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"THIS IS ME!": CREATIVE DIGITAL STORYTELLING WITH TEACHER–STUDENT AND AI COLLABORATION

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ABSTRACT

Deaf students often face significant challenges in language learning, resulting in reading literacy levels that consistently lag behind those of their hearing peers, creating barriers to quality education. To address this issue, this study implemented a digital storytelling project in which teachers and deaf students collaboratively crafted storybooks that are deeply rooted in their identities and lived experiences within the school community. This approach makes the storybooks both engaging and meaningful, ensuring that all teachers and deaf students feel included and valued in the storytelling process. Additionally, artificial intelligence (AI) was integrated as a collaborative tool, enriching the storytelling process with innovative resources and support for both teachers and deaf students. Findings from the study indicate significant improvements in deaf students' reading literacy and engagement, as well as in teachers' pedagogical practices. Thus, this study proposes a replicable framework for creating digital storytelling project by blending teacher–student creativity and AI support, fostering literacy and cultivating a reading culture in schools. By emphasizing identity-driven narratives, the project bridges the gap in reading literacy outcomes, offering a practical and inclusive approach to deaf education.

Keywords: Artificial intelligence, creativity, deaf students, digital storytelling, reading literacy

INTRODUCTION

Inclusive education is one of the key agendas in the Malaysia Education Blueprint 2013–2025, which affirms that all students, regardless of their abilities or disabilities, have the right to quality education. This vision echoes the United Nations' Sustainable Development Goal 4 (SDG 4), which promotes inclusive, equitable education and lifelong learning for all. Despite this, students with special needs, often considered a minority group, continue to face significant challenges within the education system. As of 2023, there are 691,427 registered persons with disabilities (PWD) in Malaysia, out of a total population of 33.4 million (Department of Social Welfare [JKM], 2024). Among them, 44,844 individuals are registered under the deaf and hard of hearing category, representing approximately 1.34% of the national population (JKM, 2024). As a linguistic and cultural minority, deaf individuals

often face obstacles to social interaction and equal access to education compared to their hearing peers in mainstream settings (Lee, 2022).

Although instructional practices have advanced, reading literacy remains a persistent concern in deaf education, with many students continuing to struggle to develop age-appropriate reading skills (Alamasri & Albalhareth, 2022; Harris et al., 2017; Kyle & Cain, 2015). This issue is closely linked to ongoing questions about how deaf children acquire language, which communication methods are most effective, and how to best support their language and literacy outcomes (Scoot & Dostal, 2019). As Andrews et al. (2016) argue, these difficulties are not caused by deafness itself or by a lack of intelligence. Instead, they result from limited access to language during early childhood, a critical period for language and literacy development. Traditional literacy curricula often rely on auditory-based methods, which do not align with how many deaf students process language.

In response, creativity, innovation, and collaboration among students, parents, and educators are needed to develop inclusive practices tailored specifically for deaf learners (Raven & Whitman, 2019). Teachers play a pivotal role in designing and delivering curricula that address the unique needs of deaf students. It is essential to recognize that deaf students seek equitable relationships, inclusive environments, and contextual learning approaches (Lee, 2022). Adapting a curriculum directly from that of hearing students is inadequate; rather, a novel curriculum specifically for deaf students is required (Greenwald, 2021). Consequently, it is crucial to conduct studies focused on pedagogical strategies and specific interventions that facilitate learning in ways that reflect how deaf students learn (Hartman et al., 2019; Greenewords & Delgona, 2019; Magee, 2014). Incorporating visual aids, sign language, and technology-aided instruction can create a more inclusive and engaging environment that supports reading literacy development.

