Digital Storytelling: Extending the Potential for Struggling Writers

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Digital technologies can motivate struggling writers and scaffold understanding of traditional literacy.

What it means to be literate has broadened to not only include traditional literacies, reading and writing print text for example, but also to reflect the needs of students living and learning in a digital world. The subsuming technologies of the computer—CD and DVD players, word-processing functions, Internet access, and other new digital technologies such as Web 2.0 applications (e.g., blogs, wikis, and RSS aggregators)— require the user to have new literacies not necessary for traditional literacies. The New London Group, a coalition of teachers and media literacy scholars, coined the word *multiliteracies* to refer to the literacies used today. Some of these literacies are described here:

- *Technological literacy* refers to the skills needed to adequately use computers.
- *Visual literacy*, probably the oldest literacy, dates back to interpreting cave drawing and has evolved to competently decoding and comprehending the icons on the tool bar, navigating the Web, and encoding images in multimedia projects. John Debes, one of the most important figures in the history of the International Visual Literacy Association, first coined the term *visual literacy* in 1969 as "a group of vision-competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences" (International Visual Literacy Association, n.d.).
- *Media literacy* refers to the necessary skills to access, evaluate, and create messages in written and oral language, graphics and moving images, and audio and music. In addition, media literacy requires the composer of multiple texts to select graphics, moving images, narration, and music that complement the multimedia project. Media literacy also recognizes the role of media in a society and the skills of inquiry and self-expression necessary for citizens in a democratic society (Center for Media Literacy, n.d.).
- *Information literacy* is the ability to find, evaluate, analyze, and synthesize information. The development of the World Wide Web dramatically changed the availability, method, depth, quantity, and sometimes quality of accessible information; consequently, the Internet has initiated critical reading skills not typically required in traditional texts.

Creating digital stories invites students to employ old and new literacies, and through the process of creating a movie they erect, explore, and exhibit other literacies. A digital story is a multimedia text consisting of still images complemented by a narrated soundtrack to tell a story or present a documentary; sometimes video clips are embedded between images. Creating digital stories acts as a motivator for students, thus they remain engaged throughout the project (Burn & Reed, 1999). Additionally, digital stories provide an alternative conduit of expression for those students who struggle with writing traditional text (Reid, Parker, & Burn, 2002). Using this multimedia approach in the classroom helps students discover voice, confidence, and structure in their writing

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(Banaszewski, 2002). (See Table 1 for examples of digital stories.)

Ruth (first author) met Kyle, Ray, and Colleen (all names are pseudonyms) a few years ago while conducting research on struggling writers. All three children were in the fourth grade. Their classroom teachers described them as struggling writers based on their writing performance, and the children perceived themselves as struggling writers based on their scores from the *Writers Self-Perception Scale* (Bottomley, Henk, & Melnk, 1997), a public domain instrument that measures individuals' attitudes toward their writing.

All three students are struggling writers but for different reasons. Kyle does not hesitate to begin a writing task once it is assigned and is eager to complete it. He circles words in the first draft to indicate he is unsure of the spelling, but he does not access the resources available in the room to check for accurate spelling, nor does he make revisions even after the teacher instructs the class regarding ways to improve their writing and time is scheduled for that purpose. Kyle is very artistic and draws popular cartoon figures that closely resemble the original character.

Unlike Kyle, Ray has difficulty starting writing. Even after the teacher assists prewriting activities such as brainstorming to generate ideas or supports an upcoming writing assignment by facilitating class shared writing, Ray still has difficulty actually starting the task. Often when he does begin a composition that extends over several days, he does not complete it or he loses it. Ray does his best work, or at least completes a composition, when he has a small window of time for completion rather than several days, as demonstrated by his timed writing practice for the state writing assessment.

