4-2024

A crosswalk of digital storytelling and multilingual learning

Nicole Ferguson-Sams

Emily Howell

Rebecca Kaminski

Victoria Pennington

Mihaela Gazioglu

See next page for additional authors

Authors

Nicole Ferguson-Sams, Emily Howell, Rebecca Kaminski, Victoria Pennington, Mihaela Gazioglu, and Kavita Mittapalli

Middle School Journal

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/umsj20

A crosswalk of digital storytelling and multilingual learning

Nicole Ferguson-Sams, Emily Howell, Rebecca Kaminski, Victoria Pennington, Mihaela Gazioglu, Kavita Mittapalli & Amlan Banerjee

To cite this article: Nicole Ferguson-Sams, Emily Howell, Rebecca Kaminski, Victoria Pennington, Mihaela Gazioglu, Kavita Mittapalli & Amlan Banerjee (2024) A crosswalk of digital storytelling and multilingual learning, Middle School Journal, 55:3, 27-36, DOI: 10.1080/00940771.2024.2329511

To link to this article: https://doi.org/10.1080/00940771.2024.2329511

Published online: 15 Apr 2024.

A crosswalk of digital storytelling and multilingual learning

Nicole Ferguson-Sams, Emily Howell, Rebecca Kaminski, Victoria Pennington, Mihaela Gazioglu, Kavita Mittapalli, & Amlan Banerjee

Abstract: This study draws on the practice of digital storytelling (DST) to address the limited use of technology in middle school multilingual classrooms. Through critical and multiliteracy frameworks, DST can help create a more engaging and inclusive learning environment that supports the literacy development of multilingual learners (MLs). After reviewing and synthesizing empirical studies on DST as it applies to the middle school years, we provide a crosswalk focusing on four core areas: content, context, communication and language, and student identity. The crosswalk reveals how DST integrates Web 2.0 technology and promotes language and literacy development among middle school MLs.

Keywords: *critical literacy*, *digital storytelling*, *multilingual learners*, *multiliteracies*

Successful Middle School Characteristics: This We Believe

- Educators respect and value young adolescents.
- The school environment is welcoming, inclusive, and affirming for all.
- Curriculum is challenging, exploratory, integrative, and diverse.

Teachers of multilingual learners (MLs) face the challenge of incorporating technology into their instruction while considering students' unique needs and circumstances, especially as ML populations are exploding in the U.S. and the use of digital tools is pervasive (Li, 2017). Digital tools for MLs should be accessible, culturally relevant, and provide appropriate language support (Lahey & Rizopoulos, 2023). Additionally, there should be guidance and training for students and teachers on the effective use of technology for literacy instruction. Despite the ubiquity of digital tools in a technological society, their use for learning goals is not intuitive (Howell et al., 2021). There is a gap in the research addressing how teachers should use technology specifically to meet ML learning needs (Sadik, 2008). By utilizing digital tools, teachers can make content more comprehensible and provide challenging, high-interest assignments that enhance the learning experience of MLs (Maunakea et al., 2022).

The present study found that while many middle-school teachers report using digital tools in their classrooms, technology usage among MLs was often limited to consumption rather than creation. Consumption of content in digital spaces involves students passively engaging with preexisting materials, while creation of content in digital spaces represents a higher level of student engagement and active participation (Lankshear & Knobel, 2007). This limited use of technology to create highlights the need for effective professional development (PD) that considers students' cultural and linguistic backgrounds. To address this technology gap and promote effective teacher learning that values diversity, we propose the implementation of digital storytelling (DST) in ML classrooms through critical and multiliteracy frameworks.

Using DST as an instructional strategy can help create a learning environment that empowers MLs to engage in critical discourse and actively shape their identities.

Using DST as an instructional strategy can help create a learning environment that empowers MLs to engage in critical discourse and actively shape their identities.

Implementing digital tools for language learning is especially important for middle school students as they "learn best through trial and error, process information quickly,

connect with graphics before text, and require relevance in their learning" (Downes & Bishop, 2012, p. 6). After reviewing the literature on DST as it applies to the middle school years, we provide a crosswalk on how this strategy has been used to meet ML purposes of language learning: content, context, communication and language, and student identity (World-class Instructional Design and Assessment [WIDA], 2014). This purpose meets *The Successful Middle School Characteristics* (Bishop & Harrison, 2021), particularly those related to culture and community. By recognizing and appreciating the linguistic talents and cultural assets MLs bring to the classroom, educators can *respect* adolescents and *value* a learning environment where students are seen, heard, and valued, *affirming* the school environment for all.

Theoretical perspectives

Literacy instruction in multilingual classrooms often centers on teaching foundational reading and writing skills through repetitive worksheets and isolated vocabulary words (Li, 2017). Li states that because of this lack of engagement, "many students maintain their silence" (p. 244) and can lose interest in literacy learning. Students should be taught to be active learners by connecting their own experiences and backgrounds to critically examine the text they are reading and writing (McLaughlin & DeVoogd, 2004). By incorporating critical literacy practices into DST activities, students learn to view the stories they create and consume with a critical lens and develop a deeper understanding of the world around them (Honeyford, 2013). Additionally, the multiliteracy framework supports DST by recognizing its potential to engage and empower learners, especially those struggling with traditional forms of literacy (De la Piedra, 2010). By implementing critical and multiliteracies through DST, teachers can create more engaging and inclusive learning environments that support the literacy development of MLs.

