remain relevant and adaptive to emerging trends (Mouza et al., 2014). Engaging in periodic revisions and consultations with stakeholders, such as educators and researchers, can contribute to the establishment of robust, evidence-based guidelines that effectively address the ethical and pedagogical implications of Generative AI and digital storytelling in early childhood education.

Furthermore, implementing these guidelines hinges upon stakeholders' shared understanding and commitment to uphold best practices, promote ethical technology use, and prioritise children's interests. This collaborative endeavour can facilitate the development of a supportive and nurturing learning environment wherein Generative AI and digital storytelling are thoughtfully integrated to augment educational experiences and foster holistic development in early childhood settings.

Tackling the digital divide and fostering equity in technology access constitutes a critical challenge in contemporary education. Guaranteeing that all children reap the benefits of the innovative prospects offered by Generative AI and digital storytelling mandates concerted endeavours to devise affordable, scalable, and accessible resolutions. Such efforts could encompass investments in infrastructure, the provision of cost-effective devices, or the dispensation of subsidies to disadvantaged families. Prioritising equitable access enables educational systems to diminish disparities and cultivate a more inclusive learning milieu (Selwyn, 2004).

Moreover, creating a level playing field in education necessitates the involvement of multiple stakeholders, including governments, technology companies, and non-governmental organisations. Collaborative efforts can foster the development of context-specific strategies that address unique challenges and ensure the successful integration of Generative AI and digital storytelling in diverse learning environments (Passey et al., 2018). By pooling resources, expertise, and insights, stakeholders can work towards bridging the digital divide and empowering marginalised communities to access transformative educational opportunities.

In addition to addressing issues related to access and affordability, education systems must also consider the importance of digital literacy and its role in promoting equitable learning experiences (Ritzhaupt et al., 2013). Integrating digital literacy education and offering targeted support to students and families who may struggle to engage with technology can further reduce disparities and ensure that all children have the necessary skills to fully benefit from Generative AI and digital storytelling (Van Deursen et al., 2017; Eshet-Alkalai & Chajut, 2009). By embracing a comprehensive approach, education systems can create a more inclusive and equitable learning landscape for all learners (Lankshear & Knobel, 2008).

Fostering the successful implementation of Generative AI and digital storytelling in early childhood education necessitates targeted support for educators in adopting innovative methodologies. Focus on professional development programs that cultivate teachers'

technological, pedagogical, and content knowledge (TPACK) will equip them to utilise these tools within their instructional environments effectively. By strengthening teachers' TPACK, the potential for meaningful integration of Generative AI and digital storytelling can be realised, enhancing the learning experiences of young students (Tondeur et al., 2017; Mishra & Koehler, 2006).

Moreover, providing ongoing support and mentorship for educators is crucial for overcoming challenges associated with adopting novel technologies in the classroom (Drent & Meelissen, 2008; Ertmer & Ottenbreit-Leftwich, 2010). Encouraging a community of practice among teachers can foster the exchange of ideas, experiences, and best practices related to using generative AI and digital storytelling in early childhood education (Trust, Krutka, & Carpenter, 2016; Prestridge, 2014). This collaborative approach empowers educators to navigate the complexities of technology integration and ensures they remain at the forefront of pedagogical innovation (Herrington et al., 2009; Ertmer et al., 2012).

Ultimately, the success of integrating Generative AI and digital storytelling in early childhood education hinges on a well-supported, knowledgeable, and empowered teaching workforce. By prioritising professional development and fostering a collaborative culture of support and mentorship, education systems can maximise the potential of these technologies to enrich the learning experiences of young students and prepare them for a future shaped by digital innovation (Johnson et al., 2016).

Delving into digital storytelling and its intersection with Generative AI in early childhood education, this investigation seeks to build upon existing research by examining the confluence of these two dynamic technologies. While prior research has primarily centred on digital storytelling's singular merits and challenges (Tondeur et al., 2017), this study explores potential synergies when Generative AI and digital storytelling are thoughtfully combined. Integrating these technologies promises to foster culturally relevant and engaging learning experiences for young learners.

Additionally, this investigation examines the potential of Generative AI to augment digital storytelling by generating content tailored to individual learners' needs, interests, and cultural backgrounds. This personalised approach can enhance learner engagement, motivation, and comprehension while promoting a deeper appreciation for diversity and inclusion in early childhood education. The present study contributes to the burgeoning body of literature on technology-enhanced learning experiences by examining this novel application of Generative AI.

