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Article abstract

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"It Makes Me Feel Like a Real Author":
Creating Multimodal, Digital Texts in an Elementary Writer's Workshop

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Abstract

This study explored multimodal literacies as it pertained to the use of digital technologies to create multimodal, digital texts within the scope of writer's workshop in a fifth-grade classroom. The research was conducted from the viewpoint of sociocultural theory, multiliteracies, and New Literacies as writing is a social practice and communication is multimodal. Analysis of six classroom observations, student interviews, a student focus group, and a teacher interview indicate using multimodal literacies: (a) fosters high levels of engagement, (b) enhances meaning-making, (c) fosters opportunities for collaboration, (d) provides opportunities for publishing of professional-looking books for an authentic audience, and (e) fosters writing skills and writer identity.

Introduction

> I like using Book Creator because it has everything. I can add images that could help influence my book, I can record myself, and I could add links about videos and what they need to know about my topic. (Freddy, Fifth-Grade student)

Children are experiencing life during a time of rapid technological development (Leu et al., 2017). Tablets, online tools, digital storytelling software, and other information and communication technologies (ICTs) continually evolve (Williams & Beam, 2019), reshaping the concept of reading and writing (National Council of Teachers of English, 2019) and linguistics (New London Group, 1996). Students use the Internet and social media sites to access and disseminate information, interact, communicate, and comprehend the world around them (Edwards-Groves, 2011; Lenters, 2018; Leu et al., 2017; Walsh, 2010). With myriad digital tools available, students are swiftly becoming creators of multimodal content (Edwards-Groves, 2012; Handsfield et al., 2009; Mills & Unsworth, 2017; Yelland, 2018). With such rapid technological development, students now have greater access to opportunities to create multimodal content (albeit digital).

Outside of the classroom, students incorporate multiple modes, for example, images, text, audio, and video to best convey meaning to their intended audiences. By doing so, an emphasis is placed on the design of the multimodal content, which affords students greater agency and choice in their writing (Kress, 2000; Kucirkova, 2017). If this reality of literacy outside of the classroom means students are navigating and creating multiple modes for meaning-making, then classroom pedagogy can no longer linger behind the advancements of new technologies. Unfortunately, as recently as 2019, only "17% of K–2 teachers and 22% of grade 3–5 teachers" utilized digital creation tools in the classroom (Vega & Robb, 2019, p. 21). This was made clear in March 2020 when schools were forced

into remote learning environments due to the Coronavirus pandemic. Many teachers suddenly had to adapt their pedagogical practices to meet the needs of their students (Fisher et al., 2021) using new technologies such as Zoom, Google Classroom and Meet, Microsoft Teams and OneNote, Seesaw, and Book Creator. Dunn and Sweeney (2018) call for a "rebalancing" in writing instruction in which multimodal literacy takes a more important position.

The definition of literacy is being adapted to reflect the 21st century learner. The Common Core State Standards (CCSS) (2010) incorporated into its guidelines that students must examine and write extensively in a variety of traditional and modern formats. Whereas literacy is defined by the International Literacy Association (ILA) (n.d.) in its Literacy Glossary as "the ability to identify, understand, interpret, create, compute, and communicate using visual, audible, and digital materials across disciplines and in any context" (section L). In 2019, the National Council of Teachers of English (NCTE) revised its position statement entitled "Definition of Literacy in a Digital Age" to state that students must be able to create, "multimodal stories to examine power, equity, and identities and grow as digitally savvy and civic-minded citizens" (penultimate paragraph). These evolving definitions point to the dynamic nature of literacy and our environment, especially due to the digital age we find ourselves in.

Ensuring that students meet these high expectations, the current draft of the Reading Framework for the 2025 National Assessment of Educational Progress (2020) states that the framework has redefined its concept of text with the advent of multimodal literacies. The draft further incorporates the use of dynamic texts in state reading assessments that:

> require readers to follow movement across modes (e.g., between print and video or static image) or across locations (e.g., clicking a link that moves you to another section) in a text. A single text might be comprised of *multimodal* elements (words, moving images, animations, color, music, and sound) and require readers to move across two or more of these modes to construct meaning. (p. 59)

Certainly, communication has long been multimodal as combining modes such as verbal, spatial, and non-verbal cues influence meaning-making. Reading and writing of traditional print-based materials has also been multimodal (Bomer et al., 2010; Kyser, 2022) as readers consider modes such as static images and text to convey and make meaning. When considering multimodal literacy, Mills and Unsworth (2017) define it as "the study of language that combines two or more modes of meaning" (p. 1), asserting that "reading and writing… are intimately connected to the use of multimodal texts, often in digital contexts of use" (p. 3). Similarly, in its Literacy Glossary, the ILA (n.d.) refers to multimodal literacies as "systems of representation that use different ways of expressing one's self and different forms of media" (section L). For the purposes of this study, however, the focus is on digital conceptions of multimodality.

With professional organizations redefining the concept of literacy, and state and federal organizations incorporating new literacies into their expectations of instruction and assessment (Husbye & Vander Zanden, 2015; Leu et al., 2017), instructional practices must adapt. This study examines multimodal literacy as it relates to the use of digital technologies to create multimodal, digital texts.

Oakley et al. (2013) suggested that student engagement increased when writing in multimodal literacies because teachers combined "their technological, pedagogical and content knowledge" (p. 94). Teachers, however, need to understand multimodal literacy to change their pedagogical practices (Edwards-Groves, 2012; Leu et al., 2017). Additionally, ineffective professional development can affect teachers' confidence regarding the use of multimodal literacy practices (Williams & Beam, 2019). This sentiment is supported in a recent survey by Common Sense Media (2019), in which only "four out of 10 teachers considered the PD they received to support their use of educational technology to be 'very' or 'extremely' effective" (Vega & Robb, 2019, p. 3). When it comes to using digital tools with students, only "17 percent of K–2 and 22 percent of grade 3–5 teachers" responded positively (Vega & Robb, 2019, p. 21). Teachers should advocate for the use of multimodal literacies (Reid & Moses, 2020). However, the level of teacher knowledge and confidence plays a role in whether such technologies are implemented in writing instruction. Thus, teachers should be provided high quality professional development opportunities, including professional development on multimodal teaching and learning.