Critical literacy

Critical literacy lacks a unified definition but is often described as a theoretical model with pedagogical implications (Behrman, 2006). Vasquez et al. (2019) describe critical praxis as analyzing a text or issue from several angles to consider the meaning and "suggesting possibilities for change and improvement" (p. 300). Critical literacy praxis encourages students to become active readers and thinkers and challenges them to analyze a text to question its purpose, biases, and underlying assumptions. Passive readers may comprehend information without thoroughly questioning the message or source, but with a critical stance, students become aware of various viewpoints, inequities, and absent voices (McDaniel, 2004; Wilder & Msseemmaa, 2019). Integrating critical literacy into classroom instruction helps students become critical thinkers and doers. Readers are encouraged to examine a text from various viewpoints and possibly change their perspective based on the facts (Vasquez et al., 2019).

Although critical literacy requires students to express their opinions and ideas, it does not require a high proficiency in a particular language (Lau, 2013). In Luke's (2000) view, the goal of a critical approach is to create a learning environment that impacts and teaches students to reassert their identity. As teachers integrate critical literacy into the curriculum, they should note that the approach lacks a formulaic method (Behrman, 2006; Luke, 2000). While Luke provides examples of what classroom implementation of critical literacy may look like, he cautions against uniform methods by reiterating that critical literacy praxis cannot be diminished to a "single-step method or a commodity for publishers" (p. 454). Instead of seeking a set of instructional strategies, teachers should leverage their students' experiences, language skills, and cultural backgrounds to help promote a critical stance (Pirbhai-Illich et al., 2009). When creating a digital story, students must choose the text, images, videos, and sounds they will use to convey their message. They should think critically about how to use these different modes of communication effectively to create an engaging story. While Luke's stance addresses the foundations of critical literacy, it is based on the use of alphabetic text and lacks the inclusion of digital tools in a technological era. Thus, we turn to multiliteracies for a lens that grapples with digital tools and the multimodality they often entail.

Bridging multiliteracies and critical literacies

We draw on critical literacy (Behrman, 2006; Luke, 2000; Pirbhai-Illich et al., 2009; Vasquez et al., 2019) and multiliteracies (Kress & Van Leeuwen, 2020; New London Group, 1996) frameworks to examine the benefits of implementing DST in literacy learning for MLs. According to the New London Group (1996), multiliteracies involve a shift from a focus on traditional literacy skills to the ability to use multiple modes of

communication to navigate an ever-changing, diverse world effectively. WIDA Consortium (2020) English Language Development Standards acknowledge this shift by expanding forms of communication to include "movement, gestures, facial expressions, images, equations, maps, symbols, diagrams, electronic devices, and other means" (p. 19). Multiple modes of communication or multimodality, including the combination of these expanded forms, are integral components of communication (Kress & Van Leeuwen, 2020). Sociocultural factors influence the use of specific modes of communication, and particular communities determine their combinations (Smith et al., 2021).

Multiliteracy practices can support students in developing their critical literacy skills, as they can create and analyze various modes of communication (Kendrick et al., 2022). Howell and Dyches (2022) state that "multimodal design helps students externalize, reflect, and break barriers traditional literacy may not lend them" (p. 102); thus, complex concepts are easier to grasp when students comprehend through multiple resources. Multiliteracies pedagogy provides multiple entry points for engagement and understanding, supporting literacy development among MLs (Ajayi, 2009).

The New London Group (1996) emphasizes the significance of a critical literacy framework within multiliteracies by arguing that addressing systems of power, standardized curriculum, and language (a major component) is necessary to understand and challenge how language, culture, and power intertwine with various modes of communication. The multiliteracies framework supports DST by recognizing the importance of multiple modes of communication and offering opportunities for engagement and understanding through multimodality.

Literature review

Digital storytelling defined

We define *digital storytelling* as a multimodal practice where individuals create and share stories using various combinations of digital media such as images, videos, music, animation, and audio recordings. Digital stories are short productions that use multiliteracies to move "beyond the traditional text-oriented approaches to include tools and resources as part of the text" (Castañeda et al., 2018, p. 21). This integration signifies that digital tools are not extraneous to writing but integral to the composing process. For example, Honeyford (2013), whose work is further examined in our findings, discussed student DST through a digital narrative poem using movie-making software. The use of digital tools for storytelling emphasizes a shift in how we perceive composition, thus illustrating that storytelling in the digital age is as much about choosing a suitable medium as it is about crafting the narrative itself (Li, 2017).

