DIGITAL STORYTELLING: 
SUPPORTING DIGITAL LITERACY IN GRADES 4 – 12

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SUMMARY

Digital storytelling, the practice of combining personal narrative with multimedia to produce a short autobiographical movie, continues to expand its creative uses in classrooms around the world. However, teaching the actual “story process” within digital storytelling presents several challenges for teachers as it demands a combination of creative writing, basic film conventions, visual and media literacy, as well as the technical facility with the technology. Digital storytelling presents a unique opportunity for students to acquire much more than new technology skills. It enables them to represent their voices in a manner rarely addressed by state and district curriculum while practicing the digital literacy skills that will be important to their 21st century futures.

Storytelling and multimedia production have rarely been taught, if at all, while the development of students’ narrative skills has rested on the shoulders of English teachers. This pedagogical disconnect between story literacy and technology literacy is at the heart of the “multiliteracies” debate. Elliot W. Eisner writes in *The Kind of Schools We Need*, “What we ought to be developing in our schools is not simply a narrow array of literacy skills limited to a restrictive range of meaning systems, but a spectrum of literacies...We need a conception of multiple literacies to serve as a vision of what our schools should seek to achieve” (2002). An effective implementation of digital storytelling in schools is a model of the metaliteracy Eisner suggests.
1.1 Defining Digital Storytelling

Within this thesis, digital storytelling is defined as the practice of combining personal narrative with multimedia (images, audio and text) to produce a short autobiographical movie. The term “digital storytelling” can suggest a variety of meanings to many different people. Two thousand years ago, people used rocks and sticks to tell stories on cave walls. Today, we have a much broader range of media to create our stories. Janet H. Murray, Director of the Interactive Design and Technology program at Georgia Tech, noted in *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* that “we are on the brink of a historic convergence as novelists, playwrights, and filmmakers move toward multiform stories and digital formats; computer scientists move toward the creation of fictional worlds; and the audience moves toward the virtual stage” (1997). No longer limited to pencil, paper, brush and canvas, digital storytelling “remediates” the ancient practice of storytelling (Bolter and Grusin 1999).

Digital stories take their place alongside web soaps, narrative-based video games like *The Orient Express*, immersive 3D virtual worlds, hypertext stories, and blogs. They are included in the incunabula of current story forms. These emerging story forms have not all adhered to the traditional properties of personal narrative. This is also true of digital stories, which range from clear models of Freitag’s triangle (desire-action-realization) to memorial stories to simple personal statements on the significance of a particular hobby. However, keeping with the narrative properties defined by years of successful stories told by oral storytellers, novelists, screenwriters, playwrights and poets,
true digital stories improve our understanding of the world through an individual’s perspective on a particular experience.

To the layperson, digital storytelling means anything that involves the computer in the creation of a digital artifact (slideshows, multimedia scrapbooks, *Powerpoint* presentations). To the computer scientist, the early computation-based story systems of UNIVERSE (Lebowitz 1984) and TALESPIN (Meehan 1976) represent the complex challenges of programming a computer to construct a coherent story. Justine Cassell’s *Gesture and Narrative Language Group*, formerly of MIT’s Media Lab, have developed an impressive array of “story listening systems,” such as *TellTale*, *Sam the CastleMate*, and *SAGE* (Cassell 2004) that address emergent literacy skills. These are part of the broad field of interactive and tangible computing. From the University of Edinburgh, Judy Robertson’s work on *GhostWriter* represents the potential of immersive 3D environments, such as *Kar2ouche* by Immersive Education. These provide students with narrative practice by allowing them to construct characters, settings, and props in a 3D interactive space. Technology’s influence on shaping and sharing narrative is the thread that connects all of these works to the practice of digital storytelling in education.

The genre of personal narrative writing can be applied to a wide range of digital stories, not all of which conform to a character-conflict-resolution model. I believe there is merit in digital storytelling approaches that produce stories that “express an understanding and application of concepts learned from a unit of study” (Porter 2004) or share a personal statement. I do not strictly believe that all digital stories need to follow the character-conflict-resolution model, but ones that do not answer the essential question of “What does this topic mean to you?” do little to develop students’ story literacy. When
a student imports a series of images about a trip to Disney Land for a digital story, and then explains everything from their favorite ride to what they had for lunch each day of the trip, this is considered the “slideshow” pitfall because the student has failed to reveal the significance of the trip. The often assigned “multimedia report” also masquerades as a digital story. A student combines several stunning video clips from the web of the Mars Exploration Rovers with an impressive number of facts about the mission for an assignment. But, if they do not synthesize the information with their knowledge of themselves and the world, the student has only communicated their ability to repackage information from a variety of sources.

The personal narrative genre of digital storytelling, while not the preference of most schools, is my primary interest because of its effectiveness in representing an individual’s voice. Personal narrative-based digital storytelling facilitates authentic writing purposes for students and provides valuable opportunities for identity construction. Teachers often cite improved self-esteem after a student completes a multimedia project, but overall technology’s role in students’ social development has not been recognized nor encouraged by schools. Literacy scholar, Kathleen Tyner, supports my contention that the goal of efforts such as digital storytelling in schools should be to represent student voices.

The central objective for the study of media representation as a cognitive approach to media production is that of voice. Voice is a concept that transcends the vagaries of the image or even the politics of identity. Specifically, media production gives voice to students who are otherwise silenced in their schools and communities. It allows students to represent their experiences and their communities as cultural insiders, instead of the incessant misrepresentation of them by media producers outside their communities. (Tyner 1998)
Authoring a digital story with a clear personal narrative represents not only voice, but also a sense of self. These are important issues to those working to redefine literacy for the Information Age.

Glynda Hull, Professor of Language and Literacy at the University of California, Berkeley Graduate School of Education sees “an urgent need to expand our conceptions of what it means to be fully literate in new times” (2003). Hull’s assistance with and documentation of the digital stories produced by students in the Digital Underground Youth Storytelling (DUSTY), a collection of after-school programs aimed at closing the “digital divide,” has led to her support of digital storytelling. She cites its’ strengths as “an awareness of and a sensitivity to the power and importance of representation of self and others, along with the space and support to communicate critically, aesthetically, lovingly, and agentively—these are paramount for literacy now” (Hull 2003).

Digital stories are grounded in the seven effective storytelling elements introduced by Joe Lambert and the Center for Digital Storytelling (2002): 1) Point of View 2) Emotional Content 3) Dramatic Question 4) Soundtrack 5) Gift of Your Voice 6) Economy and 7) Pacing. These are discussed at length in Chapter 3. Scripts for digital stories adhere to many of the established traits of the personal narrative genre:

- focuses on a single incident in the writer’s life
- has a clear purpose, the significance of which is clear to the reader
- is written in first person
- has many relevant sensory details
- includes the author's feelings and thoughts
- often includes dialogue

An additional property of digital stories is a maximum length of three to four minutes. Although intended to be autobiographical, digital stories aim to capture defining moments as opposed to encompassing one’s entire life story. Students creating digital
stories for the first time are also limited to using still images. Video is introduced as students become more familiar with effective storytelling.

1.2 Problem

“Narrative ability is the single most important language ability for success in school.” (Feagans and Appelbaum 1986)

Despite endorsement from the National Council of Teachers of English (NCTE), storytelling is not a priority for most schools. We do not teach storytelling in schools, yet we place students in front of computers and tell them to create Powerpoint presentations, HyperStudio projects and iMovies without giving them the skills to do that successfully. We provide plenty of instruction in software (tool literacy), but fail to see that asking students to communicate information through the combination of text, images and/or audio on a screen is in fact a form of digital storytelling that requires story literacy. Whether it is a HyperStudio project about Amazon rain forests or a Powerpoint presentation on the dangers of smoking, the student must script the message intended for the audience. However, this thesis is concerned primarily with digital stories that contain the properties of a personal narrative. Scripting a digital story requires the ability to recognize and emulate the effective elements of storytelling in print (books, magazines, newspapers), orally (speeches, radio drama, oral stories), and visually (posters, photography, cartoons, video). When students are able to apply story literacy skills such as Freitag’s triangle of desire-action-resolution to their use of digital tools of self-expression this will strengthen their digital literacy skills. Technical proficiency with
technology will do little to develop the communication skills students will need in their immediate futures.

Story literacy is the foundation of effective digital storytelling. I define story literacy as possessing not only an understanding of the effective elements of storytelling and the skills to compose a coherent narrative, but also including an awareness and appreciation of the human desire to connect through story. Finding voice and comfort in writing is an additional component of story literacy. Currently, schools limit story literacy to acquiring only the skills that will lead students to satisfying writing standards. The personal narrative construction that defines digital storytelling is at odds with schools’ current writing and technology goals.

Traditional oral storytelling and educational technology have had vastly different histories in education. While technology has flowed unabated into millions of classrooms, the practice of traditional oral storytelling has been limited to once-a-year visits by traveling performers. Arts-based teaching practices of storytelling, dance, drama, and music have been under attack in recent years as schools continue to adhere to the Reading, Writing, and Arithmetic formula and to adopt a strict focus on standardized tests. Storytelling has not been viewed as a valuable tool for developing students’ communication skills while technology has been considered essential to all areas of the curriculum. Because schools do not recognize the critical role of story literacy in digital storytelling, many approaches to digital media production in the classroom fall short of producing effective digital stories. The absence of media and visual literacy further compounds the situation. Effective digital stories combine story literacy with visual and media literacy to meet the multi-literacies of students growing up in the Information Age.
In the rush to integrate technology, schools have placed a higher priority on tool literacy over story literacy. Lulled by the ready-to-use-out-of-the-box marketing, schools have overlooked the skills that teachers and students need prior to making sound pedagogical use of software programs like *iMovie*, *MovieMaker*, *HyperStudio* and *Powerpoint*. While I believe it is not necessary for students to complete a comprehensive media and visual literacy curriculum prior to embarking on digital storytelling, it is important for teachers to recognize how these literacies influence the process of creating an effective digital story.

Media production is not new to the classroom. Many high schools have broadcast successful student-run television shows and published school newspapers, but these have been outside the traditional classroom curriculum. As more teachers attempt to integrate digital media production into lessons, the need for teachers and students to learn media and visual literacy increases. This thesis does not address the issues surrounding access to digital story-making tools. It is concerned with how to use technology effectively once in the classroom.

Digital storytelling demands a wide variety of skills: traditional oral storytelling, written composition, visual literacy, media literacy, as well as an understanding of film conventions. It is not surprising that many teachers gloss over these difficult tasks and focus on completing the project. When a digital storytelling project pays scant attention to these skill domains the following issues arise:

- Students gather any and all images related to their topic.
- Students cannot explain the difference between a digital story, slideshow and multimedia report.
- Assessment becomes subjective when the story, visual and media skills have not been adequately taught to students.
• Teachers spend more time teaching software than how to craft an effective narrative.

In addition to a lack of support for storytelling and educational technology approaches focused on students repackaging facts with technical bells and whistles, digital storytelling challenges the basic purpose of technology in the classroom. For over forty years, Seymour Papert, early member of MIT’s Media Lab and student of Jean Piaget, has advocated a very different view of how technology can be used in the classroom. I believe that creating a digital story is a constructionist learning activity.

We understand “constructionism” as including, but going beyond, what Piaget would call “constructivism.” The word with the v expresses the theory that knowledge is built by the learner, not supplied by the teacher. The word with the n expresses the further idea that this happens especially felicitously when the learner is engaged in the construction of something external or at least shareable... a sand castle, a machine, a computer program, a book. (Papert 1991)

Part of the problem with approaches to digital storytelling in education is that the student is neither viewed as designer nor author. The emphasis is on using software like iMovie to meet a curricular goal as opposed to what it was like for the student to drive the learning experience and use technology to help her achieve her goal. The student is rarely working from her personal interest when completing an assignment, such as How I Spent My Summer Vacation. Technology is used as candy to entice the student to invest effort in an assignment. In a constructionist scenario, the student would be using iMovie or Powerpoint to author a story about her summer vacation because it is the tool the student chose to help her meet her goal of crafting and sharing her story. This is the fundamental difference between how schools currently view technology use and constructionist practices of designing with technology. When the teacher adjusts her pedagogy and sees her role as story coach instead of technology teacher, digital storytelling supports whole
language literacy practices. Digital storytelling offers much more than an opportunity for project-based learning that incorporates technology.

Digital storytelling, and digital media production in general, has had a positive impact on student literacy development. Hull and The New London Group, a coalition of teachers and media literacy scholars, have spent the last decade trying to broaden the definition of literacy to reflect the needs of students living and learning in a digital world. “‘Multiliteracies’ is a term coined by The New London Group to refer to the different literacies of today” (Cope and Kalantzis 2000). Curiously, any mention of literacy is absent from most school district’s discussions of the role technology should play in their schools. Digital storytelling brings to the fore the critical issue of how digital media production challenges the traditional school success formula of Reading, Writing and Arithmetic. With digital media production, students must acquire more than Computer and Information literacies. From the Partnership for 21st Century Learning, the Communication Skills strand requires, “understanding, managing and creating effective oral, written and multimedia communication in a variety of forms and contexts” (2004). When using technology to communicate what they have learned, students must use their story, visual and media literacy skills, yet they routinely rely on their technical skills because those receive the most attention.

1.3 Solution

An engaging digital story successfully combines personal narrative writing with skill in visual representation and knowledge of how media can be manipulated to convey a particular meaning. Teachers must employ new strategies to address these digital literacy needs if digital storytelling is to be more than a bells-and-whistles media
production. To address the necessary story literacy skills of a digital story, my solution proposes that teachers: integrate oral storytelling traditions; provide practice in visually mapping basic story elements such as beginning, middle, and end; use a variety of story media to help students identify the conflict or point of a story; employ alternatives to the traditional composition approach to writing such as the photo essay; establish the context and purpose for story writing; and recognize the role of identity construction within personal narrative writing.

Visual literacy is defined by the North Central Educational Laboratory (NCREL) as: the ability to interpret, use, appreciate, and create images and video using both conventional and 21st century media in ways that advance thinking, decision making, communication, and learning (2004). A digital story is a type of visual narrative that requires students to apply these skills. Because the digital story uses still images to carry the visual messages students need explicit instruction in reading images and learning the codes and conventions. Simple exercises such as assigning additional captions to photographs in magazines and newspapers begin to develop students’ visual grammar skills. Older students should analyze famous historical images such as Dorothea Lange’s White Angel Breadline to better understand images “within the broader context of history, ownership, intent, and genre” (Tyner 1998). Tyner helped develop the Photographic Discourse: Guide to Understanding Photographs, a valuable resource in helping students understand the aesthetic elements of images, shot framing, and emotional content contained in a photograph (1998).

Effective digital stories make their point. Students need to be able to evaluate not only their aesthetic use of images, text, audio, transitions and special effects, but be able
to critically analyze media constructions. I support the Center for Media Literacy’s five basic questions to be asked of any piece of media: 1) Who created the message? 2) What techniques are used to attract my attention? 3) How might different people understand this message differently from me? 4) What lifestyles, values or points of view are represented in or omitted from this message? 5) Why was this message sent? (2005). Students’ digital storytelling skills can be greatly enhanced by viewing television commercials and advertisements with these five questions in mind.

A digital storytelling approach that addresses story, visual and media literacies will develop students’ digital literacy skills while also emphasizing technology as a means of authoring identity construction. Digital storytelling that integrates a constructionist approach to learning can aid in shifting the current pedagogy of “teaching to the test” towards one that supports not only skill acquisition but also learning how to learn.

Beverly Hunter of BBN Educational Technologies cogently summarizes the situation that many education reformers and policy makers fail to recognize:

The basic paradigm shift is from an educational emphasis on people as recipients of information and knowledge to an emphasis on people as participants in the creation of information and knowledge. In a knowledge-based society and economy, intellectual capital is the means of production; its distribution is in large part a function of how we are educated. The overarching choice we face nationally and globally is to decide what proportion of people will experience a level and kind of education that will enable them to participate as producers of knowledge as well as its consumers. (Tyner 1997)

Digital storytelling shifts the focus of the classroom away from the teacher, a model that has dominated education since the 18th century, to the student.

Teaching storytelling to students has been addressed many skilled people: professional storytellers, literacy experts, authors, filmmakers, cartoonists (sequential artists), photographers, educators, and librarians. Now, digital storytellers such as
Lambert, Jason Ohler and Bernajean Porter have addressed the unique needs of crafting a personal narrative with digital tools. It is impossible to distill their years of experiences and volumes of story coaching techniques down to a paragraph or two. I have drawn on all of their methods in an attempt to broaden the traditional approach to personal narrative writing in schools. My solution is not intended as a recipe for producing polished multimedia presentations that showcase facility with current technology. Rather, it is my hope that students learn the fundamentals of communicating through story.

The basic process of creating a digital story involves only a few steps: 1) write a two to three minute first person story 2) collect images to accompany the story 3) import images into the computer 4) record the voice over and 5) align images with script. Within these five steps are a vast array of skills and concepts that most students meet for the first time. Many have never taken a photograph, recorded their own voice, or thought about how music and text can influence how a view interprets something on a screen. Determining effective teaching strategies for accomplishing these steps has been the focus of my research. I believe that Howard Gardner’s multiple intelligence theories (1983) support my contention that multiple avenues of access for self-expression allow students to convey a personally meaningful idea.

1.4 Methodology

Few qualitative reviews of digital storytelling approaches have been conducted from the classroom teacher’s perspective. Given my past teaching experience and focus on using technology in the classroom to enhance students’ writing and self-expression skills, my analysis should be of particular use to the classroom teacher struggling to use technology effectively and to all those concerned with the role of story in education. My
research has drawn on my arts-based teaching experiences, workshops with master storytellers Doug Lipman and Jay O’Callahan, the Center for Digital Storytelling, and the many students, classroom teachers, instructional technology facilitators and digital storytelling instructors I have worked with over the last six years.

For this thesis, I have interviewed approximately twenty teachers and digital storytelling instructors who have recently conducted a digital storytelling project with students in either a classroom or after-school setting. All of the school-based projects occurred in a public school setting with students whose literacy skills ranged from emergent to proficient. Interviews were conducted in person, over the phone and through an online questionnaire. With the exception of digital storytelling work already published or appearing on the web, names were changed to comply with the International Review Board standards for participant privacy. These digital storytelling approaches appear as italicized scenarios in Chapters 3 and 4. In addition to viewing over one hundred digital stories posted online at sites such as Capture Wales, three digital storytelling workshops with middle and high school students that I lead in the last year were invaluable to my analysis and solution.