Literature Review

Choice of modality is important for representing ideas and self-expression (Yelland, 2018). The range of multimodal literacies utilized in writing with elementary students are varied. By providing a variety of media, tools, and supplies, Zapata and Van Horn (2017) examined the processes of two third-grade Mexican American students during the multimodal composition of picture books. Cappello (2019) used photographic images and writing with elementary children in San Jose Succotz, rural Belize, in which the children expressed their cultural experiences and the importance of the Mopan River in their village. Bomer et al. (2010) found that incorporating multimodality in traditional writing had a powerful effect on student thinking and the creation of memoir texts. In addition to these traditional print literacies, digital technologies such as email, online tools, digital book-making applications, presentation programs, digital film and storytelling software, and multiple iPad applications have all been integrated in writer's workshop.

Writer's workshop is a framework that initially included prewriting, writing, and rewriting (Murray, 2003). These stages have been expanded to include prewriting/planning, drafting, revising, editing, and publishing (Fletcher & Portalupi, 2001; Williams & Beam, 2019) and students move recursively between them (Coppola, 2017; Fletcher & Portalupi, 2001; Graves, 1994). Dalton (2012) cautions that, when writing using multimodality resources, students may not necessarily begin with writing text; rather, they may find other modes more motivational. Multimodal literacies provide students various points of access to the writing process (Lenters & Winters, 2013) while preserving its recursiveness. Doyle-Jones (2019) conducted a study of 15 3rd through 8th grade teachers in Ontario, Canada and reported multimodal literacies afforded meaningful writing opportunities. One goal was for students to have "different entry points for writing" (Doyle-Jones, 2019, p. 60). Having choice of both multimodal literacy and mode helped young struggling writers engage in the writing process rather than avoiding it (Bogard & McMackin, 2012; Doyle-Jones, 2019).

In their study combining Year 3 and Year 4 students from a rural school with Year 5 students from an urban school for the purposes of creating a joint, multimodal PowerPoint

presentation on student interests, Burnett et al. (2006), claimed that using digital technologies such as email with attached images and PowerPoint incorporating multimodal features increased student confidence and skill development. Furthermore, Edwards-Groves (2011) also found that not only were technical skills improved, but increased skill development also occurred. Using multimodal storytelling with a multilingual fifth-grade class in Canada, Lenters and Winters (2013) found multimodal literacies support oral language development for English language learners as students explored language while writing, rehearsing, and performing fractured fairy tales. And in 2019, Williams and Beam synthesized their analysis of multiple studies, concluding that the use of information and communication technologies improved the writing of kindergarten students who "made statistically significant improvements in emergent literacy and early writing skills" (p. 232); primary students improved "in narrative composition skills" (p. 233); and elementary students "wrote more cohesive narratives" (p. 233). In addition to skill development, peer collaboration was also affected.

Multimodal literacies are an effective means of fostering collaboration (Burnett et al., 2006; Dalton, 2014; Sylvester & Greenidge, 2009; Walsh, 2010; Williams & Beam, 2019), allowing new ways for students to collaborate on writing (McKee-Waddell, 2015). Edwards-Groves (2011) found that collaboration between students positively affected learning. Further, students sought assistance from each other instead of looking to the teacher as the expert (Burnett et al., 2006; Dalton, 2014). Multimodal literacies changed the classroom dynamic by creating opportunities for students to assist each other, increasing peer collaboration, and allowing students to become more effective communicators.

During the 2016-2017 school year, Dunn and Sweeney (2018) found that both teachers and students reported high levels of engagement when using a multimodal application such as Book Creator. In Sydney, Australia, Walsh (2010) worked with 16 teachers in nine primary classrooms spanning grades K-6. The focus was on reading and writing multimodal texts. Walsh (2010) found students attended to and incorporated elements of design when producing multimodal texts, the social aspects of utilizing such technologies were engaging and motivational for students, and collaboration occurred in all nine classrooms as students provided feedback and assistance to one another when creating multimodal communication for an intended audience. In the Southeastern United States, Brown (2013) reported more than half of the students studied considered writing fun.

Writing can be multimodal in texts that are traditional, print-based, or digital. However, teaching during a pandemic prompted many educators to adapt to new, unexpected pedagogical demands using technology. Accordingly, this study examines the effects of multimodal literacies in the creation of digital texts.

Theoretical Perspectives

This study was conducted from the viewpoint of three theories: sociocultural theory, which views writing as a social practice; multiliteracies, which integrates multimodality and design into writing; and new literacies, which says that new social practices are needed because of evolving information and communication technologies. The definition of literacy has changed as new technologies have developed. Teachers have

begun embedding multimodal features such as digital storytelling tools into writer's workshop (Anderson, 2002; Husbye & Vander Zanden, 2015; Moylan, 2010). These theories align well with this study as learning needs to be a social endeavor (Leu et al., 2017) and a writer's workshop framework supports the collaborative and social aspects of the writing process.

Writer's Workshop

Vygotsky was an early social learning theorist whose work in the 1930s pioneered educational concepts such as scaffolding and Zone of Proximal Development. This study takes aspects of social cognitive development and applies them in a sociocultural way to the process of writing within a writer's workshop framework. Sociocultural theory argues that writing goes beyond mere communication and undertakes social action (Bazerman, 2016; Prior, 2006). Writing is situated as a social practice of meaning-making utilizing historical and cultural resources (Bazerman, 2016; Englert et al., 2006; Prior, 2006). Writer's workshop aligns well with sociocultural theory as key components such as collaboration, peer feedback, and time to share writing with each other supports social practices (Fletcher & Portalupi, 2001). Essentially, students move recursively through the stages of writing and bring to bear a student's entire historical, cultural, and technological identity to create and communicate meaning. This iterative process is situated well for students to use multimodal literacies in their culturally-situated meaning-making process. Thus, to fully realize and express themselves, pedagogical practices must integrate, "'designing', 'producing' and 'presenting' as key elements in the writing process" (Edwards-Groves, 2011, p. 62).

Through peer interaction, the writing process becomes a social process, "in which the writer asserts meaning, goals, actions, affiliations, and identities within a constantly changing, contingently organized social world, relying on shared texts and knowledge" (Bazerman, 2016, p. 18). New multimodal literacies may play a role in assisting students in the application of their social, historical, and cultural identities to the act of meaning-making.