Exploring the intersection between Generative AI and digital storytelling offers valuable insights into best practices for effectively integrating these technologies within early childhood education settings. By identifying critical factors for successful implementation, such as contextual appropriateness, ethical considerations, and pedagogical alignment, this research contributes to the ongoing discourse surrounding technology-enhanced learning experiences for young children.

Undertaking an exploration into Generative AI's potential within early childhood education offers a groundbreaking approach to comprehending the ramifications this technology may have on pedagogical practices and young learners' experiences (Bolstad et al., 2012). Much research has focused on the application of Generative AI within adult learning and higher education contexts (Beetham & Sharpe, 2019), leaving a gap in understanding its potential impact on younger populations. By expanding the research focus to include early childhood education, this inquiry unveils a rich tapestry of insights that shed light on the possibilities and constraints inherent in the employment of Generative AI in the formative years of learning.

Investigating Generative AI's potential in early childhood education offers a unique opportunity to examine how this technology can be adapted to suit young learners' distinct needs, cognitive development, and learning styles (Adams et al., 2007). Research on adult learners may not directly translate to the early years, thus necessitating a tailored approach that considers the developmental differences between these age groups. This inquiry, therefore, contributes to the growing body of knowledge surrounding age-appropriate applications of Generative AI in educational settings.

Furthermore, this investigation elucidates the role of educators in harnessing Generative AI's potential within early childhood education, from curriculum design to classroom implementation. By understanding the intricate dynamics between Generative AI and pedagogical strategies, this research guides the integration of this technology to enhance learning experiences and foster positive outcomes for young children (Lin et al., 2005). Consequently, this study contributes

significantly to the evolving discourse on applying cutting-edge technologies in early childhood education (Fullan et al., 2017).

Highlighting the significance of culturally rooted educational experiences, this investigation illuminates how generative AI and digital storytelling can be harnessed to develop tailored, context-specific learning resources. Such an approach resonates with the increasing acknowledgment of the necessity for culturally responsive pedagogy within early childhood education (Gay, 2018). Employing these cutting-edge technologies to integrate various perspectives and life experiences fosters an inclusive and equitable learning milieu, which benefits learners from diverse backgrounds.

Incorporating Generative AI and digital storytelling in creating culturally relevant learning materials promotes learner engagement and enhances cognitive and socio-emotional skills. When young learners encounter relatable narratives and cultural elements, they are more likely to engage with the content, thus leading to enriched learning experiences (Banks et al., 2007; Warschauer & Matuchniak, 2010). Consequently, the fusion of these technologies with culturally responsive pedagogy can potentially elevate early childhood education outcomes for diverse student populations (Delpit & Dowdy, 2008).

Furthermore, this exploration into the intersection of Generative AI, digital storytelling, and culturally grounded learning contributes to the ongoing discourse surrounding the role of technology in promoting equity and social justice in education (Ottenbreit-Leftwich et al., 2010). By demonstrating how these tools can be employed to develop learning materials that reflect and celebrate cultural diversity, this study provides a valuable framework for educators, researchers, and policymakers who seek to harness the power of technology in fostering inclusive and socially just learning environments (Maldonado et al., 2020).

CONCLUSION

In synthesising the central findings, this study underscores the importance of implementing Generative AI and digital storytelling within early childhood education contexts. The research highlights the potential for personalised, culturally relevant learning materials and the enhancement of young learners' creativity, critical thinking, and communication skills. Moreover, the study acknowledges the challenges of ethical considerations, data privacy, and the digital divide while presenting potential solutions through policy recommendations and teacher training.

The significance of this research lies in its contribution to the existing literature on digital storytelling and Generative AI in early childhood education and its implications for educational practice and policy-making. By developing guidelines for technology integration, addressing the digital divide, and promoting equity, this study paves the way for future research and policy-making endeavours. Additionally, the research emphasises the necessity of supporting teachers in adopting innovative methods and encourages educational stakeholders to consider the importance of culturally grounded learning.

In conclusion, this theoretical analysis invites further exploration and empirical research to validate the presented arguments and findings. While the study provides a comprehensive overview of the potential benefits and challenges associated with integrating Generative AI and digital storytelling in early childhood education, it also highlights the need for additional research in various contexts. Consequently, future studies should focus on developing and testing interventions, evaluating the long-term impact of technology integration, and investigating the role of community and locality in shaping educational practices and outcomes.