In this context, digital storytelling has gained recognition as a pedagogical tool that enhances both teaching and learning through narrative-based approaches (Rossiter & Garcia, 2010; Yu & Wang, 2025). It allows educators to reflect on their practice and learn collaboratively (Ben-Ahmed, 2023). Studies shows that digital storytelling can support literacy development, foster creativity (Tang, 2016), and promote collaboration in schools (Rutta et al., 2020; Yu & Wang, 2025). For example, Rutta et al. (2020) demonstrated the positive impact of digital comics on both individual and collaborative storytelling, leading to improvements in literacy, digital skills, classroom engagement, and reflective thinking. However, research also points to a lack of clear frameworks for effectively implementing collaborative digital storytelling (Rutta et al., 2020). Addressing this gap, Yu and Wang (2025) have proposed a framework for collaborative storytelling among pre-service teachers. In inclusive settings, digital storytelling allows diverse learners to express their identities, experiences, and perspectives in personalized and creative ways. Yasar (2022) highlights its role in promoting participation, motivation, and self-expression among students with special needs, contributing to a more inclusive and supportive classroom environment.

Building on these findings, this study explores the integration of digital storytelling as an innovative pedagogical approach that emphasizes creativity, collaboration, and a sense of belonging among deaf students and special education teachers. Artificial intelligence (AI) is incorporated as a collaborative tool to enhance the co-creation process. By co-creating storybooks that reflect their identities and lived experiences, the project seeks to promote inclusive educational practices, enhance student engagement through culturally responsive content, and improve reading literacy outcomes.

METHODOLOGY

This study employed action research methodology integrated with a design thinking framework (Brown, 2008), positioning both teachers and deaf students as co-designers in creating digital storytelling projects. There are three main parts of the research: reconnaissance, classroom action research, and collaborative action research, forming a longitudinal study (Coghlan & Brannick, 2014; McNiff, 2013). The process unfolded through five key phases of design thinking: empathize, define, ideate, prototype and test, followed by implementation, which was guided by the cyclical reflection and dialogic processes of action research. Participants in this study included special education teachers and deaf students from a primary special education school in Malaysia. Ethical approval was obtained from

the participating school, ensuring voluntary participation, confidentiality, and respect for the rights of all participants.

Data collection methods involved dialogic interviews, teacher-student created artifacts (storybooks), reflective journals, classroom observations, and group discussions. Throughout the digital storytelling project, a series of Professional Learning Communities (PLCs) were conducted with participating teachers to collaboratively write, design, and refine the digital storybooks. In parallel, deaf students were actively engaged in the implementation phase by sharing personal narratives and photographs, and by contributing to the editing and sign language translation of the final storybooks. For the analysis, we utilized reflexive thematic analysis (Braun & Clarke, 2022), which comprised six main phases: (1) data set familiarization, (2) data coding, (3) initial themes generation, (4) theme development and review, (5) theme refining, defining and naming, and (6) writing the report. Reflexive thematic analysis emphasizes the researcher's reflexivity by locating oneself, which includes awareness of the philosophical and theoretical assumptions that inform the research and working to ensure that theory and research practice align within the action research paradigm (Braun & Clarke, 2022). This analysis was conducted inductively, grounded in the design thinking framework, to explore teacher–student creativity and AI co-creation in digital storytelling.

FINDINGS AND DISCUSSION

Guided by the design thinking framework, we presented the findings through five interconnected phases, namely, empathize, define, ideate, prototype and test, and implementation, illustrating how teacher–student creativity and AI collaboratively co-create digital storytelling. While the framework may appear linear, the actual process is dynamic and iterative, often requiring continuous reflexivity and dialogue to refine earlier phases.

Empathize

In the empathize phase, we began by delving into the lived experiences of deaf students and the challenges faced by teachers, contextualizing our findings within existing literature. Both teachers and deaf students consistently expressed feelings of frustration due to inaccessible reading materials that do not meet their unique needs. One teacher shared that, "the books do not reflect the deaf identity, as they are not supported in sign language," highlighting the need for more inclusive and accessible materials. As we observed, the availability of books with sign language translations for deaf students is limited and difficult to obtain. In contrast, reading materials in spoken language are readily accessible for hearing peers in mainstream schools. Based on teachers' experiences and literature analysis, this lack of resources poses significant barriers to language learning, resulting in reading literacy levels for deaf students that lag behind those of their hearing peers (Gonzalez-Cuenca et al., 2024; Higgins & Lieberman, 2016; Qi & Mitchell, 2011). Most deaf students face challenges in mastering reading literacy, particularly in the aspect of reading comprehension (Harris et al., 2017; Kyle & Cain, 2015), and this is echoed in the school we studied. Figure 1 shows a deaf student closely observing dinosaur illustrations in a book, although their comprehension of the text remains unclear. As teachers, it is important to empathize and take action, as we are the ones who deeply understand the difficulties faced by deaf students.