Multiliteracies

Multiliteracies, first described in 1996 by the New London Group, is situated similarly to that of sociocultural theory, positing that "pedagogy must crucially consider the affective and sociocultural needs and identities of all learners" (p. 85). It takes the position that human knowledge is created from collaboration with diverse groups of people who share similar beliefs. Similarly, a guiding principle of writer's workshop is that students should have sufficient time to engage in the act of writing in a supportive environment wherein students have choice of what to write and an audience with whom to write (Coppola, 2017; Fletcher & Portalupi, 2001; Spandel, 2005). Multiliteracies theorizes that pedagogy should focus on multiple modes of meaning beyond simply text or language. Such modes "differ according to culture and context, and have specific cognitive, cultural, and social effects" (New London Group, 1996, p. 64). This ties in nicely with sociocultural theory as students apply their cultural and historical experiences to make meaning through multiple selected modes.

A central element of multiliteracies is multimodality, which is communication that incorporates not only language, but oral, visual, audio, and spatial communication as well. As meaning-making is multimodal, the New London Group proposes the use of a metalanguage for meaning-making emphasizing the concept of Design with a capital 'D.' Such Design is the active transformation from Available Design, or the existing meaning, which incorporates all of its existing modes of meaning, to the Redesigned, the end result "founded on historically and culturally received patterns of meaning" (New London Group, 1996, p. 76). Designing, then, is the selection, combination, and arrangement of multiple, specific modes to best convey the intent of the communication. Cope and Kalantzis (2009) further described that "through the act of Designing, the world and the person are transformed" (p. 10). This multimodal focus is rooted not in the product of writing, but in the process (Graham & Harris, 2013). Such emphasis on process aligns well with a writer's workshop framework as students can use multimodality in a recursive writing process to create and communicate meaning.

New Literacies

New Literacies (Leu et al., 2017) is an overarching theory encompassing the use of the Internet, ICTs, and other new literacies where new social practices are needed due to rapidly changing digital communication tools. It holds as a primary tenet that "the Internet has become this generation's defining technology for literacy in our global community" (Leu et al., 2017, p. 5).

Sharing a common ideology with both multiliteracies and sociocultural theory, New Literacies theories suggest that new literacies are multimodal, and that writing is a social practice in which one must effectively utilize elements of design to create and share meaning with the world (Leu et al., 2017). A writer's workshop model supports this.

Together, these three theories incorporate a central premise that writing is a social experience drawing upon the diverse cultural identities of the individual involved in the writing and meaning-making process. The work in this research study is anchored by these three theories because the pedagogical practice of a writer' workshop incorporates social interaction in which students apply their unique identities to the writing process. Furthermore, multimodal literacies can possibly expand these opportunities for students.

Research Methodology

As teachers increasingly need to rely on technology, understanding the effects of multimodal literacies is now more important than ever. Accordingly, the research in this qualitative study is guided by one essential question: What are the effects of using multimodal literacies in an elementary writer's workshop framework?

This research used a qualitative case study design (Butin, 2010; Creswell & Creswell, 2018; Yin, 2014). The thoughts and feelings of the student participants and teacher were vital to collect for the study but may not be outwardly detectable. Therefore, this methodology allowed "for data gathering that can be extremely deep and take into consideration opinions and perspectives that may not initially be visible or obvious" (Butin, 2010, p. 76). Students interacted with technology, their teacher, and one another during the writing process. Implementing a case study design allowed me to examine such "complex social phenomena" (Yin, 2014, p. 4).

Setting and Participants

When considering where to conduct the research for this case study, I used purposive sampling because I required an upper-elementary classroom teacher who already a) teaches using a writer's workshop framework, b) is technologically proficient, and c) incorporates multimodal literacies in their pedagogical practices. I chose an elementary school in a Midwestern suburb and selected a veteran teacher which also meant the teacher was "unlikely to be defensive about discussing their teaching but may be eager to share what they do" (Maxwell, 2013, p. 99). The teacher selected, Mrs. Miller (pseudonym), utilized a writer's workshop framework and regularly incorporated digital technologies, such as Microsoft Word, PowerPoint, and online blogs, such as Fanschool. Additionally, she incorporated Book Creator, a multimodal, online book-creating software, during the 2020-2021 school year due to the Coronavirus pandemic. The research was conducted at the same school at which I am also a teacher.

From the total grade level population, the sample size of this study comprised of one class section. Of the 20 students in the class, 19 (95%) consented to participate in the study—10 boys and 9 girls. Four of the participants were acceleration and enrichment students in math, and of those four, three were also acceleration and enrichment students in reading. As I am the acceleration and enrichment teacher at the school, I saw those students for math and reading. Three had individualized education plans (IEPs). Two students were routinely pulled out of the classroom for services during classroom observations, effectively bringing the total participants to seventeen. As fifth-grade students, they were capable of articulating and elaborating on their thoughts and feelings of using multimodal literacies in writer's workshop more clearly than primary students. This provided for greater in-depth data for analysis.

Data Collection

Between October and December 2021, qualitative data were collected from field observations, surveys, and interviews. I conducted six field observations as a nonparticipant observer. A student survey was administered in Microsoft Forms (see Table 1), allowing students to note the possible impacts multimodal literacies had on their learning. A semi-structured teacher interview was conducted with Mrs. Miller using open-ended questions to "elicit meaningful and 'deep' responses" (Butin, 2010, p. 97). Finally, I conducted two, thirty-minute focus group sessions, allowing for data collection from group interaction (Hendershott & Wright, 1993; Winlow et al., 2013). Six focus group participants were randomly drawn to ensure those selected represented varied perspectives related to the research question (Flores & Alonso, 1995). All participant names appear as pseudonyms and all data excerpts are presented verbatim without correcting student errors.

Table 1
Student Survey Questions

Question Number	Survey Questions	Response Choices
1	Select <u>all</u> the technologies you've used in writer's workshop this year.	Microsoft Word, Microsoft PowerPoint, Microsoft Teams, Microsoft OneNote, Book Creator, WeVideo, KidBlog, Google/internet browser, Other: Box for student-added comments
2	How much do you agree with the following sentence? "I like using technology during writing."	strongly disagree, disagree, agree, strongly agree
3	Why do you like or not like using technology in writing?	Open-ended response
4	How much do you agree with the following sentence? "Technology helps me as a learner in writing."	strongly disagree, disagree, agree, strongly agree
5	How does technology help or not help you in writing?	Open-ended response
6	Some technologies let you record your voice, add pictures, video, and maps, or change fonts, colors, and so on. Do these technology features help you when you are writing?	yes, no
7	In what ways do these features positively or negatively affect you and your writing?	Open-ended response
8	Besides your actual writing, do these technologies affect you in any other ways as a learner? Please explain.	Open-ended response
9	Do you have any final thoughts you would like to share about using technology in writing?	Open-ended response
10	How much do you agree with the following sentence? "I like using Book Creator in writing."	strongly disagree, disagree, agree, strongly agree
11	Why do you like or not like using Book Creator in writing?	Open-ended response
12	How much do you agree with the following sentence? "I think using Book Creator helps me as a learner."	strongly disagree, disagree, agree, strongly agree
13	If so, how does it help you in writing?	Open-ended response

| 14 | Are there any other things you like or dislike about Book Creator? | Open-ended response |
| 15 | Would you be willing to meet with other students from your current class to discuss your thoughts in more detail? | yes, no |