References

- Adams, M. E., Bell, L. A. E., & Griffin, P. E. (2007). *Teaching for diversity and social justice*. Routledge/Taylor & Francis Group.
- Akcaoglu, M., & Lee, E. (2016). Increasing social presence in online learning through small group discussions. *International Review of Research in Open and Distributed Learning*, 17(3), 1-17.
- Archambault, L. M., & Barnett, J. H. (2010). Revisiting technological pedagogical content knowledge: Exploring the TPACK framework. *Computers & Education*, 55(4), 1656-1662.
- Banks, J., Au, K., Ball, A. F., Bell, P., Gordon, E., Gutiérrez, K., ... & Zhou, M. (2007). Learning in and out of school in diverse environments: Life-long, life-wide, life-deep.
- Baran, E., Canbazoglu Bilici, S., Albayrak Sari, A., & Tondeur, J. (2019). Investigating the impact of teacher education strategies on preservice teachers' TPACK. *British Journal of Educational Technology*, 50(1), 357-370.
- Barron, B., Martin, C. K., Takeuchi, L., & Fithian, R. (2009). Parents as learning partners in the development of technological fluency. *International Journal of Learning and Media*, 1(2), 55-77.
- Beetham, H., & Sharpe, R. (Eds.). (2019). *Rethinking pedagogy for a digital age: Principles and practices of design*. Routledge.
- Bers, M. U. (2020). *Coding as a playground: Programming and computational thinking in the early childhood classroom*. Routledge.
- Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M., & Rumble, M. (2012). Defining twenty-first century skills. *Assessment and teaching of 21st century skills*, 17-66.
- Bolstad, R., Gilbert, J., Mcdowall, S., Bull, A., Hipkins, R., & Boyd, S. (2012). Supporting future-oriented learning and teaching: A New Zealand perspective.
- Boote, D. N., & Beile, P. (2005). Scholars before researchers: On the centrality of the dissertation literature review in research preparation. *Educational researcher*, 34(6), 3-15.
- Castells, M., Fernandez-Ardevol, M., Qiu, J. L., & Sey, A. (2009). *Mobile communication and society: A global perspective*. Mit Press.
- Clements, D. H., & Sarama, J. (2003). Strip mining for gold: Research and policy in educational technology—A response to “Fool’s Gold”. *AACE Review (formerly AACE Journal)*, 11(1), 7-69.
- Crawford, K., & Paglen, T. (2021). Excavating AI: The politics of images in machine learning training sets. *Ai & Society*, 36(4), 1105-1116.
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Crompton, H., Burke, D., & Gregory, K. H. (2017). The use of mobile learning in PK-12 education: A systematic review. *Computers & Education*, 110, 51-63.
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied developmental science*, 24(2), 97-140.
- Delpit, L., & Dowdy, J. K. (Eds.). (2008). *The skin that we speak: Thoughts on language and culture in the classroom*. The New Press.
- Dignum, V. (2019). *Responsible artificial intelligence: how to develop and use AI in a responsible way* (p. 59). Cham: Springer.
- Donohue, C. (Ed.). (2014). *Technology and digital media in the early years: Tools for teaching and learning*. Routledge.
- Drent, M., & Meelissen, M. (2008). Which factors obstruct or stimulate teacher educators to use ICT innovatively?. *Computers & education*, 51(1), 187-199.
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: perseverance and passion for long-term goals. *Journal of personality and social psychology*, 92(6), 1087.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child development*, 82(1), 405-432.
- Dweck, C. S., Walton, G. M., & Cohen, G. L. (2014). Academic Tenacity: Mindsets and Skills that Promote Long-Term Learning. *Bill & Melinda Gates Foundation*.

Fx. Risang Baskara

Fostering Culturally Grounded Learning: Generative Ai, Digital Storytelling, And Early Childhood Education