Although DST originated in the United States, research by Wu and Chen (2020) reveals that the practice has quickly gained traction internationally. DST is commonly used in secondary humanities courses such as literacy, language arts, history, and social studies (Wu & Chen, 2020). Its content can reflect a wide range of topics and themes, from personal narratives and historical events to social issues and global challenges. The context in which the digital story is created and shared can vary depending on the instructional goals and the intended audience. By integrating technology and multiple modes of expression into the storytelling process, DST can provide students with a powerful and engaging way to develop their literacy skills, express their creativity, share their identities, and connect with diverse audiences (Dreon et al., 2011; Kendrick et al., 2022). DST is founded in multiliteracies for its incorporation of modes beyond text and critical literacy for its capacity to use that design to push back upon dominant narratives. While DST has often been studied at secondary and higher education levels, the present study focuses on the need for DST to bridge multiliteracies and critical literacies for language learners in middle school.

Importance of DST for middle-school MLs

DST supports the development of language skills in the domains of listening, speaking, reading, and writing for middle school MLs (Chuang et al., 2019; Fu et al., 2022). In middle grades classrooms, DST can serve as a medium to explore various digital tools and resources, help students identify and develop their personal narratives, and guide students through planning, producing, and sharing their digital stories (Castañeda et al., 2018; Robin, 2016). The use of multiple modes, including written text, audio, video, and images, creates accessible pathways for MLs to share and receive information (Ajayi, 2009). According to Kazazoglu and Bilir (2021), "Gen Z students are found to see tech and

creativity as an important and intersecting aspect [sic] of their identities" (p. 44). When MLs share their stories and perspectives through activities such as DST, they can develop a stronger sense of self and feel more connected to their peers and the school community. Despite the potential benefits of DST for middle school MLs, there are limited studies on its implementation across the United States, making it difficult to fully understand its impact. Furthermore, current research addresses how DST promotes language and literacy skills, but studies on how the practice explicitly affects the literacy skills of MLs are limited (Kazazoglu & Bilir, 2021).

Methods

The data presented were collected in a design-based research (DBR) study, part of a larger, multi-year Department of Education, National Professional Development Grant-funded project with the goal of building capacity for MLs in high-need school districts. Design-based research often incorporates mixed methods of data analysis and collection and investigates an intervention toward a learning goal, with modifications made as inhibiting and enhancing factors are observed (Howell, 2018; Howell et al., 2017, 2021). We analyzed data from the needs assessment of 30 teachers pursuing their master's degree in literacy with coursework toward certification in English to Speakers of Other Languages (ESOL) and literacy teachers. We address the research question: How are teachers using technology to support MLs, and what strategy might support technology integration from critical and multiliteracies perspectives? We focus here on mixed methods of data analysis from 28 teachers completing an instructional log for each day of an instructional week, for a total of 153 logs. We examined these logs quantitatively for the percentage of time teachers used technology with MLs and qualitatively regarding their description of what that usage entailed. We used concurrent analysis, where quantitative and qualitative were analyzed separately and then considered one another to corroborate findings (Creswell & Clark, 2017). These instructional logs included seven teachers in grades 6–12 who reported using technology with MLs for content presentation, Web 1.0 instructional activities, and assessment.

The presented instructional strategy of DST focuses on the high-need area of secondary teachers, particularly middle-school practitioners. DST allows MLs to engage in interactive and participatory Web 2.0 technologies, fostering active engagement, collaboration, and content creation, as opposed to the passive consumption of information associated with Web 1.0 technology use (Lankshear & Knobel, 2007).

To examine DST, empirical articles were examined from peer-reviewed journals to explore the following subsidiary questions:

1. How can digital storytelling help teachers integrate technology for MLs?
2. Does digital storytelling develop language learning purposes?

The search criteria were guided by our understanding of DST along with the definition provided by Castañeda et al. (2018). We included studies implementing DST practices with MLs in grades 5–9 or between the ages of 10–15. A total of eight articles reporting original empirical research published between 2000 and 2022 were included in this crosswalk. Combinations of the following keywords and phrases were used to search for articles through Google Scholar and ProQuest: digital storytelling, digital narratives, MLs, English learners, bilingual learners, multimodal literacy, multiliteracies, and critical literacy. After reading and synthesizing the literature, emerging themes were identified across content, context, communication and language, and student identity. These four core areas of evaluation are based on the purposes of language learning and technology use developed by WIDA (2014).

Findings from research

In the DBR needs assessment, we noted an inhibiting factor of the teachers using technology, but less so for specific ML instruction, especially at the middle-school level. Thus, we present research that led to the modification of the crosswalk between DST and language learning purposes presented subsequently in our findings. Twenty-seven percent of middle grades teachers' (grades 6–8) instructional logs reported using technology with MLs. This is less than the 52% technology use reported in the logs overall ($n = 153$) and less than the 53% of use reported at the elementary level (grades K-5) and 60% use reported at the high-school level (grades 9–12). Following the qualitative analysis of the teachers' instructional logs, teacher technology implementation was organized into three categories: presentations, instructional activities, and assessments. The

reported instructional activities were limited to online educational programs, educational games, and math manipulatives.