Figure 1: A deaf student closely observing dinosaur illustrations in a book

Define

As we began to empathize with the issue, this tension served as our catalyst for creativity. We aimed to define the core opportunity: to create a creative digital storytelling project that would allow teachers and deaf students to collaboratively design storybooks that authentically reflect their identities and experiences within the school community. This initiative seeks not only to foster inclusivity but also to give them a voice in the storytelling process through sign language, ultimately improving their reading literacy skills. Studies show that students need to be involved in creating learning materials related to their lived experiences, interests and most importantly, their identities to connect learning content with what they care about (Goodwin & Stanton, 2022; Rumenapp et al., 2023). This effort begins with mentoring and facilitation provided by their teachers.

Ideate

In the ideation phase, we brainstormed and reflected on the insights gained from the empathy and define phases to map out our ideas for the digital storytelling project we plan to implement. We discussed and identified three key ideas to include: first, the books should be bilingual, incorporating both Malay and sign language to ensure accessibility for deaf students. Second, we focused on stories that are culturally relevant; instead of creating another set of fantasy narratives, we aim to highlight stories deeply rooted in the identities and lived experiences of teachers and deaf students. Therefore, the approach of funds of identity and knowledge by Esteban-Guitart (2016) and Moll et al. (1992) are adapted as the conceptual and theoretical framework in this digital storytelling project (see Figure 2). This approach makes the storybooks both engaging and meaningful, ensuring that all teachers and deaf students feel included and valued in the storytelling process, making the invisible visible and the unheard heard.

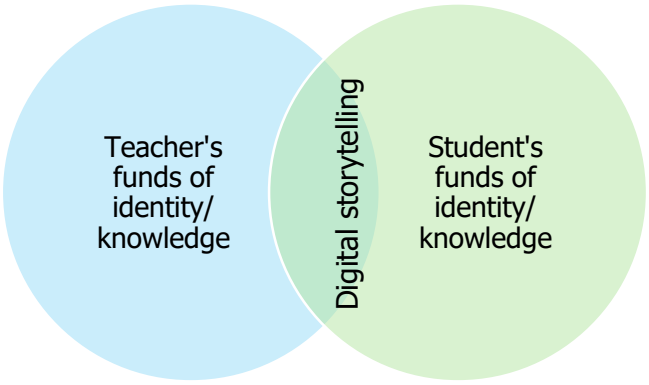

Figure 2: The conceptual and theoretical framework in this project

Third, in this digital age with the advancement of artificial intelligence (AI), we are considering integrating AI as a collaborative tool to enhance creativity in the digital storytelling process for both teachers and students. Previous studies have shown that AI is viewed not only as a new tool but also as a virtual collaborator that can support creativity; however, it must be used wisely and ethically (Creely & Blannin, 2024; Mariappan et al., 2024; Sedkaoui & Benaichouba, 2024; Vartiainen et al., 2023). AI tools such as ChatGPT, Gemini, and DeepSeek show promise as technological innovations and should be considered in this digital storytelling project.

