10-15-2007

DEVELOPING LITERACY PRACTICES THROUGH DIGITAL STORYTELLING

Therese Marie Kulla-Abbott

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DEVELOPING LITERACY PRACTICES THROUGH DIGITAL STORYTELLING

by

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A DISSERTATION

Submitted to the Graduate School of the

UNIVERSITY OF MISSOURI- ST. LOUIS
In partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

in

EDUCATION
with an emphasis in Teaching and Learning

August 2006

Advisory Committee

Joseph Polman, Ph.D.
Chairperson
Carl Hoagland, Ed.D.
Elisha Chambers, Ph.D.
Nancy Singer, Ph.D.

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ABSTRACT

This qualitative study explored the use of multimedia and traditional literacy to answer the question: “How does creating a ‘digital story’ impact children’s literacy skills?” Forty-three seventh-grade students from a Midwestern school created a series of three digital stories over the course of several months implementing creative, narrative and persuasive writing. These digital stories utilized the grade level curriculum, integrating communication arts, social studies, science, and technology. The purpose of this study was to better understand how literacy skills were impacted through the use of digital storytelling. This understanding will be used to inform improvements in instruction of writing, story telling and related technologies, as well as the curricula utilizing them. Multiple projects were essential to master the tools and processes necessary for digital storytelling and developing writing skills. The first project focused on technological tools, cooperative groupings, and organization of the process. The second project focused on personal story to develop voice and include emotion. Working independently ensured that students understood the process and tools. By the third project students came to understand organization by effectively using the storyboard and adding yet another genre of writing to their repertoire. The children came to recognize the importance of organization, story, voice, emotion, pacing, economy of words, and value of re-writing while developing presentation skills. Collaboration and cooperation played an important role among teachers and students. Further research is needed to explore best practices for use with all grade levels.
Dedicated to my parents who emphasized education,
my husband, Tom, who has always encouraged me,
my friend Allison who got me started,
my mentor Joe Polman who shared his knowledge and my passion,
Joe, Emily, and Amy from the Center for Digital Storytelling
who inspired me,
my colleagues who have allowed me to learn
from them and with them,
and to the children, my students and my teachers.
Thank you for sharing your stories.
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CHAPTER I: INTRODUCTION

Introduction and Problem Statement

The introduction of computers into schools began at the university level in the 1960’s with the teaching of programming languages, such as COBOL, BASIC, Fortran and Pascal. Personal computers were introduced in the 1970’s and widespread acceptance in education came with the development of the Apple II series in the 1980’s (Murdock, 1998). Continued advancements in technology during the 1990’s created the need for schools to establish technology plans, replacement schedules, communication policies and to increase budgets for additional computers, technology teachers, infrastructure, and staff training. Internet access, increased communication via electronic mail (email), and educational software created opportunities for curriculum development and integration with technology (Gilbert, 2001). School districts invested an incredible amount of money in the latest technologies and worked to establish a low ratio of students to computers. Some districts provided technology training for teachers. In many municipalities voters approved tax increases for educational technology. Times were good, the economy was thriving, and technological advances were booming. In 2003, the United States Department of Education’s (US DOE) National Center for Education Statistics (NCES) report on Internet Access in U.S. Public Schools and Classrooms: 1994–2002 reported that over the past 10 years, 99 percent of schools have been connected to the Internet with a 5:1 student to computer ratio.

However, due to economic and political changes, education policies began to change. In 2001, federal and state education budgets were drastically cut. In January 2002, President George W. Bush signed the “No Child Left Behind Act” (NCLB) (US
DOE, 2002). NCLB required all public schools make “adequate yearly progress” (AYP) in communication arts and math to ensure that every child achieve proficiency by 2014. Many districts aligned their goals with these federal and state guidelines; “yet, we have not realized the promise of technology in education” (US DOE, 2004, p.10).

A study of technology use in schools of the past 25 years showed that 42% of teachers used computers with their students less than 15 minutes per week (Norris, Soloway & Sullivan, 2002). Thus, this research discovered that investments in technology and classroom usage have not been fully capitalized on through widespread instructional use. Other research studies have shown that well-designed and implemented instructional uses of technology can improve learning outcomes (Chambers & Schreiber, 2005). This dissertation study lives within the tension created by the above factors: developing and understanding technology-integrated instruction that improves literacy learning outcomes, within the context of meeting AYP goals to comply with NCLB and state standards, while overcoming the inertia in schools that generally prevents extensive integration of computers.

Storytelling is a way to teach narrative and expand literacy instruction. In this study, seventh grade students used multimedia software to improve their reading and writing through the creation of digital stories. Digital storytelling (DS) afforded the addition of images to students’ stories; thus, enhancing their effective communication. This study aimed to contribute to the understanding of how students advance their literacy skills through the completion of such projects and improve instruction.
Background

Literacy includes reading, writing, and the creative and analytical acts involved in producing and comprehending texts (Reading Rockets, 2004). Narrative is one of the means to the creative and analytical acts involved in producing and comprehending texts. Bruner (1990) stated that narrative is composed of a unique sequence of events involving human beings as characters or actors. Narrative is how we make sense of the world and it is used as an instrument for making meaning that dominates much of life in culture.

Accordingly, narrative requires four crucial grammatical constituents (Bruner, 1993; Bruner, 1990):

- A means for emphasizing human action directed toward goals.
- Sequential order be established and maintained.
- Sensitivity to what is canonical and what violates canonicality in human interaction.
- The narrator’s perspective.

Digital Storytelling is the modern expression of the ancient art of storytelling. Throughout history, storytelling has been used to share knowledge, wisdom, and transmit cultural values. Stories have taken many different forms. Stories have been adapted to each successive medium that has emerged, from the circle of the campfire to the silver screen, and now to the computer screen (Digital Storytelling Association, 2002).

In recent years, a growing number of educators have explored the uses of digital video creation projects as learning activities (Digital Media Festival, 2004; Goodman, 2003; Lambert, 2002; Media Literacy Online Project, 2002), but due to the lack of empirical learning sciences research, little is known about the cognitive processes
involved in children creating videos (Polman, 2004). The Center for Digital Storytelling (CDS) was established in Berkeley, California in the early 1990’s when a group of media artists, designers, and practitioners came together interested in how personal stories and storytelling could inform the emergence of a new set of digital media tools (Atchley, 2000; Lambert, 2002; Porter, 2004). CSD uses the term “digital storytelling” in reference to the development of narratives to tell a story using digital video, images, and software to create movies that include narration and music. An example of a digital story in this model is the telling of a significant event in one’s life using 10 to 20 images, no more than 30 seconds of video, approximately 250 words script, and music to tell the story.

This study aimed to better understand how students learn within the context of multidisciplinary literacy instruction integrating multimedia technologies to tell digital stories.

**Purpose**

One purpose of this study was to better understand the possibilities for and practices of utilizing technologies to learn literacy while at the same time fulfilling the mandates of NCLB and state/district standards. Teachers and students need access and creative utilization of computers to increase student achievement and test scores (Cuban, 2003; Norris et al., 2002). More importantly, understanding how students advance their literacy through this process may enable teachers to improve their instruction. Teachers have been working with students to develop their writing processes and the use of technology may provide a different platform that enhances learning. The use of DS may serve to reach the learner in a way that traditional instruction has not been able to, but its
practices in formal educational contexts and impacts in learning terms are not yet well understood (Lambert, 2002).

**Research Questions**

The main research question was “How does creating a ‘digital story’ impact children’s literacy skills?” To answer this question, the focus of the research included these sub-questions:

RQ1: In what ways did storyboarding and organizing images to tell a story influence students’ understanding?

RQ2: How did writing a story and constructing the video influence students’ learning?

RQ3: What have the students learned about perspective in their story?

RQ4: In the process of creating their digital stories, how did students develop their voice, which included emotion, the point of the story, and oral presentation skills?

**Scope of Study**

The study took place in a large metropolitan area in the Midwest of the United States. Two seventh grade teachers and their intact classrooms containing 43 children participated in the study during the 2005-2006 school year. Three digital story projects were created over a period of five months utilizing almost daily 40-minute classes in the computer lab. Computers were also available for use in classrooms.

The researcher was also the Instructional Technology Specialist (ITS) for the school and taught classes in the computer lab to the entire student population of the school. I collaborated with the classroom teachers and instructed students in the computer
lab on the particular software and digital storytelling process. Additional instruction of communication arts (reading, writing, and thinking) took place in the teachers’ respective classrooms. Both classroom teachers and the ITS monitored revisions of student writing and assisted with development of the stories. Other teachers, such as the librarian and resource teachers, assisted students with their story according to their Individualized Education Plan (IEP).