1.5 Background

Barbara Ueland said in her book If You Want to Write, “Everyone is talented, original and has something important to say” (1967). After ten years as a fifth grade teacher, this statement best captures my teaching philosophy. In 1996, I began exploring the idea of “multimedia storytelling” for use in the classroom. I had been using traditional oral storytelling and arts-based teaching approaches (drama, puppetry, and improvisation games) in my lessons as part of my graduate work in the Creative Arts and Learning
Program at Lesley University. Like most teachers who had passed through the program at Lesley, I was not content with didactic methods of teaching. I had wanted to help students find their voices and contribute to the world in a positive way. Foremost, I wanted them to be effective, confident writers, and believed that storytelling, any and all forms of it, would best help them develop those skills and attitudes.

Initially, my use of the term “multimedia” meant using any and all media to tell a story. Dr. Robert Brooks, now a nationally recognized expert on learning disabilities, spoke at my undergraduate college and shared his insights on helping kids succeed in school. He said, “You have to help kids find their island of competence.” I began my research with this idea in mind; that it would be easier to help kids find their islands when they were presented with multiple avenues of access to shaping and sharing a story, hence multimedia storytelling. This thesis focuses on how students can effectively tell a story with the use of digital tools that allow them to manipulate and combine their recorded voice, images, and text into a coherent multimedia narrative. The ability to represent one’s individual voice is an important island for students to find. Using multiple media (oral, print, visual and mixed) to strengthen students’ narrative skills while helping them find their islands is a central tenet of this thesis.

My interest in educational technology has always gravitated towards enabling creative self-expression. Unfortunately, lessons that combined art and technology were rare within education when I began teaching in 1993. Outside of the classroom, artists such as Dana Atchley had been using the spoken word, video, music, and photography as a performance piece long before multimedia was limited to mean only computer-related. The seed for my interest in classroom uses of digital storytelling began when I saw
Atchley’s Next Exit performance piece at the Digital Storytelling Festival in 1998. During Next Exit, Atchley told stories about his life while multimedia clips were projected on a large screen behind him. With a wireless mouse, he triggered the digital stories after providing sufficient oral lead-in. A Yale MFA and developer for Apple computers, Atchley’s stories represented something I had never seen before – first person narrative told effectively with multimedia (Figure 1). In 1996, Joe Lambert, Nina Mullen and Atchley collaborated to launch the Center for Digital Storytelling (CDS) after the worldwide success of Next Exit. I attended their workshop, created a story about my place in the classroom then began adapting the Center’s approach to digital storytelling for elementary school students.

![Figure 1: Dana Atchley, Next Exit Performance](image)

In 2002, I published what I had learned about applying digital storytelling in the classroom (Banaszewski 2002). *Digital Storytelling Finds Its Place in the Classroom*
detailed a project where each student had created a digital story about a place that was important to her, a place that was significant in terms of safety, comfort, or identity. The purpose of the project was to use personal narrative storytelling to improve communication between the mostly white suburban students and the inner-city students who participated in a desegregated busing program. It was a success on many levels, but I felt that much work needed to be done on teaching students how to tell an effective story using multimedia.

For the Place Story project, my definition of story was too vague. My goal in using digital storytelling was to improve students’ writing skills and help them share a personal statement about a place that they had identified with. Like many teachers, I had limited story to a simple definition of “an account of incidents or events.” Digital storytelling faces unique challenges in the classroom, challenges the CDS and many teachers have not addressed adequately. Many of the issues stem from teachers interpreting the story part of digital storytelling to mean information sharing instead of “a narrative account constructed around four central themes: character, conflict, struggle, goal” (Haven 1999). However, digital stories are not solely defined by possessing a dramatic arc.

**Whole Language**

Keeping with my whole language training received during my teacher training, my approach to digital storytelling is based on the idea that technology and storytelling can be combined to provide students with an authentic purpose for writing and self-expression. The term "whole language" refers to literacy instruction that seeks to instill “a love of literature, problem-solving, critical thinking, collaboration, authenticity, personalized learning and much more” (Goodman, Bird and Goodman, 1991). Despite
heated debate in recent years on the effectiveness of whole language programs to develop essential phonemic awareness (Blumenfeld 2005), I remain convinced that literacy approaches driven by helping students learn to read and write in the meaningful context of their own lives will do more than programs marked by rigid skill acquisition. Ironically, though, observing a lack of specific story skills in students’ digital stories is what drew me to analyzing digital storytelling in grades 4 – 12.

**Cognitive Development and Learning Theory**

Creating a digital story is not simply an exercise in combining personal narrative skills with one’s visual and media representation skills. Authoring a digital story is a powerful form of identity construction. The cognitive and social development theories of Jean Piaget and Lev Vygotsky are important to my analysis of what is developmentally appropriate to expect of students’ personal narrative skills. Gardner’s Multiple Intelligence theory is referenced to support my contention that writing a personal narrative is easier when students are presented with alternatives to the linguistic-based traditional composition model.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Age</th>
<th>Major Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensorimotor</td>
<td>0 – 2 yrs</td>
<td>Infants use their bodies to form cognitive structures</td>
</tr>
<tr>
<td>Preoperational</td>
<td>2 – 7 yrs.</td>
<td>Use of symbols; rapid language growth</td>
</tr>
<tr>
<td>Concrete operational</td>
<td>7 – 11 yrs.</td>
<td>Can reason about physical objects</td>
</tr>
<tr>
<td>Formal operational</td>
<td>11+ yrs.</td>
<td>Abstract thinking leads to reasoning with symbols</td>
</tr>
</tbody>
</table>
Vygotsky’s Social Development Theory

Vygotsky believed that students’ social interactions strongly influenced their cognitive development. He proposed that learning occurred felicitously in what he termed the Zone of Proximal Development. In this zone, student learning is dependent on social interactions with a teacher or peer (Vygotsky 1978).

Multiple Intelligences

Howard Gardner, Professor of Cognition and Education, Harvard University, proposed that intelligence is not defined by a single trait, but rather multiple distinct intellectual strengths (1991). In *Frames of Mind*, Gardner outlines seven (recently updated to include an eighth intelligence: naturalist and ninth: existential) intelligences:

1. Verbal-Linguistic – well-developed verbal skills and sensitivity to the sounds, meanings and rhythm of words
2. Mathematical-Logical – ability to think conceptually and abstractly, and capacity to discern logical or numerical patterns
3. Musical Intelligence – ability to produce and appreciate rhythm, pitch and timber
4. Visual-Spatial Intelligence – capacity to think in images and pictures, to visualize accurately and abstractly
5. Bodily-Kinesthetic Intelligence – ability to control one's body movements and to handle objects skillfully
6. Interpersonal Intelligence – capacity to detect and respond appropriately to the moods, motivations and desires of others
7. Intrapersonal Intelligence – capacity to be self-aware and in tune with inner feelings, values, beliefs and thinking processes
8. Naturalist Intelligence – ability to recognize and categorize plants, animals and other objects in nature
9. Existential Intelligence – sensitivity and capacity to tackle deep questions about human existence, such as the meaning of life, why do we die, and how did we get here.

This chapter introduced my proposed multiliteracies solution to the obstacles hindering effective use of digital storytelling in schools. The reasons behind lagging support for storytelling and an over emphasis on tool literacy are explored in more detail in the following chapter. Digital storytelling, multimedia storytelling and interactive storytelling generate different conversations depending on whom you are talking to. In Chapter 2, several interactive story systems are discussed in detail to illustrate the theoretical issues often over-looked when asking students to create a story and how this research can inform digital storytelling practices in classrooms. Additionally, these story systems are contrasted with the commercial software used most often by students to create digital stories to show the lack of explicit support for story structuring within programs like iMovie and MovieMaker.
2.1 Storytelling in Education

“Stories do things to people. We know that things happen when they read or hear stories, that any theory about the place of story in schools has to begin with this fact.”
(Barton and Booth 1990)

Storytelling’s limited role in American public schools is currently hindering digital storytelling approaches in education. “Storying,” as Bob Barton and David Booth (1990) refer to the classroom practice of creating, sharing and learning from stories, has never been a major part of the Reading, Writing, and Arithmetic formula for school success. Once students attain a functional level of reading and writing, story is no longer considered important to a student’s literacy development. In every national report evaluating public schools since 1960, storying has been omitted as a skill for improving school success.

In 1983, The National Commission on Excellence in Education published A Nation at Risk. The report called for rigorous increases in graduation requirements and the amount of time students spent in school each year. Educational researcher Paul Hurd said “That within the context of the modern scientific revolution, ‘We are raising a new generation of Americans that is scientifically and technologically illiterate’” (1983). E.D. Hirsch’s Cultural Literacy: What Every American Needs to Know (1988) was so influential that school districts throughout the country organized their entire curriculum around his proposed “Core Knowledge,” which emphasized basic principles of
government, math, language arts, world history, and recognized masterpieces of art, music and literature (1988). *No Child Left Behind*, passed into law January 2002, has been criticized for narrowing the focus of tests to only Math and Reading (McKenzie 2004). Despite endorsement from the National Council of English Teachers (NCTE 2002), and a growing body of research on the impact of storytelling beyond the early grades, the instruction of storytelling has been left to the school librarian. It is not viewed as an essential skill for students or a viable teaching tool across the curriculum. Although school climates have become increasingly less supportive of any educational endeavor not part of a state standardized test, many have shown why storytelling matters in the classroom.

In an interview with PBS, President Bush’s Secretary of Education Rod Paige said, “We won't spend a dime on programs that won't work. If it's not working, we won't spend money on it” (2003). Perhaps recent advances in brain research are what the Secretary is seeking. According to Renate and Geoffrey Caine, “There is strong reason to believe that organization in story form is a natural brain process…We suggest that brain research confirms that evidence and explains why stories are important” (1994). Roger Schank, founder of the Institute for Learning Sciences at Northwestern, proposed that we are “wired for story” and that “all we know is embodied in story” (1990). In *Tell Me a Story: Narrative and Intelligence*, he illustrated how intelligence is tied to telling and listening to stories, and predicted a future education system where “smart machines” advanced by story-based artificial intelligence will engage with students in “highly instructive interactions” (1990). This brain and artificial intelligence research further supports what a small number of classroom teachers, professional storytellers and librarians have known
for decades. Through the curriculum that they have created and the positive responses of students to lessons including oral storytelling, they have witnessed the wired response to material presented in story form.

Of the few books specifically targeting storytelling in education, Kieran Egan’s *Teaching as Story Telling: An Alternative Approach to Teaching and Curriculum in the Elementary School* (1986) departs from the traditional model of storytelling as something to enhance already existing curriculum. Egan disagrees with the customary lesson model that anchors a main objective with supporting tasks to be completed linearly. He challenges the belief that children can only learn new material after having mastered previous lessons by proposing that teachers develop lessons based on “the story form” (1986). Jason Ohler summarizes Egan’s work in *Telling Your Story: A Handbook for Putting the Story in Digital (and traditional) Storytelling* (2004):

> The crux of the story form is the binary opposite. To Egan, lesson plans – as well as news stories, dramatic works and a number of other human activities – are most meaningful if they are built upon or understood in terms of a set of “binary opposites” that underlies them. Thus a unit on the Vikings is cast in terms of barbarism vs. civilization, rather than in terms of dates and conquests. A unit on science studying steam generation is cast in terms of ‘heat as helper’ vs. ‘heat as destroyer,’ rather than as a list of facts of progression of physical events.

Among its many obstacles, if digital storytelling is to gain a foothold in K-12 curriculums and demonstrate effective use of technology, teachers will need to integrate Egan’s recommendations for approaching lesson planning in this non-didactic way. This would help move educational technology approaches away from emphasizing tool literacy and reassert the role of storytelling as a foundational principle for communicating with technology.

Several storytellers and teachers have demonstrated how story can be used to teach
listening skills, environmental awareness, Civil War history and the concept of exponential numbers (Dailey 1994). Doug Lipman’s *The Storytelling Coach* (1994), Kendal Haven’s *Write Right: Creative Writing Using Storytelling Techniques* (1999), Donald Davis’ *Writing as a Second Language* (2000), and numerous publications from the National Storytelling Association have provided resources for classroom teachers to use storytelling as a valuable teaching tool. In addition, David Millstone created an interdisciplinary project focused on the study of *The Odyssey* where students spent the year telling Homeric stories, conducting research on the ancient world, creating a mural, drawing comics, acting out puppet plays, dramatizing stories, and writing epic poems and newspaper articles about the ancient Greek tale (Millstone 1995). Despite these many successful applications of storytelling to core curriculum and state standards, storytelling has been limited to a tool for acquiring the basic literacy skills of decoding words and writing complete sentences.

While “Story Time” has been accepted practice in the early grades, reading and writing instruction in the context of literature study has often replaced opportunities for students to tell, respond to and extend first person stories in the later grades. It is still very common to find elementary school language arts programs where reading instruction receives far more time than writing. The entrenched model of segmenting the curriculum into Math, Science, Reading, and Social Studies has consequently divorced storytelling from its natural application to all areas of the curriculum. Beyond fourth grade, storytelling receives very little support.

With each successive national report that reiterates the low priority schools place on creativity, imagination and self-expression in a student’s education, the hope that schools
will radically change their focus from standardized tests to “storying” seems unlikely. However, the increasing emphasis on technology as a critical component of adequately preparing students for the 21st century is revealing strong “storying” skills as a prerequisite to effectively communicating in the Information Age. The story, visual and media literacy skills embedded in a digital storytelling project address nearly eighty percent of the future skills identified by new reports outlining the needs of 21st century students (NCREL 2004).

2.2 Towards Digital Literacy

“The Multiliteracies argument runs like this: our personal, public and working lives are changing in some dramatic ways, and these changes are transforming our cultures and the ways we communicate. This means that the way we have taught literacy, and what counts for literacy, will also have to change.” (Cope and Kalantzis 1996)

Digital storytelling approaches that address story, visual and media literacy can effectively develop the digital literacy skills students will need in the future. A digital story should be viewed as the precursor to more advanced work in digital media. If a student has not solidified her basic linear storytelling skills then she will be limited in her future work in more complex interactive media. It is not anticipated that all students will go on to enroll in film schools or aspire to be new media artists. Digital storytelling seeks to prepare students to effectively communicate in a world that demands facility with representing information in dynamic ways. The jobs current students will compete for in the next decade do not even exist yet. Digital stories provide practice in translating information from multiple formats for personal communication such as videoblogging and participating in MUDs. Students who are able to combine effective oral expression
with the ability to sequence and manipulate images to convey a particular message will be able to compete for any job.

The Partnership for 21st Century Skills and the North Central Regional Laboratory (NCREL) recently released reports that emphasized “understanding, managing and creating effective oral, written, and multimedia communication in a variety of forms and contexts” (NCREL 2004). From the Partnership for 21st Century Skills: “In the midst of accelerating technological change, rapidly accumulating information, increasing global competition and rising workforce requirements, it has become clear that mastery of the ‘3Rs’ – reading, writing and arithmetic – is not enough for students’ success in the 21st century” (Bruett 2005). Kathleen Tyner, a literacy scholar, goes so far as to prophesize that “traditional compulsory public schooling is a worthy and well-intentioned idea that still has a fighting chance for survival if it can align theory and practice to accommodate the authentic literacy needs of students in a world awash in information” (1988).

Educational technology has quickly become a part of thousands of classrooms over the last two decades but its impact on literacy development has largely been ignored. Perhaps of greater influence on students literacy development has been the rise in the amount of time children spend in front of televisions, computer screens, and video game consoles. Schools view students increasing consumption of digitally mediated experiences (cell phone calls, instant messaging, and video games) as hindrances to their development as readers and writers. They overlook how these experiences could be used to develop students’ digital literacy skills. Due to this drastic change in how students read and write the world, there is much debate on the literacy skills students need for the future. Few agree on what exactly it means to be literate in the Information Age and what
skills will be needed for the workplace of the future.

Prior to 1970, ‘literacy’ was not part any discussion on the purpose of formal education (Lankshear and Knobel 2003). Within teaching institutions, alternative literacy methodologies such as those of Paulo Freire have rarely been introduced during language arts methods courses. Freire advocated an approach to literacy that emphasized more than just decoding and encoding print. Through a collaborative process of reflecting on one’s world and taking action, Freire argued that the student acquires not only facility with alphabetic print, but also helps “build critical social praxis” (Lankshear and Knobel 2003). Freire and Egan challenge the traditional school literacy model by not focusing on a linear progression of skills. Improving the use of technology in schools demands moving away from tool literacy and towards the broader issues of how students learn to read, write and communicate with the aid of technology and while participating in digitally mediated environments.

Referred to by some as the “manifesto on the future of literacy teaching,” The New London Group published *A Pedagogy of Multiliteracies* in 1996.

