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FIFTH-GRADE STUDENTS' DIGITAL RETELLINGS AND THE COMMON CORE

Modal Use and Design Intentionality

ABSTRACT

Multimodal composing is part of the Common Core vision of the twenty-first-century student. Two descriptive studies were conducted of fifth-grade students' digital folktale retellings. Study 1 analyzed 83 retellings in relation to the types and frequencies of modal use, such as image, sound, movement, and written text, as well as their retelling accuracy. Students composed within a scaffolded digital composing environment which comprised the PowerPoint authoring/presentation tool and a researcher-developed story frame. All students' retellings included writing and visual design, 80% included animation, and 70% included sound. Retelling accuracy scores averaged 54%. Study 2 was conducted with a new group of 14 fifth-grade students who had previous digital retelling experience. The retellings included the same types of modal use, but at a higher level of frequency. In their retrospective design interviews, students expressed design intentionality and a metamodal awareness of how modes work together to create an appealing story.

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THE introduction to the Common Core State Standards for English Language Arts (CCSS, 2010) highlights the importance of multimodal literacies, stating that students should “create a high volume and extensive range of print and non-print texts in media forms old and new” (p. 4) and be “familiar with the strengths and weaknesses of various technological tools and mediums and can use those best suited to their communication goals” (p. 7). This fairly expansive vision is not articulated specifically in the writing standards, which focus on technology in relation to its use “to produce and publish writing and to interact and collaborate with others” (p. 18). The gap between the vision and the writing standards highlights the need to develop the theoretical models, genres, tools, and instructional practices necessary to achieve a vision of the strategic and creative multimodal composer. Given the rapid development of technology and media and concomitant evolution of literacy, this will be an ongoing process of theory and practice building.

Teachers are increasingly innovating with technology in the classroom (Purcell, Heaps, Buchanan, & Friedrich, 2013), supported in part by the rapid proliferation of inexpensive mobile devices such as iPads, eReaders, and smart phones and by the increased availability of apps and high-quality Internet resources. At the same time, many teachers report that they feel unprepared to integrate technology into their core literacy instruction (Hutchison & Reinking, 2011). With regard to writing, classroom computer use tends to focus on the production and publication of students’ writing, the form of composition that is evaluated on state assessments, and the form that is the focus of the CCSS writing standards. Nonetheless, the CCSS supports integrating multimodal composition in K–12 classrooms, a move that is consistent with what is happening in society at large, including students’ experiences outside of school with gaming, socializing, creating, and learning on the Internet.

There is little evidence-based research to guide elementary school teachers who are attempting to integrate digital literacies. The growing body of research on multimodal composition has focused on adolescents’ experiences (Smith, 2013a), with much less attention paid to elementary-grade students. Further, while the positive impact of word processing on students’ writing has been amply demonstrated, research on children’s multimodal composing development and effective school instructional strategies is quite limited (for reviews, see Graham, Harris, & Santangelo, 2015, in this issue; Graham & Perin, 2007; MacArthur, 2006; MacArthur, Ferretti, Okolo, & Cavalier, 2001; Morphy & Graham, 2012).

A major challenge in developing theoretical models and instructional practices in this area is that multimodal composition is an unconstrained space where tools, media, genres, and practices are evolving at such a rapid pace that multimodal composition becomes a moving horizon (Leu, Kinzer, Coiro, & Cammack, 2004). There is value, however, in studying specific digital writing practices as situated within a particular composing context, with the long-term goal of understanding processes and principles that hold across diverse multimodal composition practices. The purpose of the current study was to investigate a form of multimodal composition that offers a bridge from the established classroom literacy practice of story retelling (Morrow, 1985) to a multimodal context of digital retelling. This allowed us to focus our attention on students’ use of a range of modes—image, sound, movement, and writing—to express a familiar literacy practice. In Study 1, we analyzed fifth-grade students’ digital retellings of an e-text folktale to learn about their use of composing modes (e.g., image, sound, animation, and writing) and story comprehension. Study

2 focused on gaining students' views on their multimodal design decisions and modal preferences through retrospective design interviews. At this beginning stage of inquiry, the analysis of students' products and interviews provides a foundation for understanding how these fifth graders composed with modes in a specific digital retelling instructional context, and suggests implications for further research and development.

Conceptual Framework and Prior Research

We bring a sociocultural perspective to this work, recognizing that literacy practices are situated in specific contexts and that ways of knowing and communicating are socially constructed and dynamic (Gee, 2000). We draw on multiple perspectives to guide our inquiry, most notably theory and research on multimodality (Kress, 2003; Kress & Van Leeuwen, 2001), universally designed digital literacy environments (Dalton, Proctor, Uccelli, Mo, & Snow, 2011; Proctor et al., 2011), and the literacy practice of retelling (Brown & Cambourne, 1990; Morrow, 1985).

Multimodality theories focus on the role of modes in communication, asserting that modes carry affordances which offer communication potentials and constraints (Kress, 2003). For example, a graphic might better convey the anatomy of the human heart than a written description, while an animation might illustrate how to carry out a cardiac surgical procedure more effectively. Although a concept can be communicated through different modes, modes are not isomorphic, that is, our understanding and response to a written dialogue is likely to be different when we listen to the same dialogue audio-recorded in an eBook, or even to a different speaker's audio-recording of the same dialogue.

Importantly, in a multimodal composition, modes work together to communicate meaning; the whole is more than the sum of the parts. Fraiberg (2010) uses the term "lamination" to describe how modes may be layered during digital composing processes, fusing into a single, laminated piece. This process of recursively working across and within modes to express a unique story or point of view is revealed in numerous studies of digital video production processes (Burn & Parker, 2003; Hull & Nelson, 2005; Ranker, 2008), as well as process studies of students' website design, multimodal literature analysis in PowerPoint (PPT), and podcasts (Smith, 2013b). Although we did not study students' composing processes, we anticipated that the interviews conducted as part of our studies here would yield information about how and whether students were thinking about the multimodal coherence of their digital product. Further, their digital retellings would provide insight into students' choice and frequency of modal use.

Vygotsky's (1978) concept of the mediational role of tools in developing literacy is particularly relevant to our studies and multimodal composition, where students interact with authoring and production tools and resources to create a particular composition. This "thinking tools" aspect of multimodal composition has been relatively unexplored, although it is likely to be an essential aspect of any model of multimodal composition or effective practice. For example, Ranker's (2008) study of fifth graders' video composing suggests the powerful role that video-editing software played in scaffolding students' composing processes and eventual video product. Ranker posited that the editing software offered students new symbols for communication, such as special-effects options, and new means of combining these re-

sources through the visual editing interface that mediated their process and final product. At the same time, digital production software can interfere with the composer's initial vision for their work, necessitating revision of the piece in light of what is possible with the tools (Gilje, 2011). Thus, the tools and resources matter, interacting with the composer's skills, modal preferences, and rhetorical goals to support and constrain what is achievable.