We present the practice of DST to help MLs develop their language and digital skills, construct their identities, and share their lived experiences. This strategy thereby integrates multiliteracies due to the incorporation of multimodality through digital tools as well as critical literacy by giving students a vehicle to restory a curriculum often excluding their voice. DST can provide a more engaging and interactive learning experience by allowing students to capitalize on multiple modes to create and share their own stories. Thus, this crosswalk will be a modification shown to teachers in a technology module in an online class repository to address the inhibiting factor they had in tailoring digital tool instruction for MLs.

Application of research to literature to practice

We turned to the literature based on the preceding discussion of the need we saw in our research. We looked for the specific intersection of multilingual learning, middle-school students, and digital tools. DST emerged as a strategy addressing the four components of language learning outlined by WIDA (2014). To present the findings, we created The *Crosswalk of DST and Language Learning* (Table 1), which analyzes research as it relates to content, context, communication, and identity. The crosswalk shows that DST meets multiple areas of language development and learning. Thus, we present this strategy from a review of the literature aligned in the crosswalk with language purposes as the necessary bridge between research, literature, and practice, specifically giving teachers technological strategies they can use for specific language purposes.

Content

Content refers to the subject matter being taught, and the knowledge, skills, and concepts students are expected to learn within a particular discipline. With DST, the same content can be implemented in various formats, such as digital narratives, poems, and playwriting (Honeyford, 2013; Johnson & Kendrick, 2017; Okumus, 2020). In Honeyford's (2013) study, a 7th-grade student, Gabriel, composed a digital narrative poem inspired by the Chapter "My Name" in the book *The House on Mango Street*. Artefactual literacies and narrative theory formed the central focus of the study by Honeyford, in which the author found that by remixing a written poem to add visual text and narration, Gabriel combined elements of fantasy and reality (magical realism) to create a magical atmosphere within his digital story. Gabriel used movie-making software to combine written text with images found on the internet and taken with a digital camera. His digital story included descriptive literary elements, including similes, metaphors, and allusions. Using multiple modes in DST allowed Gabriel to express his thoughts and feelings and create meaningful, personalized content, applying genres of English literature in his creation.

Studies from K. P. Liu et al. (2018) and Okumus (2020) show how DST can assess understanding of content vocabulary. To determine the effects of DST on language learning and academic performance, sixth-grade participants from a study by K. P. Liu et al. (2018) constructed a digital story to culminate each English unit. K. P. Liu et al. detailed how students constructed sentences using target vocabulary words for their DST activity. Findings indicated that the practice of DST "had a positive impact on students' language performance, particularly in oral reading fluency" (p. 930). In addition to reading skills, DST can also provide an opportunity for students to enhance other language skills, including writing, listening, and speaking, while actively participating in the learning process (Okumus, 2020). In a study investigating students' perception of technology integration, Okumus found that incorporating DST into English lessons makes learning more enjoyable and engaging. Eighth-grade participants wrote a script for their digital stories using newly introduced vocabulary words. Upon project completion, students indicated they wanted to continue using DST, stating that the practice was motivating and helpful in language learning. By using Web 2.0 activities, MLs can improve their content vocabulary development and utilize their language skills to develop higher-order thinking; therefore, teachers should be intentional when implementing these tools into literacy instruction (Maunakea et al., 2022; WIDA, 2014).

Context

For this crosswalk, *context* refers to the experiences and factors that shape how content is taught and learned (WIDA, 2014). The instructional setting, available resources, and independent or collaborative student

Table 1. Crosswalk of Digital Storytelling and Language Learning for Multilingual Learners.

Author, Year, Grade of Study	Core Areas of Evaluation			
	Content	**Context**	**Communication and Language**	**Identity**
Angay-Crowder et al. (2013), 7th-8th	Topic included heritage, personal interests, or political issues	Teacher held writing conferences to guide student work	Encouraged to use their native languages and codeswitching	Represented and reflected on their multiple cultural identities
Honeyford (2013), 7th	Written poems were used to create DST narrative poems	Teacher worked with student to help describe images and literacy structures	Communicated experiences and dreams and made sense of cultural norms	Illustrated experience as an immigrant youth - marked by the *doubleness* of his identity
Chuang et al. (2019), 6th	DST was used to promote creative storytelling in English class	Teacher served as a facilitator allowing students to problem-solve within their groups and intervened as needed	Multiple modes helped students express their ideas and effectively communicate content knowledge	Not addressed
K. P. Liu et al. (2018), 6th	DST was used to assess targeted vocabulary, grammar skills, and sentence patterns	Teacher spent less time on direct instruction to allow time for DST activities	DST had a positive impact on students' language performance and oral reading fluency	Not addressed
M.C. Liu et al. (2018), 6th	DST learning task covered three topics: weather, activities, and clothes	Some students worked individually, while others worked cooperatively	Cooperative learning offered opportunities for interaction and peer-teaching	DST helped students achieve greater learning autonomy
Okumus (2020), 8th	DST was used to assess vocabulary, grammar skills, and language skills in English class	Students were divided into three groups: character, background, and story writers	Pictures and music helped students in lower academic-level classes to communicate outside of written text	Students decided what part of their identity would be shared and how to share it. (student-centered)
Hirsch and Macleroy (2020), 9th	English classroom project that merged poetry with multilingual digital storytelling	Teacher used a workshop approach with a small group of students	DST poem used multiple languages	Encouraged to use images, artifacts, and native languages to express sense of self and belonging
Yang et al. (2022), 7th	Cross-curricular (English and computer class) project where students explored career goals and options	Storyboards created in English class were used as an outline for presentations created in computer class	Writing scripts and recording narration provided students with opportunities to produce L2 output.	Empowered students as they explored emerging careers while identifying as English speakers