Prototype and Test

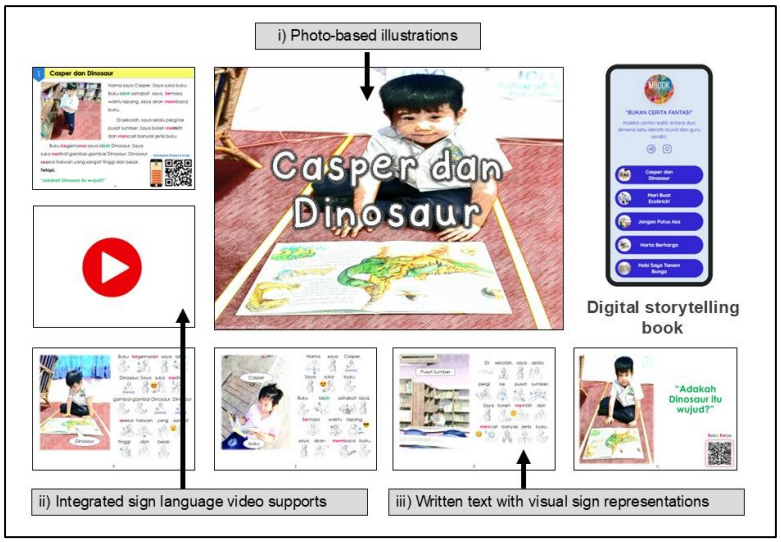

Figure 3: The first prototype of the digital storytelling project

The prototyping process began with "Casper and Dinosaur," a story about a deaf student named Casper, who loves going to the library and finding dinosaur books. We used AI-enhanced photo editing to create illustrations from Casper's own photos, along with written text that supports sign language translations, creating an authentic and visually accessible story. During testing, Casper immediately recognized himself in the story and signed excitedly: "This is me!". Other students became so engaged that they began requesting personalized books featuring their own photos and stories, highlighting the impact of identity-driven narratives. Teachers also reflected that creating books that are close to the students' hearts is essential for their deep understanding and engagement with the reading materials. This insight aligns with the emphasis on creating learning materials rooted in funds of identity and knowledge for self-definition, self-expression, and self-understanding for the learners themselves (Esteban-Guitart & Moll, 2014). Figure 3 shows the first prototype of the digital storytelling project, which became the basis framework that inspired the next books created for the implementation phase.

Implementation

Building on the first prototype, we began by identifying both teachers' and students' funds of identity and knowledge to guide the digital storytelling process. Art-based methods and photo elicitation techniques were employed to help participants express their personal narratives. Parents were also invited to contribute by sharing photos and stories that reflected their children's identity and experiences. Deaf students were actively involved in the production process. They were guided through basic digital editing skills and taught to translate the storybooks into sign language, word by word, fostering both language development and digital literacy. Collaboration took place through regular school-based meetings and Professional Learning Communities (PLCs), which were held both on a scheduled basis and spontaneously, depending on participants' availability.

To enrich the storytelling experience, we also explored image generation AI tools such as Bing Image Creator, Gemini, and DALL·E to inspire creativity among teachers and students. We also developed a custom GPT model and utilized DeepSeek to support narrative and idea structuring. Nonetheless, we prioritized our own ideas to ensure the stories remained authentic, rooted in the identities and lived experiences of both teachers and students, rather than solely relying on AI-generated content. As a result, the digital storytelling project expanded to include 11 new storybooks, followed by 12 revised editions that improved upon the earlier versions. All storybooks are accessible online at https://mbook.bio.link.

CONCLUSIONS AND IMPLICATIONS

This project evolved from a small-scale initiative into a collaborative effort with multiple teachers and deaf students, significantly refining the framework's adaptability and its practical applications in creating creative digital storytelling. As a result, the digital storytelling project has improved deaf students' engagement with reading materials and has become a valuable resource for teachers aiming to support reading literacy instruction. The funds of identity and knowledge that become the key ideas in the ideation process, drive this project by linking curriculum content to real contexts based on teacher–student lived experiences, fostering motivation and engagement in learning (Hunter et al., 2020; Ordoñez et al., 2018). Teachers also noted that while sign language translation helps deaf students understand the texts, it still requires their intrinsic motivation and enthusiasm to improve their reading skills and realize the importance of reading itself.