Digital storytelling and video have been a focus of much of the multimodal composition research, with less attention paid to other media, such as the design of video games, PowerPoint shows, websites, online fan fiction, blogs, e-comics, Claymation, podcasts, and so on (Smith, 2013a). Given the ubiquity of PowerPoint and other slideshow tools on school computers and the valued presence of slide shows on informational and entertainment websites, it is somewhat surprising that the research is so limited. Tuftee (2003) has strongly criticized PowerPoint as a tool that promotes ineffective displays and simplified thinking. While there are certainly misuses of PowerPoint, we suggest that it is more helpful to view digital tools in relation to their affordances and constraints for accomplishing varied communication goals, and in relation to the composers' skills and needs. We selected PowerPoint as the composing tool for the current study because it provided structural support for the building of stories at the scene and discourse level, and offered prepackaged resources for designing a story through visual, sound, animation, and written text modes. Students can work with modes separately to compose a scene, which can then be played in a sequence of their choosing. At the discourse level, PowerPoint offers a visual storyboard that allows the composer to see the component scenes at a glance, rearrange scenes, and preview one or more slides to get feedback in real time on how the modes will "play" in an ensemble. At the same time, these same features constrain design possibilities and encourage a building-block approach to design that may have unintended storytelling and artistic consequences.

Universal design for learning (UDL) (Dalton & Proctor, 2008; Rose & Meyer, 2002) also influenced the design of this study at two levels. First, we embedded the retelling task within a larger project investigating the effect of universally designed, multimodal e-texts with embedded supports for word recognition, comprehension strategies, and interactive vocabulary on fifth-grade students' comprehension and vocabulary (Dalton et al., 2011). Second, we designed a digital storytelling frame and introduction to the task that highlighted the value of composing with multiple modes to impact the composer's audience. Thus, students moved from reading a multimodal e-text to creating a multimodal retelling. Although we were not investigating the impact of a UDL experience, and especially whether multimodal composing was more inclusive of students with print-based difficulties, it was the instructional context for the study, and our findings must be viewed accordingly.

Retelling is a well-established reading comprehension instructional and assessment practice in elementary schools (Brown & Cambourne, 1990; Morrow, 1985). Studies have shown the beneficial effect of retelling, an active reconstruction of the story setting, plot, and theme, on students' comprehension and story structure knowledge (Morrow, 1985). It is also used in informal reading assessments to assess comprehension, with students earning points for each element of the story that is recalled. By fifth grade, the target grade of our study, students are generally able to recall a basic story with setting (time, place, and character), plot (event, problem, solution), and theme (or, in the case of a folktale, the lesson or moral of the tale). We

selected retelling as the genre in this study because it is a form of storytelling that has merit in and out of school, and because it allowed us to focus on modal use in relation to the same original story base, while still allowing room for creative expression.

The Current Studies

The importance of modal awareness and strategic use of modes, media, and tools is central to the CCSS portrait of the successful twenty-first-century learner. The current research comprised two studies of fifth-grade students' digital folktale retellings. In Study 1, we examined 83 retellings to learn about students' modal use and retelling quality within a scaffolded digital composing environment that included the PowerPoint authoring/presentation tool and a researcher-developed folktale story frame. Encouraged by the range of modal use in students' retellings and the seeming utility of the modal scoring guide, we conducted Study 2 with a new group of 14 students. Our goal was to gain students' perspectives through retrospective design interviews and to extend our multimodal scoring scheme to a second folktale created with the same composing tools. We did not examine students' actual composing processes, however. Further, we scaffolded the composing tool in ways that constrained the potential retelling. We anticipated that these constraints would reveal important patterns of modal representation in Study 1, and that students would convey some level of intentional design in their retrospective design interviews in Study 2. Together, these studies were designed to complement research focused on multimodal composing processes and to contribute to our understanding of digital retelling as an academic literacy task within the context of a particular scaffolding composing environment.

Study 1: Multimodal Design and Digital Retelling Accuracy

Two research questions guided this descriptive study: (1) How well did fifth-grade students demonstrate comprehension of a folktale e-text in their digital retellings? and (2) What did students' digital retellings reveal about their use of modes—image, sound, animation, and writing—to express their story?

Method

Participants

Study 1 took place in three northeastern U.S. schools, where 34% to 57% of students were eligible for free or reduced-price lunch. Data were collected from a subset of 83 students who completed a digital retelling as part of a larger study investigating the effect of enhanced e-texts on students' reading comprehension (23 students did not complete their retellings within the time allotted due to absences, additional time spent reading the folktale, or technical difficulties) (Dalton et al., 2011; Proctor et al., 2011). Boys were somewhat overrepresented in the group, with 49 boys and 34 girls participating, and 30 students were English Language Learners. On the Gates MacGinitie Reading Achievement Test administered prior to the study, students' percentile ranking scores ranged widely from 9 to 99, with an average score of 57 ($SD = 26.1$).

Materials

Folktale e-text. *Hungry Spider and Turtle* is an Ashanti tale illustrating the folly of greed, as well as the Golden Rule to treat others as you would like to be treated (or suffer the consequences). The story begins with Turtle arriving at Spider's hut. Following the village custom of hospitality, Spider ostensibly welcomes Turtle to share his food, only to trick Turtle and send him hungrily on his way. Later, Turtle turns the table on Spider, tricking him out of a lavish underwater feast. Although fairly straightforward, students must read between the lines that Turtle suspected Spider of trickery and plotted his revenge in return.

The enhanced e-text version of the tale was developed by Dalton and colleagues, guided by universal design learning principles (Dalton & Proctor, 2008; Rose & Meyer, 2002). The digital text was presented in eight colorfully illustrated screens that embedded supports for representation (e.g., text-to-speech read-aloud functionality, human voice narration, hyperlinked multimedia glossary items; Spanish language translations); expression (e.g., avatar coaches to prompt and model reading-comprehension strategies and interactive vocabulary learning; varied response formats); and engagement (e.g., choice of support level and response mode; appealing stories for this age group).

Composing tool and digital story frame. Although PPT is typically used as a presentation tool, its storyboard structure and relatively easy design of slides/scenes with embedded backgrounds, images, sound, writing, and animation, make it an appropriate tool for intermediate-grade children's retelling. We designed a *Hungry Spider* PPT story frame to visually structure the retelling. The story frame opened with an introductory screen providing an overview of the task, a map of story screens, and encouragement to "Be creative—use words, images, sound, and color to tell a great tale!" This was followed by an "Add sound" screen highlighting the role of sound and how to record narration and insert sound effects and music. The next "Color" screen demonstrated how color could be used to dramatize the story and explained how to change the background and font color. The fourth screen explained how to delete the "how to" screens and save the retelling to their folder. The next eight screens constituted the actual story frame, presenting the title screen, six event screens with an illustration from the original e-text, and text boxes for writing the narrative, caption, and subtitle, and ending with a "moral of the story" screen. The last screen was a self-check guide to encourage students to review and revise their retelling before the class presentation.

We hypothesized that providing a basic structure for their multimodal retelling along with illustrations of key scenes would support students' writing and design process, prompting their recall of each scene and alerting them to potential modal affordances. We anticipated that this more constrained composing context would reveal variations in students' multimodal designs more clearly and yield insights about a form of retelling that has not yet been investigated. However, our digital story frame is more constrained than the usual practice of visual retelling, where students sequence a series of pictures as they orally retell the story. It is possible that the story frame may be overly constraining, limiting students' ability to express themselves. Finally, we cannot emphasize too strongly the situated nature of this academic composing experience, and how it differs from the kinds of multimodal composing

students engage in for their own enjoyment and purposes, such as posting digital stories and mash-ups on YouTube.