grouping can influence context. In a study from M. C. Liu et al. (2018), 6th-grade students worked independently or collaboratively to complete a DST learning task entitled "I am a weather forecaster." Students were instructed to cover three topics—weather, activities, and clothing—in their DST weather reports. Those that worked collaboratively divided the script and allocated a section to each classmate, while students that worked independently wrote the entire script themselves. The researchers found that MLs who worked collaboratively outperformed those working individually by measuring content knowledge, autonomous language learning skills, and emotional experiences. M. C. Liu et al. (2018) concluded that "group work reduced students' anxieties about presenting their work to others and thus helped them develop autonomous language learning ability" (p. 1025). Regarding content knowledge, MLs in the collaborative groups achieved higher test scores than those working individually, suggesting that the context in which students work can influence learning outcomes. When students participate in DST alongside their peers, it provides an opportunity to share content knowledge and ideas. By considering context, teachers can tailor instruction and adjust to ensure all students achieve their learning objectives through DST.

Similarly, Angay-Crowder et al. (2013), in a study focusing on reframing literacy pedagogy, allowed 7th and 8th-grade students to complete DST narratives independently or in pairs. Students were encouraged to use their cultural and linguistic backgrounds to discuss personal interests, political issues, or their heritage. They participated in writing conferences where each student elaborated on their topic and was given specific instructions on improving their DST narrative. Additionally, a virtual space was created to post resources and allow students to share information about their digital stories with their classmates, fostering students learning from each other's perspectives and cultural experiences. This research highlighted the impact of the context in which students work on their DST projects. Teachers can help students create meaningful and engaging DST narratives by providing independent and collaborative work opportunities.

Communication and language

WIDA (2014) states that *communication and language* should "specifically address deeper linguistic needs and goals for the language learner and should be used with knowledge of student language goals and language development standards" (p. 8). Through multiple modes, DST can help MLs overcome language barriers and make it easier for them to communicate their ideas. According to Yang et al. (2022), DST improves English speaking skills for MLs. In this study, students aged 14–15 participated in a cross-curricular DST project in their English and computer classes. Students used digital stories to explore future career options and share their aspirations. The authors suggest that improved speaking skills resulted from "the authentic, output-oriented, and multiliteracies learning opportunities enabled by the interdisciplinary DST project, which empowered the students to create digital stories as personally meaningful multimodal artifacts in the literacy learning process" (Yang et al., 2022, pp. 856–857). The interdisciplinary nature of DST provides a learning space for students to express themselves in different ways and build confidence in their ability to communicate ideas.

Through DST, students can use their first language to maximize their ability to express themselves and communicate their stories effectively. Angay-Crowder et al. (2013) encouraged students to incorporate code-switching to "expand their literacy repertoires and means of expression" (p. 43). Hirsch and Macleroy (2020) studied the implications of poetry with multilingual digital stories. MLs aged 13–14 created a spoken word film to share their feelings of belonging. According to Hirsch and Macleroy, students "discover the power and versatility of language" (p. 54) through multilingual DST. The students could use their first languages for their DST poems to express themselves creatively, which helped them develop a sense of belonging and pride in their cultural heritage of their first language.

Student identity

Hall (2016) described students' identities as "being shaped by their environment, their understandings of the norms of that environment, and how they view themselves in relation to those norms" (pp. 57–58). In the previously mentioned study by Hirsch and Macleroy (2020), the multilingual DST poems provided a space for students to take pride in their diverse linguistic and cultural backgrounds. Students wrote and performed spoken word by translanguaging to combine their first languages with English. Translanguaging invites students to use their native languages to participate in classroom discourse, share their identities, and strengthen their literacy skills

(García & Kleifgen, 2020; Hansen-Thomas et al., 2021). The digital story poems were unique artifacts that blended languages and cultures to reflect their multifaceted identities. Through DST, MLs can utilize their language skills by creating and sharing multimodal digital stories that are meaningful and culturally relevant.

Through DST, MLs can utilize their language skills by creating and sharing multimodal digital stories that are meaningful and culturally relevant.

Student participants reported that they enjoyed steering their own stories by having the opportunity to make decisions about their writing (Okumus, 2020). With DST, students can decide which part of their identity will be shared and how to share it. DST encourages MLs to construct their identities, develop a sense of belonging, and share their lived experiences through the texts they create (Johnson & Kendrick, 2017; Karam, 2018; Linares, 2019).

Discussion and implications

In this crosswalk, the application of DST was examined as a solution to address the gap in participatory technology instruction in middle school ML classrooms. The findings revealed how DST incorporates Web 2.0 technology and addresses language and literacy development outcomes: content, context, communication and language, and identity. We conclude with three implications: (1) how DST met the need demonstrated in research, (2) how DST helps develop the perspectives of multiliteracies, critical literacies, and the four core areas of the crosswalk, and (3) how DST will be a modification in our research moving forward.

