

DIGITAL STORYTELLING

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Abstract

The need for students to use effective written communication and to be technologically literate remains strong. Meanwhile, educators charged with developing these skills are searching for ways to engage students in the writing process and integrate technology into daily learning activities. Digital storytelling aligns with both of these objectives. This strategy invites students into the writing process on a personal level and integrates several technologies into the final product. This paper describes the digital storytelling process, including the benefits students attain from storytelling and technology integration as well as suggestions for classroom implementation. Additionally, research-based conclusions and recommendations for utilizing digital storytelling in the classroom are presented.

Introduction

Enter a classroom where students are highly engaged in telling personal stories. Some students are brainstorming ideas for just the right song to accompany their story; others are working out the flow and rhythm of their writing. Still others are serving as peer tutors on the computer technology. These students take pride in their authorship and labor to make their story 'just right.' Meanwhile, the teacher circulates about the room, encouraging, conferencing with, or assisting students as necessary. She glances from student to student and sees that all, even the typically reluctant writers, are working diligently. Several similar class periods pass by until, finally, each student presents his or her work to an audience that interacts with the story, making it come further alive. This type of high student engagement and quality workmanship is possible with digital storytelling.

Background on Digital Storytelling

Definition of digital storytelling. Digital storytelling is the practice of combining still images with a narrated soundtrack including both voice and music (Bull & Kajder, 2004; Robin, 2008; Sadik, 2008). Additionally, digital storytelling expert Joe Lambert coined the Seven Elements of Effective Digital Stories. They are: a point of view, a dramatic question, emotional content, economy, pacing, the gift of your voice, and an accompanying soundtrack (Bull & Kajder, 2004). Each element may be conceived as follows:

1. Point of view: the main point or specific realization that a student tries to communicate within his or her story.
2. Dramatic question: the key question that will be answered by the end of the story and keeps the audience members' attention.

3. Emotional content: writing that will take hold of audience members' attention and engage them emotionally.
4. The gift of your voice: narration of the text, including emotion and inflections that give greater meaning to the story and aid in the audience's understanding.
5. Soundtrack: thoughtfully selected sounds and music will add further emotional response and embellishment.
6. Economy: many stories can be illustrated effectively with a small number of images or video and a fairly short text.
7. Pacing: the rhythm of a story and how slowly or quickly it moves (Lambert, 2007, p. 9-19; Robin, 2008, p. 223).

The subject of a digital story may be as diverse as the skills that are being honed. A sampling of story subjects includes engaging personal stories, historical figures, and even characters related to scientific concepts. Robin (2008) states that The Educational Uses of Digital Storytelling Web site at the University of Houston sorts example digital stories into three major categories: personal narratives, stories that inform or instruct, and stories that examine historical events. Digital stories may be utilized for topics as diverse as demonstrating how to construct a pinhole camera, to recounting events from history, to the telling of a personal life event. In terms of student involvement, groups may collaborate to produce a single digital story, but this form of storytelling is very well-suited to individuals (Educause Learning Initiative, ¶ 7). The flexibility and multiple possibilities for subject matter allow digital storytelling to fit into many curricular areas.

Process of digital storytelling. The process of digital storytelling begins similarly to the 'traditional' writing process and includes brainstorming or topic selection and drafting. However,

after the drafting process, students construct a storyboard or storymap to visualize how the story will look. Here, the students “plan what media to use and how they might best work together to depict an important, engaging, and informative story” (Chung, 2007, p. 18). (See Appendix A for an example of a storyboard). Next, students proceed to the production stage. This typically occurs in the computer or mobile lab for the incorporation of voice, images, and soundtrack. This work in the computer or mobile lab may be completed using such free software as Movie Maker, which is included with Windows XP, or iMovie, provided with the Macintosh operating system (Bull & Kajder, 2004). Though students should be encouraged to share and conference about their pieces throughout the entire process, digital storytelling often culminates with a ‘showcase’ of the final products.

Teacher’s role in digital storytelling. Though digital storytelling requires much active participation from students, the teacher’s role is equally important. The teacher must both engage students in the storytelling process and help them refine their storytelling abilities. Ohler (2008) offers further detail about the teacher’s role in the technical aspect of digital storytelling. He states that the teacher should help students to manage their skills and talents by helping them to “tell a story that is strengthened rather than weakened by the media they use, form a learning community so they can share their ideas and talents, meet the educational goals of the project, and leverage their imagination and creativity” (p. 133).

As previously stated, digital storytelling can take many forms and may be utilized in all curricular areas. However, because much research advocates the pairing of technology and constructivist learning methods in which students relate life experiences to course content, the focus of this paper will be on creating digital stories that are personal, engaging, and invite students into the meaning-making process (Palloff & Pratt, 1999).