Procedures

Instructional experience. After reading the *Hungry Spider* e-text individually on their computers, students were introduced to digital retelling by a researcher who asked, “What is a retelling?” and highlighted two aspects of the genre: “It captures the most important points of a story,” and “No two retellings are exactly alike; each author will tell a slightly different story in a different way.” She projected the retelling PPT story frame on a large screen to demonstrate how to create a retelling within PPT. She used three slides retelling the same scene but with different designs to engage students in a discussion of how different modes (e.g., words, color, sound, and animation) work together to communicate a story in unique ways. Students then used the PPT story frame to compose on the computer over two to three 30-minute sessions. They worked individually, although they tuned into what students were doing around them and shared technical tips. A researcher provided technical assistance, while the teachers, who were novices to multimodal composition, observed students so that they would be better prepared to support students for a second retelling project scheduled later in the term. For a culminating activity, students presented their retellings to classmates and invited guests.

Scoring

Retelling accuracy. Following guidelines for scoring retellings (Morrow, 1985), we developed a scoring guide for *Hungry Spider and Turtle* that included setting (characters, scene, time), plot, and moral/lesson. A total of 22 points was possible across the eight slides, with 1 point each for the title and ending moral screens, and 3–4 points for each of the six event scenes. For example, scene 1 comprised 4 points, 1 each for expressing the time/place, hungry turtle’s arrival, Spider’s internal conflict, and Spider’s dinner invitation. The first author developed the scoring guide based on the original e-text and then refined it so that the elements corresponded to the eight retelling screens of the digital story frame. Two other researchers independently applied the scoring guide to three retellings and the team met to compare scores, resolve discrepancies, and refine the scoring guide.

The first author trained two raters to score the retellings, first developing a shared understanding of the codes with a small set of examples and then individually scoring and comparing ratings of several more retellings, discussing and resolving discrepancies. The raters then coded the remaining retellings independently using an Excel spreadsheet to code whether each story element was present or not and calculate a sum score. Twenty percent of the 83 retellings were double-scored and a Pearson’s r correlation was computed, yielding an acceptable interrater reliability of .86.

Modal use. A major goal was to describe the range and frequency of modal use in these digital retellings. We developed a modal-use coding guide that included the four major modes of image, sound, animation, and writing. Mode definitions and examples were developed by three researchers over several iterations, employing open and axial coding (Corbin & Strauss, 2008). We began with independent analysis of a small set of retellings using the four major mode categories and expanded these

to include subcategories that emerged from the data set until we attained redundancy. We searched for negative cases to determine whether the codes fully captured students' modal use, purposefully selecting retellings created by students with the highest and lowest reading achievement scores. The final scoring guide included the four major modes with subcategories: image included design template, slide background, font, new graphic, and size/location change of existing graphic; sound included music, sound effects, recorded dialogue/monologue, and recorded narration; animation with and without sound included between-screen transitions and within-screen animation of images or writing; and writing included screen subtitles, image captions, and point of view (the full guide can be obtained from the first author).

We used the same training and coding procedure as employed for rating of retelling quality. Twenty percent of the retellings were double-coded for modal use and a Pearson's *r* correlation was computed, yielding a high interrater reliability of .91.

Findings

Digital Retelling Accuracy

In the tradition of retelling research, we were interested in the accuracy of students' retellings. Based on a possible total retelling score of 22 points, the 83 students earned an average score of 54.71% ($SD = 21.15$). Examination of average scores for each of the scenes showed some variation, with scores ranging from a low of 47.59% for scene 4 where Spider tricks Turtle, to a high of 70% for screen 7 where Turtle wreaks revenge on Spider and resolves his problem, and for screen 8, the moral/lesson learned statement. Although a few students used the original tale as a jumping off point for their own creative storytelling, the vast majority retold the basic story, often omitting important information. Episodes that required strong inferencing appeared to be more difficult to recall, with some students seemingly unaware of Spider's deliberate trickery in episode 1 and Turtle's revenge enactment in episode 2, instead composing a literal representation of these events.

Students' lower than expected retelling accuracy raised questions about the ways in which a visually structured digital retelling frame might be mediating their retelling. The sequenced illustrated scenes provided a structure as well as content to support recall. However, the illustrations may have had an unintended effect if students relied on them too much to express the story. For example, the original e-text describes how Spider sent an increasingly irate Turtle to the river to wash up, not once, but twice. The story frame illustration shows Turtle trudging back from the river. To earn a full score for retelling this scene, students must recall additional detail from the story to complement and extend the illustration. Potential explanations may be that this was an unfamiliar composing task for students, or that the illustrations bounded their recall of the original story, or that they understood the story, but chose to treat the story frame more like a graphic novel or comic book where the text is secondary to the illustration. Alternatively, the explanation may not lie with the story frame. There may have been a number of students who did not fully understand the original folktale and thus created an incomplete retelling.

Modal Design

We analyzed students' use of modes separate from consideration of their retelling accuracy to understand which modes students were using, and how often, to express their story. In the following, we describe modal use in the eight-screen retelling, followed by examples illustrating the variation in students' multimodal designs.

Visual design. Working within the eight-screen *Spider* story frame, students started with a default visual design that mediated their design choices. Screens included an illustration, white background color, black font, and varied font sizes and styles for the text, title, and caption boxes. It is notable that none of the students accepted the default design; all 83 students composed with visual elements, averaging 7.16 graphic designs per retelling ($SD = 1.81$). They kept the default illustrations, rarely moving or resizing them ($M = 0.39$, $SD = 1.25$), and only a few inserted new graphics that they obtained from the Internet ($M = 0.37$, $SD = 1.02$). Perhaps not surprisingly, students focused on a design feature that was easy to create in PPT and that allowed them some opportunity for impact—remixing the background by changing the color ($M = 5.48$, $SD = 3.24$) and/or selecting a PPT design template ($M = 2.48$, $SD = 3.52$). Designing the text font was also popular, averaging 2.64 times per retelling.

Animation. Although animation was not a feature of the original e-text, nor was it modeled in the retelling introduction, 66 students used animation, making it the second most frequently used mode, averaging 4.98 animations per story. PPT's animation tool offered certain affordances: Selecting a transition between slides is a fairly easy operation; a bit more challenging is the animation of text and image elements within each slide, where elements must be selected, assigned an animation type, and sequenced. On average, the retellings included 3.45 ($SD = 3.48$) silent animations and 1.53 ($SD = 2.66$) animations with sound. In addition to between-screen transitions ($M = 2.54$, $SD = 2.54$) such as "flying in," students created within-slide transitions by animating the text so that words ($M = 2.98$, $SD = 3.28$) and images ($M = 1.71$, $SD = 2.58$) moved on the screen, sometimes appearing in order to draw attention, and sometimes illustrating an action.