Curriculum-based topics were selected by the teachers. For example, the seventh grade curriculum included persuasive writing and environmental issues, so after instruction, the students wrote about an environmental issue and included a persuasive component as a digital story. It is important to note that DS is a way to integrate and differentiate instruction using technology and the curriculum.

**Pilot Study**

A preliminary study took place during the 2004-2005 school year. The University of Missouri’s Institutional Review Board (IRB) approved the pilot study in October 2004 and parental consent, participant assent, and teacher consent/assent was secured (Appendix A). Three projects were completed during a 4-month period. All students were given access to email in order to correspond with their classmates and teacher about their digital stories. Table 1 (see p. 7) denotes the topic, narrative type, duration, and level of collaboration of these projects (Kulla-Abbott, 2005).

The first DS project incorporated two aspects of the seventh grade communication arts curriculum: persuasive writing and social responsibility through environmental issues. Classroom teachers taught students persuasive writing in their classrooms. In the computer lab, students researched environmental topics and selected one, which was
approved by the classroom teacher. Groups of two or three students worked on their selected topic over the next five weeks. After more research, students created many rough drafts before writing their 5-paragraph essay incorporating their environmental topic and persuasive writing techniques. Once the students researched and downloaded images about their topic, they created a storyboard and transformed their 5-paragraph essay into a script. Upon teacher approval, students began to create their movie by placing pictures in sequence, recording their script, making title and credit slides, and adding transitions and effects to their movie.

Table 1: Summary of pilot study projects.

<table>
<thead>
<tr>
<th>Project</th>
<th>Narrative type</th>
<th>Topic</th>
<th>Students</th>
<th>Teachers</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>Persuasive</td>
<td>Environmental issues</td>
<td>Groups of twos &amp; threes</td>
<td>All n = 3</td>
<td>23 days</td>
</tr>
<tr>
<td>Two</td>
<td>Biographies</td>
<td>Roman Emperors</td>
<td>Independent</td>
<td>Mr. R* &amp; ITS</td>
<td>15 days</td>
</tr>
<tr>
<td>Three</td>
<td>Explanation</td>
<td>Laws of physics</td>
<td>Paired groups</td>
<td>Mrs. A* &amp; ITS</td>
<td>12 days</td>
</tr>
</tbody>
</table>

Students were asked to respond via email to reflective questions after the first and second projects. They expressed in interviews and emails that the process of creating a DS was challenging and fun. They learned many new computing and writing skills. They also learned to collaborate and communicate. Students learned to organize by creating a storyboard and putting their information in a sequence. Their persuasive essays, which they transformed into scripts, contained supporting evidence for their point-of-view. They

1 Pseudonyms are used.
learned from each other, as well as from the classroom and lab instruction. The students learned about all topics by watching each other’s movies and were eager to do more DS.

Students articulated that they liked to put pictures into the movies and decide upon the best order. They enjoyed finding the music and recording their narration. They looked forward to putting the movie together and seeing how it ended. Even though they liked these aspects, they found them challenging, too. The most challenging aspects for these students were researching and finding pictures, using the storyboard, writing the persuasive paper and the script and putting the movie all together. Some students found it hard to negotiate with their group members. One student found it difficult to work alone when other group members were absent. One student needed help reading and writing.

Students stated that they learned how to work in groups, be patient, and put things in an order that made sense. They learned how to perform research and then write from their notes, select pictures for emotional impact and then match the pictures with the words of the script. They also learned how to manage their time.

Making the movie helped with their writing by putting pictures in an order to match their words. It helped them to write with a point-of-view and they learned how to be persuasive. These students stated that they were able to learn from their mistakes and apply it in their writing and with creating other movies. The students commented on their use of supporting evidence and that storyboarding was like a rough draft or story map that helped them with their writing.

One issue that came to light during this pilot was that the movies were video essays relaying facts rather than digital stories relating emotional impact to the audience. This was partly due to the selected topics and curriculum integration. For example, the
seventh grade curriculum requires persuasive writing, which was combined with another grade level expectation about social responsibility and environmental topics. Most of the students reported about their topic, but lacked personal involvement and narrative elements such as goal-directed human action with crises and resolutions (Bruner, 1990, 2002). The biography was a report rather than a story as was the science topic, laws of physics. The value of the pilot study highlighted the need for emotional content and the emphasis of voice to create a story.

Significance of the Study

“Although there is a plethora of literature, published and unpublished, examining the efficacy of K-12 educational technology, meta-analytic researchers have revealed consistent and inconsistent findings” (Chambers & Schreiber, 2005, p. 2). Government, state, and local education departments have emphasized literacy in order to meet the requirements of NCLB (2002). Another educational focus has been on technology integration (US DOE, 2004). This study was needed to explore how technology integration impacted literacy, learning processes, and the teaching practices that fostered them.

Table 2 displays the areas of writing and how DS addresses those concerns. The DS processes of storyboarding and creating the movie had an impact on students’ understanding of organization. Evidence of voice was developed and demonstrated through integration of the specific curricular content and the creation of the narration, script, and video.

Students came to understand that point-of-view in writing is manipulated through the editing process. This editing process was dynamic throughout the creation of the DS. The writing process sometimes began by researching the topic and taking or creating
notes. These notes were used to write an essay, which was edited several times in collaboration with their classroom teachers. The essay was edited into the script and was changed based on the images used, the point of the story, and feedback.

Table 2: Utilizing writing and DS processes to address concerns.

<table>
<thead>
<tr>
<th>RQ</th>
<th>Writing Traits</th>
<th>DS Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1 &amp; RQ2</td>
<td>Organization and story structure</td>
<td>• Storyboarding</td>
</tr>
<tr>
<td>RQ3</td>
<td>Perspective</td>
<td>• Organizing the images and ideas to tell story</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Editing process of images and text</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Who is telling the story</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Who is the audience</td>
</tr>
<tr>
<td>RQ4</td>
<td>Voice</td>
<td>• Writing the script</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Integration of specific curricular content</td>
</tr>
</tbody>
</table>

Theoretical Background

Narrative is the foundation for what makes us human (Bruner, 1990; Lambert, 2002). It is through our stories that we remember and define who we are. Writing narratives and using technology to develop stories fulfills Missouri state goals in Communication Arts (2004) to “acquire knowledge and skills to communicate effectively within and beyond the classroom,” the grade-level guidelines which emphasize reading, writing, and thinking, and the National Educational Technology Standards (NETS) for Students (2004). As writers, students will actively work as readers of their written text and the writing of their peers (Kajder, 2004).

According to the International Society for Technology in Education (ISTE), more than 90 percent of the states in the U.S. have adopted, adapted, or referenced the NETS
students in state department of education documents (ISTE, 2005). Creating digital stories is supported by the NETS standards that define the use of technology as productivity, communication, and research tools.

The six traits of effective writing provide the structure for students to begin their writing, to revise their writing, and to assess their own and others’ writing (Kemper, Sebranek & Meyer, 2006). Culham (2003) expanded the six traits described as organization, ideas and content, voice, word choice, sentence fluency, conventions by adding a presentation component. These seven traits correlate to the seven elements of DS, which are point-of-view, dramatic question (story structure), emotional content, voice, sound track, economy (organization) and pacing (Lambert, 2002). The primary difference that DS affords is the use of images to enhance the story. Table 3 contains a brief explanation of the writing traits and the corresponding DS elements. For instance, the writing trait of organization showcases the central theme or idea (Culham, 2003). This relates to the DS element of point-of-view which is the “point” of the story (Lambert, 2002).