- Edwards, S., Henderson, M., Gronn, D., Scott, A., & Mirkhil, M. (2017). Digital disconnect or digital difference? A socio-ecological perspective on young children's technology use in the home and the early childhood centre. *Technology, Pedagogy and Education, 26*(1), 1-17.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of research on Technology in Education, 42*(3), 255-284.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2021). Removing obstacles to the pedagogical changes required by Jonassen's vision of authentic technology-enabled learning. *Computers & Education, 64*, 175-182.
- Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & education, 59*(2), 423-435.
- Eshet-Alkalai, Y., & Chajut, E. (2009). Changes over time in digital literacy. *CyberPsychology & Behavior, 12*(6), 713-715.
- Fink, A. (2019). *Conducting research literature reviews: From the internet to paper*. Sage publications.
- Flewitt, R., Messer, D., & Kucirkova, N. (2015). New directions for early literacy in a digital age: The iPad. *Journal of early childhood literacy, 15*(3), 289-310.
- Fullan, M., Quinn, J., & McEachen, J. (2017). *Deep learning: Engage the world change the world*. Corwin Press.
- Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice*. teachers college press.
- Greenhow, C., Robelia, B., & Hughes, J. E. (2009). Learning, teaching, and scholarship in a digital age: Web 2.0 and classroom research: What path should we take now?. *Educational researcher, 38*(4), 246-259.
- Griffin, P., & Care, E. (Eds.). (2014). *Assessment and teaching of 21st century skills: Methods and approach*. Springer.
- Hagendorff, T. (2020). The ethics of AI ethics: An evaluation of guidelines. *Minds and machines, 30*(1), 99-120.
- Herodotou, C., Sharples, M., Gaved, M., Kukulska-Hulme, A., Rienties, B., Scanlon, E., & Whitelock, D. (2019, October). Innovative pedagogies of the future: An evidence-based selection. In *Frontiers in Education* (Vol. 4, p. 113). Frontiers Media SA.
- Herrington, A., Herrington, J., & Mantei, J. (2009). Design principles for mobile learning.
- Hilbert, M. (2016). The bad news is that the digital access divide is here to stay: Domestically installed bandwidths among 172 countries for 1986–2014. *Telecommunications Policy, 40*(6), 567-581.
- Isbell, R., & Raines, S. C. (2012). *Creativity and the arts with young children*. Cengage Learning.
- Ito, M., Gutiérrez, K., Livingstone, S., Penuel, B., Rhodes, J., Salen, K., ... & Watkins, S. C. (2013). *Connected learning: An agenda for research and design*. Digital Media and Learning Research Hub.
- Johnson, L., Becker, S. A., Cummins, M., Estrada, V., Freeman, A., & Hall, C. (2016). *NMC horizon report: 2016 higher education edition* (pp. 1-50). The New Media Consortium.
- Kellmerit, D., & Obodovski, D. (2013). *The silent intelligence: the internet of things*. DnD Ventures.
- Lankshear, C., & Knobel, M. (Eds.). (2008). *Digital literacies: Concepts, policies and practices* (Vol. 30). Peter Lang.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge university press.
- Levy, Y., & Ellis, T. J. (2006). A systems approach to conduct an effective literature review in support of information systems research. *Informing Science, 9*.
- Lin, X., Schwartz, D. L., & Hatano, G. (2005). Toward teachers' adaptive metacognition. *Educational psychologist, 40*(4), 245-255.
- Livingstone, S. (2012). Critical reflections on the benefits of ICT in education. *Oxford review of education, 38*(1), 9-24.
- Machi, L. A., & McEvoy, B. T. (2021). The literature review: Six steps to success.