Sound. Each screen prompted the option of adding recorded narration and dialogue, an important feature of the e-text folktale. While there were fewer sound elements included in their designs, they often played a central role in the storytelling. Fifty-eight students added sound, for an average of 3.45 sound element per retelling ($SD = 3.06$). Music was the most popular element ($M = 1.51$, $SD = 2.51$), followed by audio-recordings of character dialogue or monologue to accompany the illustrations and the author/narrator's direct speech to the audience ($M = 0.95$, $SD = 1.99$), narration of the written text ($M = 0.89$, $SD = 2.01$), and sound effects ($M = 0.68$, $SD = 1.09$).

Writing point of view. All students complied with the basic requirement to write in the text box provided on screen. Eighty-one students also subtitled their scenes, averaging 5.67 ($SD = 1.09$) per retelling, and 73 students wrote illustration captions, averaging 5.21 captions per story ($SD = 2.12$). Since the composing tool supported retelling with different modes, we thought it might influence the point of view represented in the writing. For example, although the e-text was written in third person, the sound affordances of the PPT tool might support creation of a retelling that was more like an oral performance, with the narrator and characters speaking for them-

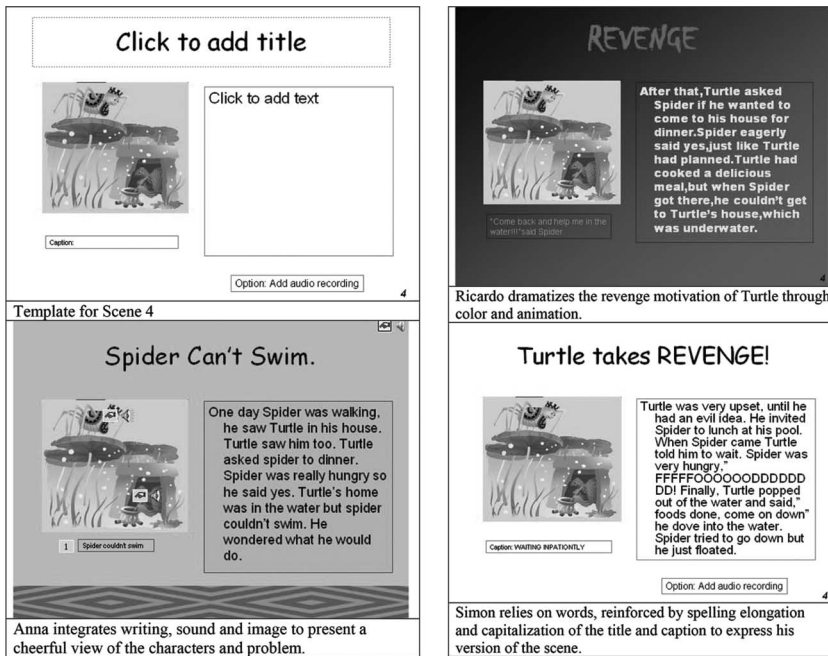


Figure 1. Students' retellings of scene 4 demonstrated their varied multimodal designs. (A color version of this figure is available online.)

selves. In fact, students tended to write in the third person, with third-person narrative without dialogue most common ($M = 4.54$, $SD = 1.84$), followed by third-person narrative with dialogue ($M = 1.46$, $SD = 1.86$) and dialogue only ($M = 0.48$, $SD = 1.17$).

Close-up View of Digital Retelling

Given the contextualized nature of composition, it is important to understand students' patterns of modal use within a specific composing genre and with specific tools. Students' use of modes other than writing was quite varied, with visual design elements most frequent, followed by animation and sound. Writing was required, and every student included some text on every scene in their story. In this next section, we present a cross-scene comparison to show how three students remixed within the story frame to express their retellings. We purposefully selected three versions that demonstrated strengths in one or more use of modes to demonstrate the possibilities for variation within a story frame, rather than representing typical designs. We next illustrate use of two modes—image and sound—that emerged as points of creative diversity among these young composers. Again, the examples were not meant to be typical, but rather to suggest the range of students' use.

Three retellings of "Turtle Invites Spider to Dinner." Scene 7 was the beginning of Turtle's revenge upon Spider, and as such represents a dramatic shift in the story. Here, Spider arrives at Turtle's pond, eager for dinner. However, Spider's light body makes it impossible for him to swim under water to partake in the feast.

Figure 1 presents the original story frame for this scene and retellings composed by Anna, Ricardo, and Simon (not the students' real names). There were dramatic differences in how they expressed their understanding of the original story and

modal preferences. Entitled “Spider Can’t Swim,” Anna described the event and Spider’s problem in basic sentences. She elaborated on the setting with a light blue background to extend Turtle’s underwater home. A pink textbox highlighted the writing, a combination of colors that suggested a cheerful tone, despite Spider’s problem. Sound was layered into the scene with slow, pleasant music and audio-recordings of the characters’ internal thoughts. Spider asked in a contemplative tone, “What should I do?” while Turtle hummed to himself in a sing-song melody, “Hum, hum-hum, hum-hum, hum-hum.” Spider did not appear to be frustrated, and Turtle was portrayed as an oblivious, easygoing host. The writing, sound, and visuals worked together coherently to express the scene, with the sound and visuals elaborating on the written text.

In contrast, Ricardo composed with writing, color, and animation to evoke a different representation of the scene. His writing was more complex and indicated that he understood Turtle’s desire for revenge, something that had to be inferred from the original text. The “revenge” theme was most strongly communicated, however, through the use of color and animation. A red-to-black gradient background set a dark tone that was reinforced with the title “REVENGE,” written in all caps with “Chiller” font and colored bright red, animated to crawl slowly from the bottom to the top of the screen. Ricardo did not use sound, relying instead on his writing and dramatic visual design to communicate the story, which was all about Turtle enacting revenge. The design was coherent, with the three modes reinforcing and extending the story expression.

As a final example of the diversity of students’ modal choices, we next consider Simon’s retelling. He told his story in writing that includes varied sentence structure and character dialogue. Like Simon, he focused on the importance of revenge in the story, but revenge expressed through a more playful tone. He described the plot event and conveyed Spider’s impatience through a caption and Turtle’s motivation for his actions. He kept the default white background, black font, and illustration, and did not add a soundscape. He added a visual effect through elongation of the word “FFFFFOOOOOODDDDDDDDD!” to express Spider’s hunger. Simon used writing to carry the bulk of his expressive weight in this scene.

The centrality of speech for a subset of composers. While visual design was salient for all students, sound, and specifically, making the story come alive through audio-recorded speech, was an important mode for 19 of the 83 students (23%). To illustrate the range and depth of this mode for retelling, we provide examples of four speech categories that occurred in at least half of the retellings: voiced characters ($n = 17$), inner monologues ($n = 11$), tone ($n = 11$), and elaboration ($n = 14$). Most students recorded on one to two screens, with one composer recording speech on each of the eight story screens.

Characterization. Voicing of characters was the most pervasive speech function. One technique used across seven retellings involved projecting distinctive voices onto Spider and Turtle by varying pitches and rhythms. The different voices served as boundaries for the characters, while expressing characters’ emotions and attributes. In one example, a student recorded a short exchange between Spider and Turtle, voicing Turtle with a high-pitched falsetto and Spider with a lower-pitched voice. Another student slowed Turtle’s rhythm of speech, “Heeellloooo Spiiider, can you even stay for din[ner]?” lending extra emphasis to a slow, plodding nature that suits Turtle. A third example provides insight into Spider’s

character through the disdainful and irritated tone of a student's voicing: "What does this guy want? I don't want to share my dinner. What is he thinking?" He used an inner monologue to communicate the feelings of his character, a strategy used in almost half of the retellings with speech.