Colleen has creative ideas, eagerly shares them during whole-class prewriting activities, and includes them in her writing, but insufficient details leave the reader trying to connect the ideas to make sense of her text. Rather than unfold events to develop a plot or transition between settings, actions, and episodes, Colleen sums them up in a few sentences. Her illegible handwriting often impedes the readability of her composition, further complicating a transactional process between the reader and the text. When reading aloud her writings, Colleen was on par with her classmates. She read aloud her writings with expression and confidence. Sharing was more than reading her story to her classmates; it bordered on performance. Because she was so expressive, she added another dimension to her story that was not apparent in her writing.

Struggling Writers

Writing behaviors of struggling writers are not limited to the characteristics of Kyle, Ray, and Colleen. In a

Table 1
Examples of Digital Stories

Examples	Comments
www.storycenter.org	Center for Digital Storytelling. Examples, articles, and resources
www.coe.uh.edu/digitalstorytelling/examples.htm	The Educational Uses of Digital Storytelling. (University of Houston). Includes tutorials, rubrics, software, etc.
www.creativenarrations.net/site/storybook/index.html	Creative Narrations. Examples of stories created by students who attended workshops facilitated by Creative Narrations
www.photobus.co.uk/index.php?id=6&movie=the_bus.flv	Photobus. Documentary of the Free Photographic Omnibus
clips.e2bn.org	East of England Broadband Network. Videos are not narrated but use music and moving images to tell the story; over 150 videos have been scored by viewers and commented by judges
techteachers.com/digstory/examples.htm	Tech Teachers. An impressive list of websites to view digital stories
www.kgurbanvillage.com.au/sharing/digital/index.shtm	Kelvin Grove Urban Village. Personal stories of triumph and tragedy of elderly members of a community

study of elementary age children, Bright (1995) noted that struggling writers view capable writers as students who work hard, have good penmanship, and write long compositions. Moreover, they believe that good writers write single draft compositions without having to revise or edit them.

Students identified as having a learning disability that interferes with their capacity to adequately meet classroom writing demands show clear problems in simply generating text (Graham, Harris, MacArthur, & Schwartz, 1991) and are less knowledgeable about writing and the writing process than more capable writers (Englert, Raphael, Fear, & Anderson, 1988). Their compositions are generally brief and lack detail and elaborations (Graham et al., 1991). They are likely to produce poorly organized text at the sentence and the paragraph levels. Although their compositions are replete with spelling, capitalization, punctuation, and handwriting errors, they are less likely to revise spelling, punctuation, grammar, or the text to increase the clarity of their communication (Englert, 1990; MacArthur & Graham, 1987).

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Careful examination of children who have a learning disability in written expression has identified several factors that may intensify the lack of content in their compositions. First, it is not unusual for these students to terminate their writing before they have accessed all they know about a topic. In one study, children with writing difficulties spent six to seven minutes writing an opinion essay, but when prompted to write more, they generated two to four times more text, and at least one-half of the prompted material was new and useful (Graham, 1990). Yet once an idea is generated and reproduced as written text, they are reluctant to discard it even if it is not pertinent to the topic (Graham et al., 1991). Interference from poorly developed text production skills such as handwriting, spelling, and mechanics contributes to the failure to generate possible ideas (Graham et al., 1991). Furthermore, incomplete knowledge or lack of interest in an assigned topic may influence the quantity and quality of a composition (Graham & Harris, 1997).

The passage of state-mandated assessments of writing has undoubtedly contributed to students identifying themselves as struggling writers. Conventionally, identity is affected by the social group to which an individual belongs, such as ethnic, gender, and economic. In a classroom setting, a student's identity may be further defined by a myriad of factors such as athleticism, intellect, personality, and perceived writing ability (Bloome, Carter, Christian, Otto, & Shuart-Faris, 2005).

In most states, one grade level at each major school division is slated for administering a writing assessment. Most writing assessments are timed, usually 45 minutes, scarcely allowing students time to think about the topic, plan their paper, physically compose the text, and have time for possible revising and editing while contending with anxiety. To further confound the writing process, students are typically given vacuous topics to which they must respond. Understandably assigning everyone the same topic and imposing time constraints is an attempt to assess students' writing achievement by giving all students at specified grade levels the same prompts and then comparing them with anchor papers; yet, for many who may already be intimidated in this discipline, timed prompt writing further promotes their feelings of incompetence. Teachers who are ensconced in inequitable literacy practices that limit students' writing opportunities to experiences that prepare them for testing—rather than encourage students to write about things that are important to them or interdisciplinary writing—are, to a degree, silencing their students as writers. For many, this practice can drive the construction of social identity and position students as struggling or low-achieving writers.