New digital technologies and multimedia are transforming how we teach and learn. Previously unimaginable video production is now possible for an increasing number of youth in schools (Polman, 2004). DS is a recent advancement that utilizes the latest developments in digital video cameras, scanners, personal computers and software. Storytelling, with the use of digital video, is empowering students to become researchers, storytellers, historians, oral historians, and cultural theorists in their own right (Weis, Benmayor, O’Leary & Eynon, 2002). Due to these technological advancements, it is difficult to find any reference to DS research prior to the 1990’s.
Table 3: Writing traits and seven elements of digital storytelling

<table>
<thead>
<tr>
<th>6 + 1 Writing Traits (Culham, 2003)</th>
<th>Seven Elements of DS (Lambert, 2002)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>Point-of-view</td>
</tr>
<tr>
<td>Showcases the central theme or idea.</td>
<td>“Point” of the story.</td>
</tr>
<tr>
<td></td>
<td>Dramatic question</td>
</tr>
<tr>
<td></td>
<td>A structural “setup” corresponding</td>
</tr>
<tr>
<td></td>
<td>to a logical “payoff”.</td>
</tr>
<tr>
<td>Ideas and content</td>
<td>Emotional content</td>
</tr>
<tr>
<td>Clear and focused with relevant</td>
<td>Truthful approach that holds the</td>
</tr>
<tr>
<td>details that enrich the central</td>
<td>audience’s attention.</td>
</tr>
<tr>
<td>theme.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dramatic question</td>
</tr>
<tr>
<td></td>
<td>A structural “setup” corresponding</td>
</tr>
<tr>
<td></td>
<td>to a logical “payoff”.</td>
</tr>
<tr>
<td>Voice</td>
<td>Emotional content</td>
</tr>
<tr>
<td>The writer speaks directly to the</td>
<td>Truthful approach that holds the</td>
</tr>
<tr>
<td>reader in a way that is compelling</td>
<td>audience’s attention.</td>
</tr>
<tr>
<td>and engaging.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Word choice</td>
</tr>
<tr>
<td></td>
<td>Words are powerful, engaging, and</td>
</tr>
<tr>
<td></td>
<td>convey intended message.</td>
</tr>
<tr>
<td></td>
<td>Pacing</td>
</tr>
<tr>
<td></td>
<td>Good stories breathe. The</td>
</tr>
<tr>
<td></td>
<td>narrations uses engaging rhythm.</td>
</tr>
<tr>
<td>Sentence fluency</td>
<td>Conventions</td>
</tr>
<tr>
<td>Sentences have an easy flow,</td>
<td>The writer utilizes standard writing</td>
</tr>
<tr>
<td>rhythm, and cadence.</td>
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Slavin (1989) warns us about faddism in education and points out that educators rarely wait for or demand hard evidence before adopting new practices. Without more research on the benefits and limitations of integrating storytelling through the use of digital video into classroom curriculum, we run the risk of not fully understanding the educational impact of this new activity structure, hence the need for this study.

The educational community has begun to embrace the concept of DS (Lambert, 2002; Porter, 2004) based on the constructivist theory to develop critical and creative thinking through collaboration (Vygotsky, 1978). This collaborative process promotes an authoring environment to synthesize, theorize, and interpret cultural and historical knowledge. Vygotsky’s (e.g., 1978) general genetic law of development states that learners first participate in social activity “in the world” or intermentally, often with the support of more expert others or even peers, as well as cultural tools with scaffolds; then later internalize those ways of acting so that they can perform independently. In addition, through the sharing and development of these stories, authors can develop perspective and come to understand narrative structures embedded with cognitive, social, and emotional functions (Polman, 2004).

By reviewing 25 years of meta-analytic research on the efficacy of educational technology, Chambers and Schreiber (2005) synthesized consistent findings in favor of computer use in school, but stressed that “researchers need to conduct well-controlled studies that are able to capture a more accurate picture of the interactions that occur when using computers in the classroom” (p. 18).

Cognitive outcomes for DS include: perspective taking (Bers & Cassell, 1998; Chambers & Schreiber, 2004; Weis et al., 2002), problem solving (Chambers &
Schreiber, 2004; Howell & Howell, 2003; Weis et al., 2002), creativity (Chambers & Schreiber, 2004; Lachs & Wiliam, 1998; Weis et al., 2002), and higher order thinking (Chambers & Schreiber, 2004; Howell & Howell, 2003; Weis et al., 2002) which includes the use of narrative stories related to learning processes (Bruner, 1990).

The review of literature in chapter two presents conceptual definitions and descriptions of storytelling, literacy, DS, and education reform involving technology in education. The historical perspective of each of these aspects is presented. Three specific areas of analysis; point-of-view, voice, and organization, are explained in relation to thinking with narrative. The theoretical background for understanding personal narratives and DS is described.

**Organization of the Study**

This study is organized into seven chapters, references, and appendices in the following manner. Chapter Two presents a review of related literature that includes: storytelling, digital video, media, cooperative learning, affordances and constraints of technology use, and other aspects of the topic. Chapter Three describes the research design and methods of the study, the instruments used to gather and analyze the data, the procedures followed, and background materials related to the curriculum. The analyses of data and the discussion of the findings of the first, second and third projects are presented in Chapters Four, Five and Six, respectively. The summary, conclusions, and recommendations of the study are contained in Chapter Seven. References and appendices follow Chapter Seven. Examples of student DS are included.
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<th><strong>Definitions of Terms</strong></th>
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<td><strong>Artifact(s)</strong></td>
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based upon his or her own pattern of strengths and weaknesses and specifies how the child’s progress will be measured (Therapistfinder.net, 2004).

**iMovie**
Specific software developed by Apple Computer Corporation to create digital movies.

**iPhoto**
Specific software developed by Apple Computer Corporation to store, manipulate and edit images.

**iTunes**
Specific software developed by Apple Computer Corporation as an audio player.

**Literacy**
Includes reading, writing, and the creative and analytical acts involved in producing and comprehending texts (Reading Rockets, 2004).

**Narrative**
A sequence of events that tell a story: orally, written, which may contain images and pictures, and may include music. Burke (1969) proposed that well-formed stories are composed of a pentad, which includes: an actor, an action, a goal, a scene, and an instrument, plus trouble. Trouble consists of an imbalance between any of the five elements of the pentad (Bruner, 1990).

**Reflection**
Thinking about one’s actions and/or interactions about learning with the intent of understanding, improving or changing one’s future actions and/or interactions.

**Scanners**
An electronic device used as a tool to read and transfer images or documents to another electronic device (computer).
Scripting

With regard to digital storytelling, the narration of the story is written.

Storyboard

The means of organizing images, transitions, effects, narration, and soundtrack in a sequential format to create a story.

Story

See “Narrative” (the terms are used interchangeably in this study).

Story Structure

The sequential content of the story that may depend upon the genre.

Transitions

The effects used between images or text in a digital video.

**Project Summary**

The purpose of this study was to better understand how students learn within the context of multidisciplinary literacy instruction integrating multimedia technologies to tell digital stories. Due to the lack of empirical learning sciences research, little is known about the cognitive processes involved in children creating videos (Polman, 2004). How does creating a digital story impact children’s literacy skills? In this study during the 2005-2006 school year, 43 seventh grade students constructed narratives using iMovie software, digital videos and images. Almost daily 40-minute class periods were held in the computer lab. Teachers instructed students about the writing process in their regular classrooms. Students were trained in the use of email, scanners, software, cameras, computers, and the development of narratives, which included: how to create a story, conduct artifact searches, develop a storyboard, revise, construct and perform self and peer critiques. The content of the digital stories were derived from the seventh grade curriculum.
CHAPTER II: LITERATURE REVIEW

According to Bruer (1993), the United States DOE’s National Assessment of Educational Progress (NAEP) data collected every four years since 1970 shows that students have a command of lower-level, rote skills, but fail at higher order reasoning and learning skills. Businesses want employees who are critical, analytic thinkers, who can innovate and solve problems, who have superior speaking and writing skills and who can learn on the job.

Students must know more than how to repeat facts and execute procedures. Students need to acquire learning skills that apply across the curriculum, and beyond school as well. Moving students from novice to expert will require developing expert schemas and reasoning knowledge (Bruer, 1993; Larkin & Chabay, 1989). This can be accomplished if educational practice is based on what is known about how people learn and reason using cognitive science (McGilly, 1994). Insights from cognitive science have informed the development of the learner’s metacognition: knowledge about one’s own knowledge, skills, and abilities. Metacognitive skills or strategies are needed to monitor and regulate one’s own learning. These strategies may include planning activities, monitoring activities during the learning and checking outcomes.

One purpose of this study was to better understand the possibilities for learning through DS. Teachers have been working with students to develop their writing processes and research is needed to examine how the use of technology may provide a different platform that impacts literacy learning processes and outcomes. The use of DS projects may serve to enable literacy learning in ways that traditional instruction has not been able to.
Storytelling, Literacy, and Narrative

Storytelling can ignite the imaginations of children, giving them a taste for where books can take them. The excitement of storytelling can make reading and learning fun and can instill in children a sense of wonder about life and learning” according to the U.S. Department of Education, 1986. (National Storytelling Association, 1994, p. 3)

Storytelling is an ancient art. Before the written word, stories were used for a variety of reasons such as: to entertain, to teach, to impart wisdom, and to explain natural phenomena. The oral tradition of telling stories maintained and sustained cultural beliefs and societal structures. As human beings, we organize our experiences in the form of stories (Bruner, 2002). According to Schank (1990) we need to tell someone else a story that describes our experience because the process of creating the story also creates the memory structure that contains the gist of the story for the rest of our lives. We learn from our stories and tell them to remember them.