The concept of multiliteracies is based on the notion of the challenges and demands literacy pedagogy is facing in the different spheres of life today. As an example, mass media and multimedia texts are often combinations of textual, visual, audio and spatial elements, and how important these elements are regarded, often depend on the cultural contexts they emerge in. (Cope and Kalantzis 2000)

Since that time, many have contributed to the debate on redefining literacy for the Information Age. Elliot Eisner, Professor of Education and Art at Stanford University, added:

What we ought to be developing in our schools is not simply a narrow array of literacy skills limited to a restrictive range of meaning systems, but a spectrum of literacies that will enable students to participate in, enjoy, and find meaning in the major forms through which meaning has been constituted. We need a conception
of multiple literacies to serve as a vision of what our schools should seek to
achieve. (1998)

Table 2: Multiliteracies Defined

<table>
<thead>
<tr>
<th>Tool Literacies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer Literacy is:</strong></td>
</tr>
<tr>
<td>A general understanding of the ways computers work, including knowledge about the computer’s CPU, operating principles, and the principles of networks, so that computer users can move around in a computing environment with relative ease (Sutton 1994).</td>
</tr>
<tr>
<td><strong>Network Literacy is:</strong></td>
</tr>
<tr>
<td>Knowledge: 1. awareness of the range and uses of global networked information resources and services. Skills: 1. the ability to retrieve specific types of information from the network using a range of information discovery tools (McClure 1994).</td>
</tr>
<tr>
<td><strong>Technology Literacy is:</strong></td>
</tr>
<tr>
<td>A complex, integrated process involving people, procedures, ideas, devices, and organizations for analyzing problems and devising, implementing, evaluating, and managing solutions to those problems, involved in all aspects of learning ...(from the Association of Educational Communications and Technology's definition for educational technology (Silber 1981).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Literacies of Representation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information Literacy is:</strong></td>
</tr>
<tr>
<td>The ability to find, evaluate, and use information effectively in personal and professional lives (American Library Association 1991).</td>
</tr>
<tr>
<td><strong>Media Literacy is:</strong></td>
</tr>
<tr>
<td>Concerned with helping students develop an informed and critical understanding of the nature of the mass media, the techniques used by them, and the impact of these techniques. More specifically, it is the education that aims to increase students’ understanding and enjoyment of how media work, how they [media] produce meaning, how they are organized, and how they construct reality. Media literacy also aims to provide students with the ability to create media products (Ontario Ministry of Education 1989).</td>
</tr>
<tr>
<td><strong>Visual Literacy is:</strong></td>
</tr>
<tr>
<td>The ability to understand (read) and use (write) images and to think and learn in terms of images (Johnson 1977, Moore and Dwyer 1994).</td>
</tr>
</tbody>
</table>
While I believe it is not necessary for students to complete a comprehensive media and visual literacy curriculum as part of a digital storytelling project, it is important for teachers to recognize how the practices listed in Table 2, particularly the literacies of representation, influence the digital storytelling process (and nearly all educational multimedia production-based projects). Many teachers implementing a digital storytelling project attend only to Computer and Information Literacies, thus sustaining schools’ current overemphasis on tool literacy. Despite the fact that national educational technology standards have existed that supported digital storytelling, many schools have adopted technology plans that are primarily tool centric. For example, the two performance standards below strongly imply support for visual and media literacy, while the sample technology plan in Table 3 focuses solely on tool mastery.

**Grades 3-5 National Educational Technology Standards**

*Performance Indicator 5:*

Use technology tools (for example, multimedia authoring, presentation, Web tools, digital cameras, and scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom (NETS 2005).

**Grades 6-8 National Educational Technology Standards**

*Performance Indicator 6:*

Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom (NETS 2005).

A digital story’s effectiveness hinges on a student’s “ability to understand (read) and use (write) images and to think and learn in terms of images” (Johnson 1977, Moore and Dwyer 1994). Without the explicit expectation that students acquire visual and media
literacy teachers will continue to miss the role technology can play in developing students’ multiliteracies.

Software experience, entering data in spreadsheets, and giving *Powerpoint* presentations seems to be the methodology that schools are using to address the multiliteracies expected of students in the future. In order to secure state funding for technology, many school districts mimic the plan detailed in Table 3.

The work of The New London Group, Tyner, Eisner and others interested in literacy and technology appears to be lost on national education policy makers. The 2005 National Educational Technology Plan, released by the US Department of Education, misses the critical point of how technology is changing the literacy needs of students. “To help…prepare today’s students for the opportunities and challenges of tomorrow,” a set of seven action steps and accompanying recommendations have been developed:

1. Strengthen Leadership
2. Consider Innovative Budgeting
3. Improve Teacher Training
4. Support E-Learning and Virtual Schools
5. Encourage Broadband Access
6. Move Toward Digital Content
7. Integrate Data Systems

(2005)

Note the absence of literacy and the changing pedagogical needs of teaching with technology. This plan, which seems better suited to running a business than educating children, hinders digital storytelling in schools because it fails to recognize how technology has changed students’ literacy needs for the future.
### Table 3: Technology Plan of School District X

<table>
<thead>
<tr>
<th>Technology Categories</th>
<th>Benchmarks</th>
</tr>
</thead>
</table>
| **Basic Operations**                | *use input devices*  
*use access programs*  
*navigate within a program*  
*save files over a network*  
*access files on a server*  

**Use input and output devices**  
**Use computers for learning activities**  

| **Social and Ethical Issues**       | *work cooperatively with peers when using technology*  
*practice responsible use of hardware, software, network*  

**Practice responsible use of technology systems**  

| **Instructional Tools**             | **Word processing**  
*format and edit text*  
*import graphics*  

**Spreadsheet**  
*define column, row, cell*  
*collect and enter data*  
*make and interpret a chart*  
*enter formulas*  

**Database**  
*define field, record*  
*search, enter and edit data*  

**Use technology tools to enhance learning and increase productivity:**  
*word processor*  
*multimedia*  
*problem-solving software*  

| **Communication Tools**             | *create slideshow using text, graphics*  
*create a published product (brochure, flier, product)*  

**Use a variety of media to communicate information and ideas to multiple audiences**  

| **Research Tools**                  | *use factual CD-ROMS for research*  
*access curriculum-related Internet sites*  

**Use technology to locate, collect, and process information from a variety of sources**  

When compared to the skill clusters of NCREL’s report (Table 4) and the ICT maps developed by the Partnership for 21st Century Schools and the National Council of English Teachers (Figure 2), it is clear that educational policy makers hold a much different vision of education in the US. In recommending a “move toward digital content” and “improve teacher training,” the national plan for technology offers teachers nothing they did not know already. NETP 2005 follows the same format as No Child Left Behind; broad mandates handed down to school districts without sufficient financial support. Both have narrow goals. No Child Left Behind aims to raise test scores while NETP 2005 tells teachers to use technology without any pedagogical goal in mind. In contrast, the NCREL report is tied to concrete learning goals that apply to the actual practice of teaching with technology.

Table 4: NCREL 21st Century Skill Clusters

<table>
<thead>
<tr>
<th>Digital-Age Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Basic, Scientific, Economic and Technical Literacies</td>
</tr>
<tr>
<td>• Visual and Information Literacies</td>
</tr>
<tr>
<td>• Multicultural Literacy and Global Awareness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effective Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Teaming, Collaboration, and Interpersonal Skills</td>
</tr>
<tr>
<td>• Personal, Social and Civic Responsibility</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inventive Thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Adaptability, Managing Complexity and Self-Direction</td>
</tr>
<tr>
<td>• Curiosity, Creativity, and Risk-taking</td>
</tr>
<tr>
<td>• Higher-Order Thinking and Sound Reasoning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Prioritizing, Planning and Managing for Results</td>
</tr>
<tr>
<td>• Effective Use of Real-World Tools</td>
</tr>
<tr>
<td>• Ability to Produce Relevant, High Quality Products</td>
</tr>
</tbody>
</table>
The US has ignored valuable resources, such as the ICT work of the United Kingdom. Even before the UK instituted a National Grid for Learning in the early 1990s, ICT standards have been guiding instruction of lessons supporting information, visual, and media literacies. In addition, they have directly addressed the moving image through what they term “cineliteracy.” From the British Film Institute’s (BFI) *Moving Images in the Classroom* guide: “Critical understanding of film, video, and television is becoming an integral part of literacy, and the spread of digital technologies means that the ability to make and manipulate moving images will become an ever more important skill” (2002). The national standards identified in Table 3 represent not only a narrow comprehension of the future digital literacy needs of students, but also an indifference to helping teachers figure out how to teach towards these literacies. “[Teachers] realise that moving image
texts have their own complex and unique language which must be understood properly if these media are to be used in schools to meet their full potential. However, to teach well the analytical and creative skills relating to moving texts many will need to develop the appropriate expertise in teaching and curriculum planning” (2002). This is the real work to be accomplished with regard to digital storytelling in the classroom.

When implemented effectively, digital storytelling is important to schools because it provides students with practice in developing the literacy skills for a future increasingly influenced by digital media. Many mistakenly view digital storytelling as bells-and-whistles multimedia production and not as a powerful form of literacy development. The digital storytelling process detailed in the following chapters presents a logical approach to developing the “multiliteracies” called for by The New London Group, Eisner and others.

2.3 In Search of A Story Genie

Before analyzing digital storytelling approaches in grades 4 – 12, it is useful to highlight the existing research on how technology has been applied to the complex process of developing a story. Although this thesis focuses on improving the use of existing commercial software for creating digital stories, for example Apple’s iMovie, and Window’s MovieMaker, questions of how children use technology to create, shape and share stories have attracted researchers, video game designers, narrative theorists and many involved in interactive design. Impressive interactive story systems that incorporate artificial intelligence, virtual reality, story agents, tangible computing, collaborative computing and cognitive science have represented a model of applying technology to story development that sharply contrasts the use of the off-the-shelf software programs
like those detailed in Table 5. Currently, not one of the commercial multimedia authoring products targeting the education market directly supports first person narrative construction. Even Final Draft and Dramatica, used by novel writers and screenwriters, respectively, include only text-based help on structuring the basic story. These programs are designed for writers who already have proficient story skills. For the K-12 student, common multimedia authoring software programs, such as iMovie, MovieMaker, Photo Story, and HyperStudio also provide no guidance in structuring the basic narrative elements of beginning, middle and end. If a student were to sit down at the computer, launch one of these programs, and begin an assignment on How I Spent My Summer Vacation, nothing within the program would help the student structure the story elements. Granted these programs are not designed explicitly for students to create narrative-based multimedia pieces, but Apple and Windows are well aware of how their products are being used in the classroom.

Teachers have often expected a piece of software to stand on its own in meeting a particular learning objective. When my students played Math Blaster, I did not need to teach them any additional skills or concepts. They sat in front of the computer and applied their math facts to fun interactive problem-solving situations. This is not the case with digital storytelling software, yet this is how many teachers approach software like iMovie and MovieMaker. Creating a digital story requires skills and concepts that teachers need to teach. Tool literacy alone will not suffice when managing a digital storytelling project with students.
### Table 5: Commercial Authoring Tools Used for Digital Stories

<table>
<thead>
<tr>
<th>Software Title</th>
<th>Story Help</th>
<th>Image Support</th>
<th>Video Support</th>
<th>Text Support</th>
<th>Platform(s)</th>
<th>Target Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>iMovie</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Mac</td>
<td>6-12</td>
</tr>
<tr>
<td>MovieMaker</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Win/Mac</td>
<td>6-12</td>
</tr>
<tr>
<td>PowerPoint</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Win/Mac</td>
<td>9-12</td>
</tr>
<tr>
<td>MovieWorks</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Win/Mac</td>
<td>4-12</td>
</tr>
<tr>
<td>Photo Story</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Win</td>
<td>6-12</td>
</tr>
<tr>
<td>ImageBlender</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Win/Mac</td>
<td>4-12</td>
</tr>
<tr>
<td>MovieBlender</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Win/Mac</td>
<td>4-12</td>
</tr>
<tr>
<td>Video Studio</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Win</td>
<td>8-12</td>
</tr>
<tr>
<td>HyperStudio</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Win/Mac</td>
<td>4-8</td>
</tr>
<tr>
<td>Final Cut Express</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Mac</td>
<td>4-8</td>
</tr>
<tr>
<td>Avid Express</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Win</td>
<td>9-12</td>
</tr>
<tr>
<td>Dramatica</td>
<td>•</td>
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*Hollywood Express* is one of few commercial products to incorporate narrative coaching into the software program. Designed for the budding screenwriter, students can select a background, adjust character personalities, add scenes and consult the Idea Machine for a story starter, plot twist or dialogue suggestion (Tom Snyder 2003).
Figure 3: Screenshot #1 from *Hollywood Express*

Figure 4: Screenshot #2 from *Hollywood Express*
The accompanying teacher’s guide includes hand-outs of “scene skeletons” - short outlines of a scripted scene. Students are able to practice creating a story that applies the classic shark metaphor of head (a conflict or challenge is introduced, body (conflict escalates through interaction of characters, tail (conflict is resolved much easier with the scene skeletons to prompt them). Combining a workbook approach to learning with software that reinforces narrative principles is an improvement over any approach that leaves the narrative construction completely up to the student.

The story systems discussed in the remainder of this section challenge educational technology’s current attitudes towards software by directly applying technology to the story creation process. Commercial software developers and teachers can learn much from the research on interactive story systems. The work of Bruckman, Cassell and Robertson demonstrates how important cognitive and developmental theory is to improving educational technology. Instead of viewing technology solely as a tool to accomplish a curricular task, teachers and software developers should consider how technology supports the cognitive and social development of students.

Despite vast differences in how university researchers and public schools define “story” and their views of how technology should be used in the classroom, all agree that story is important and that the ability to tell an effective story can be supported by technology. My intention in highlighting the work of Cassell, Bruckman and Robertson is threefold: to draw attention to the novel ways technology has been applied to the complex process of creating a story; to underscore the constructionist theory that contrasts the prevailing approach to technology in schools; and to suggest that the available
commercial digital storytelling software is at odds with the view of the student as
“technology designer.”

Under Justine Cassell’s direction, the *Gesture and Narrative Language Research Group* has produced a large body of research on how technology can be applied to the storytelling process.

My students and I build *Story Listening Systems* that listen to and respond appropriately to children’s stories. What sets this work apart from previous Eliza-like systems that respond to users, or current CD-Roms that tell stories to children, is the fact that our systems encourage children’s active exploration of narrative, linguistic creativity and verbal play…Our contribution is to extend the notions of child as technology designer to systems that explore story, self-concept, and linguistic creativity. In addition, the majority of our research is embedded into electronic toys, and not desktop computers. (Cassell, 2004)

Cassell and students have produced *Sam the Castlemate, Storymat, SAGE, Eddie Edit, TellTale,* and the *Victorian Laptop* to provide children with opportunities to construct stories. Like much of the work undertaken at the Media Lab, Cassell’s and Amy Bruckman’s work has been grounded in constructionist learning theories that advocate learning through design and the construction of personally meaningful projects (Bruckman 2003).

*Sam the Castlemate* records children’s oral stories, tells them stories, and prompts them to expand their stories. A plastic toy castle is connected to a computer and a video monitor that projects Sam, the virtual story coach, behind the toy castle. Toy figurines that the child can move about the castle facilitate the turn-taking process of when Sam tells and when she listens. Sam’s storytelling skill is designed to be just above that of a typical 4 – 6 year old, incorporating Vygotsky’s (1978) theory that when presented with a slightly more advanced model of something a child may enter their “zone of proximal development” (Cassell 2004). According to data collected from user tests of Sam with
children, she was very successful in bringing out the story coach in many of the children and increasing their use of spatial expression and quoted speech (Cassell 2004). It is important to recognize how researchers directly apply technology to the story creation process and how the commercial players in the digital storytelling market have a limited idea of the needs of its intended user. *Sam the Castlemate* is the AI version of what master storytellers and coaches Jay O’Callahan and Doug Lipman have taught for the last twenty years. It asserts the need for story coaching as an integral part of teaching story; be it digital, oral, or written. Lipman’s book *The Storytelling Coach* (1999) remains one of the most influential tools of my teaching career.

*TellTale* is a manipulative story tool that allows students to record twenty-second audio pieces into each of the five plastic caterpillar body parts. Each of the five parts can be rearranged and at any point the head can be attached to hear the entire story sequence, as well as just listening to the individual segments. *TellTale* addresses storytelling in the context of writing literacy with a focus on children at the emergent stage. “*TellTale* illustrates an important concept of writing by its form: units of discourse must hang together somehow, and then be connected to other units, and there must be a beginning and an end” (Ananny & Cassell 2001). According to its authors, “*TellTale*’s segmented interface…seemed to help children tell stories that were longer, more cohesive (containing fewer disfluencies and more conjunctions) and with more traditional beginnings and ends” (Anneny & Cassell 2001). In most classrooms, narrative segmentation and structural language are usually taught in the context of reading: grammar, phonemes, and punctuation. Beyond Show-and-Tell, students have few opportunities to play with narrative structure. Students need time to practice the skills of
forming hooks, setting up a conflict to be resolved, and just time to play with language. While TellTale does not provide feedback on skills like these, it does allow students to improve their own evaluation of a story. Through a process of applying a currently held conception of a story, the child records a story segment, listens then revises according to what she hears.

MOOSE Crossing is an online storytelling community, emphasizing peer coaching and creative writing, where participants construct their own text-based worlds while learning basic script programming. Building on her work in online communities and MUDs, multi-user domains where many people log-on and collaborate using object-oriented programming, Bruckman designed MOOSE Crossing and collected data from classroom and after-school settings, as well as independent home use. Once logged on, you are assigned a virtual room in the text-based Crossing world you describe creatively so that it appeals to other online visitors. Many users adopt a persona and construct virtual pets that follow them to other places within MOOSE Crossing. Here is one student’s description of his room:

Bill’s Kitchen

You see pig wallpaper surrounding you. Suddenly, you hear squeals from within the oven. They say: "Hey, is it me, or is it HOT in here? I don't think it's a sauna, because saunas aren't this dark and small!

Users explore the online world in a manner similar to that of Zork (Blank and Lebling 1981), the biggest difference being that MOOSE Crossing is not a closed system. Students collaboratively expand the system as they build new rooms. If they are stuck, they can seek out help from those online in MOOSE Crossing and receive tips on adding scripts to make pets respond or how to teleport to another part of the online environment.
While the stories students created within MOOSE Crossing lack conflict, tension and resolution, it was computer-supported collaborative learning (CSCL) that was Bruckman’s primary research interest. The online collaborative coaching model that worked so well in MOOSE Crossing could be adapted to the coaching of digital stories. A MOOSE Crossing-type of environment that integrates Lipman’s story coaching principles while students are composing drafts of a story would be very intriguing to implement.

Ghostwriter. Classroom teachers have traditionally taught the basic story principles of plot and character through literature study or drama. But computer games have the potential to engage students in a virtual role-play environment that improves their understanding of characterization in story. Judy Robertson and researchers from the University of Scotland have developed Ghostwriter, a 3D virtual world where students take on the role of a brother (Daniel) or sister (Jenny) who are in search of a lost friend last seen in a mysterious castle. An adult acts as the live human role-play leader and adjusts the plot in response to the students’ actions, while also encouraging the students to express their feelings related to their actions in the story. Ghostwriter’s emphasis on the theory of educational drama is evidenced by how students encounter conflicts while in role and must make decisions that shape the personality of their character. After the role-play experience, students write a fictitious story based on their episode.

As will be discussed in more detail later, the context in which a student is asked to create a story always impacts the story writing process. In Ghostwriter, students create their stories directly based on their experience with the 3D virtual world. Kar2ouche by Immersive Education also allows students to explore virtual 3D worlds and “develop
contextual understanding, critical interpretation and individual expression through a wide range of cross-curricular creative activities” (2004). Drawing on the contexts of plays by Shakespeare and Egyptian, Roman and Viking history, students are provided with scenes, props, and characters to “act out the Viking invasions and live life inside a Viking village” and “re-create scenes and myths from Egyptian life” (2004).