History of Digital Storytelling

Many sources support that digital storytelling emerged from the work of Joe Lambert and Dana Atchley at the Center for Digital Storytelling (CDS) at U.C. Berkley in 1993 (Bull & Kajder, 2004; Chung, 2007; Robin, 2008). The CDS has continued to provide training and assistance to those “interested in creating and sharing their personal stories” (Robin, 2008, p. 222). The CDS is also credited with developing and propagating the Seven Elements of Effective Digital Stories, as described above (Robin, 2008). Thus, digital storytelling emerged in the 1990s as a powerful storytelling tool. In fact, Robin (2008) states that, “In the early days of digital storytelling, Lambert was impressed by how easily average people were able to ‘capture their story in a really powerful way in a relatively short amount of time for a relatively small amount of money’” (p. 222). As shown in figure 1, several factors converged in recent years to promote the growth of digital storytelling in the classroom. One such factor is that the ease and speed with which one may create a digital story has only increased as technology tools become more affordable and prevalent in schools. Therefore, digital storytelling is becoming widely used in schools as a result of both affordability and the “contemporary agenda for today’s classroom” (Robin, 2008, p. 222).

Significance of the Review

It is best practice for teachers to thoughtfully plan and set goals for student use of technology, such as digital storytelling (Pitler, 2006). Furthermore, research confirms that to ensure a successful digital storytelling experience, teachers must become familiar with the process, technology considerations, challenges, and student benefits associated with this strategy (Bull & Kajder, 2004; Chung, 2007; Kadjer, 2004). This review will familiarize teachers with the

concept of technology integration and the benefits it offers to students. Specifically, this review will focus on the importance of storytelling, the strategy of digital storytelling, academic and social benefits afforded to students through digital storytelling, considerations for implementation, and tips for working with the necessary technologies.

Methodology

As stated previously, digital storytelling is becoming more widely utilized in schools across the country. Therefore, locating information that is relevant and up-to-date has been a fairly straightforward process. The Rod Library's access to the ERIC database provided a wealth of information and allowed for selective inclusion of sources. The majority of sources cited in this review are peer-reviewed journals. Articles from these journals were analyzed according to recency of publication, relevance to the subtopics of study, value of information provided, and accurateness of experimental procedures (where applicable). Several articles were very valuable in providing a bulk of information and ideas. However, all included sources proved helpful in providing the most complete depiction of digital storytelling.

Literature Review

Importance of Storytelling

When considering digital storytelling, one may start by examining the concept of story. It is clear that stories have great power. Many adults can still name their favorite bedtime story or recall the name of a great storyteller from their lives. Additionally, we share our personal stories with each other through letters, phone conversations, instant messaging and emails. For children, storytelling and dialogue are an essential component of their early lives. Not only does storytelling introduce children to the initial stages of communication and literacy, it also helps them to "share experiences and feelings in an engaging and entertaining way" (Huffaker, 2004,

p. 63). These personal experiences and feelings are the cornerstone of many digital storytelling projects. Indeed, Combs and Beach (1994) state, “The stories that are part of the fabric of our lives are personal narratives . . . the human brain is essentially a narrative device. It runs on stories” (p. 464). Storytelling may also provide students with the means to think through their past and present realities. In fact, research advocates that storytelling can serve as a method to aid students in making sense of the “complex and unordered world of experience” (Chung, 2007; Ohler, 2008; Sadik, 2008, p. 489). Finally, storytelling can connect past, present, and future generations to shape values and beliefs (Chung, 2007).

Why Technology Integration?

With the importance of storytelling established, attention should be given to the subject of technology integration. The National Center for Education Statistics (n.d.) defines technology integration as “making technology into a tool to enhance learning in a content area or multidisciplinary setting. The technology should become an integral part of how the classroom functions, as accessible as all other classroom tools” (Chapter 7, ¶3). Numerous research articles clearly articulate the benefits in student achievement, cognitive growth, and motivation produced through technology integration. Going beyond the realm of simply increasing test scores, “Applied effectively, technology not only increases students’ learning, understanding, and achievement, but also augments their motivation to learn, encourages collaborative learning, and develops critical thinking and problem-solving strategies” (Pitler, 2006, p. 38). Reports from other studies indicate that “students in technology-rich environments experienced positive effects on achievement in all major subject areas” (Pitler, 2006, p. 41). Specifically, studies by Shakeshaft (1999) found that treatment groups reported enhanced achievement resulting from technology integration in the subject areas of math and reading, as compared to the control

groups. At a metacognitive level, technology use promotes an array of skills ranging from summarizing, to constructing and testing hypotheses, to comparing and contrasting (Brabec, Fisher, & Pitler, 2004).

Thus, research has shown that there are many benefits to technology integration in the classroom. Additionally, youth of all ages have been enthusiastically integrating technology into many aspects of their lives beyond the walls of school. It is widely known that many of today's youth spend vast amounts of time on computing activities ranging from Facebooking to texting to instant messaging. While some may view these activities as mindless diversions, they are literacy activities at heart (Ware & Warschauer, 2005). Through these mediums, youth tell each other their life stories, their joys, their frustrations. Combine this technological aptitude with the extensively documented importance of telling stories and digital storytelling emerges.