Literacy is the ability to read, write, comprehend and communicate. Narrative is our way of communicating. Narrative is story. A narrative is composed of a unique sequence of events, mental states, and happenings involving human beings as characters or actors (Bruner, 1990). It can be "real" or "imaginary" and is a means of communication that relates our humanity as story. Narrative theory is more complex and relates to who tells the story, for what audience, and the organization of the ideas or events.

In Schools for Thought, Bruner (1993) states that writing is a form of problem solving. Authentic writing tasks facilitate transfer outside the school environment. Skilled
writers have schemas that they can follow to solve writing problems. With a great deal of
time revising and editing their text, expert writers plan carefully and reorganize their
ideas in a way that helps their audience and conveys the gist of their story.

Burke (1969) defined story as “dramatatistic pentad” of act/action (what
happens/happened or is/was done), agent/actor (the one who does/did the act), scene (the
setting in which an act takes/took place), agency (the means by which the act is/was
carried out), and purpose (the goal or objective of the act). What drives the story is a
misfit between the elements of the pentad.

**Digital Storytelling**

*Filmmaker, George Lucas, talks about the “new language of
expression.” We must teach communication comprehensively, in all
its forms. Today we work with the written or spoken word as the
primary form of communication. But we also need to understand the
importance of graphics, music, and cinema, which are just as
powerful and in some ways more deeply intertwined with young
people’s culture. We live and work in a visually sophisticated world,
so we must be sophisticated in using all the forms of communication,
not just the written word. If people aren’t taught the language of
sound and images, shouldn’t they be considered as illiterate as if they
left college without being able to read or write? (Daly, 2004)*

The concept of DS is based on oral cultures, building community through
listening, understanding and composition. It is a way to capture the extraordinary in the
ordinary. Finding one's own voice through the process of creating a story is a primary
component of this mode of communication. The project-based learning within the context of personal story greatly accelerates the learning process of multimedia technologies (Lambert, 2002).

*The dominant medium is changing. Learning to read and write the printed word is still essential, but is no longer sufficient in a world where television, radio, movies, videos, magazines, and the World Wide Web have all become powerful and pervasive sites for public education and literacy. The dominant form of language has become the image. (Goodman, 2003, p. 4)*

The combination of digital images, video, music, texts, and voice to create stories may be labeled according to story types. These types of stories include different kinds of personal stories, such as character stories that are important to us, love stories, recovery stories, discovery stories, memorial stories, adventure stories, accomplishment stories, stories about a place or time in one’s life or about “what I do” (Lambert, 2002). Porter (2004) elaborates with more examples of story ideas about kinship, myths, legends, and tales, and other writing prompts based on informative, expository, and persuasive genres. Other possible story ideas are teacher and student portfolios and future vision stories about individuals, communities, and organizations.

The initial research supports that the students were more engaged in the narrative process of telling stories using technology (Bers & Cassell, 1998; Lachs & Wiliam, 1998; Weis et al., 2002). Social benefits were noted throughout the collaborative process (Bers & Cassell, 1998; Lachs & Wiliam, 1998; Weis et al., 2002). Some of these social
benefits included increasing presentation skills, group dynamics and communication, asking for help and/or clarification, and building self-esteem through learning new skills.

Lambert (2002) and others at the CDS have developed a particular genre of DS that follows a set of conventions based on the work of Dana Atchley (2000). According to Lambert, (2002), the seven elements of this DS genre are: point-of-view, dramatic question, emotional content, voice, pacing, economy, and sound track. Telling stories is a human necessity. The purpose of telling stories is to learn something. The purpose of creating a story is for the author to learn something, too (Schank, 1990).

The point-of-view of the DS genre as it has been practiced is first person narrative. Lambert (2002) believes that all stories are told to make a point. Most stories follow the pattern of describing a desire, a need, or a problem that must be addressed by a central character. It is imperative to define this goal in order to direct the editing process. The point-of-view can be honed by asking these questions. WHY am I telling this story? WHY am I telling it now? WHO am I telling it to?

The dramatic question is the “hook.” It is the story structure of desire, action, and realization. It is the why behind the point-of-view. Creating a story is not like writing an essay with a topic sentence, supporting evidence and closure. The dramatic question is a structural “setup,” corresponding to a logical “payoff” (Lambert, 2002). This can be accomplished by creating a small scene that puts the reader into the experience telling them a little of where we are going, and then surprising them.

The third element is emotional content. It is imperative to be truthful in order to hold the audience’s attention. This is accomplished by describing how we got past the hard part, and still got what we desired (Lambert, 2002). One can ask people to find and
share stories that are meaningful to them and centered on basic human emotions: life and death, loss and resurrection, moment of change (where there was a problem and then the problem was solved). This process involves boiling events down to an emotional essence. Having clarity around the emotions that are involved in the story makes them universally applicable.

The fourth element of DS is voice. Authors narrate their own stories by recording their script, and then aligning their words with their pictures. Many people do not like the way their voice sounds, but the gift of one’s voice in one’s story makes a significant difference. It is important to speak slowly, in a conversational style when recording one’s voice. Speakers cannot be afraid to allow for the emotion of their stories to be conveyed by their voices (Lambert, 2002).

The fifth element is the sound track that includes: music, sound effects, and the audio portion of the live video. The sound should complement the story. One can use music to signify change or turning point. One can use silence. Storytellers must be aware of the appropriate fair use of any copyrighted material and create their own music or use royalty free music whenever possible.

Economy relates to the organization and the storyboard, in addition to the relationship between the writing, the narration, and the images. If five pictures are not advancing the story, then the storyteller should pick one that the audience would like to gaze at and delete the others.

Pacing refers to the rhythm of the story. This rhythm relates to the visual images, the writing in the script, and speed of the narration. “Good stories breathe,” according to Lambert (2002, p. 59).
Theoretical Framework

A primary aspect of the sociocultural theory based on the works of Vygotsky (1994), as well as Wertsch (1991), is that higher order functions develop out of social interaction. Students work collaboratively and cooperatively to produce their digital stories in a classroom that is structured as an environment of social interaction. Students interact and communicate with teachers and each other as they learn new tools and create their stories. Vygotsky (1994) described learning as being embedded within these types of social events and occurring as a child interacts with people, objects, and events in the environment.

Students also act as teachers to each other by passing on information learned and giving feedback to classmates on each other’s projects. This is supported by Vygotsky’s (1994) theory that cognitive development depends upon the zone of proximal development (ZPD). Full development of the ZPD depends upon social interaction where the outcome exceeds what a child could achieve alone. In this case, the initial project and learning takes place within collaborative groupings. Working together on projects affords students a means to foster intellectual and social growth vital to participation in a democracy, and also meets students’ immediate interests (Cremin, 1961; Polman, 2000).

During the second DS project of the school year, students in this study were required to work independently to insure internalization of the process. It is in this way that students constructed their knowledge based on the cognitive structures developed during the first project and from mental models developed in school as a whole (Bruner, 1966.)
DS is consistent with the four major aspects of Bruner’s (1966) constructivist theory of instruction: (1) predisposition towards learning, (2) the ways in which a body of knowledge can be structured so that it can be most readily grasped by the learner, (3) the most effective sequences in which to present material, and (4) the nature and pacing of rewards and punishments. This last aspect involves the rewards and punishments related to the intrinsic aspects of creating one’s own digital story. As discovered by Teaching Youth Media (Goodman, 2003), students are challenged by new learning and their development of skills and are rewarded by the accomplishment of their final product.

Situated cognition is a theory of instruction that suggests learning is naturally tied to authentic activity, context, and culture (Brown, Collins & Duguid, 1989). In situated approaches, students collaborate with one another and their instructor in a culture of learning toward some shared understanding; in this case, creating digital stories.

Lave (1990) argues that learning as it normally occurs is a function of the activity, context and culture in which it occurs (i.e., it is situated). This contrasts with most classroom learning activities which involve knowledge that is abstract and out of context. With DS, learners became involved in a “community of practice” and this social interaction is a critical component of situated learning. Lave and Wenger (1991, cited in Kearsley, 2005) believe that situated learning is usually unintentional rather than deliberate.

Although several learning models in the social constructivist paradigm reflect some aspect of situated cognition, the cognitive apprenticeship model is most directly related to situated cognition (Oliver, 1999). Brown et al. (1989, cited in Kearsley, 2005) state that: “Cognitive apprenticeship supports learning in a domain by enabling students to acquire, develop and use cognitive tools in authentic domain activity. Learning, both
outside and inside school, advances through collaborative social interaction and the social construction of knowledge”.

DS utilized the following aspects of the cognitive apprenticeship method (Collins, Brown & Newman, 1990; Conway, 1997).

1. Modeling – involves an expert’s carrying out a task so that students can observe and build a conceptual model of the processes that are required to accomplish the task. For example, the teacher models the use of iMovie and shows examples of completed stories.