Data Analysis Procedures

Recordings of the observations, interview, and focus group sessions were transcribed using Rev.com and analyzed. As I examined the qualitative data, I utilized inductive coding (Saldaña, 2021) using In Vivo coding to capture the voices of the participants themselves. To determine the effects of using multimodal literacies with elementary students, it was prudent to start with their own words. Observational field notes were coded using process coding as this most appropriately "captured patterns of action" (Saldaña, 2021, p. 9). First cycle codes were sorted alphabetically and reorganized into categories; categories were subsequently reorganized and collapsed into themes.

Student surveys completed in Microsoft Forms were exported to Microsoft Excel for more convenient aggregating and disaggregating of the data. Following an analysis of the survey results, descriptive statistics were calculated for questions that were quantitative in nature. However, the minimal number of questions leading to yes/no responses were not meant to suggest this is a mixed methods approach; rather, it is indicative more of supporting the open-ended, qualitative data. All responses from open-ended questions were coded utilizing inductive coding, specifically In Vivo coding, to capture the voices of the participants themselves. Again, first cycle codes were sorted alphabetically and reorganized into categories. Categories were subsequently reorganized and collapsed into themes.

Discussion and Findings

Using multimodal literacy practices as it pertained to the use of digital technologies in writer's workshop with elementary students in the context of the setting for this study had several positive effects that emerged within the following themes: (a) engagement, (b) meaning-making, (c) collaboration, (d) professional-looking books for an authentic audience, and (e) writing skills/writer identity. These themes reveal an interconnectedness.

Multimodal Literacies Fostered High Levels of Engagement

Using multimodal literacies fostered high levels of engagement for elementary students. The fifth-grade students chose to use Book Creator, an online application that affords students opportunities to create and share multimodal books. Participants incorporated a wide variety of modes in their writing, including changing fonts, colors, and size, bolding, and underlining, drawing illustrations, inserting links, pictures, video, backgrounds, emojis, borders maps, charts, graphs, and templates, recording narration, autocorrecting spelling and grammar, and combining or mixing modes (e.g., drawing arrows and placing emojis over images).

Students demonstrated high levels of engagement because they reported that writing in multimodal literacies, such as Book Creator, was fun, creative, and motivating. On the survey, Allison wrote, "I can share my imagination with my friends, family, and

teachers." Steve commented, "They [multimodal features] can make my writing more alive." While Ila wrote, "I love using Book Creator in writing because it makes me feel like I have no limit on anything and I could writing forever!"

Students such as Bruce, Ila, and Vivian reported using multimodal literacies outside of writer's workshop in other class activities. Oriana, Eli, and Ila also chose to use it beyond the school day. This is consistent with previous research that suggests incorporating digital, multimodal resources increases engagement (Bogard & McMackin, 2012). Students also reported using other multimodal literacies, such as Flip Grid, now Flip, for social studies, and WeVideo for science. Vivian said it made learning "a lot more fun." Ila said she used it outside of school because "It's a way you can explore and let out your feelings, express your emotions… you can show what you're feeling, and you can draw, you can add pictures." In a post-interview with the classroom teacher, Mrs. Miller also repeatedly expressed how engaged students were in writing while using multimodal literacies, such as Book Creator, "Oh, they love it. They love it. We start writing and everyone, they cheer. They get so excited. They come in, they're like, 'writer's workshop, yes!'"

However, not every encounter with multimodal literacies was positive. Students commented on long upload times for inserting images, difficulties adjusting the font sizes to the perfect size, and problems indenting text. More succinctly, Lauren noted, "Stuff never loads." Despite these few negative concerns, the results suggest that as students incorporate multiple modes in their writing, these modes are of high interest, creating high levels of engagement by fostering creativity and motivation to write more.

Multimodal Literacies Enhanced Meaning Making

In addition to fostering high levels of student engagement, a second theme that emerged from the data was that students' use of multimodal resources was purposeful when expressing their ideas and making meaning for their reader. Specific modes mentioned by students throughout this study included: changing fonts, colors, and size, bolding, and underlining; drawing illustrations; inserting links, pictures, video, backgrounds, emojis, borders, maps, charts, graphs, and templates; recording narration; autocorrecting spelling and grammar and combining or mixing modes, for example, drawing arrows and placing emojis over images. The multimodal writing process afforded students opportunities to make meaning in new, imaginative ways. Students actively selected from all existing modes, each representing its own contextual meaning, and transformed those modes into a redesigned, new communication to be shared with the world. This also suggests an equity of modes as students inserted them in tandem with, if not before, writing text. Having such creative freedom to construct meaning allows students various access points into the writing process, making such a process uniquely individual.

Students were observed incorporating all these modes into their writing to help make meaning for the reader. Students such as Ila, Eli, Joel, and Vivian reflected the tenets of sociocultural theory as they applied their cultural backgrounds, experiences, and identities to express themselves and their personalities through multimodal literacies. They inserted, arranged, layered, and combined modes for self-expression, and to suggest and support the mood, tone, and theme.

During classroom observations, students in one exchange discussed adding images to enhance the content of their magazine as shown in Figure 1.

Sheri:　And I want to find a picture for the make-a-skeleton.
Ila:　　You can find a-
Sheri:　Oh, I did!
Ila:　　A kid-friendly skeleton?
Sheri:　Yeah.
Ila:　　Because there's some scary skeletons. Or a skeleton drawing maybe?
Sheri:　Okay. Any of those would work. Like this one?
Ila:　　Yeah. Maybe that one.

Figure 1. Make a Skeleton Student Sample

Figure 1 shows the final page after students agreed upon which skeleton image is best to use. The page also suggests attention to design as students separated the list of supplies needed and the steps taken, while displaying an example of a completed skeleton, similar to pages found in other arts and crafts texts. The page border continues the fall theme the students established throughout their magazine.