Benefits of Digital Storytelling

For all students. Studies have found that utilizing digital storytelling not only helps to bridge the disconnect between the high-tech world outside of school and the traditionally low-tech school setting, but also provides a number of benefits to students that could not be as well-achieved through traditional storytelling (Ohler, 2008; Ware & Warschauer, 2005). These benefits include: increasing motivation in students, especially struggling readers and writers, and allowing for personalization of the learning experience. Additionally, students gain experience with reading for depth and understanding, and may become more proficient at the technical aspects of language. Ohler (2008) further posits that being able to read "new media," including digital stories "is not just a matter of literacy, it's also a matter of survival" in that the sort of critical thinking required to read new text is essential for success in the workplace where

employees are often required to obtain new information by “searching the multimedia environment” (p. 47).

Indeed, digital storytelling provides students with a strong foundation in what are being called ‘21st Century Skills.’ The Partnership for 21st Century Skills is an organization that desires to “position 21st century skills at the center of US K-12 education” and ensure that each American child has the “21st century knowledge and skills to succeed as effective citizens, workers and leaders in the 21st century” (Our Mission, ¶ 2 & 3). Among their “21st Century Student Outcomes” is information, media and technology skills. Their ICT literacy page states that this outcome includes using technology as a tool, and using digital technologies appropriately to “access, manage, integrate, evaluate and create information” (ICT Literacy ¶ 1). Finally, digital storytelling affords students opportunities to engage in problem solving and gain greater competence with technology through practice and experimentation (Kajder, 2004; Robin, 2008; Ware, 2006).

The fact that digital storytelling offers many potential learning benefits, including increased student motivation, makes it an ideal strategy to consider utilizing for the telling of personal stories. For example, many teachers find that motivating students to produce quality pieces of writing in any subject area can be quite difficult. When teaching full-time, I found that each of my classes contained a handful of students who truly enjoyed writing and were intrinsically motivated to produce quality pieces. However, just as great a number of my students were unenthusiastic about putting their best efforts into writing projects. I recall a few students who were very slow to begin writing, and motivating them to put pencil to paper was an uphill battle. Digital storytelling can alleviate many of these issues. Because it affords the opportunity to personalize a story that already has deep individual meaning, data suggest that this strategy is

motivating and productive for many students (Sadik, 2008). Research also finds that digital storytelling encourages students to “organize and express their ideas and knowledge in an individual and meaningful way” (Sadik, 2008, p. 490). Because students choose a personally meaningful story to work with, there are numerous opportunities to add a unique dimension. This strategy allows students to show themselves, their sense of humor, and understanding of the world in a new manner (Hull, 2003).

For struggling readers and writers. While these aspects of digital storytelling are motivating to a wide range of students, they are especially beneficial to struggling readers and writers. Many educators find it challenging to meet the needs of these students and to encourage their growth. Digital storytelling has proven to “engage struggling readers and writers who have not yet experienced the power of personal expression” (Bull & Kajder, 2004, p. 47). Certainly, students may be successful in expressing themselves through traditional storytelling activities. However, through the medium of digital storytelling, students have been observed to become more conscious of and confident in their ability to tell a worthy story that will hold the attention of an audience (Ware, 2006). I found this to be quite true when utilizing digital storytelling. Students whose previous pieces of writing lacked detail, voice, or creativity emerged with digital stories that displayed their writing abilities in a whole new light.

Finally, digital stories may help English Language Learners to further develop their language skills. Digital stories usually utilize spoken narrative and thus students get to hear how their writing sounds because they are able to record and listen to it as many times as they wish. Ohler (2008) states that due to the “interplay between writing, speaking, and listening, digital story telling has great potential to help students learn language” (p. 51).

Beyond building confidence as an author, the inclusion of music and personal narration gives students more control over how they present themselves to the world. This aspect of digital storytelling is especially beneficial to struggling readers and writers (Hull & Katz, 2006). Finally, digital storytelling has allowed students who formally struggled to not only improve their writing abilities, but also position themselves as peer tutors. Opportunities for peer teaching exist in many areas of the classroom, but the use of technology for digital storytelling seems to allow for greater and more sustained chances to engage in this practice. Studies document students imitating the type of interactions witnessed from their teachers. Students then use these ideas to assist others, thus further enhancing their self-confidence (Hull & Katz, 2006; Ware, 2006). I was fortunate to view this first-hand while teaching full time. One of my students struggled with symptoms stemming from attention-deficit/hyperactivity disorder, causing him to have challenges focusing during instruction, sustaining effort during less-preferred activities (such as writing), and communicating respectfully with peers. However, when our class engaged in a digital storytelling project, this boy not only worked diligently on his own story, but also presented himself as a technology tutor. He thoughtfully advised his classmates on which music tracks seemed best suited to their stories and helped to troubleshoot any computer glitches.