2. Coaching – consists of observing students while they carry out a task and offering hints, feedback, modeling, reminders, etc.

3. Articulation – includes any method of getting students to articulate their knowledge, reasoning, or problem-solving processes.

4. Reflection – enables students to compare their own problem-solving processes with those of an expert, another student, or a previous project.

5. Exploration – involves pushing students into a mode of problem solving on their own. Forcing them to do exploration is critical, if they are to learn how to frame questions or problems that are interesting and that they can solve (Collins et al., 1990, p. 481-482).

To summarize, the process of creating digital stories as a means for the students to become effective communicators was based in the sociocultural theory that requires cognitive and communicative functions in the classroom. Students constructed these stories using specific tools. In this situated environment, students acquire skills in authentic contexts by communicating with peers and teachers about those contexts. A cognitive apprenticeship is fostered because students were required to articulate their
reasoning for their topic, selection of images, and music. Students were asked to send reflections via email to the teacher and/or other students depending on their needs in problem solving. Because there were several projects, teachers were able to scaffold the students’ learning with the help of modeling and coaching from the teacher and their peers.

**Education Reform Involving Technology**

The use of DS may serve to reach the learner in a way that traditional instruction has not been able to and thereby transform learning in school. Davis’s research (2004) with DS discovered “evidence that each story served as a tool in the process of self-authoring. In each case, the youth reflected on events of his or her life and organized them into a coherent narrative that had not existed beforehand as an object of contemplation.” In addition, this narrative development was an interactive process between a youth and an adult, and as a presentation that was interactive with the audience in which peers played a critical part (Davis, 2004; Hayes & Matusov, 2005). Furthermore, these newly acquired tools also became incorporated into a more competent sense of self (Davis, 2004).

Mindtools are computer-based tools and learning environments that have been developed to function as intellectual partners with the learner in order to engage and facilitate critical thinking and higher order learning (Jonassen, 2000). The technology and the software used to produce digital stories are mindtools that engage new forms of reasoning that fundamentally reorganize the ways in which learners represent what they know.
As Polman (2000, p. 21) stated, “designers often talk about the set of given resources and/or constraints in the environment, each with certain affordances” (a term introduced by Gibson, 1986, and elaborated by Norman, 1988). The Macintosh computer and the software (iMovie, iPhoto) created to work together so ingeniously they afford the user quick access, functionality, visibility of commands, and feedback with visual cues (Norman, 1988). In the pilot project, students continually built upon their knowledge base once they began to create their projects (see Kulla-Abbott, 2005). Project-based learning environments engage transformative communication and develop collaborative skills (Polman, 2000). When incorporated with storytelling, iMovie production promotes critical thinking and knowledge construction that was transferable and generalizable to story development and active problem solving. DS supported knowledge construction, exploration, learning by doing, learning by conversing, and intellectual partners that supported learning by reflecting (Jonassen, 2000).

DS can be integrated as a research tool, a simulation tool, and a tool for analysis and synthesis (Polman, 2000) that engages learners in thinking deeply about the content and facilitates knowledge construction and reflection impacting education in a multitude of ways.

“Students learn that worlds are constructed through language and texts” (Beach & Myers, 2001, p. 4). The classroom was a perfect place to engage, develop and explore how language, signs and texts were used continually to construct and negotiate within a social world. Beach and Myers (2001) defined six inquiry strategies that form the basic framework for the various inquiries into social worlds (p. 17).
1. Immersing. Entering into the activities of a social world, experiencing the social world as a participant, or observing a social world.

2. Identifying. Defining concerns, issues, and dilemmas that arise in a social world, or from conflict across multiple social worlds.

3. Contextualizing. Explaining how the activities, symbols, and texts used in one or more social worlds produce the components of a social world—identities, roles, relationships, expectations, norms, beliefs, and values.

4. Representing. Using symbolic tools to create a text that represents a lived social world or responds to a represented social world.

5. Critiquing. Analyzing how a representation of a social world privileges particular values and beliefs; analyzing how particular literacy practices within a social world promote certain meanings while marginalizing other possibilities.

6. Transforming. Revising one’s meanings for the components of a social world, changing one’s actions and words within a social world to construct more desirable identities, relationships, and values.

Allowing students to select their topic creates ownership and increases motivation (Beach & Myers, 2001; Edelson, Gordin, & Pea, 1999; Polman, 2000). Many teachers struggle with engaging students in their own learning. This frustrates teachers and students alike. Polman (2000) wrote that even though the teacher was passionate about what he was teaching, it was difficult to motivate and engage students. When students were encouraged to select their own topic, their involvement and interest in the topic increased which allowed teachers to become involved with their students’ learning.
The development of the focus question is an important inquiry strategy that utilizes brainstorming techniques. Students are able to talk about the characters, their motivations and desires, their ideals, and struggles, and their relationships and identities (Beach & Myers, 2001). All of these opportunities present the students with ideas about their social world and about themselves, by themselves, and within the context of relationships. These kinds of reflective activities and knowledge building through brainstorming assist the process of story creation.

Students and teachers gain collaborative skills and experience (Carver, Lehrer, Connell, & Erickson, 1992; Beach & Myers, 2001; Polman, 2000). “Having both teachers and students mutually identify their own concerns, issues, or dilemmas engages them in a ‘problem-finding’ process of discovering or unearthing matters they perceive as important to their own lives in social worlds” (Beach & Myers, 2001, p 22).

According to Pea (1994) “transformative communication” is a key strategy for supporting students in accomplishing unfamiliar activities. Teachers and students actively participate in communication.

Teaching and creating narrative with DS is aligned with the 2004 Missouri Show-Me Standards for Social Studies and Communication Arts Grade-Level Expectations. This is important because the national, state, and local educational governances have mandated that teachers must educate students within these guidelines for the purpose of developing proficient learners as measured by the Missouri Assessment Program (MAP).

There are six levels of learning goals that impact teaching practices and curriculum implementation. These six levels begin with general statements and become
more specific with each level. It is difficult to select one standard for each of this project’s foci because of the overlapping verbiage.

1. The National NCLB
2. State standards
3. State goals
4. Grade level expectations
5. District goals
6. Released MAP test items that are in line with the state standards.

With national standards, NCLB (2001) focuses primarily on building grade level performance and accountability. The act states that ALL children will be proficient in reading and math by 2014. This performance is measured by annual standardized tests. One of the essential elements of NCLB is that all public schools and districts must make satisfactory improvement each year toward that goal. Based on criteria included in NCLB, the Missouri Department of Elementary and Secondary Education (DESE) has established specific annual targets for AYP. By 2006, Missouri must develop new, annual tests in reading and math for grades 3-8 to measure students’ academic progress.

The current state standards for communication arts are called the Show-Me Standards. The Show-Me Goals are more specific than the Show-Me Standards (DESE, 2004). The following is an example of Grade Level Expectations (GLE) for Writing related to district goals, state standards, and DS:

Goal 3: Write effectively in various forms and types of writing. Seventh grade students must be able to write expository and persuasive

- Paragraphs (including compare/contrast and cause/effect) with
  - A strong controlling idea
Reflective journaling was a valuable tool that allowed students to view their process and problem solve. The teacher learned how to help students complete their task. “Although students often find it tedious to have to look back at their performance, and usually do not have the patience to try to improve their performance. The benefits of reflection are that students have a chance to see processes for the first time, much like their first exposure to a mirror, and to compare their ways of doing things to other people’s ways” (Collins, 1996, p. 14).

Carver et al. (1992) list some of the major thinking skills that students need to develop to become successful designers:

**Project Management Skills**

- Creating a timeline for the completion of a project.
- Allocating resources and time to different segments of the project.
- Assigning roles to particular members of the team: who will do what, when? And other aspects of collaborative design.

**Research Skills**

- Deciding on the nature of a problem: How should the inquiry be organized? What is of interest?
- Posing questions: going beyond the traditional questions of who, what, when, where, why, to consider questions of structure, model cases, values, roles, etc.; use of brainstorming and other techniques for the generation of new questions.
- Searching for information: using electronic search media, text-based search with the table of contents, indexes, and the like; skimming text, finding illustrations.
- Developing new information: constructing surveys, questionnaires, interviews, and other tools for the acquisition of information.
• Analyzing and interpreting information: how to find and interpret patterns of data, how to analyze data from both traditional sources and nontraditional sources like film, photographs, and other media.

Organization and Representation Skills

• Deciding on the segmentation of information: How should information be partitioned to increase its comprehensibility?
• Developing representations: How should information be represented?
• Developing a structure: How should information be connected and organized? Hierarchically? Chronologically?
• Juggling constraints: not every constraint can be met–some are more important than others, some interact–so the accomplishment of one goal may make others more difficult to achieve.