When describing how multimodal literacies help his writing, Eli wrote:

I can convey more meaning to the reader. For example, If I added a font that looked creepy and I was writing a horror book it could convey meaning to the reader. Another example is if I was writing a non-fiction book and I added a graph to show the most popular foods then I could help the reader learn and understand more… i learn something I can put it in my writing and that affects other people because then they are able to learn about this fact too.

Joel further elaborated on the ways they choose to convey meaning through design, examples of which are shown in Figure 2.

> I'm writing a book called Snowball Winner. And really, the way that Book Creator just shows me all these different options, that I'm like, "Ooh, should I do that? Oh, will that background work with that picture?" Because I really just want to immerse the reader and make the reader say, "Oh, wow! Those two things go together," or "Oh, wow! That font fits the theme of what's going on right now." (See Figures 2 and 3)

Figure 2. Snowball Winner Book Cover

Figure 3. Snowball Winner
Book Cover

Figure 4 illustrates how Eli used text, before and after images, and shapes to show the reader how the flower will eventually grow into the cucumber.

> I inserted a picture of a growing cucumber and there are these flowers that will eventually turn into the cucumbers. And I drew an arrow to that to show it. And I could write down below it with a text that these flowers will eventually turn into cucumbers or grow into cucumbers. (Eli) (See Figure 4)
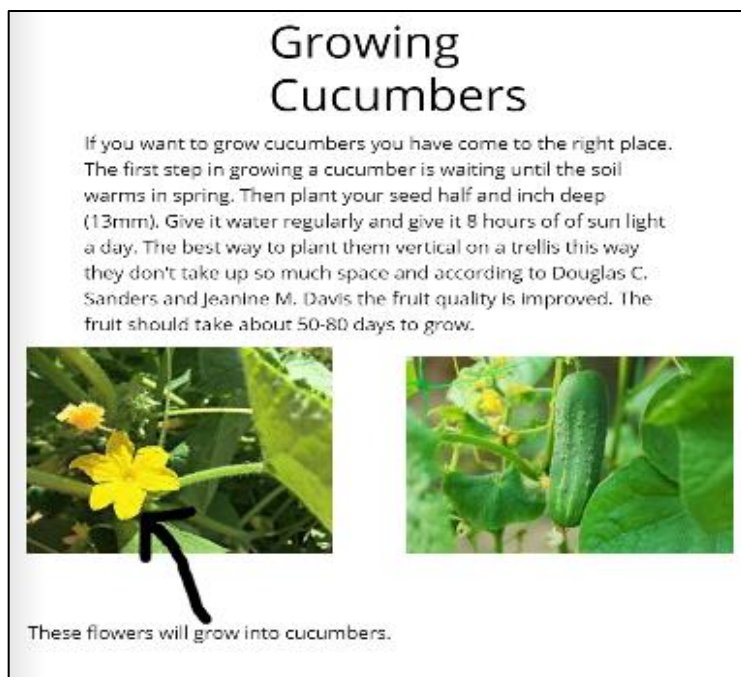
Figure 4. Growing Cucumbers Student Sample

Mrs. Miller repeatedly brought up that combining modes were "another way for students to enhance the meaning of their writing and to convey what they were trying to say with visuals, videos, music, setting the mood for their writing." She also specifically expressed how multimodal literacies helped her struggling writers become successful at making meaning. Mrs. Miller stated that "some students might struggle with just writing one or two sentences, but then they're able to convey their meaning by adding some images or some videos to support what they're saying."

Students even began suggesting ways Book Creator could improve their software so they could improve their meaning-making. Joel said, "I love to express how the character is feeling and stuff with pictures. So in my opinion, I just don't feel like there's enough background choices." Sheri added, "Like in WeVideo where they just have a bunch of seasonal ones and you can use Christmas anytime or 4th of July, anytime they could just give you a bunch of seasonal backgrounds so you can use them anytime."

The data indicate students in writer's workshop are using multimodal literacies to convey meaning to their audience. Students in this study used the multimodal features to express mood, tone, character, and themselves. They even looked for design elements not-yet-included in Book Creator to express emotion and a sense of time and place.

Multimodal Literacies Fostered Opportunities for Collaboration

Collaboration evolved beyond that of traditional writer's workshop. Students were able to share their writing, and give and receive feedback through new, technological approaches. With ongoing access to the writing of their peers through an online digital

library, students no longer needed to print, pass around, or collect paper drafts; instead, all students had automatic access to each other's work. Students could readily give and receive feedback as well as read and reflect on the feedback of others. Accessing feedback in this manner was particularly helpful for students attending school during a pandemic when social distancing was a requirement. Even students unable to attend school in person were able to comment on other students' writing and engage in the writing process from home. During a classroom observation, Mrs. Miller told the class that "Steve is working on posting his, even though he's at home. So maybe check and see if Steve's is up yet. Nathan also posted his." Multimodal literacies such as Fanschool and Book Creator allowed students to collaborate across different environments in real time. During the teacher interview, Mrs. Miller commented on collaboration and the pandemic.

> They love sharing and being able to read each other's writing. So that's always been a part of writers' workshop and because it is via technology, even though with COVID, they're able to see each other's writing… They can comment on each other's writing and share the things that they're loving. And then the author can comment back and share why they wrote certain things or why they included certain images or why they created the title that they did.

While discussing collaboration during the focus group, students had this to say:

> The way you get feedback has changed a lot, because normally, if you're writing on Word, or you're writing on pen and paper, the way you get feedback is on your writing, and that's it… Your feedback on Book Creator becomes a whole lot more than that. It becomes how neat it is, how organized your actual writing, the way you express the mood. So, there's a lot more to think about when you're getting feedback on Book Creator. (Bruce)

> I love how I can comment on other people's writing and see what they wrote about my writing. And I can take that and use it, sort of like we do in math with those whiteboards. We can see everyone's strategies, how to solve it. And I take their strategies sometimes and I use it on my own to help me. (Eli)

Additionally, students read aloud sections of text to one another and gave advice. Students asked each other to access their writing via Fanschool and Book Creator and comment on their writing. When observing in the classroom, Sheri asked "Bruce and Eli if they'd be okay with me putting their commercials in too."