Figure 5: Screenshot from Kar2ouche

*StoryStation*

Research on composition finds that “the root of the problem is that writers are influenced by so many constraints that they encounter difficulty in addressing them all at once” (Flower 1994). Robertson collaborated with a team of teachers, researchers and children to develop *StoryStation*. They aimed to: “build an emotionally supportive intelligent tutoring system to assist children with story writing; and to evaluate the effect of animated pedagogical agents on pupils performance and attitudes” (Robertson 2002). *StoryStation* provides feedback on the mechanics of the student’s writing (spelling,
grammar, punctuation) and the larger writing goals (coherence, relevance, creativity) in the form of agents that appear on the screen to offer suggestions. The program uses a natural language processing system containing a collection of fables, mysteries and stories written by students using the Ghostwriter program. The digital story genre is relatively new in education. A compilation of quality story scripts written by students, either in print or as part of an AI story coaching system, would be another valuable resource for students and teachers.

A story genie, an artificial intelligence-based story coach, or “wizard” would be a welcomed addition to digital storytelling process. I am not suggesting that the computer can coach a student towards a particular learning objective better than the human teacher, but rather that an AI story coach could complement digital storytelling education in the classroom setting. I have witnessed educational software evolve from drill-and-skill to simulation software to now exploring the rich possibilities of immersive narrative environments via MUDs, 3D virtual worlds, artificial intelligence and a range of truly interactive story systems.

2.4 Digital Storytelling Enters the Classroom

When I started teaching 5th grade in 1993, my classroom had a handful of Apple II and Mac Classic machines that students used for word-processing and playing Oregon Trail. I was trained in whole-language approaches to teaching reading and writing, and I wanted my students to write with an authentic audience in mind. The educational publishing software for kids at that time provided few opportunities beyond creating travel brochures. However, the introduction of CD-ROMs and faster processor speeds
soon altered my view of the computer as a drill-and-skill device and sparked my curiosity as to the extent to which students could create meaningful multimedia projects.

At about the same time, the emergence of a new set of digital media tools had attracted a group of media artists, designers, and practitioners from the San Francisco Bay area. They were interested in how personal stories and storytelling could inform the use of these new tools. Lambert, Atchley and Mullen opened the Center for Digital Storytelling in 1996. Their collaboration with local non-profits, activists and educators launched some of the first digital storytelling projects in schools. While the phrase “digital storytelling” was new to classroom teachers, the practice of having students create short mini-autobiographical movies shared many elements with the multimedia production explored prior to the arrival of programs, such as iMovie and MovieMaker.

The historical context of the start of digital storytelling in education is important to note because it signals a shift not only in the teacher/manager model where students rely solely on the teacher for learning, but also in the purposes of multimedia production. Creating digital stories is a vehicle for supporting many of the 21st century skills students will need to succeed in a knowledge-based society (Porter 2004).

On a timeline of how technology has shaped compulsory education, the practice of digital storytelling in schools comes after programs like HyperStudio entered the classroom in the early 1990s. Basic multimedia production was now introduced to students as early as first grade. No longer limited to pencil and paper versions of book reports, students could include images, audio, and video to “How I Spent My Summer Vacation” assignments. However, creating first person narratives was not the primary goal of early educational multimedia production and is still not the focus of digital media
education. Using technology to put a new spin on research reports continues to be teachers’ primary reason for introducing multimedia production. Figure 6 illustrates the type of cut and paste (from an encyclopedia or a website into HyperStudio) multimedia reports popular among elementary school students.

![Figure 6: Screenshot of HyperStudio Student Project](image)

Students have often used HyperStudio and Powerpoint to regurgitate collections of facts. The traditional research report has been repackaged as the multimedia report, and much has been lost in the name change. I will be the first to admit that I wasted a lot of valuable class time that could have been better spent on teaching kids how to actually do research instead of explaining how to add linking buttons and why orange text on a red background was unreadable. But those were the early days of the “computers are essential in the classroom” bandwagon. Assessment and effective practice were dirty
words in those pioneering days. Questions of how do we teach students to convey information effectively with multimedia were pushed to the side as teachers grappled with getting students on-line, incorporating CD-ROM software into lessons, and troubleshooting technical glitches. Telling stories was not part of the edu-tech agenda, yet some pioneering teachers were discovering that multimedia production was a way to represent student voices in a way previously unavailable.

One particular project stands out for me. A 4th grade colleague created a HyperStudio project in which students wrote autobiographies complete with images and audio commentary about their lives. Unbeknownst to the students, the teacher had had each child’s parent record a reflection about the day their child was born. These were smuggled into each student’s HyperStudio stack and the entire project was shown at a special gathering of parents and students. The glowing reactions of students, parents and teachers confirmed for me that multimedia production in the classroom had more to it than just repackaging information.

After my initial training in digital storytelling with Lambert, it was clear to me that the Center’s intensive three-day workshop model was already a challenge for adults and that some careful adaptations needed to be made to implement digital storytelling in the mainstream classroom. In the CDS model, participants are instructed to bring a draft of a story idea to the workshop. Trust among participants is developed as these story ideas are discussed in an opening story circle. Suggestions for revising the draft follow the discussion, then the workshop dives into modeling the elements of an effective digital story. Past examples are shown and participants leave the first session with the expectation they revise their script in the evening and return the next day with a near final
draft. Adults seem more comfortable with the small window of time to hammer out the final draft of their script, but I knew this would not work in the classroom. Students and teachers are familiar with the writing process workshop approach made popular by reading and writing instruction teachers and researchers: Nancy Atwell, Donald Graves and Lucy Calkins. However, I believe that students need much more than the prompt to write and a screening of past student digital stories.

As illustrated by Robertson’s work, context is often the most important force behind a project’s success with students. The goal of my first digital storytelling project was to have my fourth graders create a story about a place, physical or abstract, that was personally significant to them, a place where they felt safe, comfortable, and confident, a place that they identified with. I saw a need to improve communication between the mostly white suburban students and the urban students bussed to the suburban school district as part of a voluntary desegregation program. I felt that creating and sharing digital stories about important places would build a bridge between the students allowing them to understand what they had in common and what really kept them apart. Of course, the students had no idea that this was my intent for the project, but they immediately understood the task. It was the first time in my eight years of teaching that after I had given a set of instructions not one student raised a hand and said, “I don’t get it.” In addition, my curricular objective was to apply technology to the writing process so that it motivated students to write creatively and for an authentic audience.

My first attempt at adapting digital storytelling for the elementary classroom combined my coaching experience in oral storytelling, writing, and creative drama. I enlisted the help of a local professional storyteller, Kevin Brooks, who not only told
stories to students, but also helped co-teach students the story coaching methods that anchor traditional oral storytelling (Lipman 1999). Brooks was also a graduate of the Interactive Cinema Group at MIT and had valuable insight into writing for digital media. I had provided students with an outline that prompted them with questions to structure the beginning, middle and end of their stories and then applied the writing workshop model that was already familiar to the class (Banaszewski 2001).

Some may argue that digital storytelling is just a new name for the established practice of students creating short films. I consider student filmmaking a form of digital storytelling when it has been written and produced by only one author. Nikos Theodosakis, one of many talented film/video educators, has worked with K-12 students over the last decade helping them produce documentaries, commercials, and twenty-minute dramas (Theodosakis 2001). *The Director in the Classroom* has been used by educators who share his belief that “filmmaking in the classroom...fosters the development of a multitude of critical skills at every step of the filmmaking process” (Theodosakis 2001). In contrast to high school video production classes, Theodosakis stresses story first and camera skills, such as rule of thirds, second. However, multiple authors/directors producing a multimedia project such as a documentary undermines the real power of an individually produced personal narrative. A digital story creates an intimate virtual dialogue between the teller and the viewer.

Because digital stories are most often individual reflections of self, identity construction is a more pronounced part of the digital storytelling process than when creating a group short film. According to Theodosakis, “the film-making process is all about developing awareness, creativity and self-esteem” (2001). One of the principles of
Lambert’s and the CDS’ approach to digital storytelling is that “Every human has a powerful story to tell. You cannot experience life without insights to your experience, which are valuable to a larger audience” (2000). Student filmmaking and video production in schools does not always reflect this attitude. To a larger extent, I argue that the overall purpose of technology in schools is not concerned with empowering student voices.

With the arrival of programs such as Apple’s iMovie and Windows’ MovieMaker in the late 1990s, digital storytelling began to find a receptive audience in K-12 education. Unfortunately, a quick review of Apple’s online iMovie showcase revealed that not one project was categorized as digital storytelling nor had allowed for students to create a first person narrative on a topic of their own choice. Interviews with local war veterans, exploration of idioms, simulating immigrant journeys, math mysteries, and literature adaptations all represented a variety of educationally sound and innovative ways to meet curricular goals, but not one project was from an individual student’s personal perspective. Including documentation of the standards for each project is a thin veil over Apple’s primary objective of cementing a foothold in the educational multimedia market.

All of the blame for digital storytelling’s diminished status in the eyes of the commercial software leaders cannot be laid at the feet of Steve Jobs and Bill Gates. They provide the tools. It is the teachers who decide how they will be used. However, teachers are not completely free to decide how technology will be used in their classroom. More often, if the resulting multimedia product does not clearly show the acquisition of a skill or concept that appears on a state-mandated test, the teacher’s project will receive little support.
Although nearly all of the *iMovie* and *MovieMaker* projects posted on the respective companies’ educational showcase sites resemble slideshows lacking a coherent narrative, the approach used by the teachers guiding such efforts still mirrors the process of creating a digital story. The key differences between these projects and “true” digital stories are the amount of time spent writing the accompanying narrative and the opportunity for the student to write, direct and produce her own work instead of being part of a group project. However, as illustrated by Anthony’s story, the first of the following two digital story transcripts, anecdote is often mistaken for story, even among those who believe they are practicing digital storytelling. The latter story, “From One Place to Another” is a sample story from a digital storytelling project whose goal it was to improve students’ story literacy.

“A Parrot Named Robert Baggio” by Anthony’s

*When I was six years old my granddad had a parrot named Robert Baggio. He was named after a very famous football player. He really didn't have much to do with the parrot anymore because he had a busy life so he gave it to us. And we kept him and looked after it. I really liked it. It only had one wing. Me and my brother used to sit out in the garden and watch it try to fly. It only went around in circles and landed on the ground. It was really funny.*

*About four months later, we went on holiday to Italy. We had no place to put the parrot and we couldn't take it with us. We had no room so we left him in the shed where my dad did his wine-making. he had all his wine-making things in there. We left it with plenty of food and water. The parrot just stayed in there so it didn't fly away.*

*About three weeks later, when we came back from holiday, I just put my bags down and ran straight for the shed. I pulled the door open and there was the parrot with its head jammed in a wine bottle. Suffocated. Dead.*
“From One Place to Another” by Marco

Have you ever had a big change in your life? I have. It all started in Mexico when I heard my mom and dad talking. My dad said, “We should move to the US.” I was shocked. I wanted to cry but I was caught up in a lot of emotions. This was a big change for me because I had never learned to speak another language, other than Spanish. I wondered how it will be and will I forget how to speak Spanish. I didn’t want to meet new people but at the same time I did.

On my second day in the United States, I went to school. The first few days I felt really bad because some kids called me wetback. Almost nobody talked to me. I also got really frustrated because I couldn’t understand my homework.

One day, a new teacher came to class. She came to teach special classes just for me. Four more months passed and I learned how to speak English. I still had an accent, but I was finally able to talk to people and make friends.

There are many challenges to guiding a group of students through a digital storytelling project. When the story part of a digital storytelling project is not clearly defined, the end product will often resemble an anecdote or a narrated slideshow. An engaging and satisfying story strives to apply the following definition of story:

a story needs to contain certain essential elements: 1) a beginning with a “call to adventure” (Campbell) 2) conflict 3) transformation of central character by end of story 4) transfer that allows reader to transform and learn new things along with central character 5) an end or closure, not necessarily a happy ending (Ohler 2004).

Accomplishing the latter is the primary goal that has guided my analysis of digital storytelling approaches in grades 4 – 12. Anthony’s story clearly does not contain a character in conflict whereas Marco’s story contains nearly all of the elements. The transformation may not be that rewarding, but in terms of story literacy this is an exemplary digital story.

For teachers, a digital storytelling project should follow five stages: 1) Planning/Logistics 2) Script Writing 3) Teaching Digital Story Elements 4) Managing the
Technology and 5) Assessment. In Chapter 3, I have used these five stages to frame my analysis of approaches to digital storytelling. Within the five stages, I address the following issues challenging digital storytelling in education:

- emphasizing tool literacy over story literacy
- adapting traditional composition methods for writing a concise narrative enhanced with moving images, text and audio
- relying on deconstruction of a model digital story to teach the seven elements of an effective digital story
- absence of visual and media literacy instruction in school curricula

A general lack of support for storytelling in schools and an antiquated view of literacy, combined with a tool centric educational technology philosophy have created these challenges. Schools are not currently positioned to support the changing multiple literacy needs of students. The previous two chapters detailed the institutional forces undermining digital storytelling and clarified the misconceptions about its practice in schools. With a clear definition of digital storytelling and its purpose, we can now examine the practical hurdles to teaching digital storytelling.
Too often, [educational technology] …is about teaching students how to ‘do’ a spreadsheet, a web page, or how to edit a video. What is needed is the continual asking of the question, “How can these technologies empower our students to be better communicators of their ideas?” (Theosodakis 2001)

3.1 Assumptions

For every report encouraging the use of computers in classrooms, there is another one reminding schools that not everyone believes technology is the panacea for education. The Alliance for Childhood recently published a report that argued computers are dehumanizing children and lacking sufficient proof of increasing student achievement. The report also criticized the lucrative partnerships education officials have made with technology vendors (Rivenburgh 2004). While not agreeing completely with the Alliance’s view of: “Our children face a daunting technological frontier of irreversible changes in human biology and the world's ecology. They need a radically different kind of technology education to make wise choices in such a future,” I exercise cautions when advocating technology use in schools. From my observations of teachers in a variety of schools and reflection on my own practice, I have concluded that much of what goes on in classrooms is surprisingly based on assumptions and convenience. Perhaps in no other part of current educational practice is this more evident than with technology. The gap between intention and execution of using technology to help students communicate through story drew me to analyze digital storytelling in education. I maintain my own assumptions about digital storytelling in education:
• Developmentally appropriate expectations are important because digital storytelling challenges students to synthesize personal experience with narrative, visual, media and technical skills
• The context of a project has much to do with the purpose of using digital storytelling with students, and influences the end result dramatically
• Assessing digital stories often becomes a subjective process because teachers do not possess the storytelling and digital media skills necessary to make accurate assessments
• Students and teachers lack traditional oral storytelling skills as well as visual and media and computer literacies
• Teaching traditional storytelling and narrative structure is essential to improving students’ digital storytelling skills
• Teaching personal narrative through digital storytelling requires more than the composition approach used to teach most writing genres
• Technology alone cannot solve the challenges of creating an effective story

My review of digital storytelling approaches contains four threads that address the concerns of both teacher and student. The first thread, represented by the English/Writing teacher, is concerned with evaluating first-person narrative writing based on established writing standards. Lipman and his four-part story coaching model represent the second thread, encouraging teachers to expand their assessment practices beyond mastery of skills. The third thread, the Center for Digital Storytelling’s seven elements of effective digital storytelling, is the benchmark used for evaluating a digital story. The final thread reflects the concerns of the multiliteracies debate, reminding us that digital storytelling can provide critical practice in the digital literacy needs of the 21st century.
The following questions have guided my interviews with classroom teachers, workshop facilitators, after-school program instructors, and technology integration specialists:

- How was the CDS model adapted for use with students?
- What are developmentally appropriate expectations for student digital stories with regard to personal narrative writing and technological literacy?
- How does the context of a project influence story development? Does a focused theme, such as Immigrant Stories, affect the process more than an open theme, such as A Change in Your Life?
- How much of a factor is maturity in students’ ability to synthesize personal experience with digital media expression?
- What was the teacher’s motivation and main objective for the project?
- How successful are deconstruction techniques in teaching digital storytelling?
- What were students base skills in story, media and visual literacy?
- What role did identity construction play in the process?
- How were digital stories assessed? How did this relate to the established writing standards for personal narrative?

Over 5000 people have passed through the CDS workshop. Many have returned to their businesses, classrooms, non-profits, and after-school programs to tailor a digital storytelling approach to suit their needs. Nearly all of the approaches referenced in this chapter have their roots in the CDS model. The digital storytelling community has accepted most of the following seven elements of an effective digital story put forth by Atchely, Lambert and Mullen after the initial years of running the CDS workshop:

1. Point of View
2. Dramatic Question
3. Emotional Content
4. Gift of Your Voice
5. Power of Soundtrack
6. Economy
7. Pacing

Teaching students these skills and concepts then honestly assessing their completed
digital stories presents several challenging issues. These issues can be divided into two
categories: 1) subjective assessment and 2) insufficient attention paid to determining
what is developmentally appropriate to expect of students' personal narrative and media
skills. In this chapter, the five stages of a typical digital storytelling project are used to
illustrate the issues raised by attempting to teach and assess a digital story that
corresponds to the seven elements. A brief discussion of the seven elements in the
context of two student digital story scripts is important prior to discussing the five stages.

3.2 A Tale of Two Stories

“My Backyard” by Charlotte (4th grade)

This… is my place.
From my house you could see the built-in sandbox and play-space that my parents and I
created together. We also had a beautiful vegetable garden. At certain times of year, my
vegetable garden would grow taller than ME! Our backyard was like a park. The bridge
was the start of a trail, which went across a stream. And the trail wrapped around trees,
bushes and rocks until it came to an opening at the bank of the Farmington River. Being
a little girl at the time, no matter which direction I turned my place seemed as big as the
moon. My brother and I were there every minute to help our place grow, and ride that
cool tractor. Now every time I look at this picture, I wonder if this swing is waiting for me
to come back and take it for a ride in my place.
I had watched him shoot down so many others before. He could ruin them with just one scratch. My friends surrounded me, pleading for consolation, but no words of comfort passed my tongue. So far I had been spared. So far. I focus my concentration back on the monster. The look in his eyes let me know I was next. So much for lucking out I had thought. I was dripping with sweat, but I didn’t pay it any mind. Instead, I followed his every move. And although I am sure he was aware of me watching him like a hawk, he paid me no regard. A small smirk snuck upon his face. I knew he was laughing at my pathetic attempts at survival. All of my hopes and dreams flashed before my eyes as he pulled out his thin, pointed weapon. Who would have guessed something so tiny could inflict such lethal pain. We were foolish to underestimate his power and he grinned at it. He still wore the scarlet smears on his hands as if he were proud of the horror he had caused. The tyrant slowly parted his torture tool from its protected sheath, the tip of it was still red and glossy. I held my breath as the moment of my doom came closer. And closer. And closer. There was nothing left for me to do. No begging, pleading or bribing could prevent him from stabbing me in the back. And putting a giant F on my final exam.