Based on the teacher instructional logs, classroom technology usage was limited to presentation, assessment, and Web 1.0 instructional activities. Teachers focused on using digital tools to provide information to MLs rather than creating participatory learning experiences. Siefert et al. (2019) advocate for "more purposeful student-centered use of technology that moves from surface level to more engaging, generative, and collaborative approaches" (p. 117). With DST, students are encouraged to draw upon their diverse backgrounds and take ownership of their learning by creating multimodal stories. As an instructional approach, DST addresses the limitations of Web 1.0 technology by allowing students to actively engage with digital tools and create authentic learning experiences that support their language and literacy development. DST promotes active participation and collaboration among MLs while creating multimodal stories that reflect their diverse backgrounds. Students are encouraged to think creatively and critically to construct their learning experiences, thus shifting the classroom environment from teacher-centered to student-centered.

As students create digital stories, they are pushed to think critically about how their stories will be shared through the integration of various modalities and how others may perceive the message being conveyed, thus merging the perspectives of critical literacy and multiliteracies. This process requires MLs to make informed design decisions about the content they include, format, and presentation (Hirsch & Macleroy, 2020; K. P. Liu et al., 2018; Okumus, 2020; Yang et al., 2022). Along with giving students a voice and helping them to become active classroom participants, DST requires MLs to question and examine information, power structures, and perspectives (Angay-Crowder et al., 2013; Hirsch & Macleroy, 2020; Honeyford, 2013). Overall, DST is a powerful yet practical approach to participatory technology in middle school ML classrooms that promotes language and literacy development and values diversity. By creating digital stories, students can learn instruction content, improve language skills, develop a critical lens, construct their identities, and become active classroom participants and creators of their learning experiences.

As a modification to our current DBR study, this crosswalk will be included as an instructional resource in a technology module for middle school ML classrooms. As discussed herein, DST is a strategy that affords ML teachers the capacity to meet learning purposes, including content, context, communication and language, and student identity. Thus, this crosswalk addresses both the need expressed in our DBR study as well as the literature writ large for technology use specific to ML learning needs.

Concluding thoughts

Meaningful integration of technology is contingent on the classroom teacher's knowledge and skills to effectively apply digital tools to pedagogical practices (Sadik, 2008). Teachers

must take a critical approach to technology integration and consider the accessibility and cultural relevance of the tools and resources they use in the classroom. Dreon et al. (2011) support DST but emphasize that teachers consider students' individual learning needs and socioeconomic status regarding access to digital tools. Teachers should ensure that students have equal access to technology and that the resources used in the classroom are culturally responsive and relevant to the diverse experiences of MLs. As such, teachers must scaffold the use of technology and provide meaningful opportunities for multilingual learners to use DST to support identity construction through content learning. By taking a critical approach to technology integration and considering the needs and experiences of MLs, teachers can create an inclusive and equitable learning environment that supports the success of all students.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by a Department of Education, Office of English Language Acquisition, National Professional Development grant, [T365Z210089].

References

Ajayi, L. (2009). English as a second language learners' exploration of multimodal texts in a junior high school. *Journal of Adolescent & Adult Literacy*, *52*(7), 585–595. https://doi.org/10.1598/JAAL.52.7.4

Angay-Crowder, T., Choi, J., & Yi, Y. (2013). Putting multiliteracies into practice: Digital storytelling for multilingual adolescents in a summer program. *TESL Canada Journal*, *30*(2), 36–36. https://doi.org/10.18806/tesl.v30i2.1140

Behrman, E. H. (2006). Teaching about language, power, and text: A review of classroom practices that support critical literacy. *Journal of Adolescent & Adult Literacy*, *49*(6), 490–498. https://doi.org/10.1598/JAAL.49.6.4

Bishop, P. A., & Harrison, L. M. (2021). *The successful middle school: This we believe*. Association for Middle Level Education.

Castañeda, M., Shen, X., & Claros-Berlioz, E. (2018). English learners (ELs) have stories to tell: Digital storytelling as a venue to bring justice to life. *The English Journal*, *107*(6), 20–25. https://doi.org/10.58680/ej201829706

Chuang, H. H., Hsieh, M. H., Cheng, Y. Y., & Wang, C. C. (2019). An instrument for assessing the development of scientific imagination via digital storytelling for elementary school students. *Creativity Research Journal*, *31*(4), 408–418. https://doi.org/10.1080/10400419.2019.1670025

Creswell, J. & Clark, P. L. V. (2017). *Designing and conducting mixed methods research*. Sage.