Speech recordings were also used to heighten plot drama and contrast between characters. For instance, when Turtle finds Spider has eaten all the food, the following dialogue occurs:

Spider: That was sure delicious. Maaan I could go for another batch but that means I'd have to cook more. So I'm satisfied. Mmmmmm.

Turtle: What happened but but but . . . what happened to the yeeaaaa! What happened to the delicious stew?! Ohhh!

The student voiced Spider in a very sing-song, laid-back manner that punctuates his self-satisfaction, while expressing Turtle's response with surprise and outrage over the missing food he has been promised. A key element here was the narrative tension created through the characters' utterances. The written text suggested Turtle's emotion with a single question ("You what?") and the exclamation point that followed. The recorded speech embedded into the scene, however, made clearer just how Turtle felt and juxtaposed his emotion alongside the smug, satisfied speech of Spider. Thus, speech created plot tension and forwarded the narrative in ways that the written text did not. In light of Turtle's speech, the revenge narrative that followed makes more sense, as did the moral that the writer attributed to this tale: "Treat others the way you would like to be treated. If you treat a person nicely, they'll do the same in return."

Narrative content. In addition to helping convey character and plot tension, Spider's speech above also added some level of narrative content. This type of addition, either by way of new content or by way of elaboration, was a fairly common function of speech usage. In the opening scene, one student wrote, "Turtle had been walking for a long time when he meet turtle spider was hungry but he new he should ask him to stay for dinner." He recorded the character's inner dialogue:

Spider: Oh look, a visitor. I'm hungry, but I will offer him some food because it is definitely the right thing to do in my village. Oh here he comes.

Turtle: Oh boy, food. I am reaaally hungry. I hope he'll share with me.

The speech offered new information in that (a) Spider's conscientiousness stems from village codes, and (b) Turtle harbors a hope that Spider will share. As the written narrative made evident, the composer had an uneven grasp of grammar and mechanics that interfered with his expression of meaning. The narrative conveyed by spoken language was as important, if not more important, than the narrative conveyed in the written text. In terms of clarity, in fact, speech arguably told a more easily understood story than the written report. Comprehension of the overarching narrative was sound, as this student got the point of the story. His moral was as insightful as it was funny: "Don't retaliate but if you are mean to someone you will end up the one sad like that old expression if you get down and dirty with the dogs you will get up with flea's. And that is the moral of the story."

Study 2: Students' Design Intentionality in Digital Retellings

In Study 1, we identified the modes and subcategories of modes that students used to compose their digital retelling, and the frequency of their use. We complemented the descriptive statistics with examples to illustrate students' varied designs. The major purpose of Study 2 was to obtain students' perspectives on their retelling design. We were also interested in learning whether students' modal use would be comparable to what was observed in Study 1. These students were bringing their Spider retelling experience to the retelling of a second folktale. The research questions guiding this study were: (1) What were fifth-grade students' perspectives on their digital retelling designs? and (2) What did students' digital retellings reveal about their use of modes—image, sound, animation, and writing—to express their story?

Method

Participants

Study 2 was conducted with the same teachers in the year following Study 1. Students had experience with digital retelling, having read and retold the Spider folktale before reading and retelling a second tale, which is the focus of Study 2. A subset of 14 students participated in a retrospective design interview, including 7 boys and 7 girls, and 3 students who were English Language Learners. The group obtained an average percentile ranking score of 66 ($SD = 17.7$, range 38–94) on the Gates MacGinitie Reading Achievement Test, which was somewhat higher than Study 1 students' average score of 57 ($SD = 26.1$). We selected interviewees somewhat opportunistically based on who had completed their retelling and was available to be interviewed during the computer lab session. Within this group, we purposefully balanced gender and included students representing a range of reading achievement.

Materials

Folktale e-text. *How Coyote Stole Fire* is a Native American tale explaining how early humans got fire, while also illustrating the importance of helping one another. Clever coyote and the other animals save the early humans from cold and hunger by stealing fire from the greedy Fire Beings. In a wild chase down the mountainside, the Fire Beings attack the animals, who toss the fire stick from one to another. Thus, robin gets a red chest, chipmunk gets his stripes, and coyote gets a white-tipped tail. Although the reader is required to make fewer inferences in this tale than in *Hungry Spider*, students must remember the multiple outcomes of the story, rather than focusing solely on the humans' outcome. The e-text design and embedded support features of the folktale were the same as those described for *Hungry Spider*.

Composing tool and digital story frame. As described in Study 1, the scaffolded composing environment consisted of the PPT authoring/presentation tool and a digital story frame designed for the *Coyote* tale that included nine, rather than eight, screens to accommodate the multiple story outcomes in this tale.

Multimodal design interview. We developed a 15–20-minute retrospective design interview protocol to explore students' design choices and preferences. Retrospective accounts are a recollection of an experience filtered by memory and may not accu-

rately reflect what students were thinking about during the composing process. Further, simply asking why a particular design element was employed sends an implicit message that design is intentional, when in fact artists will attest to the nonintentional aspects of creative work. Nonetheless, it is important to obtain students' perspectives, even when formulated after the fact. The student and interviewer sat side-by-side at the computer and replayed the digital retelling PPT in its entirety. Then they revisited each screen, stopping to discuss design and preferences (e.g., "Tell me why you chose this background for scene 1." "Which slide is your favorite?" "Why?").

Procedure

Instructional experience. Students' instructional experience was similar to those described for Study 1, with two important differences. First, this was students' second digital retelling, undertaken after they had completed the *Spider* retelling. Thus, they brought with them experience reading an enhanced e-text, technical knowledge about the PPT tool, and rhetorical knowledge about how different kinds of retellings appealed to their peer audience during their *Spider* presentations. Second, the teachers were also more experienced, having learned from observing students during Study 1. They provided some instructional support in Study 2, primarily in the form of observing students while composing and prompting them to consider writing quality and modal integration in creating their retelling.

Coding

Modal use. We applied the Study 1 modal scoring procedure to the *Coyote* retellings. We added some *Coyote*-specific examples, but did not revise the categories since they accurately captured modal use in the *Coyote* folktale context. We employed the same rater training procedure as described in Study 1.

Design interviews. Our goal was to understand how this group of 14 students viewed their multimodal retellings—how did they explain their designs and preferences?—with the intent of revealing patterns and themes. We transcribed student interviews and entered them into NVivo, a qualitative data-analysis software tool. The first author and two researchers viewed each retelling and read the accompanying interview several times each, writing open-ended analytic commentary. Next, we generated categories and subcategories through an open and axial coding scheme (Corbin & Strauss, 2008) that combined a priori codes for modes of composition (e.g., image, sound, animation, writing) with codes that emerged from the data, such as students' linking of mode to the story elements of character, setting, action, and problem/resolution. Across students, we identified themes such as multimodal awareness and identity.