“Final” by Larry (10th grade)
1. **Point of View** – Stories need to make a point. “True” digital stories use the first person. In the case of “Final,” the student responds to a negative encounter with the teacher and demonstrates awareness of his audience in selecting an experience common to students. Charlotte’s story also has a clear, personal voice narrating the story.

2. **Dramatic Question** – Borrowed from dramatic theory, the dramatic question sets up the tension and goal of the story. According to Tristane Rainer in *Your Life As Story*, all stories can be reduced to a desire-action-realization model. The main desire is introduced in the beginning and establishes the expectation of it being resolved by the end (Lambert 2001). “Final” introduces the question of why is the narrator’s life in jeopardy, but a goal is not introduced. At the end of the story, we can infer that the narrator’s real desire is to confront the teacher and slay the monster. He is very successful in building up the suspense, but I can only guess at what he desires. Is it
enough for students to just want to share an experience in story form? The dramatic question is what separates a story from an anecdote or a narrated slideshow. Section 3.4 discusses the ways in which teachers have avoided the slideshow trap. Charlotte’s story also lacks the introduction of the narrator desiring something. The desire-action-realization model is broken, but this does not mean that her story is not a digital story. Her story reflects the personal narrative writing expectations of a student at that age.

3. **Emotional Content** – Stories that speak to fundamental paradigms of death and our sense of loss, of love and loneliness, of confidence and vulnerability, of acceptance and rejection will emotionally engage us (Lambert 2001). Despite the somewhat detached voice of the narrator, I still can hear Larry’s vulnerability and fear of rejection. Some students need a vehicle that allows a comfortable distance from the story material. In Charlotte’s story, her connection to her former backyard conveys her sense of loss.

4. **Gift of Your Voice** – This is a more technical element that expects the teller to recognize the power behind her individual voice. A digital story with a voice-over that sounds like it was read off a page greatly reduces the overall quality of a digital story. Both students were comfortable with their voices, taking their time, sounding as if they were telling a story rather than reading off a paper. In Larry’s story, he uses his voice as a weapon that might slay his monster.

5. **Power of Soundtrack** – Not surprisingly, students have a very developed sense of music and are always very eager to include it in their story. Used appropriately music and sound effects can add depth to a story. Sometimes silence is just as powerful.
This was the case with “Final.” Charlotte had chosen Mary Chapin Carpenter’s “Almost Home” that worked well to express her relationship to her former home.

6. **Economy** – An effective digital story can be told with a small number of images or video clips, and a short two to three minute script. For students, economy relates more to selecting visuals that are not literally connected to the script. Charlotte used ten photographs that were all literal representations of what she was saying in her story. This is perfectly acceptable for a fourth grader without any instruction in image selection or manipulation. Larry used a variety of grainy black and white images that recreated a Blair Witch Project effect. He demonstrated his knowledge of basic film conventions by cropping images to express a close-up, which heightened the sense of fear and doom in his story.

7. **Pacing** – According to Lambert, “good stories breathe” (2003). The narrators are also aware of the audience. In each student’s story, they effectively use the two to three minute window expected in a digital story. Larry adopted an Edgar Allen Poe pace similar to “The Tell-tale Heart,” while Charlotte chose key moments to emphasize what she missed about her backyard.

The story coaching model is a four-part process that seeks to empower the teller, rather than critique the work. The model is not limited to story creation. It could easily be applied to a student’s solution of a math problem or science experiment. Process is favored over product. I suggest its inclusion in a digital storytelling approach with students because it is best suited for projects where students control the flow of information. Digital storytelling is attractive to students because they get to drive the
learning. Story coaching supports the personal risk-taking that accompanies this relatively new driving experience for students.

1. Listen to the teller (suspending judgment)
2. Offer honest appreciations (avoid saying “It was good when…”)
3. Provide suggestions if prompted (this is not at odds with teaching responsibilities)
4. Provide opportunity for teller to ask questions or request help

I viewed “Final” in its digital story form so it was impossible to suspend reading the images during the story. I appreciated the novel way the author built up suspense with grainy black and white images and also how he recreated the scene of receiving an F on his final exam. I appreciated the respectful way he responded to the event. If he were to revise the story, I would suggest adding a clock ticking to exemplify the build up to the revelation of the failed final exam. It would also go well with the “Tell-tale Heart” effect.

3.3 Stage 1: Planning/Logistics

*Note: block sections appearing in italics indicate scenarios based either on interviews or digital storytelling projects described on the Internet.

Pre-assessment

The single most important step a teacher can take in planning a digital storytelling project is to complete a digital story herself. This will provide first hand experience in exactly what the students will be expected to complete, both in terms of the personal writing and the computer skills. Due to constant time constraints of the teacher’s day, this crucial step is often sacrificed, resulting in frustration when students struggle with a part of the project. The teacher often has the most accurate gauge of the student’s writing and
computer skills, and can adjust a project accordingly. According to Jeanne Biddle, teacher and facilitator of digital storytelling in the Scott County Schools in Georgetown, KY, “Far too often, teachers find themselves teaching writing when they’ve never had the experience of being writers themselves” (Salpeter 2005).

**Beware the Bandwagon**

When the school where I taught was first connected to the Internet, I wanted to teach 5th graders HTML. I created a template for them to fill in basic profile information in between a set of about a dozen tags. During an impassioned lecture on how hyperlinks functioned, a student stopped me in my tracks by asking, “Why are we doing this?” I was livid. Didn’t he see the impact that programming would have on his future? Didn’t he want to add his voice to the pioneering landscape of cyberspace? I discontinued the project a few days later. The rush to hop on the educational technology bandwagon is often well intentioned, but lacking in thoughtful connection to clear learning goals. Direct and indirect pressure from tech savvy parents, students, and colleagues sends the message that teachers need to have students engaged with technology or else they won’t be adequately preparing them for the future. The following scenario illustrates a pitfall common to digital storytelling approaches in schools.

*Jerry wanted his 8th graders to gain some experience with iMovie. Many of his colleagues had had students using the novice video-editing program to create multimedia projects related to their curriculum. The school’s principal also strongly encouraged her staff to make use of technology in their teaching. The 8th grade curriculum required students to study immigration during the 1900s. To meet this goal, Jerry instructed the students to write a story about their family’s heritage. They were shown a completed digital story based on the family heritage theme and then discussed what made a digital story different from a slideshow and how the narrative was structured in the digital story. Students wrote their stories at home over a three-day period. Some chose to focus on one side of the family over the other. Some only wrote about one particular parent. The students spent a week revising and storyboarding their stories before beginning a three week, one hour per day work period in the school’s computer lab. The family story theme was*
interpreted in many ways by the class. Some collected humorous anecdotes from grandparents. Some told stories of how their grandparents met or how their family came to live where they live now. Many followed the how-my-parents-met-and-had-me formula. The resulting digital stories tended to lean towards a narrated slideshow rather than a digital story following the seven elements. The assessment rubric evaluated students on their script, visuals, and technical editing.

To the teacher, students and parents participating, this project was deemed a huge success. The students had performed exactly as instructed. They were now familiar with the iMovie program and had been exposed to a variety of important media and visual literacy skills. The absence of assessing what students learned about immigration demonstrates a common occurrence: technology’s euphoria in the classroom steamrolls curricular objectives. The reasons for teaching students digital storytelling can be justified with many core curriculum and technology standards, but when the goal is to use technology, the content does not matter. If providing practice with software such as iMovie or MovieMaker is the purpose for a digital storytelling project, be clear about it. Tool literacy has its place in the classroom, but attempting to assess student-produced digital stories when that is not your primary goal leads to many problems. Subjective grading occurs when students are assessed on criteria such as script coherence and appropriate selection of images without receiving adequate instruction in those tasks.

3.4 Stage 2: Story Drafting

Digital Story Script Writing vs. Traditional Composition

The central issue for schools implementing digital storytelling is figuring out how to adapt their traditional composition writing methods to ones that support writing for a digital space with moving images, text, and audio. Many educators who have learned digital storytelling through the CDS have struggled with this transition. For some, the lack of support for storytelling in the curriculum has forced a shift away from personal
narrative to content-area integration. Others have relied on the CDS model of showing completed sample digital stories to guide students during the script writing. Some have applied a filmmaker’s approach where students develop a strong visual picture of their story and pitch it to a teacher and peers before beginning to write. Despite differences in methodology, all agree that without a well-written story, you have nothing more than a glitzy *Powerpoint* presentation. Three general profiles exist of approaches to digital storytelling: the first who focus on personal narrative, the second who target content-area integration, and the third who view digital storytelling as filmmaking.

Currently, no one has developed an effective alternative to telling students “keep in mind that you’ll be using text, images and audio to replace written parts of your stories.” This complex abstract skill reveals the largest challenge for the student digital storyteller. The bridge from traditional composition methods to what Porter refers to as “dancing script text and media together” still remains the work of educators integrating digital media production into their classrooms. She reminds teachers in her DigiTales workshops that “the essential question to consider: is the written script filling in the meaning for the images and sound, or are the images and sound filling in the meaning of the text?” (2004). This difficult question is often ignored because digital story writing is assumed to be easier for students because they can use images, audio and text to replace written description. For students who have not yet gotten a handle on the idea of “Show-Don’t Tell” in text, digital story script writing can be a frustrating task. These are some of the issues that influence the actual teaching of digital storytelling. Students can benefit from access to a combination of written, oral, and visual tools while conceptualizing their story idea.
The CDS approach was developed with adults in mind. It begins with the Story Circle where everyone shares initial story ideas - trust, respect, and collaboration are assumed by all. Effective use of the seven elements is modeled and discussed by showing three to four completed digital stories, followed by tutorials in the software used during that weekend’s workshop (Photoshop, Premiere, iMovie). Participants are expected to arrive the first day with at least a draft of a story script and by the next day return with a script near ready for voice over recording. Adults, being familiar with the intense pace of workshops and having more experience with personal narrative, have handled the CDS model well. Students need more than “Think of an idea for a story. Write it. Then storyboard it.” While teachers rarely limit their support for the scripting stage of a project to this mandate, many have ignored the techniques developed by creative writing teachers, oral story coaches, and filmmakers for starting a personal narrative.

Story Writing

Lambert includes the following in the script writing section of Digital Storytelling: Capturing Lives, Creating Community (2002):

- Use only the space on a 4 x 6 index card. Write for ten minutes about your story idea. Do not stop until the card is full or ten minutes has passed.
- Respond to the prompt: “When in your life did a decisive moment occur that changed the direction of your life?”
- Draw a map of the neighborhood you grew up in.

Approaches to helping students write a script for a digital story vary with the purpose of the project. A five hundred-word composition on the personal significance of playing the piano is not a useful digital story script, regardless of its quality. When I was half way through my first digital storytelling project with a class of fourth graders, I recognized a
major problem. I had spent two weeks teaching students how to write an opening hook, the power of similes and metaphors, and drawing more and more descriptive detail out of them. I had provided an outline with prompts that structured the beginning, middle and end of the story, and guided them towards identifying what exactly it was about their place that made a difference in their lives. After they revised their drafts two to three times, I felt that I had met my writing objectives for the project. But, now I had stories too long for the three-minute maximum window for a digital story. Fortunately, I only had one student who had written a four-page hour-by-hour composition about his trip to Disney Land. How could I tell this student who had spent hours writing according to my instructions that he would have to cut out most of what he had written? I had to acknowledge my error and allow a longer story. The rest of the class wrote stories that ranged from barely a paragraph to two hundred words.

Despite my best efforts, I had not done much to help prepare my students for the visual aspects of telling a digital story. I had followed a common plan where teachers ask students write a story, then to storyboard it. When the writing process becomes the time where students try to sort out the essential information of who, what, where and how of a story, scripting becomes very difficult. Most importantly, when the student is writing their script without knowing the why of the story, she is like a ship lost at sea. However, some students prefer this exploratory writing approach. Howard Gardner’s multiple intelligence theory has demonstrated that a student’s linguistic intelligence could be stronger than their visual intelligence (1991). Students should not be limited to the traditional composition model when it comes to writing their scripts. Within every class exists a wide range of narrative skills, intellectual self-awareness, and learning styles. To
accommodate these needs, digital story script writing should extend traditional writing methods to include oral story coaching techniques and visual techniques, such as starting with the images and writing into them.

The “Show - Don’t Tell” mantra often used by writing teachers does not apply to the digital story script in the same way as it does with a composition. You want the student to tell her feelings about the topic and then select images that show the details of the main character and the setting. This reverses how we have typically taught writing/storytelling to students. A recent middle school project successfully adapted a seasoned approach to composition writing to digital story script writing.

Students wrote their scripts and created their storyboard over a ten day, sixty to ninety-minute session per day. All students were told they would be writing a story about a “change” in their lives. After a whole class brainstorming session and two free writes on the theme, students selected one free write to focus on. Two days were spent writing setting, character and dialogue descriptions for the stories on separate pieces of color-coded paper (red = character, green = dialogue, yellow = setting). These were cut-and-pasted into the free write to make a longer, detailed story. The free write draft had been color-coded with stars to indicate where the character and setting descriptions would go. Students cut the sections from the appropriately color-coded paper and pasted them into the free write. These were photocopied and placed on the left hand side of a legal sized manila folder. On the right side, a blank storyboard was stapled. During the two weeks, students had been instructed to bring in five to seven images that they planned to use in their digital story. The final step involved reading through the copy of their story on the left hand of the folder and drawing a line to a box of the storyboard that had a short description of an image that would REPLACE the writing on the left side. The pared down stories on the left became their scripts for their digital story. The transition to the digital story script was handled by telling students that they would be editing their stories down to approximately 175 words.

According to one of the instructors, students were thrilled to hear that they only had a 175 word-limit on their stories. The story writing process also had appeared less daunting for students who struggled to elaborate on their setting and character descriptions (see Section 3.6 for additional information on this project). This project is unique in that it is
one of few to adapt the CDS script writing approach to meet the needs of young students, and still maintain a focus on personal narrative.

Traditional composition instruction has relied on a variety of techniques to help the teller focus and structure their story. The same holds true for teachers of digital storytelling. From story prompts to outlines, teachers have provided tools to assist in framing a story. The tools will often match the reading and writing level of the students. One digital storytelling workshop leader used a flip-chart where she displayed five framing questions at each point of a large star. Students each received five index cards to answer the five core questions: who is the main character, what is the setting, what are your feelings at the beginning of the event, what is the main event, and what are your feelings after the main event. In the middle of the star students were instructed to write the first sentence of their story.

Daniel Weinshenker, a CDS associate and artist in Denver, CO, focused on the “change model” when coaching students through the scripting phase. He quotes a favorite writing teacher in describing his approach to the writing of digital stories: “Stories are about one of two things: we go on a vacation or a stranger comes to town. Either something is coming into your life and you’re changing because of it or you’re going somewhere outside of yourself into a new space and that’s changing you. It’s always about change, whether it’s coming in and disturbing your life or you’re going someplace new.” Weinshenker combines this model with story prompts, such as “first time you fell in love” or “first time you felt betrayed by someone.” Semantic webbing exercises similar to Figure 9 and letter writing have also proven effective in his work with teenagers in
alternative high schools. The letter writing is particularly useful in steering students away from explaining their story.

Even in digital storytelling approaches that focus on content-area integration, the challenges of modifying writing instruction for a digital story script persist. The instructional technology facilitators, who often assume the difficult role of shepherding both the skeptical and enthusiastic teachers of their buildings through the digital storytelling process, have strived to maintain a focus on quality writing while working with classroom teachers. Two instructional technology facilitators have introduced digital storytelling in several Illinois high schools. Throughout their work, they have stressed to teachers that the quality of the digital story is based on the quality of the writing. Using a
traditional writing process approach, students have revised their stories several times before starting any work on the computer.

*Story Mapping*

Visualizing the flow of a story has also not been an integral part of the traditional writing process. Primary grade teachers instruct students in diagramming parts of speech in sentences while English teachers later emphasize it by referencing Freitag’s triangle (Figure 10).

![Figure 10: Freitag’s Triangle](image)

However, students are rarely expected to apply Freitag’s story model. As one teacher stated in his syllabus, “One way to understand the structure of a story is to follow the model of Freitag's triangle. I will never ask you to map out a story using this, but an awareness of it may help you to understand better just what is going on.” Because digital storytelling requires the ability to make visual relationships that convey parts of your story, practice in story mapping should be considered an important part of the digital storytelling process. It has particular relevance during the modeling and deconstructing of digital stories that teachers use to show what is expected of students.
Ohler’s approach to digital storytelling makes explicit use of visual mapping. He stresses the importance of students having a “visual portrait” of their story (Figure 11). Instead of starting with attempts at a series of structured paragraphs, the story drafting process begins by drawing diagrams, sketches or pictures that provide “a portal into the student’s mind” (Ohler 2004). This portal is invaluable to a teacher when coaching students through their stories. It immediately lets you know if students have determined the point of their story. If this is true, then they have completed the most important part of their story and can move onto storyboarding the actual visuals to support the story. A visual portrait of a story (VPS) pulls together ideas generated using a semantic web to illustrate more than just the beginning, middle and end of the story.

![Figure 11: Visual Portrait of a Story (VPS)](image)

Ohler’s VPS model, first developed by Brett Dillingham (2001), emphasizes the transformation the main character undergoes to resolve the problem of the story. In contrast to Freitag’s triangle, the main character’s transformation is what makes a story
satisfying. If the central character does not become wiser, stronger or more mature at the end of the journey, the audience feels cheated. For example, the following story conforms to Freitag’s triangle, but not the VPS model: One morning, I wanted to make pancakes for breakfast (A). I did not have any milk (B). While riding my bike to the corner store, my wallet fell out of my pocket and into a huge puddle. All of my money was soaked. I told the clerk at the store what had happened to my wallet and he laughed and told me to pay him the next day for the milk (C). I returned home and enjoyed a large stack of pancakes (D). Figure 12 illustrates transformation in a story using a VPS. Digital stories that lack transformation are often anecdotes or narrated slideshows.