In addition, based on observations and discussions, the project provided opportunities for professional growth through collaboration, enabling teachers to acquire new skills in digital storytelling, narrative structuring, and the use of AI tools. This ongoing learning process has made them more adaptable and effective in their pedagogical practices. Similarly, previous studies have noted that teachers reflect on the potential of digital storytelling to promote inclusion, recognizing it as a catalyst for change, meaningful learning, and more impactful teaching when integrated into classroom practice (Yasar-Akyar et al., 2022).

Feedback from both teachers and students informed the iterative design process, ensuring that the framework remains responsive to their needs. Moving forward, we aim to further expand this project by exploring additional technologies and approaches that can enhance the storytelling experience. We also plan to share the project with other teachers and deaf students in different schools. The positive shift in both teachers' and students' engagement and enthusiasm reflects our dedication to using digital storytelling as an innovative and meaningful approach in deaf education.

REFLECTIONS

The digital storytelling project highlights how identity-driven narratives and technology can help bridge the gap in reading literacy outcomes, offering a practical approach to inclusive learning. By blending teacher–student creativity with AI support, we can create more dynamic, engaging, and inclusive digital storytelling tailored for deaf education. However, while the potential of AI to enhance storytelling is undeniably significant, it is crucial to approach its integration with a thoughtful and critical mindset. In co-creating these stories, both teachers and students must embrace their creativity and curiosity, utilizing AI as a collaborative tool to actively engage in the storytelling process. We also need to empathize and challenge our critical thinking as AI becomes more integrated into our lives, encouraging a deeper understanding of what it can offer and where it falls short. Yet, the human touch remains vital in ensuring that digital storytelling connects meaningfully with both teachers and students. Thus, this study proposes a replicable framework for creating a creative digital storytelling project by blending teacher–student creativity with AI support, fostering literacy and cultivating a reading culture in schools (see Figure 4).

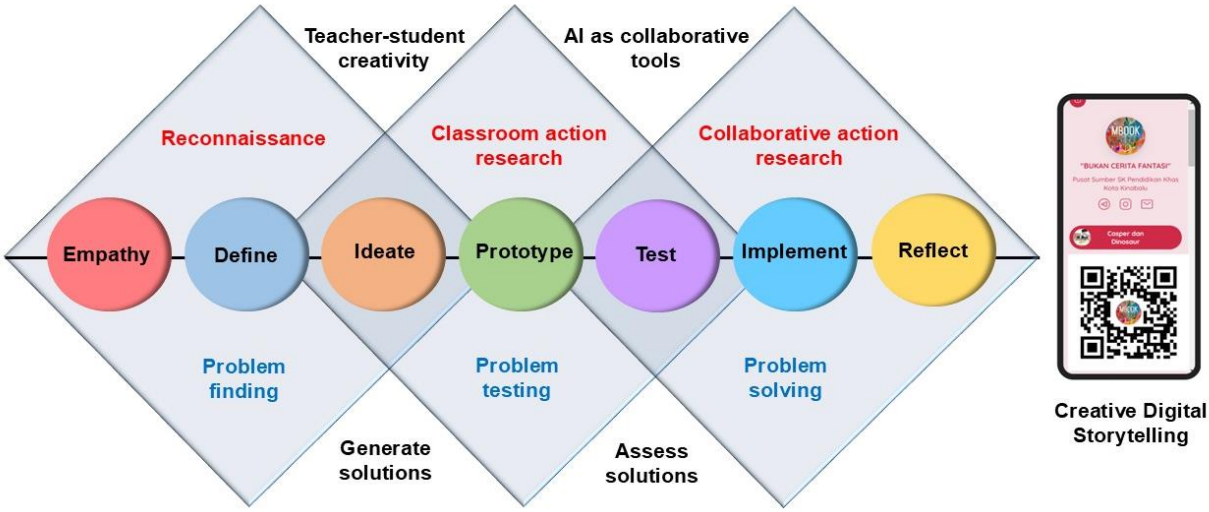

Figure 4: A replicable framework for creating a creative digital storytelling project