Findings

Modal Use

Eight students designed a four-mode retelling, including writing, image, sound, and animation, and six students composed with three modes, including writing, image, and sound. One student engaged in highly repetitive visual design, inserting 26 smiley faces on a slide and changing the color of many words and phrases within

each paragraph of text. While this student employed a legitimate design approach, he was an outlier in this data set and was not included in the descriptive statistics.

Visual design. All 14 students experimented with the visual design of their retelling, averaging 27.40 visual design elements per retelling ($SD = 27.86$). They changed the color, style, or size of the font most frequently ($M = 14.87$, $SD = 13.87$), followed by changing the scene background color(s) ($M = 4.60$, $SD = 3.00$), inserting a graphic ($M = 4.53$, $SD = 14.93$), selecting a design template background ($M = 3.27$, $SD = 3.58$), and changing the size or location of a graphic ($M = 0.13$, $SD = 0.35$). Their use of visual elements was substantially greater than that found in the Study 1 retellings. Although all of the designs included visual elements, the average use per retelling was 7.16 ($SD = 1.81$).

Sound. All students designed a soundscape, averaging 10.80 ($SD = 7.56$) sound elements per retelling. The most popular sound elements were music ($M = 5.33$, $SD = 7.25$) and sound effects ($M = 3.40$, $SD = 3.25$). Some students audio-recorded their narration ($M = 1.27$, $SD = 2.81$), and some audio-recorded speech in the form of character monologue or dialogue, typically hyperlinking it to the characters in the illustration ($M = 0.80$, $SD = 1.78$). This finding contrasted with the Study 1 findings, where only 23% of the retellings included sound.

Animation. Eight students designed animation effects. Overall, students designed 7.13 ($SD = 9.58$) animations per retelling, including animating transitions between slides to sequence from one scene to the next ($M = 2.0$, $SD = 3.05$), and animating words and graphics within slides ($M = 4.47$, $SD = 6.35$ and $M = 0.80$, $SD = 1.93$, respectively). Again, animation was used more frequently than in the Study 1 retellings, which included an average of 4.98 animations per story.

Students' Design Perspectives: Intentionality and Metamodal Awareness

The descriptive analysis of students' multimodal design revealed frequency of modal use and suggests that certain modes were salient for students when authoring within this kind of scaffolded authoring tool for the purpose of retelling a folktale for their classmates and teachers. These 14 students were clearly multimodal designers, integrating visual design, sound, and movement with the required writing mode to create their retellings. Qualitative analysis of their design interviews offered insights into students' intentions and how they explained their modal choices. In the next section, we highlight two important themes, students' connections between design explanations and story grammar, and their developing metamodal awareness—a term that we used to describe the language students spontaneously applied to describe modal use in relation to rhetorical function.

The Connection between Design and Story Grammar

Story grammars typically include character, setting (time and place), events, and in many folktales and Western narratives, problem and resolution (Stein & Glenn, 1977). As we analyzed the 14 design interview transcripts in conjunction with their multimodal product, we found numerous instances of students' design intentionality and connection to story grammar elements.

Setting. All of the students designed at least one background, with many designing multiple backgrounds. Many used white or gray backgrounds to reinforce the

snowy setting (e.g., “Because it looked like snow, and snow is—they had a harsh winter” (Student 3, hereafter indicated as S3). Some chose PPT design templates that were more complex visually. As one student explained, “I did the background color green and this part is kind of like the trees and the green is at the top and the white is kind of at the bottom right. Kind of like outside of the forest” (S4). Color was also used to represent the time of day, such as sunrise or evening, and to communicate the passage of time: “Fading gray because as they keep running the night becomes faded” (S14). Students also described how sound effects communicated setting (e.g., “Because when usually you are outdoors you um have a fire, that’s usually what you hear. You hear all of the sparks coming up” [S7]), or with animation (“I made it [title and text] fade in because usually when smoke gets really high it kind of fades and goes into the wind” [S9]).

Character. Authors communicated character by showing what they looked like, what they did and said, and what they felt and thought. Characters’ physical appearance was represented in the illustrations inserted from the original e-text. Students explained how they conveyed character emotion through music (“because they were like sad” [S2]) and audio-recordings of their speech (“I chose it because it is an angry ‘hey’ and it seems like the fire beings should be saying that” [S9]). Sound could also make the character come alive on screen, with one student explaining his use of a “fighting sound . . . because it says they always fight so I chose the fighting sound and um, the fire being wasn’t ready, so it just screamed” (S5).

Students talked about color and character. For example, the background color could reinforce the characters’ emotional state (e.g., “I chose the background red again because the fire beings were angry” [S9]) and physical appearance (e.g., “Because they’re the fire beings and I chose the fire colors like especially because they are the fire beings” [S2]). As one student explained, animation could represent a character’s action and state of being: “I have the title kind of spinning because the fire beings were probably running after Coyote in a circle and so they were probably getting all dizzy” (S9).

Action. While action overlapped with character, students varied in the ways they described their design decisions in relation to the action of the story. The scene of the fire beings dancing around the fire prompted some students to add “dance” music, with one student explaining, “The reason why I put that music is that it shows them dancing around the fire so I put like um a song that they can dance to” (S1). More typically, they added sound to reinforce action, such as “running music” for a scene where coyote is running (S9) or to accompany the action of an object: “The sound was like bouncing kind of . . . it was kind of like them passing the fire around” (S4). There were only a few instances where students described how their visual design communicated action, as in one student’s use of a wobbly blue font to show how the humans were able to see: “Because it was like, kind of like uh it was blue and stuff too and it still shows the mood and because it is blue . . . wobbly and usually that’s how you see things when you are crying” (S7). And, finally, several students used animation to convey action, often indirectly, as in animating the font to complement the action in the scene (e.g., “I made the font kind of run in like coyote running up and hiding from the fire beings so he can watch the fire beings” [S4]). Animation was also used at the discourse level to communicate a sequence of events. For example, one student explained his use of an opening curtain for a screen transition: “And then he

[coyote] ran into the forest and then like the curtains open so it looks like the story is actually happening” (S8).

Problem and resolution. Problem and resolution, core elements of this type of folktale, were connected to students’ modal decisions. One student selected music to dramatize the problem: “it’s ‘nobody knows the trouble I’ve seen’ . . . because it’s sad. Because the humans are sad and they are in trouble” (S10), while another inserted a clapping/applause sound effect to mark the resolution of the problem: “Um, because it was like they got their fire and now they are not cold anymore. So like everything is happy now” (S1). Similarly, students’ visual designs represented problem and resolution, as one explained: “I wanted to like show that it was cold and they didn’t have any warmth and they needed something to keep them warm or they would not really be able to live” (S5). Another student inserted balloons to celebrate the resolution: “Because it shows like usually when you celebrate you are happy and stuff and you get balloons for birthday parties and stuff” (S7).

Story structure. Some students had clear expectations for how stories began and ended, explicitly mentioning how their design marked the beginning or end of their retelling. For example, one student described how he chose music to open his story: “It reminded me of how cartoons use music to show how there’s a big title to . . . make the readers interested” (S13), and another used music with violins to end his story: “I picked it because it was like the end of the story and there was no, like anything else to finish the story . . . like when they are moving the sticks together it looks like a violin” (S1). A third student used a fireworks background template to end his story: “Because they look happier than they did in the beginning” (S5); a fourth signaled the happy ending with a screen transition: “Because, um, usually when people don’t notice, they notice about the main part, the happy ending” (S13).