While Kyle, Ray, and Colleen may struggle with traditional literacy, tapping into other literacies may boost their motivation and scaffold their understanding of traditional literacies. Digital storytelling is an example of a multimedia text that encompasses both traditional and new literacies and has the potential for stimulating struggling writers.

Digital Storytelling

Students in contemporary classrooms are the first generation enveloped by sophisticated computers, video games, digital music players, cell phones,

and other tools of the digital age. According to the National Center for Educational Statistics (2005) in 2003, 83.5% of students in the United States used computers in school and 67.6% used computers at home. By 2004, all public schools in the United States had Internet access. For many students, their comfort level using technology exceeds that of their teachers and parents and, consequently, they confidently explore new software, devices, or other technological tools. Prensky (2001) cleverly described these students as digital natives because they are native speakers of the digital language of computers, video games, and the Internet. The presence of computers in schools has offered unprecedented prospects for instruction and learning across the school curriculum.

Pause: Some Background About Digital Storytelling

Most computer operating systems include or offer free digital storytelling software such as Windows Movie Maker and Macintosh iMovie. Ken Burns made digital storytelling popular in *The Civil War*, a documentary published by PBS in 1990, by using archival images, music, narration, modern cinematography, and first-person accounts that served to reveal the heart and emotions of this tragic event in American history (Burns, 2002).

Joe Lambert and Dana Atchey combined their backgrounds in theater, video production, and interests in cultural democracy and community arts to develop a business enterprise using digital storytelling. In 1994, they established the Center for Digital Storytelling at the University of California at Berkeley as a community art center for new media based on the premise that everyone has a story to tell. The model constructed by Lambert (2002) for creating effective digital stories is based on a combination of these seven elements:

1. Point of view—defining the specific realization the author is trying to communicate within the story. Digital storytelling allows the storyteller to come close to his audience by expressing personal experiences through first-person point of view.
2. Dramatic question—setting up a conflict from the beginning that will hold viewers' attention until the story is over. Similar to traditional storytelling, a plot is developed in a digital story, thereby distinguishing it from a slideshow of wedding pictures enhanced with music and flashy transitions.
3. Emotional content—dealing directly with the fundamental emotional paradigms such as love and loneliness, confidence and vulnerability, acceptance and rejection. Effective digital stories evoke an emotion from the audience, thereby validating the time and effort invested to the creation of the digital story. For the novice storyteller, laughter is a more commonly witnessed emotion.
4. Economy—consciously economizing language in relationship to the narrative. This requires the storyteller to be sensitive to the attentiveness of the viewing audience.
5. Pacing—determining the rhythm of a story to sustain an audience's interest.
6. The gift of voice—employing the pitch, inflection, and timbre of one's own voice to narrate the story is one of the most essential elements that contribute to the effectiveness of digital storytelling.
7. Soundtrack—using music to enhance the story and create an emotional response.

When creating digital stories in a classroom setting, students go through the writing process of composing a story by traditional methods: using pencil and paper or the word-processing functions of a computer. This composition later becomes the digitized voice-over narration (Figure 1). Once the composition is completed, scenes or image frames that complement the narration are sketched onto a storyboard (Figure 2). Sections or paragraphs in the composition can be numbered to correspond with scenes on the storyboard. Next, personal photographs, clip art, or any type of graphic that portrays scenes represented on the storyboard are collected into a subfolder on the computer. When students use media from the Internet to enhance their stories, they must cite where they obtained the files and any other copyright information (See Table 2 for copyright information). The rolling credits at the end of the movie are an ideal place to display this information. Next, the story is recorded, and because the narrator's voice is what makes the story interesting, it should be recorded as a performance, allowing the audience to hear the personal