Presentation Skills

• Transferring the design into a presentation medium: how to reflect the major themes effectively in an exhibit of the presentation.
• Catching and maintaining audience interest: how to tailor the message for the audience, maintain or attract visual attention, and other considerations.

Reflection Skills

• Evaluating the process: how to evaluate one’s progress on all aspects of the process, how to receive feedback from others.
• Revising the design: using feedback to revise the design and structure of one’s presentation.
  (pp. 388-389)

It is important for teachers to give explicit instruction while modeling the design process, as well as coach students to help them accomplish their task. Effective feedback is key to design and teachers need to encourage students to articulate what they are learning (Carver et al., 1992). Feedback from their reflective process can then be used when revising the design or changing the query.

Collins (1996) states that “highly structured learning environments keep students engaged in activities that can lead to learning” (p. 10). Students start out in a highly structured environment, and as they master the necessary skills, move to less structured
environments and expand on their knowledge base. Within this structured learning environment, students experience “controlled floundering” described by Pogrow (1988), allowing students to “feel their way along a line of reasoning,” while the teacher provides guidance and support as the students experiment.

It is imperative to support classroom teachers’ use of technology with training (Edelson et al., 1999). Teachers need background knowledge in order to be able to answer questions about the software as well as the content. Training builds a knowledge base that enhances classroom instruction, student effectiveness, and both teacher and student ownership of the process and project. This ownership built by the confidence to troubleshoot and answer student questions, is also imperative for developing effective lesson content based on the curriculum.

Using software as a general tool has embedded affordances (Norman, 1988; Pea, 1993; Polman, 2000), or natural ways of using the tool, that do not easily match the task for which it is being applied (i.e., creating a visual representation or movie to express social responsibility). Students’ interests were a resource and were engaged by meaningful learning in this new way.

Network tools such as the World Wide Web afforded searching for information and that informed students’ inquiry and supplied images and video clips that went beyond what an individual student could create. Students worked collaboratively on projects while constructing ideas. The use of iMovie and the classroom format to construct the project afforded a way of structuring classroom activity around project milestones that included conducting research, creating the script and storyboard, and collecting and/or
creating images and video. Email allows students and teachers the ability to communicate with each other to further collaboration and create understanding (Polman, 2000).

The grading system as outlined by a rubric offers a means to evaluate based on a set of criteria to promote reflection and critical thinking. The process of grading affords that the teacher and the student create dialogue and understanding of expectations and the means to achieve learning while creating an exemplary project. In this process, it is a fine line between teaching and telling. Many students outright ask to be told what to do. The process of inquiry with the proper guidance from the teacher affords students the ability to create their own understanding and make the project their own, thereby internalizing the learning process in a unique and memorable way (Polman, 2000).

Constraints included the structure of the school day, allowing time for classwork and project creation, and demands on the teacher’s time to consult with each group. Another constraint was the school culture that has created a climate of rote answers rather than student inquiry and independent thinking. As Polman (2000) points out, it is possible that these constraints and affordances or resources can be misleading, however, since “constraints can be turned into resources, and resources can turn out to be severe constraints” (Brown & Duguid, 1990, p. 38).

Natural constraints (Norman, 1988), as related to DS, were present due to the students’ knowledge base and the capabilities of the software, which may not have be able to perform a particular task that it had not been programmed to do, such as iMovie’s limitation of two audio tracks. Access to technology may also be a natural constraint.

Cultural constraints included acceptable social behavior and cultural conventions that had been learned after years of schooling and socialization. These cultural constraints
impacted the student’s product, student collaboration, and teacher/student interactions, such as asking for help. Finding a balance to assist all students was a constraint that manifested as classroom management of time hogs, crisis help, avoidance of the teacher, and the “know it all” who ended up making mistakes that needed to be fixed.

Other constraints included: risk and grading, conflicting beliefs about teaching and learning, pressure to train and support knowledge about technological tools, model projects had the potential to inhibit creativity and create beneficial guidelines and visual representational tools, the challenge of tutoring many students at once, coaching—supporting, guiding students’ work along the way, and student ownership, interest, and reactions, scaffolding student work, and political and social constraints imposed by national, state, and district curriculum guidelines (Cuban, 1984; Collins et al., 1990; Polman, 2000).

Software afforded creation of movies, but the constraints included: limitations to design, glitches that occur randomly, and the size of memory to maintain video and file size. Although the software may be easy to learn, it still needed to be mastered and put into practice in order to retain the new knowledge. Further limitations were: dealing with frustrations of learning new technologies, lack of training for teachers and students, developing lessons that enhanced learning in these new and innovative ways, differentiating instruction for students with special needs, and the lack of strong empirical evidence that this new method works.

Edelson et al. (1999) listed contributions of the inquiry process to developing content understanding by creating a demand for content knowledge, discovering and refining understanding of curricular principles, and application of existing knowledge
with enriched connections to other knowledge. Technology contributions to the learning process include: enhancing interest and motivation, providing access to information, allowing active, manipulative representations, structuring the process with tactical and strategic support, diagnosing and correcting errors, and managing complexity and aiding production. Challenges to inquiry-based learning include: motivation, accessibility of investigation techniques, background knowledge, management of extended activities, and practical constraints of learning context.

These challenges were met, for the most part, with specific strategies that included meaningful problems, reestablishing motivating context and the use of user friendly software, staging activities, bridging activities, embedded information sources, and record-keeping tools. The practical constraints of the learning context included: time, teacher training and development of curriculum framework and rubrics, student ability, and access to technology (Edelson et al., 1999).

This review of the literature has shown that research is needed to discover how DS may be used to transform teaching and learning in the areas of inquiry, collaboration, curriculum, and metacognition. I now turn to the specific design of the research study to be undertaken.
CHAPTER III: METHODS

Introduction and Research Design

This chapter presents the research design, including the purpose of the study and research questions, participants and setting of the research, sources of data and procedures, analysis, validity, reliability, human participants concerns, and limitations.

Technology integration and utilization requires time, training, and support for teacher collaboration, curriculum development, and implementation. Through the active process of authoring, reflection, and interactivity afforded by DS, it was expected that students would transform their capacity to synthesize, interpret, theorize, and create new cultural and historical knowledge (Weis et al., 2002). The unique tool of video creation should be a motivating tool for students to learn in new, evocative, and meaningful ways (Polman, 2004). In addition, as writers, students actively worked as readers of their written text and the writing of their peers (Kajder, 2004).

Through this research I hoped to better understand the impact of utilizing technologies in a specific way to enhance literacy development. It was important that teachers and administrators did not view DS as a pullout program added to the curriculum, but as a way to integrate and differentiate instruction using technology and the curriculum.

The research design was qualitative and focused on answering the main research question: “How does creating a ‘digital story’ impact children’s literacy skills?” To answer this question, the research addressed the following more specific questions:
• In what ways does storyboarding and organizing images to tell a story influence students’ understanding?
• How does writing a story and constructing the video influence students’ learning?
• What do the students learn about perspective in their story?
• In the process of creating their digital stories, how do students develop their voice, which includes emotion, the point of the story, and oral presentation skills?

As described in previous chapters, DS is a recent achievement that utilizes the latest developments in digital video cameras, scanners, personal computers and software. Students use iMovie software to collaboratively videotape, edit, and create digital stories, which incorporate multiple media, and deal with issues of point-of-view, context, and communication of ideas. This research project was integrated into the classroom curriculum and took place throughout the 2005-2006 school year. The goal of this project was to better understand the possibilities for utilizing technologies in these innovative ways for literacy learning. For the initial iMovie project, students worked in groups of two or three creating movies incorporating the traits of a Greek god or goddess as they handled problems that teenagers face. Students worked individually on their second project, a personal story. On the third iMovie about environmental topics, students chose to work individually or with a partner since they were familiar with the process, equipment, and software.

Participants and Setting

The study took place in a large metropolitan area in the Midwest of the United States. The public school that participated in the study had kindergarten through eighth grade students in self-contained classrooms. In each classroom, teachers taught all of the core curriculum classes except art, music, and physical education which were taught
outside of the regular classroom. Each classroom had two iMac, two eMac computers, and four iBooks (laptop computers) for student use. There were also 16 iBooks on a cart to sign out for classroom use.

In this district, the ITS and classroom teachers were required to work collaboratively in the computer lab to instruct students through integrated curriculum needs based on grade level expectations. The classroom teacher is seen as the instructional leader, in a way, and the ITS, ideally, is a resource who supports what is being taught in the classroom with a technological component. In this study, I asked both seventh grade teachers to collaborate on projects to understand more about technology integration and student learning. Stakeholders and decision makers included the students, teachers, parents, administrators and the community.