For Ohler, scripting/writing is the fifth step in a nine-step digital storytelling process. Note that Steps 2 and 3 emphasize a visual and oral explanation of the story
before any structured writing takes place, and that Step 6 integrates peer feedback, a form of Lipman’s story coaching.

1. Get a story idea
2. Create a story map
3. Pitch it to your teacher and peers
4. Create a storyboard
5. Scripting/Writing
6. Review by peers, teacher
7. Production/post-production – *this is when students get to the computer!*
8. Performance (sharing with audience)
9. Assessment/Improvement

Ed Sheerin, Director of Mars Hill College Digital Storytelling Program, has developed an approach that combines writing with the visualization of the story elements. Using a film analogy, he instructs teachers to think of how the camera perspectives of wide, medium and tight shots correspond to the development of any written piece. A wide or medium shot introduces the subject whereas a tight shot provides detail and supports the subject or theme introduced in the beginning. According to Sheerin, “A storyboard requires students to identify the purpose of the writing and, thus, a natural progression of thought throughout the whole document…Students first see the big picture (the main idea, purpose or theme) and then can break that down into the smaller pieces needed (paragraphs) to best support the story” (2003). For teachers focused on using digital storytelling in a Science, Health, or History class, Sheerin’s model effectively structures scripting a story so that students translate their research into their own words and not simply repackage information from a book or website.
When compared to an illustrated example of Ohler’s VPS, you see how both a content-area digital storytelling approach and a personal narrative focused approach both benefit from having a visual map of the story. As Sheerin explains, “Our students have creative minds. Often, our biggest problem is not motivating them to write, but teaching them to stay focused on one central purpose or main idea” (2003).

The visual approach to story scripting is also emphasized by many educators teaching digital storytelling as filmmaking. Marco Torres, a Social Studies teacher and technology director at San Fernando High School, CA, stresses the importance of visualization as a prerequisite to students touching a camera or computer. “I must be able, as a teacher, to sit down and visualize what it is that they’re trying to do before I hand them a camera” (2005).
3.5 Stage 3: Teaching Elements of Effective Digital Storytelling

The above section introduced three general profiles of approaches to digital story script writing. Regardless of the approach, teaching effective digital storytelling encompasses three skill domains:

1. Story – Is it a digital story, a slideshow or a loose regurgitation of facts?
2. Visual/Media – Do media elements enhance the story’s main idea?
3. Technical – Can the student locate image or audio files, and import them into the computer? Edit and reformat images and audio?

Depending on the age of the students, these three domains present over fifty individual skills that must be taught either directly or indirectly by the teacher or collaboratively with students acting as teachers.

Overemphasis on Modeling

Using a model to exhibit an anticipated end product and its corresponding expectations is common teaching practice. The problem with modeling is that the teacher assumes students will be able to infer the corresponding steps and emulate the model with little difficulty. In digital storytelling, showing and discussing a particularly effective digital story often becomes the primary means of teaching the elements of effective digital storytelling. While modeling is very effective in engaging students in thinking about the steps of the project, it should not be the only means of teaching. The practice of showing a model digital story (often made by an adult) as the main instruction tool of the project is a common pitfall among teachers getting started with digital storytelling in the classroom. When I am done reading the latest Harry Potter novel, I do not feel that I now possess the skills to write something like J.K. Rowling. When I walk out of the movie
theater I do not feel that I now know how to script, shoot, edit and record audio for a feature film. There are a number of essential skills involved in creating a digital story that require explicit teaching, such as how to set up a dramatic question or develop tension.

Within the visual/media skill domain, students need to know how to sequence images so that they convey a particular meaning or use music to set the tone of a story. These skills demand more time than a few minutes of discussion after viewing a model digital story. Oral explanations of most things technology related often result in a poor transfer of knowledge.

Showing is not teaching. However, when teachers model a digital story in the context of teaching story, this yields something much more beneficial. One approach used by a middle school project included a story swap of either a written or digital story at the beginning of each session. On the second day, after a digital story was shown, students were asked:

- *How was the digital story different than the written story?*
- *Why did I choose the images I did for the story?*
- *Which of the images illustrated the word I said exactly?*
- *Which images were symbols for what I was saying?*
- *Why was this an important story to tell other people?*
- *What was the conflict or problem in the story?*

During that same class period, students began adding detail to their first drafts. Pairing the modeling with the in-class time to develop their stories increased the chance that students would apply some of the ideas introduced during the discussion. As one teacher put it, “We can’t expect students to pick story up through osmosis.”

Figure 14 is from a digital story I created about my cultural identity. In showing the digital story to students and asking for an explanation on why I chose to fill a silhouette of myself with text, I received only blank stares. I rephrased the question to directly
address the symbolism of the text representing my cultural identity: *How is my use of text different from having my script say “My background is made up of my interests in storytelling, teaching, writing, etc?”* Still blank stares.

During modeling, teachers should remember that most students are still making literal connections between images and their meaning. For example, when selecting images for a digital story about ice skating, a student might choose a picture of a pair of ice skates to feature in the opening scene, regardless if they belong to the author or have special significance.
Due to a lack of media literacy instruction in schools, deconstruction of media is another skill that is introduced during a digital storytelling project. Teachers are relying on critical thinking skills that most students do not possess. Students’ daily lives are immersed in media, yet within a school environment the opportunities for exploring how media messages are constructed are rare. In every digital storytelling workshop where I have discussed a model digital story with students, I have been consistently stunned by two things: students’ inability to tell me why a particular image works well in a story, and the lack of transfer of visual and media concepts from the modeling and discussion. These facts confirm for me that students need time to practice and apply the concepts related to visually representing information and conceptualizing the visual flow of a story. When we teach students two digit-multiplication, we provide plenty of practice in applying the concepts of regrouping and place value. Learning digital storytelling should not become as didactic as completing a worksheet on identifying visual relationships, but helping students understand basic visual design principles and how media can be manipulated to alter its message is the responsibility of the digital storytelling teacher.

Visual Literacy

Visual literacy is defined by the North Central Regional Educational Laboratory (NCREL) as the ability to interpret, use, appreciate, and create images and video using both conventional and 21st century media in ways that advance thinking, decision making, communication, and learning (NCREL 2004). To pass the Science section of many standardized tests, a student need not recall formulas, concepts or vocabulary. Students need to be able to critically read information presented visually. In Figure 15, the student could possess no actual Science knowledge and answer the following question:
1. On Day 10 after exposure to measles, one could conclude that the greatest concentration of the measles virus would most likely be found in which of the following locations?

A. Cold
B. Mouth
C. Blood
D. Throat

Figure 15: Virology in Health Care
(adapted from D. M. McLean ©1980 by Williams & Wilkins)

The correct answer of (C) is a simple exercise in reading a basic chart. Unfortunately, the teaching of visual literacy, like media literacy, has always been someone else’s responsibility. The bulk of most students’ visual literacy takes place in elementary school when perspective drawing is taught. If students are lucky to take an art elective in high school they then receive exposure to basic design principles. Mary Alice White, researcher, Columbia Teacher's College said, "Young people learn more than half of what they know from visual information, but few schools have an explicit curriculum to show students how to think critically about visual data" (Lightbody 2004).
### Table 6: Students Who Are Visually Literate

<table>
<thead>
<tr>
<th>Have Working Knowledge of Visuals Produced or Displayed through Electronic Media</th>
<th>Apply Knowledge of Visuals in Electronic Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Understand basic elements of visual design, technique, and media.</td>
<td>• Are informed viewers, critics, and consumers of visual information.</td>
</tr>
<tr>
<td>• Are aware of emotional, psychological, physiological, and cognitive influences in perceptions of visuals.</td>
<td>• Are knowledgeable designers, composers, and producers of visual information.</td>
</tr>
<tr>
<td>• Comprehend representational, explanatory, abstract, and symbolic images.</td>
<td>• Are effective visual communicators.</td>
</tr>
<tr>
<td></td>
<td>• Are expressive, innovative visual thinkers and successful problem solvers.</td>
</tr>
</tbody>
</table>

While acknowledged by many, few digital storytelling approaches have directly addressed the visual literacy needs of students. One teacher commented that, “Without visual literacy, you get slideshows.” Table 6 illustrates the important relationship between visual literacy and creating effective digital stories.

### 3.6 Stage 4: Managing the Technology

A digital storytelling project where each student in a class of twenty develops her own story is near impossible to manage for one person. The basic five steps of creating a digital story—write script, collect and/or create accompanying visuals, import images into the computer, record voice over, and then edit everything into a cohesive sequence—can be enormously overwhelming for even the most skilled technology teacher. When viewed as a continuum of skills, the spectrum of a digital story is comprised of over fifty discrete
measurable skills. The process can be simplified when the main objective is focused on the storytelling and not concerned with students acquiring technical skills, such as scanning. The following project has developed a streamlined approach that demonstrates the benefit of stripping away tasks non-essential to story development and structuring the project so that most of the students’ class time is spent working on their story.

Over a two-week period, teachers worked with 7th grade students on stories using the familiar “change” theme (lost pet, getting in a fight, moving to a new country, death of a grandparent) guiding them through the writing process, emphasizing character and setting description. During this first half of the project, students were instructed to draw pictures and make a list of possible images that they planned to use. Teachers took digital pictures of the students to be later used as establishing shots in the students’ stories. Each student also wrote down three sound effects that they planned to use. Their stories were stapled to the left side of a legal sized manila folder with a blank storyboard on the right side. Students drew lines from parts of their script to the corresponding descriptions of intended images on the storyboard boxes. In between the end of the writing half of the project and the start of the digital half, staff and adult volunteers typed the students’ stories, downloaded their sound effects, scanned their images and set-up a folder with their images and sound effects on the laptop that the student would use. When the second half began, students could immediately get to work on their digital story because half of their content was already on the computer. Students were able to use their own images during introductory lessons in iMovie.

Time is never a teacher’s ally. The first digital storytelling project I undertook began in February and took until the last day of school to complete. I had had two iMovie-equipped computers in the classroom, one scanner, a digital camera and camcorder, and twenty-four fourth graders. Aside from the voice over recording, which consumes the most project time, finding, drawing, scanning and importing images for students’ stories was the source of a lot of wasted time. Students had brought in two to three photographs from home then turned to the Internet for images. Their lack of media literacy skills became apparent when they chose images with weak connections to their stories.
The middle school project above suggests a method for collapsing the time span of a project by making the media elements readily available to students. Royalty free music, clip art and image CD-ROMs, and multimedia kits that combine photos, video and audio clips and documents specific to a theme, such as Japanese Internment have been used by teachers to enable students to immediately start developing their stories and not be concerned with access issues to media material (Orange County Department of Education 2005). Some may argue that pre-packaged story content leads to cookie-cutter stories, but if the focus is on developing students’ story skills then teachers need to use whatever makes their job easier.

3.7 Stage 5: Assessment, Sharing, and Distribution

Technology is used for many different types of assignment. The type of assignments expected by the teacher establishes the cognitive task as well as the scope of learning possible for students. Many students will NOT score well…because the purpose of the assignment either utilized technology for its own sake or lacked expectations/guidance for students to create an information product. (Porter 2001)

Assessment of digital storytelling can be viewed from three perspectives: 1) demonstration of writing, research and technical computer skills 2) demonstration of story, visual, media and technical literacies (digital literacy) and 3) personal development. The first perspective, which emphasizes state standards and tool literacy, is most common to classroom uses of digital storytelling. Several issues complicate accurate assessment of project-based learning, especially projects that involve media production. As discussed earlier in Stage 1: Planning/Logistics, teachers with clear learning goals will avoid subjective assessments and produce engaging digital stories
instead of narrated slideshows. When teachers reach the Assessment Stage of a project, the following questions should have been addressed in the Planning/Logistics Stage:

- What specific learning goals will the student’s digital story reflect?
- What is the purpose of implementing digital storytelling with the class?
- What are the factors that influence the context of the project (location where stories will be worked on, relevance of project-theme to students)?
- What do you consider to be developmentally appropriate to expect of your students’ personal narrative, visual media and computer skills?
- How important is the role of identity construction to you as a teacher helping students produce a personal narrative?

**Subjective Assessment**

When assessing digital storytelling, subjective grading occurs when teachers do not teach the actual skills and concepts they include in their rubric. Adding to this issue is the extensive time teachers invest in a multimedia project. When the end product does not meet teachers’ expectations and appears to be a huge waste of class time, teachers are reluctant to assess the effectiveness of their teaching.

**Context and Purpose**

Every digital storytelling project takes place under a different set of circumstances that have significant influence on the outcome. These can be subtle (ratio of boys to girls in the class) or more explicit (the setting and students are part of a Middle East student exchange program held in the US). The contributing context of my Place Story project was not evident to my students. To them, the main objective was to receive a high grade. They had no idea that they were contributing to a collective narrative about their shared worlds. If they had, perhaps, they would have understood why they were doing the project, and that would have created an authentic purpose for writing their story.
Developmentally this was beyond their fourth grade grasp and could not shape the script writing process.

A summer workshop conducted in 2002 by Communities History by Youth in the Middle East (CHYME) illustrates how context influences the digital storytelling process. Ten students from Jordan and Israel each created a digital story about the conflict in the Middle East with the help of Natasha Freidus and a local community access television. The workshop was held on the campus of Brandeis University in Waltham, Massachusetts. All of their stories were driven by the context of their shared history and on-going efforts to find peace among their countries. This explicit goal was understood by all of the students. In the case of the Place Story project, students did not see their role in creating a story that could possibly improve understanding between suburban and urban students.

The context of most digital storytelling projects is not always so charged as the CHYME project. Many teachers have implemented digital storytelling in the mainstream classroom as a way for students to respond to a study of WWII or another curriculum area. In these approaches, the context shifts from the emphasis on personal narrative to the representation of curriculum content. The issue of context is tied to the purpose of the digital storytelling project. Within the CDS model, the purpose is connected more to the cultural context of having students fulfill the universal human desire to tell story. The content-driven approach is often about meeting a state writing or technology standard. A successful balance can be struck between the two.
A fifth grade teacher needed to cover Immigration as part of the Social Studies curriculum. Their required reading anthology had a unit on adapting to new places. Students were instructed to create digital stories based upon the theme of adapting to new surroundings, peers, or situations. Student stories were expected to include lessons extracted from studying immigration to the United States as a way to enrich their story. Throughout their study of Immigration, students were prompted to make connections to their lives. These provided valuable springboards and an authentic purpose for writing that many students benefited from when it came time to write their first drafts. These written reflections were elaborated via the students’ accustomed writing process that emphasized focus, clarity and sensory detail. Effective first person writing that used technology in an innovative way to represent what the student had learned in a core content area was the teacher’s primary objective.

Essentially, this is the “Change” theme that is most often used with students when introducing digital storytelling. The difference is that the context of the project is altered to emphasize a content area goal, while still retaining the expectation of a coherent first person narrative. The Social Studies content drives the project, but does not occlude the importance of representing a student’s individual voice in a digital storytelling project. The “ability to compare and discriminate ideas from several areas, relate knowledge from several areas” and “compare and discriminate between ideas” as represented in this approach, rank highest among Bloom’s Taxonomy of Educational Objectives (Bloom 1956). This type of critical thinking in digital storytelling is squandered when projects are limited to repackaging information rather than asking, “What does this information mean to you?” and “How can you respond to it in story form?”

Consider the work of the Adventure of the American Mind (AAM) program to illustrate how a shift in purpose affects the possible learning outcomes of a digital storytelling project.

A school district has partnered with the Library of Congress. The LOC has digitized much of its holdings and makes them available to teachers for use in digital storytelling and the support of using primary sources in the classroom. Teachers receive training in a modified version of the CDS model of digital storytelling and
the necessary computer equipment and software. They keep the laptop and digital camera that they use during the training. The modified approach replaces the personal narrative thread with an emphasis on an informative structured five-paragraph “story” using primary sources to teach content objectives. Teachers return to their classrooms and create stories, such as introducing the historical background of a book to be studied. Students create stories, such as sharing research on the origin of the pledge of allegiance or how-to stories.

The danger in such an approach is of students falling into the slideshow trap and producing a presentation, albeit an informative one. When the “personal” is removed from the first person narrative in the digital storytelling process, the line between digital story and Powerpoint presentation becomes very thin. What is the value in using more difficult to learn video-editing software when the same project could be accomplished with an easier tool? While the integration of primary sources in a document represents higher-ordered thinking skills comparable to synthesizing personal experience with historical events (Bloom 1956), the loss of the student’s personal voice dilutes the digital storytelling experience.

My purpose is not to undermine any approach to digital storytelling that strays from the CDS model. Sheerin’s approach has been used by hundreds of teachers to successfully meet state writing standards and engage thousands of students in using authentic primary sources to learn not only core content. It has also addressed the ignored media and visual literacy skills. The AAM K-12 workshops teach and provide resources in using and analyzing video, maps, manuscripts, sound clips, and photographs in the classroom. The AAM program supports half of my proposed solution to addressing the visual and media literacies required of effective digital storytellers by providing accessible, quality resources for teaching these necessary skills. Their philosophy appears to be that if you train and equip teachers with not only the technology but also the
relevant raw material to develop innovative lessons, teachers will meet the 21st century skills called for by educational reformers.

Developmentally Appropriate Expectations

The practice of digital storytelling began with adults as its target audience. The stories are often very personal in nature and reflect a mature sense of identity. Asking pre-teen and adolescents to synthesize personal experience and express it in narrative form raises important questions about what is developmentally appropriate to expect of students’ personal narrative writing and of the complex visual literacy skills required on the digital end of the process. I make note of this not to suggest that digital storytelling is only appropriate with mature students who have strong visual and media skills, but rather to highlight how the wide cognitive and affective range of students could easily invalidate an assessment rubric. Also, I want to draw attention to how creating a digital story is more than a vehicle to improve student writing. To illustrate the thorny issues hidden in assessing a digital story, consider the Place Story project I implemented with my former fourth grade class.