Figure 1
Composition for Voice-Over Narration

It was my tenth birthday and I was asking for a motor scooter. I got up that morning and my mom had all my presents out on the table. I quickly opened all the ones on the table and wrapping paper went everywhere. I got a cool outfit, a DVD, and shoes but no motor scooter. I was really sad. This was the present that I had been asking for and could not believe that my mom and dad didn't get it for me. They knew how much I wanted it. All of the sudden I heard a sound of a motor and looked outside and saw my dad by something. I swung open the door and ran outside. Next to my dad was my red shiny motor scooter! I was so happy that I got the present that I had been asking for. My dad was trying to tell me how to drive it but I was paying no attention to him. I just wanted to get on it and go. Finally the time that I was waiting for came. I jumped on the scooter, pulled back on the gas and...I went flying! I had no idea that a scooter could go that fast. I hit a big hole in my backyard and went flying off. My heart was beating so fast and I was scared to death. My dad came running and asked me if I was all right. When I got up, Dad asked me why I didn't listen to him when he was telling me how to drive it. I told him I was just really happy that I got the present that I had been asking for and I just want to get on it and go. This time when dad told me how to drive my scooter, I was all ears. I drove it until it ran out of gas. That was one of my best birthdays ever.

Figure 2
First Page of a Storyboard

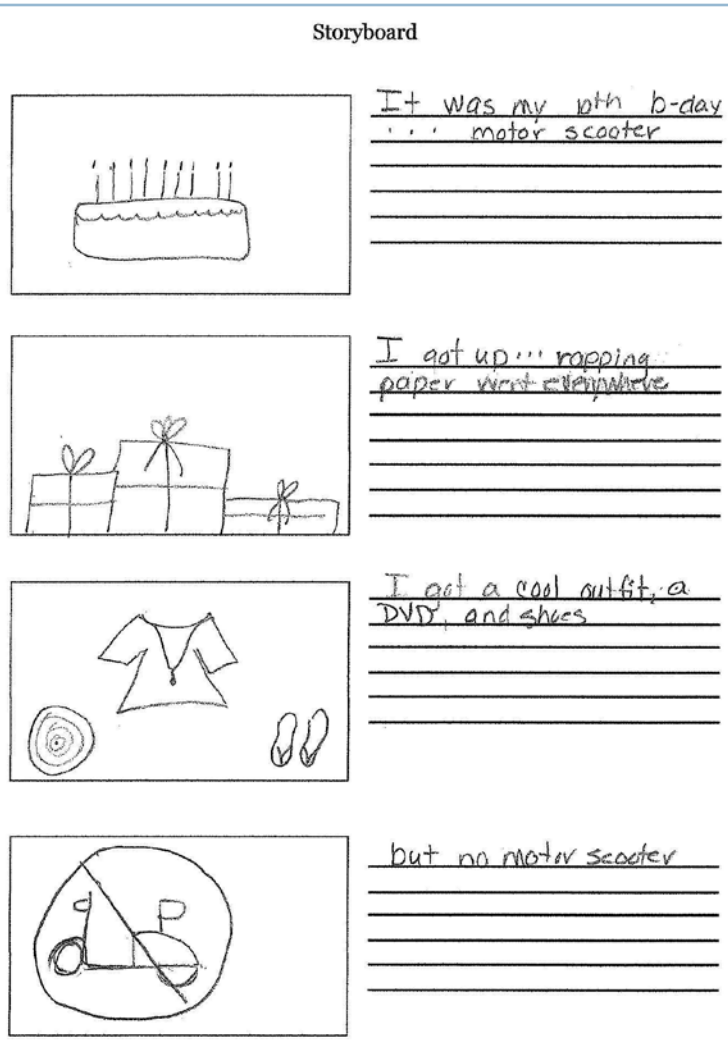

Table 2
Tutorials and Web Resources for Music, Sound Effects, Graphics, and Copyright Information