For literacy skill development. Clearly, digital storytelling allows struggling students the opportunity to ‘shine.’ However, in addition to seeing a number of struggling readers and writers, many of today’s educators find that even ‘proficient’ readers merely skim through their texts instead of reading for depth and understanding. Digital storytelling aids in mediating this situation by engaging students in higher-order thinking through encouraging interaction with the text. When working on a digital storytelling project with her students, educator Sara B. Kajder (2004) found that the “combination of story and student interest allowed me to challenge

students to demonstrate that they knew what to do with texts beyond just saying the words” (p. 65). Other studies report similar findings in relation to students’ levels of learning in reading and writing, as well as engagement in a variety of higher-order thinking skills (Lim & Tay, 2003; Sadik, 2008).

While digital storytelling promotes depth and understanding of texts, it also encourages students to gain proficiency in the technical aspects of language, as well as to simply ‘play’ with words and become more comfortable with the writing process. Studies show that students become increasingly willing to experiment with language and make changes when engaged in digital storytelling (Hull & Katz, 2006; Ware, 2006; Ware & Warschauer, 2005). Some may argue that non-digital storytelling projects allow students to do much the same. However, researchers Ware and Warschauer (2005) found that in digital storytelling projects “students also frequently “re-purposed” the written linguistic mode by placing it in a visual context; the words were lent different meanings through their juxtaposition with visuals, meanings that could not have been expressed through words alone” (p. 436). Thus, digital storytelling helps fully connect students to academic literacy.

For problem-solving skill development. While students’ reading and writing abilities remain among the chief concerns of educators, the ability to solve problems has also gained much attention in recent years. Read the mission or vision statements of school districts and one will find many references to both problem-solving and decision-making abilities (see, for example, the mission and vision statements in the websites of the Hudson and North Polk School Districts). Digital storytelling offers many opportunities to practice these essential skills. Researchers who have implemented or observed students working with digital storytelling report high engagement in various types of problem-solving and decision-making (Chung, 2007; Sadik,

2008). While traditional storytelling affords opportunities to solve problems within the structure of the story, the use of technology and multimedia in digital storytelling broadens the scope of possibilities. In creating digital stories, students are making decisions such as: which of their personal stories has the greatest tellability potential, what steps to take in arriving at their desired outcome, when to utilize visuals versus linguistics, which word choices, visuals and music will best convey their message, and how to best utilize their narrative voice. Therefore, digital storytelling requires students to synthesize information, tap into their creativity, conduct research, and utilize critical thinking (Hull & Katz, 2006; Ohler, 2008; Ware, 2006; Ware & Warschauer, 2005).

For skilled technology use. In addition to problem-solving related to the actual story, digital storytelling allows students to practice this skill in the context of technology. Therefore, they become more confident, effective users of this medium. Studies show that students develop their technical skills through both the planning stage and the “translation of their ideas and resources to the digital format” (Sadik, 2008, p. 501). As previously stated, working with various software programs allows students to gain expertise and even to become peer tutors with this increased knowledge (Ware, 2006). These results are possible because digital storytelling puts the technology “in the hands of the learner,” allowing students to control how it is used and giving them autonomy (Bull & Kajder, 2004, p. 49).

Implementing Digital Storytelling

The planning process. Having discussed the many benefits afforded by digital storytelling, attention must be given to the process of introducing this new strategy into the classroom. Much research states that the way in which technology integration is carried out in the classroom is among the chief factors in determining the level of success for both students and

teachers. Genuine effort is imperative in planning, sequencing, and monitoring of any technology related activity to realize the outcome of successful learning (Pitler, 2006). I found the importance of thorough planning when attempting to facilitate a digital storytelling project during my first year of teaching. Through undergraduate educational technology courses, I was well-versed in the benefits of technology integration and wanted to ensure that my students had the opportunity to engage in this practice. So, I introduced a digital storytelling project “just because” it would hopefully afford the benefits of technology integration, with very little actual planning. The result was a disorganized and somewhat chaotic series of days spent in the computer lab, with me frantically explaining the goals of a digital story while students were already working to put their stories together.

It is not surprising, then, that studies have found that technology integration efforts are most successful when they include practices such as engaging students in discussions, collaborations, critical thinking, and reflection at all stages of the project—before, during, and after (Pitler, 2006). To attain this, teachers must explicitly articulate the connection between the technology integration, the curriculum, and student learning. Ohler (2008) further suggests that teachers decide upon specifics for a particular project. For example, consider what type of genre(s) students might work in, if the product will be all story or have some academic information embedded, what point of view and tone students may use in writing, and desired length. Engaging in such thorough preparation will benefit students and give teachers yardsticks to use in determining if students are on track with their projects.

With this in mind, there are some specific considerations that will aid educators in facilitating successful digital storytelling projects. As previously stated, educators must first inform students of the lesson objectives (Lim & Tay, 2003). Foremost to keep in mind is that the

story “should be in the foreground and the technology in the background” (Bull & Kajder, 2004, p. 47). The focus should remain centered upon the writing process, not the technical effects (Ohler, 2008). Thus the computer serves as a tool for publishing and sharing the story.