I have been the ITS for this school since 1991. I received a Master’s degree in Instructional Technology from Southern Illinois University at Edwardsville in 1994. During my doctoral classes, I became interested in DS and attended the Digital Storytelling Festival and boot camp in June of 2004 and the “Train the Trainers” workshop in summer of 2005. With the successful completion of my own digital story projects, I continued to expand my knowledge of the latest software available and research pertaining to DS. My job included training teachers and students with technology, maintaining computers and other technological equipment in the school, and providing a resource for research, lesson planning, and curricular support among other tasks related to technology. This research study was in addition to my regular duties with the desire to utilize technological tools to support and assist students and teachers.
The classroom teachers and I worked collaboratively to better understand the impact of utilizing technologies in these innovative ways to teach literacy skills within the contexts of literacy instruction and multidisciplinary curricular topics. These teachers were a convenience sample and were selected based on their willingness to participate in the research, the availability of technology and software, and that the researcher was a teacher at this school. Both classroom teachers (one man and one woman) were interviewed after each project on his/her perspective about the learning objectives, student involvement and impact on teaching and learning practices. After the interviews took place, they were transcribed by the researcher and analyzed individually for themes (Creswell, 2003).

Mrs. A was a 45-year-old white female teacher who received her B.A. in 1997 when she began her teaching career. She did her student teaching at this school and was then hired into a seventh grade position. Prior to teaching, she managed three medical offices. She is certified to teach communication arts, math, and science and participated in the pilot study. She is technologically savvy with nine years of teaching experience.

The previous school year, Mrs. A and Mr. R worked with me on three projects in a pilot study incorporating social studies and communication arts with a biography about a Roman emperor, science and communication arts with persuasive writing on environmental topics, and finally, video representations of the laws of physics. What we discovered was that the final multimedia products were video essays rather than digital stories as they did not contain a dramatic question, emotional impact or a story quality (Lambert, 2002). Since Mr. R transferred to another grade level, Mrs. A and I decided to modify the research plan for this school year to incorporate a personal story. My focus
was to make the experience of storytelling more personal for the students by encouraging them to relate to storytelling and tell stories about themselves. Our goal was to integrate social studies and communication arts for one project, science and communication arts for another, and have the students tell a story about themselves.

Mr. Z had been teaching in a middle school within the district when he transferred to this school the year of this study and agreed to participate with my research about DS. He had collaborated with team members at his last school, but the ITS there had taught classes autonomously with a separate curriculum. Mr. Z was a 45-year-old white male teacher who received his Bachelor of Science degree in 1981, a Master of Arts in 1991 and a Master of Science in Education in 1995. He was awarded National Board Certification in Early Adolescence/English-Language Arts in November 2001. Mr. Z was named Middle School Teacher of the Year in 2001 by this district. He had served as the president and secretary for the State Middle School Association and had presented at numerous conferences. He was technologically savvy and familiar with the software that we were utilizing and teaching during this research. He began his teaching career in 1993 and had been an employee of this district since 1997.

These seventh grade teachers departmentalize: Mrs. A teaches science and math and Mr. Z teaches communication arts and social studies. The configuration of students is changed based on math achievement levels for basic math (Math7) and pre-algebra. This grouping then affects the communication arts classes as well. The classrooms are across a hall from each other, so students move between their homeroom to the particular learning group in one of the classrooms.
Participating students used a lab containing 25 eMac computers when conducting the computer-based portion of their DS projects. The computers in the lab were networked and contained the OSX operating system, iMovie software for editing digital stories, Garageband for editing sound and music, and iPhoto for managing and editing digital images. There were four scanners in the lab where the students scanned photos, saved them as JPEG image files and moved them to their computer. All seventh grade students had educational email accounts to confer with their teachers and each other.

Forty-one students in two seventh grade classrooms, 19 females and 21 males, created digital stories over five months during the 2005-2006 school year. Two boys did not participate fully because one transferred out of the school after the first project and the other only completed one DS because he was involved in the gifted program. Almost daily 40-minute classes were conducted in the computer lab until the completion of each topic. On some days the students worked an additional 40-minutes in the lab or in their classroom. Additional instruction occurred as needed in the classroom by the classroom teacher (i.e., narrative instruction or checking student work). Classwork conducted outside of the lab was not documented for this study.

All students in the participating teachers’ classrooms were asked to participate in the research, but any student who themselves or whose parents did not wish to participate had the option to decline. Only one student did not receive parental consent and was excluded from the study, although he did complete the assignments. An area in the room was designated as “off camera” to accommodate him and any other student who declined to participate at any time during the study, although no one did. Participants’ names were changed to provide anonymity.
Procedures

An information night was offered to inform parents and students of the research study. Students, parents, and teachers signed consent and assent forms (see Appendix A) after receiving approval from the University of Missouri at St. Louis’ Institutional Review Board, the school district and the building principal. The first project lasted 22 days during November and December 2005. The second project occurred in January – February 2006 spanning 18 days, and the third project was conducted in February – March 2006 for 16 days.

All students participating in the research study responded to the ITS via email as needed throughout the project and, specifically, with answers to reflective questions after each project. Three groups, with a combined total of six students, were selected and videotaped weekly in the computer lab for the duration of the research. These students were also interviewed after each project using the questions in Appendix B. The groups were selected near the beginning of the first project in consultation with the teachers, based on the students’ willingness to participate in the interview portion of the study. The group members were designed to represent a sample proportionate to the classrooms as a whole based on gender and academic achievement, including students with IEPs, but sometimes the group configurations were not 50% boys and 50% girls.

The original plan included a second interview session recorded as a “director’s commentary” with selected groups. This director’s commentary would have included their reasons for structuring the digital story the way they did and their reasons for including particular images, shots, effects, and background music. Although this was planned, it did not occur as written for two reasons; after doing the second interview with
one group, I found it was redundant because the students talked about their choices during the initial interview and because the students could not afford more time away from their classroom instruction.

The content knowledge of the topic (i.e., mythology and persuasive writing) was presented and taught by the classroom teachers. Students were instructed on particular software in the lab. The researcher and the classroom teachers collaborated by planning and discussing the progress and made adjustments according to the needs of the teachers and students. Students with particular needs or IEP’s were assisted by resource teachers. Email was used throughout the project for the students to ask questions of the teachers and each other and to write their reflections of their learning process.

**Instructional Overview**

Kajder’s (2004) six steps of DS were utilized during the project:

**Step one: What to Say?**

Each student identified stories “worth telling,” and then submitted a draft of between one and two pages, double-spaced. This required students to develop voice while exercising economy. The story was made into a script.

**Step two: Artifact Search**

Scanned, located, and/or recorded images.

**Step three: Storyboarding**

Students mapped on paper each image, technique, and element of their story by constructing a storyboard. This visual story had two dimensions: chronology—what happened and when—and interaction—how audio information interacted
with the images (Lambert, 2002). This required the writer to consider how effects, transitions, and sound would be sequenced.

**Step four: Revision**

In creating the storyboards and examining their scripts closely, students revised their scripts as needed. Students acquired skills in critical reflection of their work.

**Step five: Construction**

Building their digital stories by importing digitized images, adding transitions, titles, and special effects, recording narration, and adding soundtrack.

**Step six: Screening**

Screen the finished products. Share responses within a safe and supportive structure.

The first week in the computer lab included the introduction of the DS project and the storytelling process including examples of completed digital stories, selection of a topic, and research of information, photos, and video libraries on-line as needed. The first project took place over a period of six weeks. One week was only two days due to the Thanksgiving holiday. Subsequent projects took less time because the software and process had been taught and mastered.

During the second week, students transformed their story into a script and then created a storyboard, which was the process of designing the story in a sequential format incorporating planned use of video, photos, audio, and script. Scripts and storyboards were reviewed by teachers and revised and edited by students as needed. Videotaping began after the script and storyboard were completed and approved. The storyboard was
an initial plan, although the process was dynamic and the recording of images changed throughout the process. One group began videotaping on Friday of the second week.

Teaching the iMovie software took place at the beginning of each class during the third week. For the remainder of the week students developed their video project with instruction as needed including: script refinement, shooting video and compilation of their digital story.

The fourth week students continued to take pictures, videotape, create images, and put it all together in iMovie.

During the fifth and sixth weeks, students continued to put their movies together, and added music, transitions, titles, credits and narration. They viewed each other’s movies, helped each other and then exported their iMovie after it was completed. Students filled in a self-critique form as they viewed the final project (Tisdell, 2002).