Tutorials	Comments
movies.atomiclearning.com/k12/moviemaker2	Atomic Learning. Thorough tutorials with more than 60 short clips from getting started to saving movie on the Web
www.atschool.org/digidocs	Digital Documentaries. Step-by-step tutorial to creating a personal narrative movie
kidsvid.altec.org	A guide to creating videos for students and teachers
www.adobe.com/education/digkids/storytelling/index.html	Adobe Digital Kids Club. Variety of topics related to digital storytelling
www.coe.uh.edu/digitalstorytelling/PhotoStory3-Tutorials/PhotoStoryTutorial.pdf	PhotoStory3. Tutorial describing how to import and edit graphics
www.microsoft.com/windowsxp/using/moviemaker/getstarted/default.mspx	Microsoft. Windows Movie Maker tutorials
www.youtube.com/watch?v=JZXK68NS7gU	YouTube. Windows Movie Maker video editing tutorial
www.apple.com/ilife/tutorials/#imovie	iLife 09 Tutorials. A collection of tutorials for new and competent users of iMovie
videos.howstuffworks.com/harvard-extension-schools-computer-science-e-1-understand/2732-imovie-tutorial-video.htm	YouTube. iMovie HD tutorial created by students at Harvard Extension School
Internet tools	**Comments**
Yahoo, Google, Ask Jeeves	Internet search engines
Yahoo Image, Google Image, Picsearch, Ask Pictures	Internet image search engines
Music sources	**Comments**
magnatune.com/today	Magnatune. A royalty-free music website for noncommercial projects only
www.freeplaymusic.com	Freeplaymusic. Select from 56 feelings or 76 music styles; short 10-second clips can be selected for movie introductions or credits, while longer clips can be used for the background of the narration
creativecommons.org	Creative Commons. Site for legally downloaded music for educational applications
Sound effects sources	**Comments**
www.findsounds.com	FindSounds. Downloadable sounds for a fee; however, a 15-day trial period is available
www.partnersinrhyme.com/pir/PIRsfx.html	Partners in Rhyme. Many free audio files but the clips are only a few seconds long
naturesongs.com	Nature Songs. Lots of free nature sounds
www.americanrhetoric.com	American Rhetoric. A plethora of speeches—not downloadable, but video-streamed
Graphics sources	**Comments**
www.flickr.com	Flickr. Thousands of photographs to download
www.sxc.hu	Stock.xchng. Browse by category or keyword more than 350,000 quality stock photos
www.fotosearch.com/photos-images/banaszewski.html	Foto Search. Royalty-free images
www.freefoto.com	Free Foto. Largest collection of free photographs for noncommercial use

(continued)

Table 2 (continued)
Tutorials and Web Resources for Music, Sound Effects, Graphics, and Copyright Information

Copyright information	Comments
www.ipl.org/div/farq/netciteFARQ.html#web	Internet Public Library. Guides for citing electronic texts
www.utsystem.edu/ogc/IntellectualProperty/copypol2.htm	Fair Use of Copyrighted Materials. Explanation of fair use materials
download.intel.com/technology/computing/dighome/download/contentmgt1102.pdf	Intel. Protecting content in the Digital Age
en.wikipedia.org/wiki/Copyright	Wikipedia. Copyright information
Basic information	**Comments**
www.coe.uh.edu/digitalstorytelling/resources.htm	University of Houston. Educational uses of digital stories
www.annapolishigh.org/~media/DStories/dstories.html	Digital Storytelling: Information
www.storycenter.org/index1.html	Center for Digital Storytelling. Model for digital storytelling
www.inms.umn.edu/elements	Elements of digital storytelling
www.storycenter.org/canada/index.html	These Stories in These Pictures. Guide to storytelling

content and emotion inflected in the voice. The next step is to use a video-editing program to compile the media files into a movie (See Figure 3). Music can be added to enhance the narration, but adding music only at the introduction and ending of the narration is easier for novices. Finally, including a title frame, transitions between frames, and rolling credits to cite sources or any acknowledgments adds the finishing touches and completes this stage of production.