Facilitating classroom construction of digital stories. Regarding the construction of the actual story, the Seven Elements of Effective Digital Stories were previously identified. Educators should consider first providing minilessons and examples of each element throughout the writing process. Additionally, the following sequence of steps has proven useful when working with whole classes of students and a limited number of computers:

1. Identify a personal story with ‘tellability.’ The example frames in Appendix B were taken from a digital story about my paternal grandparents. They had been married for over 50 years when my grandmother passed away in December of 2008. Telling the story of their devotion to each other through cancer and my grandmother’s final months of life is a theme to which many people can relate.
2. Write an initial story script. Writing the script for my digital story helped to clarify the main ideas I wanted to convey. As previously stated, the script may also be shared with peers and refined.
3. Plan a storyboard to accompany the script. The storyboard in Appendix A shows one example of how this step may be carried out. Storyboarding is very helpful in being able to visualize all components of your story. Going through this step for my personal story greatly aided in determining what pictures I wanted to include, which slides might have some text, and what type of transition(s) would be best.

4. Discuss the script with peers and revise. Conferring about my script with a colleague helped to keep my story focused and clarify some of the ideas and word choices. In turn, this helped me to convey the message and emotion that I intended.
5. Import images and sequence them in the video editor. I found that making one folder containing all the images for my story helped to expedite this process and aided in organization.
6. Add the narrative soundtrack. As previously stated, using your own voice can add much to a digital story. Through adding narration to my digital story, I was able to determine what sort of pacing, rhythm, and inflection would best convey my message.
7. Add special effects and transitions. Special effects can add punch to the right type of story. However, I wanted to keep my story simple and therefore did not include any special effects.
8. Add a musical soundtrack. Immediately upon choosing the topic for my digital story, I knew which song would provide the most appropriate soundtrack. The song “Walking Her Home” by Mark Schultz (2006, track 3) describes the life of a married couple. It chronicles their time together from the first date, after which the man walked the woman home, to the woman’s final breath, as the man again stood by her side and walked her home to heaven. This and other aspects of the song mirrored my grandparent’s life together and made it a fitting tribute to include (Bull & Kajder, 2004; Kajder, 2004; Ohler, 2008; Sadik, 2008).

Student problem solving and technology skills. Beyond the construction of story, digital storytelling presents opportunities for students to apply problem-solving skills. As previously stated, this is an important benefit of digital storytelling. To make this come to fruition, it is

imperative that teachers provide students with multiple occasions to practice problem-solving prior to beginning a digital storytelling project (Sadik, 2008). These potential issues further highlight the need for thorough teacher preparation and planning, both with technology and building students' thinking skills.

Regarding the technological component of digital storytelling, many experts advocate that educators first choose a software program that takes students' skills into account (Dorner, Grimm & Abawi, 2002; Palloff & Pratt, 1999; Sadik, 2008). Certainly today's youth are quite technologically literate, but different ages of students may be more successful with different programs. When facilitating a digital storytelling project with students, teachers must be prepared to give more minilessons on how to use the chosen software program. Research shows that these lessons are most effective if they are taught "just-in-time," meaning that skills necessary for utilizing the technology are taught both during and prior to its use (Lim & Tay, 2003, p. 445; Ohler, 2008).

As previously stated, incorporating the technology that is digital storytelling can be highly motivational to many students. However, some students may both prefer and excel with traditionally written stories, or even oral storytelling. In these instances, educators should bear in mind that the story itself remains the focus, even in digital storytelling. Experts state that educators need not concern themselves with "transforming" a reluctant digital storyteller, rather:

We need to recognize that all children have stories to tell, and recognize that all children have stories to tell, and that the multiple venues for producing these stories need to be valued by teachers and by the classroom contexts in which stories are produced and shared. (Ware, 2006, p. 53)

This acceptance is crucial to promoting success for all students.

Sharing and evaluating digital stories. Two final aspects of planning for digital storytelling are how students' stories will be shared and evaluated. There are many ways in

which student work might be shared. Within the classroom, within the school, at a public venue such as a senior center, via webstreaming, or on a burned CD or DVD is just a sampling of performance options (Ohler, 2008). The motivational nature of digital stories is certainly further enhanced when students know that they will be sharing their stories. When my students were working on their stories, they frequently commented about the anticipation of showcasing their product.