Students’ Metamodal Awareness

Unsworth (2006) suggests the importance of developing students’ metalanguage about design. Although this was not a part of the instruction, we found that students’ interview responses reflected what we defined as metamodal awareness, or understanding how modes can work in a storytelling context. We believe this may be part of developing a sense of design sophistication.

Labeling. Expertise is often signaled by labeling, which represents an ability to abstract a feature. Some students labeled specific pieces of modal content in relation to their rhetorical function. For example, one student explained her selection of “poor music” in this way: “Because the people look like they are poor and so I added some poor music and they are in the poorest, no shelter, no food, no fire, no nothing besides a blanket . . .” (S8), and another talked about his choice of a “triumph song”: “I did for music like a triumph song because they finally got the fire away from them and helped the family” (S16). Students also labeled sound effects concretely (fire: “It’s like a crackling noise” [S7]) and metaphorically (“It was like a thankful sound” [S1]). Speech was labeled (“He *has* a New York accent” [S12]; “It was a wicked laugh” [S16]). Color elicited labels, often in relation to emotional significance (“It is kind of a happy color” [S4]) or sensory attributes of the setting (“It’s kind of like a cold color” [S4]). Interestingly, while students were able to explain animation choices, they did not label particular types of animation effects.

“Going together”. A recurring theme that emerged from students’ design explanations was their expressed desire to have modes “go together.” This may be due in part to the instructional context. When the retelling project was introduced, the researcher shared three examples of the same scene and led students in a discussion of how the designer used the various modes to communicate their story in different ways. That the modes should work together was also reinforced (albeit somewhat mildly) by the teachers in the classroom. Nevertheless, we find it telling that some students were explicit about this, again suggesting a metamodal composing awareness. Sometimes it was the sound-visual match that was the focus. For example, one student explained her goal: “To get their sound and their background to always like try to go with the vibe of the picture” (S7). Another described sound-event matching, “Because the applause sort of matches the fireworks and they are all happy because the family got the fire” (S8). Students also pointed out connections between the written text and other modes (e.g., “I combined it because . . . the text and the color kind of go together because the text is showing sadness” (S9). Again, as with labeling, students did not offer explanations of animation “going with” the story or other modes.

Discussion

The Common Core (2010) portrait of the successful twenty-first-century learner is one of a strategic composer who communicates in print and multimodal formats, flexibly drawing on a wide range of digital tools and media to achieve their communication goal(s). However, the writing standards do not suggest a learning trajectory for multimodal composition, and there is limited research to guide elementary school teachers in teaching students to compose with modes and digital tools. The purpose of these two studies was to explore a particular genre of multimodal composition—digital retelling—that extends valued school literacy practices of retelling to a multimodal context where fifth-grade students read a digital folktale and then created a retelling using PPT and a researcher-designed story frame as their composing tools. Recent research highlights the complex interplay between students’ composing goals, the affordances and constraints of the particular digital tools and media available, and their resulting products (Ehret & Hollett, 2014; Gilje, 2011; Ranker, 2008; Smith, 2013b). Thus, it is important to consider our findings within students’ specific digital composing tool and instructional context.

Study 1 provided a descriptive account of students’ frequency and type of modal use as realized in 83 fifth-grade students’ digital retellings of the folktale *Hungry Spider*. Created within a PPT story frame that structured the folktale with illustrations from the original e-text, all of the students designed with visual elements, followed by animation and sound (writing was required and was present on each screen). The findings from Study 1 were reinforced in the Study 2 analysis of 14 fifth-grade students’ retellings of a second folktale. Perhaps because they had prior experience creating a multimodal retelling, the frequency of modal use increased, with all students remixing the visual representation and creating a soundscape, and more than half using animation. This descriptive account of modal use across 97 retellings complements patterns of use revealed in the in-depth portraits of individual composers or examples of classroom projects, with illustrative examples that constitute the majority of multimodal composition research (Hull & Nelson, 2005; Ranker, 2008; Vasuvedan, Schultz, & Bateman, 2010).

Together, these findings suggest that even when composing within a constrained digital story frame, students were able to use the digital composing features of PPT to express their multimodal retelling in varied ways. The mediational role of the composing tool and story frame was also suggested. For example, students' frequent coloring of screen backgrounds may have been due in part to the ease of use of the PPT color tool, and in part due to the presence of default illustrations, which may have implicitly communicated that there was no need to add or change them. The examples of the three students presented in this article illustrated the range of different designs that can be used to retell the same story. They also illustrated students' creative speech recordings to convey character and heighten drama, and illustrated students' creative range in working within an authoring tool that was simultaneously flexible and constrained.

Students' variation in modal preferences was further revealed in relation to sound. Only 23% of the Study 1 students created soundscapes for their retellings, but when they did, the sound typically played an important storytelling role. Music expressed tone and emotion, reinforced action, and signaled the opening and closing of the story, while audio-recorded speech to accompany the characters in the illustrations communicated the characters' emotions and motivation and reinforced tone.

The major contribution of Study 2 was how students' design intentionality affected their digital retellings. Consistently, students explained design decisions in relation to rhetorical goals, and with some specificity, the use of mode connected to story grammar elements of setting, character, action, problem and resolution, and theme. Previous research in multimodal composition has not explicitly examined story grammar as a way of understanding students' multimodal storytelling skill. Of some surprise to us was students' metamodal awareness, expressed through frequent labeling of modal elements (e.g., happy music, hot and dusty color,) and their stated desire to have all of the modes "go together" to tell a story. Importantly, image, sound, and animation did not simply replicate information in the writing; students elaborated on the textual information or introduced new information that was consistent with the story line. The students in Study 2 not only brought digital retelling experience to the task, they were working within a scaffolded story frame that served as a visual reminder that retellings could be expressed with different modes. Further, these teachers took a more active role, prompting students to integrate their writing and media in service of their story rather than using modes for decorative purposes. It was likely that students were also drawing on their out-of-school experiences with multimedia to create these retellings. These findings support recommendations to teach students a metalanguage of design and to be explicit about design, modes, and affordances (Kress, 2003; New London Group, 1996; Unsworth, 2006).

Limitations and Implications

The strength of these studies—the focus on a particular genre of storytelling, folktale retelling, within a scaffolded PPT storytelling frame—was also a limitation. Students' modal use and composition design likely vary, probably quite significantly, in relation to the specific digital tools and media resources available to them, and in relation to the genre, goals, and audience. Further, this study was conducted with fifth graders who read an e-text version of the original tale, and thus there was a closer connection between the original and retelling in content and format. This may have facilitated

performance, or constrained it in ways unknown. While useful, the results are limited to this context and highlight the need for research on the broad range of multimodal composition genres, tools, and instruction. Research on the mediational role of tools is needed in order to design tools in ways that are developmentally appropriate. The PPT interface and tools support a layering process of modes, which may be helpful to novice composers who may benefit from building scenes incrementally and then playing them as one laminated, or holistic, multimodal story. More advanced composers are likely to benefit from tools that allow greater latitude for creative compositional work. Finally, this study relied on product analysis and retrospective interviews. Research that integrates product, process, and perspective is sorely needed if we are to make headway in developing theoretical models and instructional practices in this area.