Once movies are created, showing them to the class is the publishing step in the writing process and should not be omitted because students generally enjoy showing their movies. In most cases, users who are unfamiliar with digital story software programs or who have limited technology skills can create a digital story in ten 45-minute sessions. Users who are more experienced with video-editing software can offer their assistance to their peers even as they create their own digital story. Table 2 lists several recommended tutorials for creating digital stories.

Play: Extending the Writer's Audience

Most writing in the classroom has a physical audience of two: the writer and the teacher; yet when students write for a larger audience, they are much more motivated to write and tend to do their best work (Cohen & Riel, 1989). In some classrooms, students may read aloud their writing to the class, thereby extending their audience from self and teacher to include the class. Digital stories can further expand the audience because of the method of delivery, duplication of stories, and posting to the Internet. Work published on the Internet, such as on the popular website www.youtube.com, can be viewed by anyone who has access to the site, thereby multiplying potential viewers. Teachers report an increase in student motivation to write when they know their writing will be published on the Internet (Karchmer, 2001); however, teachers should verify their districts' policy regarding publishing student work on the Internet.

Rewind: Rationale for Using Digital Storytelling

Digital stories appear in many forms including still photographs with voice-over narration, short videos, documentaries, professional creations, or student productions. In short, digital stories can be anything that employs digital technology to construct narrative. Using digital technologies, students can turn a

one-dimensional writing composition into a digital story that can be published and shared to a small, intimate audience or with the world.

Struggling writers are seldom strategic writers; however, the components of creating digital storytelling may help them compose more strategically. Students' narrations of their stories reduce overt weaknesses in conventions such as spelling, capitalization, and handwriting. The process of storyboarding facilitates the introduction of events in a logical and orderly sequence thereby illuminating gaps or omissions overlooked in a traditionally composed draft. When these breaks in the flow of the story are realized, the writer can make necessary revisions in the draft before recording the narration. While competent writers employ sensory words, dialogue, and figurative language to make the story vivid for the reader, a struggling writer may overlook important details that are central to the story. Photographs, clip art, or other graphics may visually compensate for the details that the struggling writer inadvertently omits. When a digital story is composed to be viewed by others, it promotes the writer's awareness of audience, purpose, and form, an awareness not always demonstrated by less capable writers. Digital storytelling has the capacity to not only motivate struggling writers as they experience the enjoyment of creating stories enhanced by multimedia, but also to reposition themselves from struggling writers to competent writers.

Fast Forward: Using Digital Storytelling to Support Students as Writers

Because of time constraints, we were unable to facilitate the creation of digital stories with Kyle, Ray, and Colleen. However, since their encounter with these three students, we have facilitated the creation of digital stories with approximately 100 elementary and secondary students with similar writing behaviors as Kyle, Ray, and Colleen. We have observed digital storytelling as a promising construct to position struggling writers as competent writers. The following section describes how digital storytelling can support struggling writers like Kyle, Ray, and Colleen.

Figure 3
No Scooter: Graphic for Digital Story

Note. Photo taken by Ruth Sylvester

Kyle

Digital storytelling benefits students like Kyle in several ways. Although they promptly begin an assigned writing task and complete it, they are reluctant to make any type of revision. Creating a movie gives them a reason for writing and makes them more conscious of their audience, one that reaches beyond themselves and their teacher, and motivates them to write more clearly and with more detail. They employ their artistic ability by drawing pictures to illustrate their stories, scan and save the illustrations, and then import them into a video-editing program.

Knowing the movie would be viewed by classmates, a Kyle type initiated accountability for herself. After she recorded and listened to her narration, she realized it was too fast and expressionless, and she willingly chose to rerecord the narration until the recording satisfied her. Through this process she critically evaluated each recording before making a final selection.