In each of their stories I was looking for two things: 1) clear evidence of the significance of the place to the student and 2) the application of most of the seven elements of an effective digital story that I had modeled for them. These two areas encompass a broad range of abilities and assume that students have already attained what Piaget referred to as the formal operational stage of child development. At this stage, adolescents possess the ability to express abstract concepts through the logical use of symbols. I argue that the Place themed digital stories represented the manipulation of symbols (text, image, audio) to express the abstract relationship that the student held with
the place. However, studies have shown that not all children will progress to the level of formal operations.

Data from adult populations provides…between 30 to 35% of adults attain the cognitive development stage of formal operations (Kuhn, Langer, Kohlberg & Haan, 1977). For formal operations, it appears that maturation establishes the basis, but a special environment is required for most adolescents and adults to attain this stage. (Bruner 1966)

The status of a student’s personal and social development has a large impact on creating a digital story. Piaget said, “Discovery learning and supporting the developing interests of the child are two primary instructional techniques. It is recommended that parents and teachers challenge the child's abilities, but NOT present material or information that is too far beyond the child's level.” Vygotsky may have granted the Place Story project more leeway as it could have been viewed as an excellent vehicle for supporting the type of social interaction that fueled a child’s “zone of proximal development” (1978). However, Vygotsky’s main principle that a child’s cognitive development is limited to a certain range at any given age (1978) underscores my point that not all students will possess the skills to synthesize their personal experience with their digital skills. Some students in the class will tell a simple story about what it was like to move to the United States while others will be able to draw on a more developed sense of self and craft a story about the importance of music in their life.

The ability to self-identify is a large part of personal narrative writing. Rubrics used to assess student-produced digital stories maybe looking for this, but do not make self-identification an explicit criteria. Afterall, you cannot force a student to self-identify.

For the Place Story project, the following rubric was applied to the completed digital stories with each criteria being scored on a scale of 1 to 10:
This first attempt at a rubric for digital storytelling with students had many flaws. First, the Yes or No style questions are at odds with a scaled assessment tool. The second most glaring problem is the lumping together of Music, Effects and Transitions along with the subjective phrase “used effectively.” The fact that I did not separate these elements into individual criterion indicates the small amount of time I spent on teaching how each of these elements impacted the quality of the story. Third, nowhere in the rubric is it communicated to the student that I was looking for clear evidence of the personal significance of their place. Regardless of the fact that I hammered this point verbally in my discussion of their stories, the rubric made no mention of this vital point. The result: two out of the twenty student digital stories effectively communicated the significance of their place. In accordance with Piaget, these two students were clearly at the formal operational level, while their peers were appropriately at the previous concrete operational level.

I was disappointed in the disparity of the stories, but could not readily admit my role in contributing to the short-comings of the project. I took solace in seeing my latent
function for the project realized. Students were finding common ground after viewing and discussing each other’s important places. Taking an honest assessment of the quality of one’s teaching methods during a project that consumes a large amount of class time is not common practice, especially in the current high-stakes testing era.

Teaching story is not like teaching punctuation. It requires practice and a variety of approaches. Long division is a perfect example of a historically complex process for students to acquire that is introduced in fourth grade and taught repeatedly over the next few years. You would not expect a typical fourth grader to solve: \[ 4 - 3i / -4 + 3i \], nor should I have expected all of my students to surge past their egocentric stage and write a story that illustrated a very abstract relationship. For the student still figuring out how to write a decent book report, writing a strong personally developed digital story script is comparable to expecting them to write a five-paragraph essay. Again, this is not to say that digital storytelling is only applicable with sophisticated writers. It is often most engaging for the reluctant writer because for the first time the student controls the flow of the information. My emphasis is on the teacher having realistic expectations when she creates and conveys her assessment standards for the students. I view digital storytelling as a tool for teaching story. I do not expect all students to have strong story, visual and media skills before or by the end of a project.

While my academic goal for the Place Story project was to improve the students’ writing skills, I also wanted to improve their storytelling skills. Improving students’ story skills has not always been viewed as the purpose of writing instruction in school. As discussed in Chapter 1, writing in schools has largely been practiced in the context of responding to literature. Opportunities for first person story creation have been rare. For
many students, when instructed to write a story about themselves, it is still an emerging skill that demands instruction. From elementary grades to high school, each time I have introduced digital storytelling to a group of students and asked them to write a story about themselves, the task has been foreign to them.

Accurate expectations of students’ visual and media skills are also an important part of a digital storytelling project. If a student has had no experience in creating a slideshow or cutting out pictures from a magazine for a collage then asking her to create, locate, import and sequence a set of images that convincingly supports a narrative is a challenging task. This is where the absence of visual and media literacy in US schools demonstrates how unprepared students are for a future awash in media messages. Conducting a pre-assessment of students’ visual and media skills prior to the start of the project provides a base of the students’ skills to measure against during the assessment stage.

Identity Construction

For the 4th to 12th grade teacher introducing digital storytelling to students, the many philosophical and psychological theories on narrativity provide little practical guidance. However, Galen Strawson’s summary of several popular views on narrative highlights the unacknowledged influence of identity construction in the digital storytelling process:

“Self is a perpetually rewritten story", according to the psychologist Jerry Bruner: we are all constantly engaged in “self-making narrative” and “in the end we become the autobiographical narratives by which we ‘tell about’ our lives”. Oliver Sacks concurs: each of us “constructs and lives a ‘narrative’ [and] this narrative is us, our identities”. Marya Schechtman, a philosopher says a person, “creates his identity [only] by forming an autobiographical narrative – a story of his life”. One must possess a full and “explicit narrative [of one’s life] to develop fully as a person”. Charles Taylor claims that a “basic condition of making sense of ourselves is that we grasp our lives in a narrative” and have an understanding of our lives “as an
unfolding story.” …[that] we must inescapably understand our lives in narrative form, as a “quest” [and] must see our lives in story. (Strawson 2004)

One of the many social subtexts affecting all learning environments is the question of “Will my name be shouted out?” (O’Connor 2001). Digital stories in grades 4 through 12 range from stories about a broken tooth to the loss of a pet to a favorite video game to teen isolation and depression. Content-driven documentary style digital stories are still an exercise in narrating self, but they reduce the scope of authoring one’s voice and the power of adding it to a school community. A well-crafted digital story about a community’s increasing gentrification and a student’s corresponding response to it is an important civics lesson that meets many measurable writing and technology goals. But when compared to a digital story about loneliness created by the student in the class who has not spoken a word to anyone all year, the digital story becomes a vehicle for providing the volume that this particular student’s voice needed. In the wake of the Columbine tragedy, everyone wondered what could have prevented such an event. Perhaps schools that provide opportunities for creating and sharing students’ stories would be a valuable pro-active outlet.

The creation of a digital story is undeniably a powerful form of identity construction. Although many teachers cite a boost in students’ self-esteem after a digital storytelling project, the critical link between media production and development of self, as well as literacy, has not been a majority concern within education. Hull and colleagues from the University of California, Berkeley worked closely with the students in DUSTY after-school program. DUSTY follows the CDS model, which holds true many of the narrative beliefs that Strawson encapsulated. “The ability to render one’s world as
changeable and oneself as agent able to direct that change is integrally linked to acts of self-representation through writing, as Freire taught us long ago, and through other semiotic systems” (Hull 2003). While these are at odds with the narrow expectations of test centric schools, a teacher need only acknowledge the role of identity construction in creating a digital story to exponentially broaden the impact of the project. A teacher whose sole purpose for having students create personal narratives only to receive a grade has missed the main idea of digital storytelling

A similar study of digital storytelling’s potential for authoring identity was conducted by Alan Davis, University of Colorado at Denver (2005). As with DUSTY, Cyber Cougars is a university partnered after-school program providing area teens with options to explore technology alongside skilled peers and adults. Weinshenker, a CDS associate, introduced digital storytelling with support from three Cyber Cougars staff members. Davis concluded that creating a personal narrative “can serve as a cognitive tool for development” and viewed the completed digital story as an “object” that facilitated identity construction. It was also observed that students were quick to realize what exactly the adults were seeking in their personal stories and manufactured stories that they then were under the pressure to live up to (Davis 2004).

Digital storytelling is an example of project-based learning where teachers are still responsible for teaching a set of core skills. It is important to consider students’ social development when expecting them to write and share personal narrative. Equally important is a pre-assessment of the technical skills of the students. This does not always take place in multimedia-based projects. Students are often plopped down in front of computers and it is expected the teacher’s job is done.
An effective approach to digital storytelling in schools provides students with multi-media story practice prior to, during and after a digital storytelling project. The work of oral storytellers and story coaches, writing workshop teachers, photography and art teachers, cartoonists and media literacy researchers all can be consulted to address the challenges of developing students’ personal narrative skills. When students have received adequate instruction in the story, visual and media literacy skills needed to create a digital story, non-subjective assessments can be made of the students’ stories.
“Education as simply a way of storing facts isn’t significant. Instead, we need to teach students how to tell a story.” (Lucas 2004)

In Graphic Storytelling, Will Eisner argues that story needs to be taught regardless of the medium. He states, “All stories have a structure. A story has a beginning, an end, and a thread of events laid upon a framework that holds it together. Whether the medium is text, film or comics, the skeleton is the same. The style and manner of its telling may be influenced by the medium but the story itself abides” (1996). Students attempting to create a digital story without this fundamental understanding will more than likely only create a slideshow. In this chapter, I illustrate my proposed solution to the issues challenging digital storytelling in education in the context of the typical five stages of a digital storytelling project.

My proposed solution incorporates Davis’ braided cable approach to language development (Figure 16). From his years of experience as an author and performer of stories for children and adults, he developed the braided cable metaphor to help teachers “thaw frozen writers” (2000). The four strands of the cable are as follows: 1) observational competence 2) imitation of what has been observed 3) beginning to read, mechanics of writing and 4) creative writing are not intended as a strict set of procedures to follow for completing a project. Davis warns that, “We are not looking at sequentially attained and then abandoned steps, but rather at added dimensions that must always be maintained” (2000). This is the philosophy that I apply to developing students’ digital
storytelling skills. While I have used the context of the five stages of a typical digital storytelling project to illustrate my solution, it my hope that teachers will see the relevance of developing students’ oral, written, and visual communication skills across the curriculum.

![Figure 16: Braided Language Cable](image)

Donald Davis. Writing as a Second Language: From Experience to Story to Prose (2000)

For an effective approach to digital storytelling with students, I have modified Davis’ cable to reflect the needs of the student digital storyteller. The first two strands: observational competence and imitation of what has been observed remain intact. Davis focuses on emphasizing the need to extend opportunities for students to hear stories performed or read aloud as the core strand that each additional strand supports and extends. I add that students not only acquire competence in carefully analyzing oral and print stories, but also in graphic novels, television shows, music videos and movies.
Students are surrounded by story and often try to imitate these forms when they first gain access to non-linear video editing equipment. Their imitations often lack a sense of story because they have not been viewing them with story in mind.

4.1 Stage 1 Planning/Logistics

Scenario

For the purposes of applying my solution, I have created the following scenario: I am a high school media teacher of a class that meets three times a week for ninety-minute periods. This type of block scheduling, that many high schools have adopted, supports project-based learning.

In 1994, proponents of block scheduling, Edward Seifert (a Professor of Education Administration at Texas A and M University) and John Beck (a Dean of the College of Education at Southwest Texas State University) studied the relationship between block scheduling and the quality of instructional time. They found that “the lengthened classes [used in block scheduling] increased the amount of high-quality instructional time because teachers spent less time on procedures, routines, and management. (Queen 2001)

The class is heterogeneously grouped and has twenty students in the class. This urban public high school is equipped with a twenty-five-station computer lab and portable cart of twenty iBooks that teachers sign-up to use in their classrooms.

Identify Learning Goals, Core Curriculum Integration, Required Skills and Concepts

My primary goal of introducing students to digital storytelling is to provide an engaging and authentic purpose for writing. Secondary objectives are: 1) effective use of visual and media elements to support personal narrative and 2) combining storytelling and technology to represent student voices in an effort to cultivate a sense of community. The secondary objective will be important as trust and respect will be a large part of group projects later in the school year. In this scenario, this is the first project of the year.
Using the Change theme, my hope is that students’ stories will represent their individual voices and introduce them to one another. I am collaborating with an English teacher to support a unit on memoir. We are both teaching story. My role is not limited to being the “technology teacher.” Skills and concepts, such as using dialogue and adding tension to a story will be reinforced in both classes. Following the planned approach to the project, I have created a digital story of my own, as well as the collaborating English teacher. Based on our experiences of creating our digital stories and review of several past student-produced digital stories, we will use a rubric that assesses the following three areas:

- Story/Script
- Visual/Media Integration
- Technical

Based on the rubric, we will create lessons that address each of the skills and concepts expected of students.

Pre-assessment

Prior to introducing the project, I have surveyed the students’ comfort and skill level with navigating a computer, the school’s network, the Internet and their use of peripherals, such as digital cameras. Using Haven’s “Is It a Story Yet?” and other short story exercises, I have gauged the class’ understanding of basic story structure. Through a brief image exercise, I have determined the students’ ability to interpret and create visual relationships. The data from these pre-assessments will be used to adjust the scope of lessons on using media in a digital story. For example, if the surveys represent an
advanced understanding of visual relationships, students may be encouraged to use video clips in their stories.

Recruit Volunteers, Delegate Parts of Project

As poet John Donne said, “No man is an island.” I have recruited a parent volunteer and an English teacher to help record voice-overs and scan images. This is often the most time-consuming part of the project and cannot be accomplished with only one person.

4.2 Stage 2: Story Drafting/Scripting

When students are shown to better visualize their story, and how to better understand the anatomy of a story, they automatically choose more powerful, accurate, dynamic descriptive words. All students are replete with imagination and creativity. What they need to better understand is the form of the story, so that they can successfully apply their imagination and creativity to this unique structure. (Haven 2000)

Incorporating moving images, text and audio is new to personal narrative writing. Many talented teachers have developed a collection of lessons on teaching personal narrative writing that employ photography, music and other media in addition to composition methods. All of this has been created long before digital media production became popular in schools. But within classroom uses of digital storytelling, the overwhelming approach to scripting the personal narrative has relied on traditional composition methods.

The work of traditional oral storytellers and photo essayists has largely been ignored in helping students meet the challenges of writing a personal narrative. To introduce the project, I present the digital stories created by the English teacher and myself. By making ourselves vulnerable, I hope to increase students’ comfort level with
personal narrative. We compare the digital stories to a *Powerpoint* presentation or a multimedia report that students might be familiar with from past grades. We also show a narrated slideshow version of one of our digital stories that lacks basic story structure, pointing out its much less engaging results. By the end of the discussion, students should be able to define the purpose of a digital story as sharing a lesson learned (4th element in Ohler’s definition of story) vs. a multimedia report that aims to inform.

Students need to be able to identify the basic elements of a story and work from the same definition of story. As Ohler points out, story could mean everything from the story a news reporter relays from the scene of an accident to the story someone uses to explain why they are late to the stories referred to as the floors of a building (2004). Using Ohler’s definition, I explain that the type of story we are concerned with in our Change themed stories contains these five elements:

1. a beginning that introduces a conflict the main character must deal with
2. a presence of tension developed by steps taken to resolve the conflict
3. transformation of central character
4. the reader is able to transform and learn new things along with central character
5. an end or closure, not necessarily a happy ending

(adapted from *Telling Your Story* 2004)

Freitag’s triangle and the Virtual Portrait of a Story, introduced in Chapter 3, are applied to the teacher digital stories to illustrate story structure in context. Mapping of personal narratives is extended during Stage 3: Teaching Elements of a Digital Story. The traits of an effective personal narrative have not changed with the introduction of digital media to the storytelling process. Students are told that their scripts should contain the following characteristics:
• focuses on one experience
• shows the purpose clearly in that the importance of the event is clear to the reader
• expresses the writer's thoughts and feelings throughout
• is written in first person "I"
• has relevant sensory details (things for the reader to see, hear, feel, smell, taste)
• dialogue is encouraged
• must have why it is important and/or how it affected the writer

These traits are covered in more detail during the English teacher’s memoir unit.

The bulk of students’ experience with personal narrative consists of the few times they are assigned to write an autobiography or personal essay. Many graduate from high school without ever having been asked to write a story about themselves. In my solution scenario, the collaborating English teacher is following a unit outline like this one from the Michigan public schools core curriculum:

In this unit students learn how to write a personal narrative. To understand the unique characteristics of a personal narrative, (e.g., autobiographical topic, conversational tone, detailed descriptions, use of writer’s feelings), they read or listen to a variety of narratives. Through the examination of these works, they identify characteristics of a personal narrative and use them as a prewriting guide for drafting their first personal narrative. Once they have completed their drafts, students use small writing groups to discuss strategies for revising the drafts. As students review additional examples of personal narratives, they continue to revise their list of characteristics. They revise their prewriting guide and draft their second personal narrative. Students again use appropriate steps of the writing process to plan, draft, revise, and edit their second narrative. Finally, students adapt their second narrative for a story-telling event for their classmates.

(http://www.michigan.gov/scope)

Students are told that writing a story is a complex process, but that it can be approached from a variety of paths. Over the course of a few weeks, techniques from professional oral storytellers, authors and photographers are used to help them transfer their story from their heads out onto paper, and then onto the screen. A brief overview of the five stages of creating a digital story lets students know how long the project will run
and when due dates have been set for completing their scripts and collecting images and other media for use in their stories.

The project is explained as consisting of two parts: Story and Visuals. In the first half, students concentrate on adhering to the traits of a personal narrative and applying story maps, such as Freitag’s triangle and a VPS. The second half of the project involves learning how to use visuals (text, images) and other media (music, sound effects) to enhance their scripts. Students are reminded that every filmmaker will tell you that without a good story, all the special effects in the business will not improve your film.

Because the student’s voice-over is perhaps the most powerful part of a digital story, oral storytelling is practiced to develop a student’s comfort and confidence with her voice. Before doing any writing, students begin to explore the Change theme by using short oral storytelling exercises, referred to as “story sparks” by Jay O’Callahan and others. Students are prompted to tell a one-minute story about a time when they had accomplished something they were proud of or a time when they did something that they were not supposed to do. Lipman’s story coaching model is introduced at this point to establish the rules of how feedback is given on each other’s story. During this practice time, story elements such as transformation and tension are not stressed.