Importantly, the feedback itself was no longer relegated to content, word choice, or sentence fluency. For example, discussions involved the types of images to use and why; font styles, colors, and placement; background styles, colors, and placement; text features; and embedding links. Students remarked on all aspects—on the design, on the application and integration of all modes used to convey meaning to the reader. Students such as Vivian created pages (see figure 5) and asked Bruce if it was "horror-y" enough. You can see how she manipulated the background color, font types, and text to set a tone. Vivian commented, "It'll get my reader more interest in reading it. I also think that using pictures

they can add a little more color or some kind of emotion. If my reader can't understand what's going on, I can show them how it works."
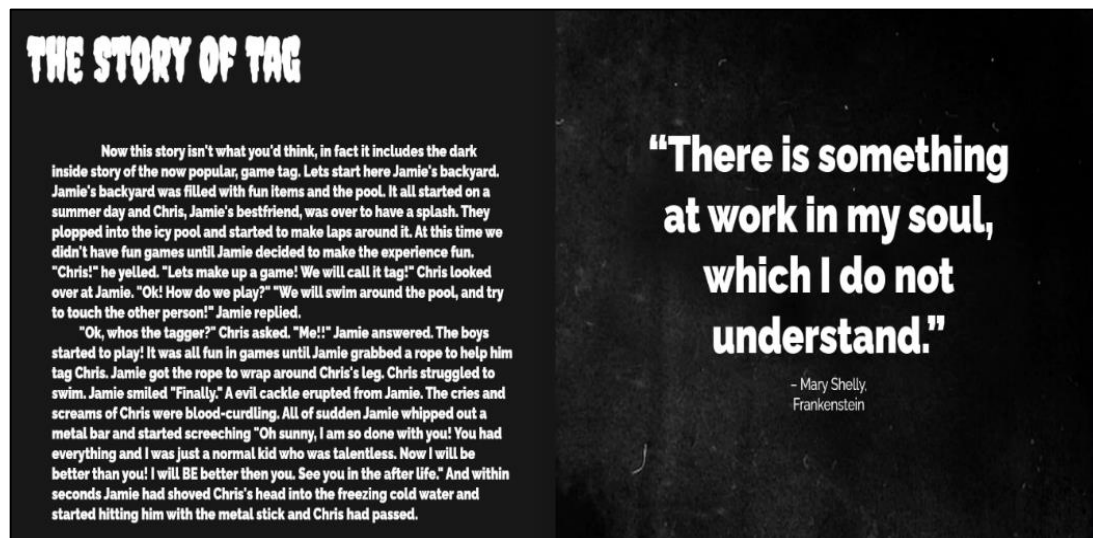

Figure 5. Story of Tag Scary Story Sample

Students as Technical Experts

Aside from giving and receiving feedback, students had other opportunities for collaboration. Across data collection methods, comments support the theme of collaboration as students position themselves as technical experts. Rather than seeking technical assistance from the classroom teacher, students approached each other first. In the few instances when a student did initially ask Mrs. Miller, she deferred to the students asking for a peer who could assist. Fred reported, "It helps me know and maybe become a "Technology Wizz." Then I can help others and help them write!" I witnessed students seek assistance from a classmate first for reasons such as, accessing the online blog, Fanschool, copying and pasting text between Microsoft Word and Fanschool, inserting feedback and images in both Fanschool and Book Creator, creating a back cover and initializing the "read to me" feature in Book Creator. In all 13 instances, students successfully assisted one another. At a time when social distancing and quarantining were requirements due to the Coronavirus pandemic, sharing multimodal texts via technology helped promote collaboration.

Multimodal Literacies Provided Publishing of Professional Books for Authentic Audience

Writing for an authentic audience is a tenet of writer's workshop. Multimodal literacies such as Book Creator allowed students to easily share and publish their work. According to Mrs. Miller, she continually connects writing to reading, bringing in mentor texts and asking students to think about the texts they love to read. As students make these connections, they use multimodal literacies to emulate the rich, complexities of such texts. The results are highly professional-looking books that students publish to an authentic

audience. Joel noted, "I think it has made it much easier to publish books through the internet." While Sheri added, "You're actually going to publish your book to everybody who uses Google or everyone who uses Edge so they can see it." Bruce concurred, saying, "You can post it onto the actual Book Creator, published, and then everybody can see it and it helps you share your writing with basically the world." Mrs. Miller reiterated that students take ownership of their writing and emulate the types of books they love.

> They love that idea of just being able to create a picture book or be able to create a chapter book and have it look like those books and then incorporating the things that they know about those books and applying it to their own writing.
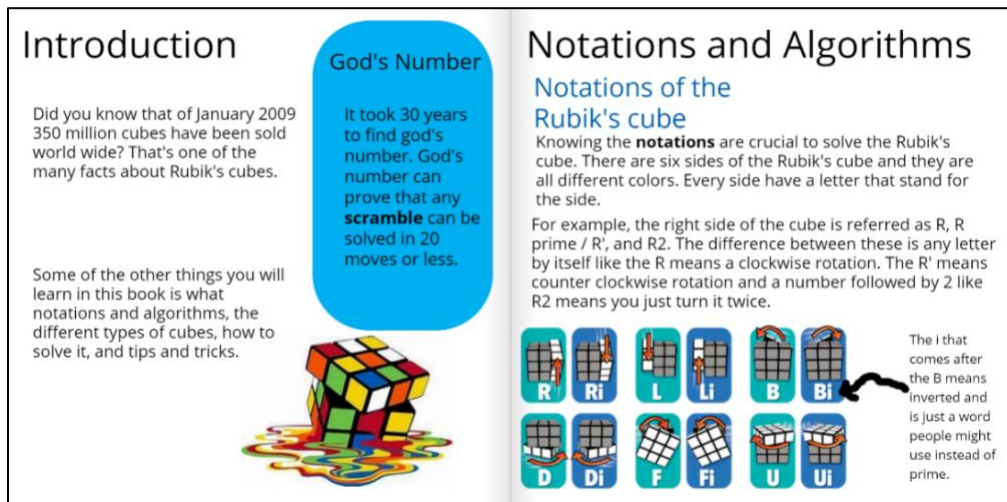