Another Kyle type acquiesced to writing the narration for the digital story and expressed the same behavior when selecting graphics to illustrate scenes or actions for his digital story. Some of the pictures he selected did not consistently and suitably represent scenes or actions described in the narration. For

example, he selected a photograph of a competitive cyclist racing down a mountain to illustrate the scene in his story where he raced his new bicycle down the sidewalk in front of his house. Although he acknowledged the apparent disconnect, he explained that he gave up the search for pictures after several unsuccessful results from a Google image keyword search using the words *bicycle* and *sidewalk*. However, when his teacher gave him the option to create his own illustrations rather than being stymied by only what was accessible or available, he became much more engaged in the project. By encouraging this Kyle type to draw his own illustrations to depict scenes for his digital story, the project became more meaningful to him.

A third Kyle type made certain he wore a headset when listening to his narration while editing the movie rather than using the speakers even though he had to wait approximately 15 minutes for the next available headset. He explained that he did not want his classmates to hear his voice. Ruth attempted to reassure him that he had a pleasant voice and should be proud of his narration, but he accepted her reassurance with diffidence. A few days later, the assistant principal was invited to the premier showing of movies created by the class. Not only did the assistant principal affirm the student as a writer by commenting about the content of his story but also verified him as a storyteller by making specific comments about his articulate narration. As a result, when this Kyle type returned home, he voluntarily created a digital story about a policeman and his dog who had been killed in the line of duty. He explained that he retrieved pictures from the online edition of the local newspaper to illustrate the movie. The student later duplicated the movie for the victim's wife and his own father, who was a close friend of the victim.

Ray

Students like Ray are reluctant to begin a writing task and are easily distracted when confronted with a blank sheet of paper. The interactive nature of composing a digital story reduces nonproduction resulting from disengagement or distractions. Undoubtedly the countless graphics and music clips available on the Internet may also be a distraction, but limiting the websites that students may access and setting a time frame to select graphics and music may reduce the distractibility. On the other hand, the multimedia used to create a digital story promotes active learning and collaboration: two approaches to learning that help distracted students stay engaged with the assignment.

Creating a digital story requires a multiplicity of tasks. Some of these tasks include (a) visualizing a scene to depict an event in the story and then choosing graphics from a plethora of sources that best support the text, (b) determining the emotion the audience should experience and then selecting appropriate music, (c) using technological literacies such as searching the Internet, saving files, downloading music and graphics, and creating a folder to store all files related to the digital story, and (d) adding the finishing touches such as a title slide, credit slide, and transitions between slides and each of these additions have many options to choose from.

At one moment students are fully absorbed in the process of creating the digital story, but at any time, because of the openness of the computer screen, they become a source of information to fellow students. The exposed nature of the computer screen makes students' work available to anyone who intentionally or accidentally views what is displayed on the screen. Frequently, when a bystander notices something interesting on the screen, the bystander is curious to know how to add the feature to a project and typically follows up with, "How did you do that?" The creator of the project then becomes the expert, explaining the steps to add the feature, and then the ripple begins when the bystander becomes an expert to a bystander of her computer screen. Giving students an environment in which interaction and collaboration are encouraged help them write more productively.

Colleen

Students like Colleen have creative ideas for their stories but often omit important details that are central to plot development. The reader is further confounded by presentation of text on the page because of poor letter formation and inadequate spacing between words. The process of creating a storyboard after drafting their stories helps the writers visualize the story as it unfolds and more concretely reveals to them any gaps or omissions of details that are important to plot development. Once the omissions are visualized, students add details to make their stories more fluid and comprehensible.

One Colleen type wrote a creative story about animals in a pet store who had escaped from their cages to report a burglary. While conferencing with her teacher, she realized she had not explained how the animals escaped nor had she sketched a scene on the storyboard to show how the escape occurred. The final draft that was to become the narration for the digital story was basic and lackluster; however, the story was drastically transformed through the power of multimedia technology, voice, and creativity.