Conclusion

The Common Core portrait of the student who is college and career ready suggests the gap between literacy that is taught in school, and the literacies required for future academic, workplace, civic, and personal success. The vision of the strategic multimodal composer is there; the specific writing standards are fairly undeveloped, and the instructional research base is limited. The fifth-grade students in these two studies were able to create multimodal retellings that integrated visuals and writing, with many students also designing with animation and sound. Interviews of students with some digital retelling experience revealed their design intentionality, metamodal awareness, and a desire for modes to “go together” to tell their story. The findings are situated in a particular composing context of genre, authoring tools, and instruction. They suggest the need for more sophisticated models that reflect the complexity of multimodal composition, as well as effective instructional practices to guide teachers in their enactment of the Common Core and preparation of students who are strategic and creative producers of multimodal texts.

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References

- Brown, H., & Cambourne, B. (1990). *Read and retell: A strategy for the whole-language/natural learning classroom*. Portsmouth, NH: Heinemann.

- Burn, A., & Parker, D. (2003). Tiger's big plan: Multimodality and the moving image. In C. Jewitt & G. Kress (Eds.), *Multimodal literacy* (pp. 56–72). New York: Peter Lang.
- Common Core State Standards for English Language Arts, K–5. (2010). Retrieved from www.corestandards.org/assets/CCSSI_ELA%20Standards.pdf
- Corbin, J. M., & Strauss, A. L. (2008). *Basics of qualitative research: Grounded theory procedures and techniques* (3rd ed.). Los Angeles: Sage.
- Dalton, B., & Proctor, C. P. (2008). The changing landscape of text and comprehension in the age of new literacies. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.), *Handbook of research on new literacies* (pp. 297–324). Mahwah, NJ: Erlbaum.
- Dalton, B., Proctor, C. P., Uccelli, P., Mo, E., & Snow, C. E. (2011). Designing for diversity: The role of reading strategies and interactive vocabulary in a digital reading environment for fifth grade monolingual English and bilingual students. *Journal of Literacy Research*, *43*(1), 68–100.
- Ehret, C., & Hollett, T. (2014). Embodied composition in real virtualities: Adolescents' literacy practices and felt experiences with digital, mobile devices in school. *Research in the Teaching of English*, *48*, 428–52.
- Fraiberg, S. (2010). Composition 2.0: Toward a multilingual multimodal framework. *College Composition and Communication*, *61*(1), 100–126.
- Gee, J. (Ed.). (2000). *The new literacy studies: From "socially situated" to the work of the social*. London: Routledge.
- Gilje, ý. (2011). Working in tandem with editing tools: Iterative meaning-making in filmmaking practices. *Visual Communication*, *10*(1), 45–62.
- Graham, S., Harris, K. R., & Santangelo, T. (2015). Research-based writing practices and the Common Core: Meta-analysis and meta-synthesis. *Elementary School Journal*, *115*, 498–522.
- Graham, S., & Perin, D. (2007). *Writing Next: Effective strategies to improve writing of adolescents in middle and high schools—a report from the Carnegie Corporation of New York*. Washington, DC: Alliance for Excellent Education. Retrieved from <http://www.all4ed.org/files/WritingNext.pdf>
- Hull, G., & Nelson, M. (2005). Locating the semiotic power of multimodality. *Written Communication*, *22*(2), 224–261.
- Hutchison, A. C., & Reinking, D. (2011). Teachers' perceptions of integrating information and communication technologies into literacy instruction: A national survey in the U.S. *Reading Research Quarterly*, *46*, 312–333.
- Kress, G. (2003). *Literacy in the new media age*. London: Routledge.
- Kress, G., & Van Leeuwen, T. (2001). *Multimodal discourse: The modes and media for contemporary communication*. London: Edward Arnold.
- Leu, D. J., Jr., Kinzer, C. K., Coiro, J. L., & Cammack, D. W. (2004). Toward a theory of new literacies: Emerging from the Internet and other information and communication technologies. In R. B. Ruddell & N. J. Unrau (Eds.), *Theoretical models and processes of reading* (5th ed., pp. 1570–1613). Newark, DE: International Reading Association.
- MacArthur, C. (2006). The effects of new technologies on writing and writing processes. In C. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 248–262). New York: Guilford.
- MacArthur, C. D., Ferretti, R. P., Okolo, C. M., & Cavalier, A. R. (2001). Technology applications for students with literacy problems: A critical review. *Elementary School Journal*, *101*, 273–302.
- Morphy, P., & Graham, S. (2012). Word processing programs and weaker writers/readers: A meta-analysis of research findings. *Reading and Writing: An Interdisciplinary Journal*, *25*, 641–678.
- Morrow, L. M. (1985). Retelling stories: A strategy for improving young children's comprehension, story structure, and oral language complexity. *Elementary School Journal*, *85*, 646–661.
- New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Education Review*, *66*(1), 60–92.
- Proctor, P., Dalton, B., Uccelli, P., Biancarosa, G., Mo, E., Snow, C. E., & Neugebauer, S. (2011). Improving comprehension online: Effects of deep vocabulary instruction with bilingual and monolingual fifth graders. *Reading and Writing: An Interdisciplinary Journal*, *24*, 517–544.
- Purcell, K., Heaps, A., Buchanan, J., & Friedrich, L. (2013). *How teachers are using technology at home and in their classrooms*. Pew Internet & American Life Project. Retrieved from http://www.pewinternet.org/~media/Files/Reports/2013/PIP_TeachersandTechnologywithmethodology_PDF.pdf

- Ranker, J. (2008). Composing across multiple media: A case study of digital media production in a fifth grade classroom. *Written Communication*, *25*, 196–234.
- Rose, D., & Meyer, A. (2002). *Teaching every student in the digital age: Universal design for learning*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Smith, B. E. (2013a). Beyond words: The landscape of research on adolescents and multimodal composition. In K. E. Pytash & R. E. Ferdig (Eds.), *Exploring multimodal composition and digital writing* (pp. 1–19). Hershey, PA: IGI Global.
- Smith, B. E. (2013b). *Composing across modes: Urban adolescents' processes responding to and analyzing literature* (Unpublished doctoral dissertation). Vanderbilt University, Nashville, TN.
- Stein, N. L., & Glenn, C. G. (1977). An analysis of story comprehension in elementary school children. In R. Freedle (Ed.), *New directions in discourse processing: Vol. 2. Advances in discourse processing* (pp. 53–120). Norwood, NJ: Ablex.
- Tufte, E. (2003). *The cognitive style of PowerPoint: Pitching out corrupts within*. Retrieved from http://www.edwardtufte.com/bboard/q-and-a-fetch-msg?msg_id=0002PP&topic_id=1
- Unsworth, L. (2006). Towards a metalanguage for multiliteracies education: Describing the meaning making resources of language-image interaction. *English Teaching: Practice and Critique*, *5*(1), 55–76.
- Vasuedan, L., Schultz, K., & Bateman, J. (2010). Rethinking composing in a digital age: Authoring literate identities through multimodal storytelling. *Writing Communication*, *27*(4), 442–468.
- Vygotsy, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

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