REFERENCE

Alasmari, A., & Abalhareth, A. (2022). Specific challenges in the development of English literacy for deaf and hard-of-hearing students. *The International Journal of Literacies*, *29*(2), 13. https://doi.org/10.18848/2327-0136/CGP/v29i02/13-26

Andrews, J. F., Hamilton, B., Dunn, K. M., & Clark, M. D. (2016). Early reading for young deaf and hard of hearing children: Alternative frameworks. *Psychology*, *7*(4), 510-522. http://dx.doi.org/10.4236/psych.2016.74052

Ben-Ahmed, H. E. (2023). Nurturing caring pedagogical relationships through a digital storytelling approach: New avenues for educators. *Teaching and Learning in Nursing, 18*(4), 496-499. https://doi.org/10.1016/j.teln.2023.05.009

Braun, V., & Clarke, V. (2022). *Thematic Analysis: A Practical Guide.* SAGE.

Coghlan, D., & Brannick, T. (2014). *Doing Action Research in Your Own Organisation* (4th ed.). SAGE.

Creely, E., & Blannin, J. (2025). Creative partnerships with generative AI. Possibilities for education and beyond. *Thinking Skills and Creativity*, *56*, 101727. https://doi.org/10.1016/j.tsc.2024.101727

Esteban-Guitart, M. (2016). *Funds of Identity: Connecting Meaningful Learning Experiences in and out of School.* Cambridge University Press. https://doi.org/10.1017/CBO9781316544884

Esteban-Guitart, M., & L. Moll. (2014). Funds of identity: A new concept based on funds of knowledge approach. *Culture & Psychology 20*(1), 31–48. https://doi.org/10.1177/1354067X13515934

González-Cuenca, A., González-Jerez, M., Linero, M. J., & Lavigne, R. (2024). Differences in the type of vocabulary understood by deaf and hearing students: Results to guide interventions. *Journal of Communication Disorders*, *111*, 106458. https://doi.org/10.1016/j.jcomdis.2024.106458

Goodwin, A. L., & Stanton, R. (2022). Lessons from an expert teacher of immigrant youth: A portrait of social justice teaching. *Equity & Excellence in Education*, *55*(1-2), 23-36. https://doi.org/10.1080/10665684.2021.2021652

Greenwald, B. H. (2021). Two centuries of deaf education and deaf agency in the United States. *Discussing bilingualism in deaf children: Essays in honor of Robert Hoffmeister*, 3-16.

Greene-Woods, A., & Delgado, N. (2019). Addressing the big picture: Deaf children and reading assessments. *Psychology in the Schools*, *57*(3), 394-401. https://doi.org/10.1002/pits.22285

Harris, M., Terlektsi, E., & Kyle, F. E. (2017). Concurrent and longitudinal predictors of reading for deaf and hearing children in primary school. *The Journal of Deaf Studies and Deaf Education, 22*(2), 233–242. https://doi.org/10.1093/deafed/enw101

Hartman, M. C., Nicolarakis, O. D., & Wang, Y. (2019). Language and literacy: Issues and considerations. *Education Sciences*, *9*(3), 180. https://doi.org/10.3390/educsci9030180

Higgins, M., & Lieberman, A. M. (2016). Deaf students as a linguistic and cultural minority: Shifting perspectives and implications for teaching and learning. *Journal of Education, 196*(1), 9–18. https://doi.org/10.1177/002205741619600103

Hunter, J., & Sawatzki, C. (2019). Discovering diverse students' funds of knowledge related to finance: Pāsifika students in New Zealand. *Mathematics Education Research Journal*, *31*(4), 419-439. https://doi.org/10.1007/s13394-019-00259-0

Jabatan Kebajikan Masyarakat. (2024). *Laporan Tahunan Majlis Kebangsaan bagi Orang Kurang Upaya (MKBOKU) Tahun 2023*. Jabatan Kebajikan Masyarakat. https://my-jkm.aflip.in/745ecb82ca.html#page/1