Using Microsoft Paint, she drew large, black ovals to cover the mouths of specific pets in the picture to make it appear as if they were talking. In her narration, she raised her voice an octave when speaking for the mouse and seamlessly lowered her voice an octave when the German Shepherd replied. Although the classroom teacher had reminded students of the importance of expressive narrations, she had not discussed using different voices for dialogue. After viewing the digital story created by this student, several classmates echoed the comment, "I don't want to go next," suggesting approval of the movie and evaluating their own movies as inferior to hers.

Allowing students who struggle with forming letters in a fluent manner—like Colleen—to compose on the computer removes the handwriting obstacle and also eliminates for the reader the difficulty of reading visually challenging handwritten text. By sharing their stories through narrated movies, the handwriting obstacle is removed and replaced by the pitch and expression of students' own voices.

Stop: Deterrents for Employing Digital Storytelling

There are several factors that could deter a teacher from using digital storytelling within the classroom. First, and probably one of the major reasons for the dearth of digital storytelling in schools is that most teachers have not been exposed to the medium. (See Tables 2 and 3 for tutorials, resources, and hardware.) We have noticed when introducing digital storytelling to teachers, colleagues, and students, the majority are not aware of the free and powerful tools already packaged on their own computers. Digital storytelling has been popular for several decades in settings outside the classroom, but just over the last decade has it been introduced to the education community. Its popularity has grown in some classrooms and even schoolwide within the last few years.

Some teachers are familiar with digital storytelling and concur that using digital storytelling in the classroom is a worthwhile endeavor but are reluctant

Table 3
Suggested Hardware and Software for Creating Digital Stories

Hardware	Comments
Computer (Mac or PC)	Laptop or Desktop
Flash Drive	To store digital story
Headset/Microphone	To record narrative
Digital Camera	For personal photos
Software programs (examples)	Comments
Microsoft Photo Story 3	Used to create digital stories; easy-to-use, great for beginners (Free at www.microsoft.com/windowsxp/using/digitalphotography/photostory/default.mspx)
Windows Movie Maker	Used to create digital stories. (Free with Microsoft Windows Operating System)
Macintosh iMovie	Used to create digital stories (Free with Apple Operating System)
Microsoft PowerPoint	Used to create digital stories (Microsoft Office Suite)
Apple Keynote	Used to create digital stories (Apple iWork Productivity Suite)
Audacity	Free open source software program for recording and editing (audacity.sourceforge.net)

to initiate it because of their lack of competence or confidence. Unlike many software programs used in schools that are interactive and require no support from the teacher, using software to create digital stories requires skills and concepts that the teacher may need to facilitate. Even teachers who feel comfortable creating digital stories may not feel as comfortable guiding a class of 20 students through the process because of significant logistical issues encountered in a school setting. These may include fearing a loss of classroom management, technical glitches, time pressure, and lack of administrative endorsement in a time of accountability and, for some, fidelity checks—an inspection by a district personnel that classroom teachers are teaching only reading during the reading block, that lesson essential questions are posted, that scripted programs are followed closely, and various other mandates by the school district passed on to classroom teachers.

With proper planning these issues are minimized. Many media centers and computer labs are staffed by highly skilled teachers who not only have an affinity for technology but also enjoy teaching. Most media or technology specialists are willing and even eager to assist teachers who are attempting to integrate technology into their instruction. The key is to give them sufficient lead time to schedule a class in the lab and ask for their help rather than expecting them to be responsible for the project. If students are writing a personal narrative, but personal photographs are not available, finding graphics could be challenging for students if they are not equipped with websites or software to access images that will adequately support and even enhance the narration. Depending on the artistic ability of the student, scanned drawings created by the writers can be imported into the movie.

Some may argue that using technology as a carrot to motivate students toward completion of a curricular goal is counter to student-driven experiences; however, struggling writers may be motivated by digital technologies because they are more literate in new literacies and employ these to scaffold traditional literacy. Knowing that a piece of writing will extend beyond the writer and the teacher may motivate reluctant writers to polish, clarify confusing parts, entertain, inform, or, for some, even complete a writing assignment. Recognizing most students' attraction to new technologies, creating stories of any genre using digital storytelling may be a viable solution for struggling writers.

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