The personal nature of most digital stories does add an extra challenge to the evaluation process, but there are still effective methods that teachers may utilize. Some criteria to consider evaluating are: point of view, content, resources used, organization of story, camera and image use, titles and credits, sound, language use, pacing and narrative, and transitions and effects (Sadik, 2008). Additionally, The TeacherVision website recommends determining whether one will use an ‘analytic’ or ‘holistic’ type of rubric for the evaluation process. Analytic rubrics assess only the final product, whereas holistic rubrics assess student work as a whole (¶1). In terms of holistic rubrics, Ohler (2008) points out that teachers might develop “a checklist or rubric based on each phase to help your students stay on track and to help you provide helpful and timely assessment of all phases of their work” (p. 134). Finally, teachers may create their own rubrics using sites such as TeacherVision. When creating a rubric or providing feedback, it is essential to be specific. The most useful evaluation “tells students where they stand relative to a specific target of knowledge or skill” (Marzano, Pickering & Pollock, 2001, p.98). See Appendix C for an example rubric. Note that this rubric pertains only to the technical aspect of digital storytelling. Teachers should consider utilizing a second rubric for story content, or integrating both topics into one rubric.

Technology Tips

In addition to creating a detailed implementation plan for digital storytelling, teachers should be aware that they could face challenges during this process and take necessary steps to ensure success for themselves as well as students. Being aware of one's own perspective toward technology is an important starting point. Historically, the ways in which educators embrace any given technology has been quite different. During a multi-year research study of teachers and technology integration, Larry Cuban (1986) found that educators have traditionally been hesitant to integrate new technologies into their classrooms. One key reason for this hesitation appears to be educators' own reservations about their technological capabilities. Therefore, educators must use their voice to request software programs they feel capable of utilizing and then practice utilizing it to ensure their own comfort.

One expert suggests starting with PowerPoint, or the Apple equivalent of Keynote, as these programs are very user-friendly. Those more comfortable with technology may try utilizing whichever movie-making software is included as part of the school computers' basic software package (Bull & Kajder, 2004; Ware, 2006). Educators should also become confident users of digital cameras and digital images (Bull & Kajder, 2004). Additionally, teachers may want to access a scanner for the purpose of scanning images to utilize in the stories, a microphone for clear narration, and animation software (Ohler, 2008).

Instead of being daunted by the technology necessary to complete a digital storytelling project, Ohler (2008) suggests simply beginning with what you have, asking around your school building to find out what else is available, and looking for academic discounts in the event that an item needs to be purchased. Of course it is important to then "play" with all of this technology. Through becoming familiar with the technology of digital storytelling, teachers can

better prepare for the inevitable ‘glitches’ that occur when utilizing technology. This will permit teachers to become proactive in dealing with these situations and to feel comfortable allowing students to help each other with the technology (Ohler, 2008, Robin, 2008).

Conclusions and Recommendations

After researching and reflecting upon digital storytelling and its process, I believe that this form of writing is beneficial to any classroom. Noted literacy researcher and professor Donald Graves once stated, “When people own a place, they look after it. When it belongs to someone else, they couldn’t care less” (Calkins, 1983, p. 23). Graves was referring to students’ ownership of their writing pieces and the astounding growth and quality work that can develop when students are afforded this ownership. As shown by the included research, digital storytelling gives this ownership and allows students to claim their writing persona, as well as to become teachers of each other.

Though many teachers realize the necessity of giving students ownership of their writing, digital storytelling should not be entered into haphazardly. Careful planning and preparation are essential. Research for this paper produced several articles which give valuable tips on the parts of a digital story, how to implement digital storytelling in the classroom, and provide links to useful websites. One such website is the Center for Digital Storytelling, located at: <http://www.storycenter.org/cookbook.html>. This site features free access to the introductory chapters of Joe Lambert’s *Digital Storytelling Cookbook*, which includes more information about the power of stories and ‘how-to’s’ of the digital storytelling process. This is an exemplary text that teachers should download and utilize in their planning process.

Digital storytelling will continue to be a quality learning strategy for classrooms of the future. Educate Learning Initiative describes the outlook for digital storytelling in this way:

The ongoing refinement of multimedia applications will place greater power into the hands of more people, allowing richer digital stories. The rise in digital storytelling will in some ways parallel the emergence and growth of social networking and video-sharing sites—these sites benefit from compelling content, and digital stories need an outlet. (¶13-14)

With careful planning and preparation, digital storytelling will continue to present students with a deeply meaningful learning experience. Many students, especially struggling readers and writers, will be highly motivated by the personal nature of storytelling and the integration of technology. As they construct their stories, students will be reading for depth and understanding, and gaining proficiency with the technical aspects of language. Finally, students will gain greater competence with technology as they refine their problem-solving skills. Sharing personal stories and engaging in this variety of thinking skills will prove to be a rewarding experience for both teachers and students.