De la Piedra, M. T. (2010). Adolescent worlds and literacy practices on the United States-Mexico border. *Journal of Adolescent & Adult Literacy*, *53*(7), 575–584. https://doi.org/10.1598/JAAL.53.7.5

Downes, J. M., & Bishop, P. (2012). Educators engage digital natives and learn from their experiences with technology: Integrating technology engages students in their learning. *Middle School Journal*, *43*(5), 6–15. https://doi.org/10.1080/00940771.2012.11461824

Dreon, O., Kerper, R. M., & Landis, J. (2011). Digital storytelling: A tool for teaching and learning in the YouTube generation. *Middle School Journal*, *42*(5), 4–10. https://doi.org/10.1080/00940771.2011.11461777

Fu, J. S., Yang, S. H., & Yeh, H. C. (2022). Exploring the impacts of digital storytelling on English as a foreign language learners' speaking competence. *Journal of Research on Technology in Education*, *54*(5), 679–694. https://doi.org/10.1080/15391523.2021.1911008

García, O., & Kleifgen, J. A. (2020). Translanguaging and literacies. *Reading Research Quarterly*, *55*(4), 553–571. https://doi.org/10.1002/rrq.286

Hall, L. A. (2016). The role of identity in reading comprehension development. *Reading & Writing Quarterly*, *32*(1), 56–80. https://doi.org/10.1080/10573569.2013.861332

Hansen-Thomas, H., Stewart, M. A., Flint, P., & Dollar, T. (2021). Co-learning in the high school English class through translanguaging: Emergent bilingual newcomers and monolingual teachers. *Journal of Language, Identity, and Education*, *20*(30), 151–166. https://doi.org/10.1080/15348458.2020.1726759

Hirsch, S., & Macleroy, V. (2020). The art of belonging: Exploring the effects on the English classroom when poetry meets multilingual digital storytelling. *English in Education*, *54*(1), 41–57. https://doi.org/10.1080/04250494.2019.1690394

Honeyford, M. A. (2013). The simultaneity of experience: Cultural identity, magical realism and the artefactual in digital storytelling. *Literacy*, *47*(1), 17–25. https://doi.org/10.1111/j.1741-4369.2012.00675.x

Howell, E. (2018). Expanding argument instruction: Incorporating multimodality and digital tools. *Journal of Adolescent and Adult Literacy*, *61*(5), 533–542. https://doi.org/10.1002/jaal.716

Howell, E., Butler, T., & Reinking, D. (2017). Integrating multimodal arguments into high school writing instruction. *Journal of Literacy Research*, *49*(2), 181–209. https://doi.org/10.1177/1086296X17700456

Howell, E., & Dyches, J. (2022). Sharpening students' racial literacies through multimodal subversion. *Journal of Adolescent and Adult Literacy*, *66*(2), 100–110. https://doi.org/10.1002/jaal.1255

Howell, E., Perez, S., & Abraham, W. T. (2021). Toward a professional development model for writing as a digital, participatory process. *Reading Research Quarterly*, *56*(1), 95–117. https://doi.org/10.1002/rrq.294

Johnson, L., & Kendrick, M. (2017). "Impossible is nothing": Expressing difficult knowledge through digital storytelling. *Journal of Adolescent & Adult Literacy*, *60*(6), 667–675. https://doi.org/10.1002/jaal.624

Karam, F. J. (2018). Language and identity construction: The case of a refugee digital bricoleur. *Journal of Adolescent & Adult Literacy*, *61*(5), 511–521. https://doi.org/10.1002/jaal.719

Kazazoglu, S., & Bilir, S. (2021). Digital storytelling in L2 writing: The effectiveness of "storybird web 2.0 tool". *Turkish Online Journal of Educational Technology-TOJET*, *20*(2), 44–50.

Kendrick, M., Early, M., Michalovich, A., & Mangat, M. (2022). Digital storytelling with youth from refugee backgrounds: Possibilities for language and digital literacy learning. *TESOL Quarterly*, *56*(3), 961–984. https://doi.org/10.1002/tesq.3146

Kress, G., & Van Leeuwen, T. (2020). *Reading images: The grammar of visual design*. Routledge.

Lahey, T., & Rizopoulos, L. (2023). Learning from alumni: Creating middle school classrooms that support English language learners. *Middle School Journal*, *54*(1), 32–40. https://doi.org/10.1080/00940771.2022.2142005

Lankshear C., & Knobel, M. (2007). Researching new literacies: Web 2.0 practices and insider perspectives. *E-Learning & Digital Media*, *4*(3), 224–240. https://doi.org/10.2304/elea.2007.4.3.224

Lau, S. M. C. (2013). A study of critical literacy work with beginning English language learners: An integrated approach. *Critical Inquiry in Language Studies*, *10*(1), 1–30. https://doi.org/10.1080/15427587.2013.753841

Li, G. (2017). From absence to affordances: Integrating old and new literacies in school-based instruction for English learners. *Journal of Adolescent & Adult Literacy*, *61*(3), 241–246. https://doi.org/10.1002/jaal.662

Linares, R. E. (2019). Meaningful writing opportunities: Write-alouds and dialogue journaling with newcomer and English learner high schoolers. *Journal of Adolescent & Adult Literacy*, *62*(5), 521–530. https://doi.org/10.1002/jaal.932

Liu, K. P., Tai, S. J. D., & Liu, C. C. (2018). Enhancing language learning through creation: The effect of digital storytelling on student learning motivation and performance in a school English course. *Educational Technology Research & Development*, *66*(4), 913–935. https://doi.org/10.1007/s11423-018-9592-z

Liu, M. C., Huang, Y. M., & Xu, Y. H. (2018). Effects of individual versus group work on learner autonomy and emotion in digital storytelling. *Educational Technology Research & Development*, *66*(4), 1009–1028. https://doi.org/10.1007/s11423-018-9601-2

Luke, A. (2000). Critical literacy in Australia: A matter of context and standpoint. *Journal of Adolescent & Adult Literacy*, *43*(5), 448–461.