Figure 6. Rubik's Cube Student Sample

Figure 6 shows how Eli blended color, images, text, headings, fonts, captions, and graphics to convey to the reader information about the Rubik's Cube. Arrangement and combination of multiple modes indicate much thought was given to creating a professional-looking book.
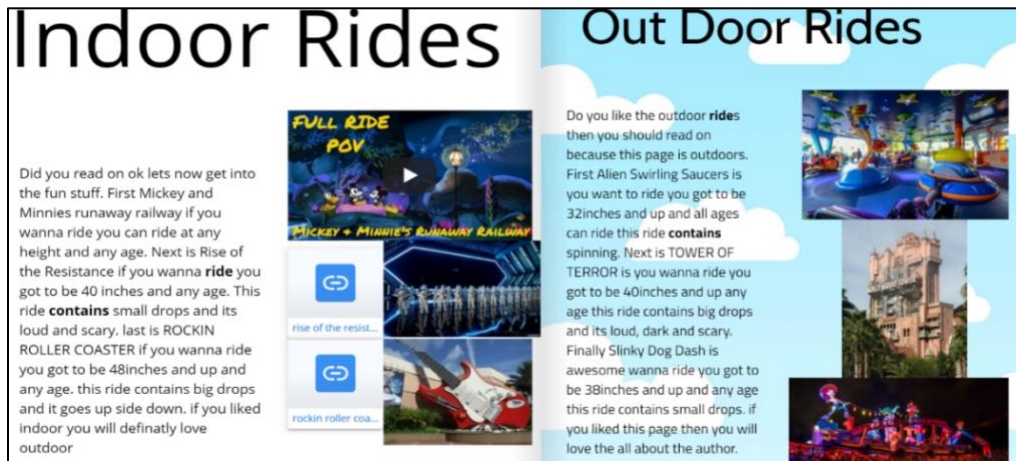
Figure 7. Favorite Rides Student Sample

As shown in Figure 7, a student embedded several links so the reader could experience the rides being described in the book. The student also inserted images, backgrounds, bolded words, headings, and fonts, creating a more interactive, professional-looking book.
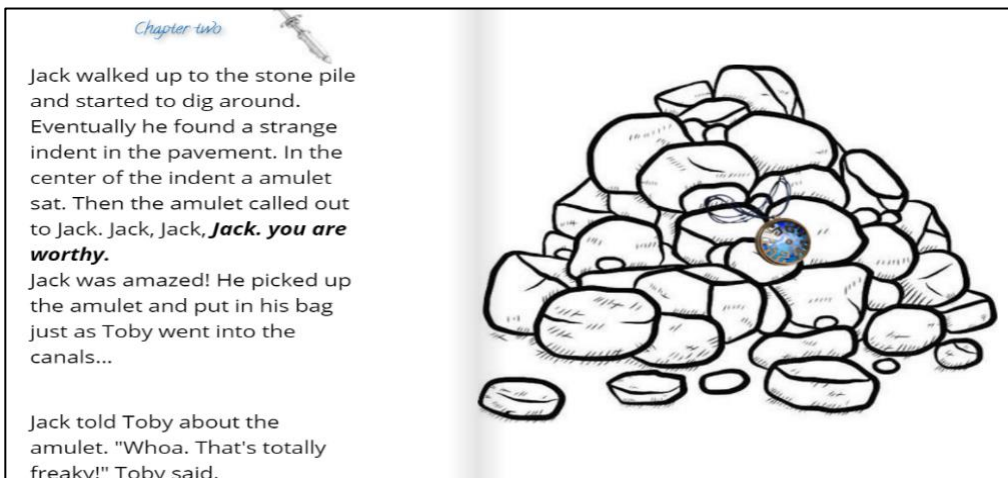

Figure 8. The Amulet of Daylight Student Sample

In Figure 8, a student is writing a story entitled *The Amulet of Daylight*. The pages include contrasting color and black and white, drawing the reader's eye to the amulet. It also serves as a visual representation of the accompanying text. The cursive font of the chapter title and clip art of a sword convey a medieval or mythical feeling while the bolded

text create emphasis and importance of the amulet speaking to the character. The incorporation of such multiple modes is reminiscent of many young adult novels.

Multimodal Literacies Fostered Writing Skills and Writer Identity

As students publish professional-looking books, they found that using multimodal literacies helped them develop their writing skills and see themselves as authors. Throughout the surveys and focus group, students repeatedly stated that multimodal literacies such as Book Creator helped them as writers. The writing process for struggling writers, such as Nathan and Claire, became easier with multimodal literacies.

Because two students were regularly pulled out of the classroom for services, 17 participants took the student survey. All 17 students (100%) reported that multimodal features helped them in writing. When asked how much they agree with the following sentence, "I think using Book Creator helps me as a writer," 10 students (59%) strongly agreed, and seven students (41%) agreed. Nine out of 17 participants (52.9%) reported in the student surveys that autocorrection and grammar checking features assisted them in areas of spelling, punctuation, and sentence fluency. Allison reported, "If I ever spell something wrong or make a mistake it will tell me and give me different choices to help me spell that word." Mrs. Miller concurred with the students during the teacher interview stating that one of the positive impacts on the quality of student writing was "spelling, the grammar, word choice, being able to have that supported." During the focus group, Joel said, "The multimodal features can help you change and revise and edit to make it the best book it possibly can."

Publishing professional-looking books also helped students identify as writers and authors. Joel expressed, "It makes me feel like a real author, and that's a great feeling to have!" Marcy added, "They help me become a better author by allowing me to have more features to my books. They affect me as a learner, because as an author, I can learn more things by reading other people's writing and information." Mrs. Miller believes "this has allowed them to see themselves more as writers" because they are able to emulate the works of published texts through multimodal literacies such as Book Creator."

In short, writing in multimodal literacies engaged students, despite any negative instances, because they had fun and felt creative and motivated. Students utilized multimodal features throughout the writing process to convey meaning for the reader, which also provided varied entry points to the writing process. Students used the technology for greater access to their peer's writing, which afforded them new, unique social interactions and improved their writing. Students wrote, designed, and published sophisticated, professional-looking books online for an authentic audience. These acts resulted in some students self-identifying as authors.

Implications

While the results of this study found many positive effects of using multimodal literacies with elementary students in writer's workshop, future pedagogical practice needs consideration and adaptation if any such effects are to be realized. Teachers must feel comfortable and confident with implementing technology, reposition themselves in the teaching and learning process, and acquire quality professional development focusing on

digital technologies to create multimodal, digital texts. Students must have equitable access to technology. Results of this study and previous studies align on these points.

Teacher Knowledge and Confidence

Teacher perception and knowledge of technologies has a direct effect on whether multimodal literacies are integrated into instructional practices. Some resist out of fear (Sylvester & Greenidge, 2009), pressure to adhere to existing practices (Lenters & Winters, 2013), or lack of expertise (Dunn & Sweeney, 2018). Shifting pedagogical practices requires risk-taking and time. In this study, students experienced greater engagement in learning because the classroom teacher prepared her writing instruction with multimodal literacies. One aspect of creative lesson preparation is for teachers to be cognizant of their role in instructional delivery.