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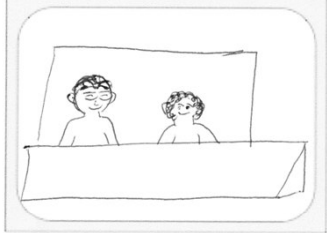
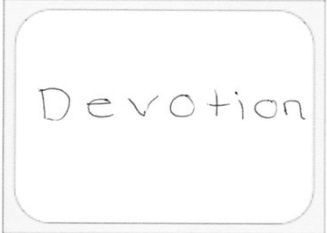
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Appendix A

Digital Storytelling Storyboard

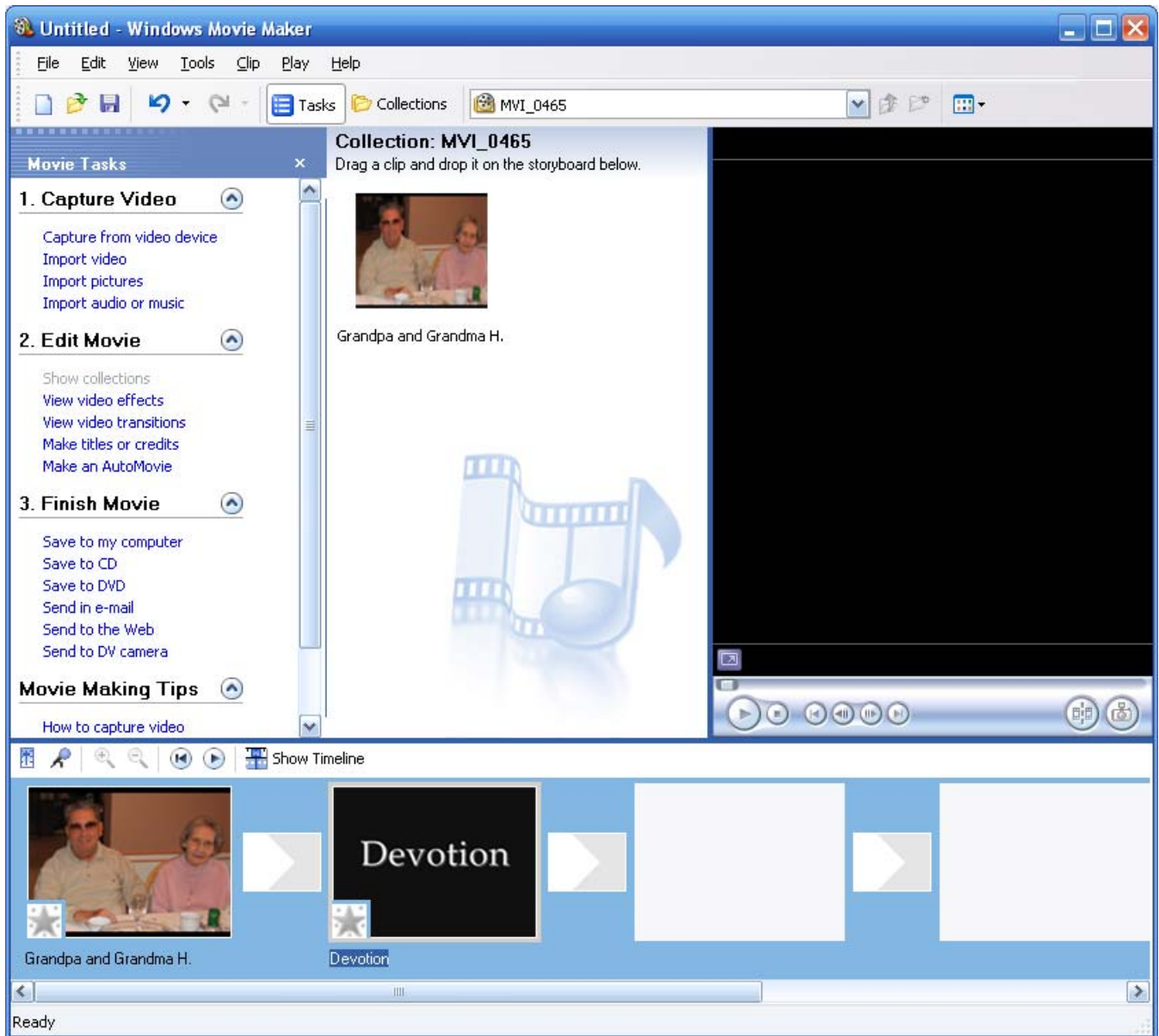
PAGE: 2	DATE: 10-6-09	PROJECT NAME: Reme	AUTHOR: Erin Miller
		FRAME DESCRIPTION Grandpa & Grandma sitting at the dining room table.	MEDIA LIST AND DESCRIPTION - scanner - computer
NARRATION: "She's got the mind, I've got the body." This became my grandpa's frequent refrain . . .			
		only the word 'Devotion' • white text • black backgr.	- computer
NARRATION: None. Play clip from the song "Walking Her Home" by Mark Schultz.			

by Jason Ohler, adapted by Erin Miller

Retrieved June 24, 2009, from http://www.jasonohler.com/pdfs/storyboard_template.pdf