Maunakea, S. P., Simanu, C., & Suluai-Mahuka, S. (2022). Culturally sustaining web 2.0 technology use in the Pacific: Innovations from American Samoa and Hawai'i. *Middle School Journal*, *53*(1), 16–25. https://doi.org/10.1080/00940771.2021.1999747

McDaniel, C. (2004). Critical literacy: A questioning stance and the possibility for change. *The Reading Teacher*, *57*(5), 472–481.

McLaughlin, M., & DeVoogd, G. (2004). Critical literacy as comprehension: Expanding reader response. *Journal of Adolescent and Adult Literacy*, *48*(1), 52–62. https://doi.org/10.1598/JAAL.48.1.5

New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review*, *66*(1), 60–93. https://doi.org/10.17763/haer.66.1.17370n67v22j160u

Okumus, A. (2020). The perceptions and preferences of 8th grade students in digital storytelling in English. *International Online Journal of Education and Teaching*, *7*(2), 585–604.

Pirbhai-Illich, F., Turner, K., & Austin, T. (2009). Using digital technologies to address aboriginal adolescents' education: An alternative school intervention. *Multicultural Education and Technology Journal*, *3*(2), 144–162. https://doi.org/10.1108/17504970910967573

Robin, B. R. (2016). The power of digital storytelling to support teaching and learning. *Digital Education Review*, (30), 17–29.

Sadik, A. (2008). Digital storytelling: A meaningful technology-integrated approach for engaged student learning. *Educational Technology Research & Development*, *56*(4), 487–506. https://doi.org/10.1007/s11423-008-9091-8

Siefert, B., Kelly, K., Yearta, L., & Oliveira, T. (2019). Teacher perceptions and use of technology across content areas with linguistically diverse middle school students. *Journal of Digital Learning in Teacher Education*, *35*(2), 107–121. https://doi.org/10.1080/21532974.2019.1568327

Smith, B. E., Pacheco, M. B., & Khorosheva, M. (2021). Emergent bilingual students and digital multimodal composition: A systematic review of research in secondary classrooms. *Reading Research Quarterly*, *56*(1), 33–52. https://doi.org/10.1002/rrq.298

Vasquez, V. M., Janks, H., & Comber, B. (2019). Critical literacy as a way of being and doing. *Language Arts*, *96*(5), 300–311. https://doi.org/10.58680/la201930093

WIDA Consortium. (2014). *WIDA focus on technology in the classroom*. https://wida.wisc.edu/sites/default/files/resource/FocusOn-Technology-in-the-Classroom.pdf

WIDA Consortium. (2020). *WIDA English language development standards framework*. Board of Regents of the University of Wisconsin System. https://wida.wisc.edu/sites/default/files/resource/WIDA-ELD-Standards-Framework-2020.pdf

Wilder, P., & Msseemmaa, D. (2019). Centering disciplinary literacies on student consciousness: A Tanzanian case study. *Journal of Adolescent & Adult Literacy*, *62*(5), 479–484. https://doi.org/10.1002/jaal.880

Wu, J., & Chen, D. T. V. (2020). A systematic review of educational digital storytelling. *Computers & Education*, *147*, 103786. https://doi.org/10.1016/j.compedu.2019.103786

Yang, Y. T. C., Chen, Y. C., & Hung, H. T. (2022). Digital storytelling as an interdisciplinary project to improve students' English speaking and creative thinking. *Computer Assisted Language Learning*, *35*(4), 840–862. https://doi.org/10.1080/09588221.2020.1750431

Nicole Ferguson-Sams, M.Ed., is a doctoral student in the College of Education at Clemson University. E-mail: nfergu2@clemson.edu.

Emily Howell, Ph.D., is a faculty member in literacy in the College of Education at Clemson University. E-mail: esmothe@clemson.edu.

Rebecca Kaminski, Ed.D., is a faculty member in literacy in the College of Education at Clemson University. E-mail: krebecc@clemson.edu.

Victoria Pennington, M.Ed., is a doctoral student in the College of Education at Clemson University. E-mail: vpennin@clemson.edu.

Mihaela Gazioglu, Ph.D., is an education associate in the College of Education at Clemson University. E-mail: mgaziog@g.clemson.edu.

Kavita Mittapalli, Ph.D., is the CEO of MN Associates, Inc., a program evaluation company. E-mail: kavita@mnassociatesinc.com.

Amlan Banerjee, Ph.D., is a statistician at MN Associates, Inc. E-mail: amlan@mnassociatesinc.com.