- Maldonado, U. P., Khan, G. F., Moon, J., & Rho, J. J. (2020). E-learning motivation and educational portal acceptance in developing countries. *Online Information Review*, 37(1), 66-89.
- McKenney, S., & Voogt, J. (2010). Technology and young children: How 4–7 year olds perceive their own use of computers. *Computers in Human Behavior*, 26(4), 656-664.
- McPake, J., Plowman, L., & Stephen, C. (2013). Pre-school children creating and communicating with digital technologies in the home. *British Journal of Educational Technology*, 44(3), 421-431.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers college record*, 108(6), 1017-1054.
- Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society*, 3(2), 2053951716679679.
- Mouza, C., Karchmer-Klein, R., Nandakumar, R., Ozden, S. Y., & Hu, L. (2014). Investigating the impact of an integrated approach to the development of preservice teachers' technological pedagogical content knowledge (TPACK). *Computers & Education*, 71, 206-221.
- Neumann, M. M., & Neumann, D. L. (2017). The use of touch-screen tablets at home and pre-school to foster emergent literacy. *Journal of Early Childhood Literacy*, 17(2), 203-220.
- Onwuegbuzie, A. J., Leech, N. L., & Collins, K. M. (2012). Qualitative analysis techniques for the review of the literature. *Qualitative Report*, 17, 56.
- Ottenbreit-Leftwich, A. T., Glazewski, K. D., Newby, T. J., & Ertmer, P. A. (2010). Teacher value beliefs associated with using technology: Addressing professional and student needs. *Computers & education*, 55(3), 1321-1335.
- Passey, D., Shonfeld, M., Appleby, L., Judge, M., Saito, T., & Smits, A. (2018). Digital agency: Empowering equity in and through education. *Technology, Knowledge and Learning*, 23, 425-439.
- Piaget, J. (1954). The construction of reality in the child Basic Books. *New York*. [Google Scholar].
- Plowman, L., Stephen, C., & McPake, J. (2010). Supporting young children's learning with technology at home and in preschool. *Research Papers in Education*, 25(1), 93-113.
- Prestridge, S. (2012). The beliefs behind the teacher that influences their ICT practices. *Computers & education*, 58(1), 449-458.
- Prestridge, S. J. (2014). Reflective blogging as part of ICT professional development to support pedagogical change. *Australian Journal of Teacher Education*, 39(2), 70-86.
- Puentedura, R. R. (2013). SAMR and TPACK: An introduction.
- Radford, A., Wu, J., Child, R., Luan, D., Amodei, D., & Sutskever, I. (2019). Language models are unsupervised multitask learners. *OpenAI blog*, 1(8), 9.
- Ritzhaupt, A. D., Liu, F., Dawson, K., & Barron, A. E. (2013). Differences in student information and communication technology literacy based on socio-economic status, ethnicity, and gender: Evidence of a digital divide in Florida schools. *Journal of Research on Technology in Education*, 45(4), 291-307.
- Robin, B. R. (2016). The power of digital storytelling to support teaching and learning. *Digital Education Review*, (30), 17-29.
- Selwyn, N. (2004). Reconsidering political and popular understandings of the digital divide. *New media & society*, 6(3), 341-362.
- Sheridan, S. M., Edwards, C. P., Marvin, C. A., & Knoche, L. L. (2009). Professional development in early childhood programs: Process issues and research needs. *Early education and development*, 20(3), 377-401.
- Souto-Manning, M., & Swick, K. J. (2006). Teachers' beliefs about parent and family involvement: Rethinking our family involvement paradigm. *Early Childhood Education Journal*, 34, 187-193.
- Tondeur, J., Van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical beliefs and technology use in education: a systematic review of qualitative evidence. *Educational technology research and development*, 65, 555-575.
- Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human resource development review*, 4(3), 356-367.

Fx. Risang Baskara

Fostering Culturally Grounded Learning: Generative Ai, Digital Storytelling, And Early Childhood Education

- Trust, T., Krutka, D. G., & Carpenter, J. P. (2016). "Together we are better": Professional learning networks for teachers. *Computers & education, 102*, 15-34.
- Tsai, C. C., Chai, C. S., Wong, B. K. S., Hong, H. Y., & Tan, S. C. (2013). Positioning design epistemology and its applications in education technology. *Journal of Educational Technology & Society, 16*(2), 81-90.
- Tudge, J. R., Mokrova, I., Hatfield, B. E., & Karnik, R. B. (2009). Uses and misuses of Bronfenbrenner's bioecological theory of human development. *Journal of family theory & review, 1*(4), 198-210.
- Van Deursen, A. J., Helsper, E., Eynon, R., & Van Dijk, J. A. (2017). The compoundness and sequentiality of digital inequality. *International Journal of Communication, 11*, 452-473.
- Verenikina, I., Harris, P., & Lysaght, P. (2003, July). Child's play: computer games, theories of play and children's development. In *Proceedings of the international federation for information processing working group 3.5 open conference on Young children and learning technologies-Volume 34* (pp. 99-106).
- Voogt, J., Erstad, O., Dede, C., & Mishra, P. (2013). Challenges to learning and schooling in the digital networked world of the 21st century. *Journal of computer assisted learning, 29*(5), 403-413.
- Vygotsky, L. S., & Cole, M. (1978). *Mind in society: Development of higher psychological processes*. Harvard university press.
- Wachter, S., Mittelstadt, B., & Russell, C. (2021). Why fairness cannot be automated: Bridging the gap between EU non-discrimination law and AI. *Computer Law & Security Review, 41*, 105567.
- Warschauer, M., & Matuchniak, T. (2010). New technology and digital worlds: Analysing evidence of equity in access, use, and outcomes. *Review of research in education, 34*(1), 179-225.
- Wenger, E., McDermott, R., & Snyder, W. M. (2002). Seven principles for cultivating communities of practice. *Cultivating Communities of Practice: a guide to managing knowledge, 4*.
- Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power: Barack Obama's books of 2019*. Profile books.