Photo Essay

In The Art of Teaching Writing, Lucy Calkins comments on the importance of images to the young writer, pointing out that “until the second and third grade a child’s predominant means of self-expression is drawing…Not only the act of drawing but also the picture itself can provide a supportive framework for young writers” (Ewald 2001). Writing into the image has been very useful in helping students connect to the feelings
and sensory details of their stories. For over thirty years, Wendy Ewald has practiced photo essay writing with children. In reflecting on her work, she said, “Many of the students I worked with had trouble writing; they would labor painfully over a sentence or two. But when they worked from a photograph that had something to do with their lives, especially a picture they had taken themselves, they were able to write more – and what they wrote about was their own experiences” (2001). Digital storytelling is very much a form of documenting one’s life. Students who are able to create their own images vs. relying on Google’s image search strengthen their role as authors in the story writing process. In addition, for the student who is unable to visually map her story, one personally significant image provides student and teacher with a valuable starting point for developing the story. During the first week of the project, students are encouraged to bring in photographs from home and start making a list of possible photographs that could be taken with the school’s digital camera.

Ewald counters the story visualization advice of Ohler, Torres, Haven, and others by having students write first about what they would like to shoot with their cameras. After briefly writing about a subject, students are asked to create a list of images suggested by their writing then proceed with shooting (2001). This writing is more analogous to draft writing or journaling than structured paragraph or story writing.

Lambert acknowledges the related approach of pulling out shoeboxes of old photographs, spreading them out on a table and selecting ones that evoke story. With a rough storyboard in front of them, many have scripted a successful digital story. However, he cautions that basing a story on only the images immediately available possibly leaves out parts of the story that were never represented in your archive (2002).
**Story Writing**

In the non-traditional composition approach to story writing, the actual structured writing is the last step. Ohler, Haven, and those in the filmmaking camp stress the visualization of the story prior to attempting to apply the story form. Table 7 depicts Haven’s and Ohler’s suggested steps for developing a story.

**Table 7: Non-traditional Composition Approaches to Story Writing**

<table>
<thead>
<tr>
<th>From Haven’s <em>The Write Right Story Writing Progression</em> (2001):</th>
<th>From Ohler’s <em>Telling Your Story</em> (2004):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Create an idea that launches the story.</td>
<td>1. Get a story idea</td>
</tr>
<tr>
<td>2. Create the main character.</td>
<td>2. Create a story map</td>
</tr>
<tr>
<td>3. Define the story theme and story question.</td>
<td>3. Pitch it to your teacher or peers</td>
</tr>
<tr>
<td>4. Layout story structure.</td>
<td>4. Create a storyboard</td>
</tr>
<tr>
<td>5. Define and create necessary supporting characters.</td>
<td>5. Script/Write story</td>
</tr>
<tr>
<td>6. Determine the viewpoint.</td>
<td>6. Review, rehearse, revise</td>
</tr>
<tr>
<td>7. Map the scenes.</td>
<td>7. Production/Post-production</td>
</tr>
<tr>
<td>8. Make it real. Visualize the setting, character, and event details.</td>
<td>8. Performance</td>
</tr>
<tr>
<td>9. Determine the starting point of the story. What is the first event that the reader must see?</td>
<td>9. Assessment/improvement</td>
</tr>
<tr>
<td>10. Record an oral telling of the first draft. Re-record until you are satisfied.</td>
<td></td>
</tr>
<tr>
<td>11. Write the story.</td>
<td></td>
</tr>
</tbody>
</table>

Haven cited the myth of “The story will reveal itself to me as I write” as one of seven common ideas that hinders students’ story writing. He states, “no writing should be attempted without a clearly defined ending in mind” (2000). I am not as strict about limiting student draft writing. For me, journaling is an effective method of initially
exploring my thoughts and feelings on a topic. I feel better when I have something down on paper, something to anchor me as I navigate my way through the murky waters of crafting a story. Free writes on the Change theme will be assigned during class and for homework through the first two weeks of the project.

4.3 Stage 3: Teaching/Modeling of Elements of a Digital Story

If we expect our children to be both consumers and producers of visually communicated ideas, we have to ask ourselves, ‘How do we prepare them for that visual world?’ If we expect them to be fluent in this new visual language, where do we begin teaching the visual grammar and visual vocabulary skills that will help them both understand and present concepts and ideas that use images as well as or instead of text? (Theodosakis 2001)

Once students possess a working definition of a basic story, they need to practice applying it to stories presented in various media. Story mapping is used to illustrate the structural story elements of beginning, middle, and end (Freitag’s triangle), but then to develop the visual grammar identified by Theodosakis. After story-mapping transcripts of previously created digital stories, children’s picture books and graphic novels are used to provide practice in deconstructing visual relationships. Comic books have been overlooked as an inexpensive tool for students to easily see both story and visual elements depicted in a variety of ways. George Lucas’ early years were influenced by Carl Bark’s Uncle Scrooge McDuck. He credits the famed Walt Disney cartoonist by saying, “My greatest source of enjoyment in Carl Barks’ comics is in the imagination of his stories…[they] are very cinematic. They have a clear beginning, middle, and end, and operate in scenes, unlike many comic strips and books…I think the reason Carl Barks’
comics have endured and have had such international appeal is primarily their strength as good stories” (Barks 1987).

Teaching the elements of a digital story involves critique, discussion, and practice of the seven elements. In the previous chapter, over-emphasis on modeling was cited as a common issue when introducing the elements of an effective digital story. When students are only shown a model digital story and told, “Make yours like this one,” students can quickly become overwhelmed by the breadth of a digital storytelling project. Increasing students’ comprehension of abstract and complex concepts like economy or dramatic question can be accomplished by providing students with practice in manipulating the media elements of a digital story.

Deconstruction is most effective when students are on the computer with a copy of the project file used to create the sample digital story. With the open iMovie or MovieMaker file in front of them, students receive important time to experiment with how text and different sequences of images change a story’s impact. Digital story exercises where students are given the start of a script and told to select images to support it can be useful before students start building their first digital story. Reassembling a digital story with its elements all out of order is another practical exercise to reinforce many of the seven elements. In addition, creating a digital story as a whole class on a famous person, such as Jackie Robinson is another effective way to introduce digital stories to students and collaborate on writing the script. This was the approach I used with my class that followed the Place Story project.

In the Future Work section of Chapter 5, I describe a prototype that will provide interactive examples of student-produced digital stories that demonstrate the effective use
of the seven elements. Currently, only one website exists that explains the seven elements with accompanying student-produced digital stories. Unfortunately, the stories lack most of the elements listed in Ohler’s story definition. Digital storytelling in education is one of few practices without an easily accessible archive of past student work. Teachers cannot go to their library and check out a CD of sample stories to model for their students.

As stated previously, a comprehensive course in media literacy is not necessary for managing a successful digital storytelling project. US schools lag far behind England in encouraging critical analysis of media. The UK’s National Curriculum has worked closely with The British Film Institute to publish numerous resources for developing what they call students’ “cineliteracy.” Freeze Frame and Sound and Image are two of eight techniques the BFI’s Moving Image in the Classroom recommends to teachers to help students understand the “language of the moving image text” (2000). These two techniques will be incorporated into the modeling and deconstruction of a digital story. Deconstruction of media is essential to developing media literacy. During this stage of the project, commercials, music videos, videoblogs, and public service announcements are shown and discussed in terms of the seven elements.

4.4 Stage 4: Managing the Technology and Production Process

Teaching technology has very little to do with teaching digital storytelling. The technical skills related to using most novice non-linear editing systems consist of three easily learned tasks: importing media, dragging and dropping that media on the timeline, and aligning items on the timeline (Figure 17). These three skills comprise eighty percent
of the technical skill needs of a digital storytelling project. I have intentionally avoided discussing this part of the process to focus on story literacy instead of tool literacy.

The technical skills of learning *iMovie* of *MovieMaker* are taught in the context of deconstruction. When students are practicing with text and sequencing images, this is when they learn how to import files and move items around on the timeline. Time-based media is the most challenging concept that tests students technical skills. Students often become locked in a slide-by-slide mentality learned from *Powerpoint*. The idea that you can control everything on the screen down to the hundredth of a second is not essential nor understanding how the audio and video tracks can layer each other. For the first time digital storyteller, these concepts should be discussed minimally. Having a large poster of a digital story timeline is a valuable visual to have in the classroom alongside Freitag’s triangle and other sample story maps.

![iMovie Timeline](image)

**Figure 17: *iMovie* Timeline**

### 4.5 Stage 5: Assessment, Screening, and Distribution

**Assessment**

Assigning a grade to a digital story should be considered a low priority when implementing a digital storytelling project for the first time. Rubrics that incorporate a scaffolding view of learning will yield the most useful information. In addition, rubrics
created by other teachers can be a useful starting point from which teachers can work backwards, determining how they will address each area of project.

While committed to developing an approach that produces stories that indeed prove technology and storytelling can be combined to meet state writing standards, I am more concerned with students’ view of themselves as authors. In addition to post-assessments of story and visual literacies, a short survey prompts students to respond to: Are you a writer? A storyteller?

Screening

Once all student digital stories are completed, the class will view them and apply Lipman’s story coaching methods. Each student will be given an opportunity to receive appreciations on her digital story and ask for feedback. Suggestions for improvement are only given if asked for by the student. Final revisions are made before the stories are shared with parents and other members of the school community.

Distribution

A compilation DVD of all of the digital stories is burned for each student. With the students’ permission and copyright clearance, a sample of the digital stories are posted on the school’s website where other members of the school community can learn about the project and provide feedback on the stories – all feedback is reviewed by an adult before posting to the site.
CHAPTER 5
FUTURE WORK

Online Community for Digital Storytelling

Creating a story, digital or not, is a communal act that thrives when others are involved in supporting the process. As Bruckman demonstrated in MOOSE Crossing, student use of technology is not meant to be an isolating experience. MOOSE Crossing proved most effective when used collaboratively to create personally meaningful artifacts that enhanced students’ creative writing and developed their procedural literacy skills (1995). The needs of the beginning digital storyteller encompass three domains: story, visual and technical. As detailed in Chapters 3 and 4, the need to teach story to students can be addressed in several ways. Many of these methods could be incorporated into the creation of an online community for digital storytelling.

All too often, tools designed to empower learners end up being used in the same old disempowering ways. The educational philosophy and spirit in which the tools were designed needs to be distributed together with the software or hardware. It’s not possible to communicate these ideas through a software interface, or through a manual no one will read. Tools can be effectively constructionist only when they are embedded in a constructionist culture. Constructionism works best when it is situated in a supportive community context. A kind of constructionist culture often emerges when the tool’s designer is present to help grow a community of users, but this spirit usually fails when dissemination is tried on a larger scale. Computer networks can be used to help create and spread constructionist cultures. (Bruckman 1995)

However, as Bruckman notes, large-scale constructionist environments have difficulty maintaining member commitment. For this reason and issues of privacy and safety, I recommend creating a single school or district-based online community for student digital storytelling. Many schools showcase their students’ digital stories on
school related websites, but this only meets the needs of the final stage of the digital storytelling process – distribution and audience. Through Flash-based interactive exercises or mini-games, students could gain practice in skills, such as story scripting based on a provided sequence of images or the reverse of creating an effective sequence of images for an excerpt of a provided digital story script. Image and script databases would be available within the interactive space. Story coaching would be a vital part of the community. Students could post drafts of scripts or digital stories in progress and receive feedback from Story Coaches. These could be adults or students who understand and practice Lipman’s story coaching model. A technical support section would include tutorials on video, audio and image editing. Digital stories would be featured with an accompanying transcript and author comments in a similar manner to the BBC Capture Wales site featuring their nation-wide digital storytelling project. BBC Capture Wales is the largest and most successful digital storytelling project to date with over two hundred stories representing the people of Wales. A combined student-parent-teacher-staff-administration advisory board would review all submitted digital stories before posting to the community.

As discussed in Chapter 3, the role of showing models of effective digital stories is integral to the digital storytelling process. An online community site featuring digital stories has been something many teachers and interested parties have requested over the years. The Center for Reflective Community Practice (CRCP) at MIT collaborated with several skilled veterans in the digital storytelling community to successfully launch a prototype of StoryLink to answer this need. According to its proposal:
StoryLink is a multimedia Web site and grassroots outreach campaign that provides the infrastructure for individuals and communities to create, share, and network through the use of digital stories. StoryLink provides support for all phases of story development, archival space for the storytellers’ source material, and a dynamic, online database in which users can connect digital stories, share personal reflections, and exchange community outreach strategies. (CRP 2003)

Unfortunately, funding for StoryLink has been eliminated and its future remains uncertain. StoryLink focused on mobilizing communities through story. I believe the same philosophy can be applied to a school setting. While the latent function of a school-based online digital storytelling community would be to foster a climate where each student’s voice was heard and respected, the expressed mission of the community would be to help students acquire the communication (story) skills essential to the 21st century.
A Place at the Table

*Education either functions as an instrument which is used to facilitate integration of the younger generation into the logic of the present system and bring about change...or it becomes the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world.* (Freire 1968)

With an effective digital storytelling approach in place within a school, what is the potential of collecting a digital story from every student, faculty and staff member? Will it increase tolerance and improve understanding among the community members? Not without something in place to facilitate that dialogue. A Place at the Table, an interactive digital story, proposes an extended use of digital storytelling in schools that supports Freire’s latter idea of the function of education in students’ lives. A Place at the Table would be introduced either in conjunction with an online digital storytelling community or after a significant database of student digital stories exists. When a database of digital stories from a particular group exists, each story can be tagged with themes, such as “benefits of diversity” or “racial identity” and parsed according to these themes. Virtual dialogues are created by the user’s interaction with the digital stories. Figure 20 illustrates how this works.

In Chapter 3, I illustrated how context can drive a digital storytelling project. A Place at the Table is built around the context of the experience of urban students who attend school in a mostly white suburban school system as part of a voluntary desegregation program, specifically those in Boston’s Metropolitan Council for Educational Opportunity (METCO) program. A Place at the Table begins with one high
school in one suburban town and aims to increase the representation of urban student voices through digital storytelling as a means of facilitating dialogue among students, teachers, parents, staff and administration. This Flash-based program is intended to start as a constructionist tool for the underrepresented urban students to collect and share their stories then expand to invite the larger school community into a virtual dialogue around issues of race, class, and power. The end goal is to get people to a real table to discuss these issues, but A Place at the Table operates on the assumption that people need a safe space to hear other people’s perspectives while formulating their response. Upon successful integration in one school and district, A Place at the Table would seek to connect to the additional thirty Boston suburban communities that support the METCO program.

Figure 19: Screenshot A Place at the Table: Interactive Timeline

After exploring the historical context of segregation in Boston schools through an interactive timeline that contains video clips of reflections from people about their high
school experience regarding race, the user arrives at the virtual table where up to four people can be moved to the table via their profile icon. Stories from each student, teacher, parent, and administrator have been tagged with the corresponding themes. These themes are based on interviews I have conducted with students and research from Susan Eaton’s METCO: The Other Boston Busing Story (2001. When you bring person A, B, F, and E to the table, a script finds the most common theme among the four and returns a segment from each person’s digital story. After listening to each person’s story, the user is prompted to comment or create her own story in response to the theme that each person spoke on. The user has the option to listen to each person’s entire digital story as well.

![A Place at the Table](image)

**Figure 20: Screenshot from A Place at the Table:**

Creating the Virtual Dialogue
**Story Plug-in for iMovie**

As outlined in Table 5, the commercial software used by most teachers and students for digital storytelling does not include specific support for the story needs of young digital storytellers. A story plug-in that provides a template guide to structuring the beginning, middle, and end of a story as well as tips on including the elements of an effective story would be a welcome addition to *iMovie* or *MovieMaker*. Additionally, the plug-in could include: 1) a video tutorial on creating a digital story 2) a video clip of an oral storyteller with coaching tips 3) a sample digital story included in the tutorial to deconstruct 4) a sample digital story used to practice visual and media literacy.
CHAPTER 6
CONCLUSION

Digital storytelling forces schools to answer the question of what is *learning*, and how can technology be used to truly support the conditions for learning to occur. Ian Jukes compares change in education to how the giant blue whale can take up to fifteen minutes to reverse direction whereas a school of sardines that equals the mass of the blue whale can all change direction instantly (2004). My hope is that when presented with a pedagogically sound approach to digital storytelling, school districts will move in a direction that aims to:

• increase story, media and visual literacy as a means of addressing students’ digital literacy needs of the 21\textsuperscript{st} century
• encourage constructionist views of integrating technology in education
• assert the role of student voices in learning environments
• decrease emphasis on tool literacy
• demonstrate how digital storytelling develops community

I have strived to present a fair and balanced review of the challenges facing teachers interested in using digital media production for personal narrative purposes. I believe that by supporting students’ story skills (oral, written, and digital) through digital storytelling that schools are supporting the digital skills students will need to understand and communicate with in their immediate futures.

Whether you call it digital literacy or multiliteracies, how students read, write and communicate is being altered by their increasing consumption of media; the Internet, cell phones, video games, file-sharing, instant messaging, and blogging are a few of the ways students navigate their worlds. The classroom must adapt accordingly. I align myself with
Jukes and others, who ask “how we can help transform an aging and increasingly irrelevant institution into something that will have real meaning and relevance to the lives of this and future generations” (Theodosakis 2001). Digital storytelling empowers students to become producers of media and enables self-expression in ways not traditionally supported by school curriculums.

Technology can play a vital role in determining the future direction of education. Theodosakis commented on what teachers often refer to as interdisciplinary and project-based learning philosophies:

What is needed is a balance between the understanding of language, mathematics, science, social studies, and other curriculum with the ability to learn how to learn. This is why any learning that contributes to the development of process skills serves learners twice. First, as a way to understand the content that exists in their world today, and second, as a way to explore, develop, and understand the learning processes that they will require forever. (2001)

Story writing and digital media production are both multi-step processes that demonstrate a range of students’ social and cognitive skills. I have proposed that an effective approach to digital storytelling must include an application of oral storytelling practices. A surprising chasm exists between the traditional storytelling community and those practicing digital storytelling. When I attend traditional storytelling conferences such as Sharing the Fire, ironically held at MIT, very few people are discussing how digital tools and interactive spaces can help shape and share a story. The same is true when I attend the annual Digital Storytelling Festival or a new media symposium. During a recent games symposium at Georgia Tech, I asked a panel of video game and new media developers if they felt that with the increase in the development of tools for telling stories, such as machinima and peoples’ use of the game SimCity to create stories, are peoples’ storytelling skills improving as well? One member of the panel responded that
he felt people were doing more creative things with digital tools, but made no indication that technology was improving the art of storytelling.
BIBLIOGRAPHY