In this study, the classroom teacher had the confidence to introduce Book Creator to the class but did not purport to be the expert on the software. The teacher's beliefs about technology determined whether such technology was implemented in writing instruction (Dunn & Sweeney, 2018; Williams & Beam, 2019). Taylor and Leung (2019) suggest, "Teachers who are aware of and knowledgeable about multimodal literacy, and the value of integrating social interaction within literacy and learning, have the potential to facilitate children's thinking, learning, and construction of knowledge" (p. 9).

Despite an increase in the availability of new literacies, "most teachers continue to emphasize traditional conceptions of literacy" (Karchmer-Klein, 2013, p. 309). Walsh (2010) attributes study outcomes to "teachers recognising [sic] the need to adapt classroom communication to those digital communication practices that students access outside of school" (p. 226). Oakley et al. (2013) suggested, "developing multimodal texts using ICTs can improve literacy learning and engagement when educators effectively bring together their technological, pedagogical and content knowledge" (p. 94). If students are expected to benefit from the effects of multimodal literacies, then teachers need to increase their knowledge and confidence in implementation.

Repositioning the Teacher's Role

Integrating multimodal literacies with digital technologies such as Book Creator, Fanschool, and Blogspot provide opportunities to create new learning communities where the teachers can learn alongside the students (Doyle-Jones, 2019; Dunn & Sweeney, 2018; Williams & Beam, 2019). The role of the teachers shifts to that of facilitators, giving students greater autonomy (Yelland, 2018); with greater autonomy, students become the experts, navigating various multimodal literacies, and then determining for themselves which modes best convey their ideas. In this study, when a student had a question or issue using Book Creator, WeVideo, or Fanschool, the classroom teacher deferred to the class for assistance and encouraged students to help one other, thereby shifting her role and allowing students to have a greater sense of agency in their learning. However, if teachers are to embrace this shifting role, then they must understand multimodal literacies, which means receiving ongoing, quality professional development.

Professional Development

Multimodal literacies may impact collaboration, engagement, and skill development, yet teachers need to understand multimodal literacies if they are to change their pedagogical practices (Edwards-Groves, 2012; Leu et al., 2017). In this study, the classroom teacher took the initiative to learn and implement Book Creator. She had the tenacity to achieve this on her own. However, just as state, federal, and professional organizations are changing standards and accountability to include multimodal literacies, school districts must meet this demand by delivering quality professional development so teachers can effectively integrate multimodal literacies with students. For example, in a one-year action research project in rural Australia, Edwards-Groves (2012), conducted ongoing professional meetings to discuss multimodality teaching practices. It is not surprising that as their understanding of technology changed, so did their teaching practices (Edwards-Groves, 2012). To the contrary, poor professional development can also affect a teacher's confidence (Williams & Beam, 2019). As previously stated, only 40% of teachers rated their professional development supporting technology implementation as 'very' or 'extremely' effective (Vega & Robb, 2019). Yet, even if teachers are willing to reevaluate their role in pedagogical practices and overcome inadequate professional development, there remains a matter of equity in technology.

Equity of Technology

Inconsistencies in technology exist between home and school environments as well as between schools themselves (Doyle-Jones, 2019). A survey of teachers by Common Sense Media revealed approximately "four out of 10 said that many of their students did not have adequate home access to the internet or a computer to do schoolwork at home (21 percent to 60 percent of their students)" (Vega & Robb, 2019, p. 31). Without sufficient reliable, technological support to communities that lack access, this technological gap will only widen. Teachers cannot utilize multimodal literacies in their practices if students cannot access the technology outside of the classroom. The Coronavirus pandemic further illuminated these technological discrepancies as teachers across the country attempted to rely on technology to instruct in remote and hybrid learning environments. In this study, the students were each provided a laptop for use in school and at home, thereby reducing the disparity in technology. Students also reported using Book Creator at home for their own purposes, supporting the notion of increasing equity in technology.
The benefits of multimodal literacies cannot be achieved when students lack the necessary access to technology within and outside of the school environment.

Writer's Workshop

This study also has implications on the implementation of writer's workshop. Writer's workshop places an emphasis on the writing process over the product. Mentor texts are used to help scaffold student writing. When students used Book Creator, they were able to incorporate a variety of the text features observed in the books they read and loved. Students were highly engaged in the writing process, inserting, arranging, and combining specific modes on a page to convey meaning to the reader. The classroom teacher reinforced the reading/writing connection by reminding students during one-on-one conferences of the types of text features and modes available for students to incorporate

in their writing. During writer's workshop, students produced professional-looking books, emulating the sophisticated texts they read. This can only strengthen the reading/writing connection. Students were then excited to publish their professional-looking books online for a more authentic audience. Such multimodal literacies fostered high levels of engagement for students.

Another aspect of writer's workshop impacted by multimodal literacies is collaboration and the giving and receiving of student feedback. Sharing student writing is more streamlined via technology, allowing for greater access to peers' writing. Also, students are no longer limited to giving feedback on only the content and mechanics of writing. Instead, they can make suggestions on the design, layout, and use of multiple modes such as images, narration, video, and illustrations as part of the meaning-making process of writing. This greatly expands the type of feedback provided.

Conclusion

It is clear that multimodal literacies have many positive benefits for elementary students in writer's workshop. Motivation, engagement, writing skills, writing for authentic audiences, access to the writing process, and ways of conveying meaning are all positively affected. However, teachers need to reposition themselves in the learning process and obtain the confidence to use multimodal literacies in the classroom. If students are to gain the 21st century skills needed to design and create innovative communication across multiple modes or media, then pedagogical practices need to allow for students to use such multimodal literacies. Students such as Joel recognize this:

> If you're revising and editing, well, let's say there's a part in your book that you feel, "Oh, this part, I might need a picture here." You're revising and you're going like, "Oh, this would fit better there, instead of there." It does help because Book Creator's features and the multimodal features can help you change and revise and edit to make it the best book it possibly can.

As students such as Joel become equipped to convey meaning through multimodality, they need equitable access to technology, and the time and space to navigate the writing process within writer's workshop. Teachers need high quality professional development to advance their knowledge and confidence in order to effectively implement digital multimodal literacies.

When teachers introduce multimodal literacies in writing, even the most struggling of writers will have opportunities to engage, collaborate, and convey meaning in new multimodal ways—to emulate professional writers, to contribute their work to a vast authentic online audience, and to see themselves as authors. Students can become active producers of interactive, multimodal content; they can become effective 21st century communicators.

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