Appendix B

Digital Storytelling Frame



Appendix C

Digital Story Rubric—Mechanics

Digital Storytelling Evaluation Rubric

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Student Name(s) _____

School _____

Topic/Assignment _____

Element	1 Point	3 Points	5 Points	Total
PRODUCTION QUALITY				
Transitions and Edits	Transitions and edits are confusing; transitions are overused or are not used when needed; transitions and edits detract from the “flow” of the video	Most transitions and edits are smooth but some seem out of place and are distracting; most edits and transitions are appropriate to the subject matter but some are distracting	Transitions and edits are smooth and do not distract from the video; transitions and edits are appropriate to the subject matter and add to the flow of the video	
Evaluator’s Comments:				
Sound	Sound is uneven and distracting; sound is not coordinated with video; sound or music is gratuitous and does not add to meaning or tone; speakers are difficult to understand because of low volume or competing sounds	Sound is mostly well suited to the meaning and tone of the video but it may be uneven (too loud or too soft) in places; speakers are mostly clear but difficult to understand in some instances	Sound is well coordinated with video; sounds/music add meaning or tone; speakers are easy to understand	
Evaluator’s Comments:				
Camera Technique	Panning or zooming is unsteady or at an inappropriate speed; excessive panning or zooming is distracting; shots are out of focus; shots are unsteady	Pans and zooms are mostly smooth but may be inappropriate or distracting or used too frequently; some shots are out of focus; some shots are unsteady	Zooms and pans are smooth and at the appropriate speed for the content; shots are in focus; shots are steady	
Evaluator’s Comments:				
Lighting	Scenes are too dark or too light; subject is lit badly; easily solvable lighting problems are ignored	Most scenes are lit properly but some problems that might be solvable have not been addressed; subject is mostly lit correctly	Lighting is clean and clear; subjects are well-lit; evidence that potential lighting problems (if any) have been addressed	
Evaluator’s Comments:				
Framing	No variety in camera angles or placement; subjects are too far away; subject placement is awkward and does not follow rules of thirds, headroom, and lead space	Some variety in camera angles and placement is evident; subjects may be too far away in some cases; subject placement usually follows rules of thirds, headroom, and lead space	Camera angles and placement are varied and add interest to the subject matter; subjects are framed appropriately according to all rules	
Evaluator’s Comments:				

CURRICULUM CONNECTION				
Planning and Storyboarding	Little or no evidence that planning and storyboarding occurred; scenes are too long and do not advance the story OR are too short and leave out essential information; pace is inconsistent to the point of being distracting or interfering with meaning; elements are inconsistent from scene to scene; story does not seem to have a beginning, middle, and end	Evidence that planning and storyboarding occurred in most cases; scenes show some variety in length; pace is somewhat consistent but can be distracting in some instances; elements are mostly consistent from scene to scene; story is missing one of the following: beginning, middle, end	Strong evidence that planning and storyboarding occurred; scenes advance at a comfortable pace for the subject matter; video has a consistent pace; scenes show good variety in length; elements are consistent from scene to scene; story has clearly identifiable beginning, middle, and end	
Evaluator's Comments:				
Content and Theme	Content is not relevant to the theme of the assignment or topic; message is unclear or nonexistent	Content has some relevance to the theme of the assignment or topic; message is present but may be confusing	Content is clearly relevant to the theme of the assignment or topic; message is clear	
Evaluator's Comments:				
Accuracy of Information	Project contains inaccurate information; information is incomplete; conclusions or opinions do not flow logically from the content; there is little to no evidence of learning and understanding on the part of the students	Information is mostly accurate and complete; conclusions and opinions mostly flow logically from the content; there is some evidence of learning and understanding on the part of the students	Information is accurate and complete; conclusions and opinions flow logically from the content; students clearly learned form and understood their content	
Evaluator's Comments:				
Acting and Dialog	Acting is unrehearsed and awkward; dialog is unclear or difficult to understand	Acting is rehearsed but sounds "read" rather than natural; dialog is mostly understandable but needs some work	Acting is polished and smooth; dialog is clear and easy to understand	
Evaluator's Comments:				
Originality and Creativity	Story shows little or no originality in composition and delivery	Story shows some originality in composition and delivery	Story shows excellent originality in composition and delivery	
Evaluator's Comments:				
Documentation	Sources are not cited; copyrighted material is used without permission; actors or participants are not identified	Sources are cited but not in every case; it is not always clear that copyrighted material, if used, is cited correctly; identification of actors or participants may be incomplete	All sources are cited completely; copyrighted material, if used, is identified and used with clear permission; actors are participants are identified consistently	
Evaluator's Comments:				

Scoring

Number of Elements Scored _____

Total of Points Awarded _____

Total Score (Total Points divided by Number of Elements Scored):

Note: It is not necessary to score every element for every project. For example, a project may not contain any acting or dialog, or some more complex elements may be left out for beginners. A total score is derived by dividing the total number of points awarded by the number of elements scored.

The convergence of digital storytelling in education

Figure 1. Photocopy of the factors that lead to the widespread use of digital storytelling.



From Robin, B. R. (2008). Digital storytelling: A powerful technology tool for the 21st century classroom.

Theory Into Practice, 47, 223.