Kyle, F. E., & Cain, K. (2015). A comparison of deaf and hearing children's reading comprehension profiles. *Topics in Language Disorders, 35*(2), 144–156. https://doi.org/10.1097/TLD.0000000000000 053

Lee, W. Y., Tan, J. T. A., & Kok, J. K. (2022). The struggle to fit in: A qualisiritative study on the sense of belonging and well-being of deaf people in Ipoh, Perak, Malaysia. *Psychological Studies, 67*(3), 385-400. https://doi.org/10.1007/s12646-022-00658-7

Magee, P. M. (2014). Challenges with literacy development in children who are deaf or hard of hearing. *For Res Pap*, *509*. https://core.ac.uk/download/pdf/60569151.pdf

Mariappan, J., Sahdev, S. L., Krishnan, C., Malik, F. A., & Gupta, A. (2024). Creative Synergy: Unleashing the Potential of Artificial Intelligence and the Metaverse. In *The Metaverse Dilemma: Challenges and Opportunities for Business and Society* (pp. 235-248). Emerald Publishing Limited. https://doi.org/10.1108/978-1-83797-524-220241014

McNiff, J. (2013). *Action Research: Principles and Practice* (3rd ed.). Routledge.

Ordoñez, D., Siqués, C., & Esteban-Guitart, M. (2018). 'The best way to learn language is by not doing language'. Incorporating funds of identity for learning Spanish in a Shared Education Unit. *International Journal of Bilingual Education and Bilingualism*, *24*(9), 1259-1270. https://doi.org/10.1080/13670050.2018.1551324

Moll, L. C., Amanti, C., Neff, D., & Gonzalez, N. (1992). Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory into Practice, 31*(2), 132–141. https://doi.org/10.1080/00405849209543534

Qi, S., & Mitchell, R. E. (2011). Large-scale academic achievement testing of deaf and hard-of-hearing students: Past, present, and future. *Journal of deaf studies and deaf education*, *17*(1), 1-18. https://doi.org/10.1093/deafed/enr028

Raven, S., & Whitman, G. M. (2019). Science in silence: How educators of the deaf and hard-of-hearing teach science. *Research in Science Education, 49*, 1001-1012. https://doi.org/10.1007/s11165-019-9847-7

Rumenapp, J. C., Troiano, B., Adams, M., Moya, J., Lawrence, E., & Razfar, A. (2023). Developing health literacy events: A case study of teachers designing health curricula. *Health Education Journal*, *82*(6), 651-663. https://doi.org/10.1177/00178969231180371

Rutta, C. B., Schiavo, G., Zancanaro, M., & Rubegni, E. (2020, June). Collaborative comic-based digital storytelling with primary school children. *In Proceedings of the interaction design and children conference* (pp. 426-437). https://doi.org/10.1145/3392063.3394433

Scott, J. A., & Dostal, H. M. (2019). Language development and deaf/hard of hearing children. *Education Sciences*, *9*(2), 135. https://doi.org/10.3390/educsci9020135

Sedkaoui, S., & Benaichouba, R. (2024). Generative AI as a transformative force for innovation: a review of opportunities, applications and challenges. *European Journal of Innovation Management*. https://doi.org/10.1108/EJIM-02-2024-0129

Tang, S. (2016). Digital storytelling approach in a multimedia feature writing course. *Journal of Language Teaching and Research, 7*(3), 572.

Yasar-Akyar, O., de la Rosa-Feliz, C., Oyelere, S. S., Muñoz, D., & Demirhan, G. (2022). Special Education Teacher's professional development through digital storytelling [Desarrollo profesional de maestros de educación especial a través de la narración digital]. *Comunicar: Revista Científica de Comunicación y Educación,* (71), 93-104. https://doi.org/10.3916/C71-2022-07

Vartiainen, H., Tedre, M., & Jormanainen, I. (2023). Co-creating digital art with generative AI in K-9 education: Socio-material insights. *International Journal of education through art, 19*(3), 405–423. https://doi.org/10.1386/eta_00143_1