It was expected that as students became familiar with the digital process and software more of their focus would be given to story content and digital enhancement to convey their story to the audience. When this expectation was met, the mechanics of learning the new technology became more internalized, and the use of technology became transparent allowing the telling of the story to emerge as the focus of the experience. The amount of time students’ spent in the lab for instruction and compilation of DS ranged from 40 to 90 minutes per day which totaled approximately 28.5 hours to create the first project, 15.33 hours for the second project and 12 to 14 hours for the third project.

**Data Sources**

This qualitative study utilized the following data sources: observational field notes, videotapes of classroom activity, digital video artifacts created by students,
reflections, emails, and interviews. Field notes from observations were processed on a daily basis and selected class sessions were videotaped for analysis purposes. Copies were made of the digital video artifacts that students created. Selected groups were asked to participate in interviews and one group gave a “director’s commentary” in which they were asked to give audio commentary on why they made particular decisions in the process. In addition to the list of interview questions (Appendix B), topics related to DS and communication arts were used as prompts to evoke feedback during the interviews.

Table 4 displays the relationship among the research questions, data sources, and type of analysis.

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Source</th>
<th>Method of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1: In what ways does storyboarding and organizing images to tell a story influence students’ understanding?</td>
<td>Student Interview Questions (SIQ): 1, 2, 4, 5, 10, 15; Teacher Interview Questions (TIQ): 2, 3, 5, 6, 7, 8; Observational field notes, student scripts &amp; storyboards, student emails, director’s commentary</td>
<td>Thematic analysis of organization sub-theme; patterns of change from script to storyboard to DS; case study.</td>
</tr>
<tr>
<td>RQ2: How does writing a story and constructing the video influence students’ learning?</td>
<td>SIQ: 1, 2, 3, 6, 7, 9, 10, 11, 13, 15, 16; TIQ: 2, 3, 4, 6, 8; Observational field notes, student scripts, storyboards, DS artifacts, and student emails</td>
<td>Thematic analysis focused on story elements sub-theme; patterns of how students used story elements; case study.</td>
</tr>
</tbody>
</table>
Table 4 (Continued): Relationship of research questions to data sources with the method of analysis.

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Source</th>
<th>Method of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ3: What do the students learn about perspective in their story?</td>
<td>SIQ: 1, 2, 4, 5, 17</td>
<td>Thematic analysis focused on perspective sub-theme; patterns explained how students understood perspective issues; case study.</td>
</tr>
<tr>
<td></td>
<td>TIQ: 5, 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Observational field notes, student emails, student scripts, storyboards,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and DS artifacts</td>
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<td>RQ4: In the process of creating their digital stories, how do students develop</td>
<td>SIQ: 1, 2, 3, 7, 8, 12, 14</td>
<td>Thematic analysis focused on voice sub-theme; patterns of how students developed their voice; case study.</td>
</tr>
<tr>
<td>their voice, which includes emotion, the point of the story, and oral presentation skills?</td>
<td>TIQ: 1, 2, 3, 4, 6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Observational field notes, student emails, classroom activity, director’s</td>
<td></td>
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<tr>
<td></td>
<td>commentary, student scripts, storyboards, and DS artifacts</td>
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Project Timelines

First Project Timeline: 22 days

Oct. 25-Nov. 1: IRB approval was received via email on Oct. 25. Student assent forms were presented to students on that day and many students signed. Parents attended school for parent/teacher conferences on Oct. 26 and 27. All but four parents gave approval. Two parents did not attend conferences. Three parents signed and returned forms November 1, 2005. Although two forms were sent home, one student did not return the parent consent form and was excluded from the study even though he participated in class work.

October 31 - November 4: Students researched their god or goddess and worked with a partner to write a story essay relating a Greek god or goddess to an average teenage day in present time. Students were trained on email to attach and send their essay.

November 4 – 10: Students transformed their essay into a script. Students were shown examples of completed movies. Storyboards were explained and examples were provided while students began working on them. Students completed a graphic organizer to fill in story elements about their script (see Definition of Terms, p. 15).

November 14 – 18: Students revised their scripts and storyboards to accommodate story elements. Both classes were trained on KidPix, iPhoto and iMovie and began taking pictures and video and importing images into their iMovie.

November 21 and 22: Most students completed creating and taking images but continued
to videotape and import into iMovie. Some students began to sequence images in
iMovie to convey their story and worked with effects.

November 28 – December 2: Students videotaped, took pictures, created music in
GarageBand and worked in iMovie. Some groups recorded their script as a
voiceover in iMovie and exported their musical creations into iTunes.

December 5: Students finished iMovies by adding voiceovers, effects, transitions, music,
and adjusting the volume of the sound tracks. Then they shared their movie as a
QuickTime full quality movie.

December 6: Movie viewing.

December 7: Student reflection via email and videotaped interviews with six students.

Second Project Timeline: 18 days

January 6: Sent letter home to parents and explained project to students.

January 12: Mr. Z’s class discussed ideas with me and began writing first draft.

January 17 – 20: Mrs. A’s class discussed ideas and students wrote their stories. Three
students brought pictures to be scanned. Two parents emailed pictures to me.


January 30 – Feb. 3: Scanning and compilation.

February 6 &7: Voiceovers and final compilation.

February 8: Viewing

February 9: Student reflection via email and videotaped interviews with six students.

Third Project Timeline: 16 days

February 21 – 24: Selected partners, researched, and wrote outline
February 27 – March 3: Story circle, image and video download, finish script

March 6 – 10: Story circle, image and video download, storyboard

March 13 - 15: Students finished iMovies by adding voiceovers, effects, transitions, music and adjusting the volume of the sound tracks.

March 16: Student reflection via email and videotaped interviews with six students.

March 17: Movie viewing.

**Data Analysis**

I transcribed and analyzed student and teacher interviews for themes and organized the data in digital files. Interview quotes and students’ written work are reported in the following chapters verbatim. To answer the main research question, I coded data sources by categories according to the sub-questions that were outlined above. Thus, the main coding subthemes were: organization and structure, story elements, perspective, and voice. I also coded emergent categories that relate to the subthemes. I identified and described patterns in the data that explain the genesis of these particular literacy skills by individual students or group, and pitfalls in students advancing their learning in these directions. I then developed narrative cases that exemplified the patterns and findings: these case studies attempted to reveal how the students’ participation in the DS led to particular aspects of literacy learning. The kinds of support provided by the teacher and the multimedia tools were also examined in the case studies.

**Limitations**

Affording enough time for students to complete the project was a balancing act within the students’ day and other curricular demands. The cost of computers, adequate
hard drive space, software, in addition to accessibility to computers, scanners, and digital cameras are limitations to widespread implementation and replication of this study.

Teachers may need to change their perspective and incorporate curriculum related assignments to utilize and expand upon this new medium of narrative instruction. This may prove to be a challenge since many teachers prefer to teach in familiar ways and may not want to devote the time needed. Teachers need to be provided with training and support to implement these new technologies and methods of teaching.

**Validity and Reliability Issues**

The small sample size is necessary to enable a thorough analysis and understanding of the dynamics of communication and interaction among and between students, student/teacher, and the students’ self-reflection. Further research is needed to confirm findings. Creating stories with the use of technology may increase motivation due to the novelty and excitement of implementing writing in this unique way.

The qualitative methods used in gathering data included interviews, task review, observation, and participants’ reflections from emails and their director’s commentary. As summarized by McNamara (1999), problems with validity may have arisen in some of the following ways, especially since the researcher was involved with instruction and interacting with students.

- **Interviews**: researcher can bias participants’ responses, the amount of time the researcher will be out of the classroom, and student responses may be difficult to analyze and compare.
- **Task review (digital video)**: more than one video production may be needed to allow the students time and experience to learn the software and storytelling
technique. Assessment is subjective and will vary among teachers and students. What may be flawed to one person may be acceptable to another.

- Observation: the knowledge that they are being videotaped may influence behaviors of program participants. In addition, behaviors may be difficult to interpret and categorize
- Reflection: adequate time and the need for a good facilitator are important factors. The director’s commentary may provide some of the same kinds of insights available through think aloud protocols (Bruer, 1993).

The degree to which these results are generalizable, or applicable, to groups and environments outside the experimental setting (Gay & Airasian, 2003) depends largely upon the availability of technology, funding, time, and facilitator training of those wishing to replicate the study. These factors may have the largest impact on compromising external validity.

According to Rossi, Lipsey, and Freeman (1999) reliability is the extent to which the findings of a study can be reproduced by other researchers in replications. Replication may be difficult for many reasons because of the rapid change of technology, and that the software and hardware will most likely change by the time this research is published. The knowledge gained from this DS project may be implemented and/or adapted to other learner populations if time and funding for technology permit.

This study aimed to fill a need for research to evaluate scientific evidence of learner benefit before widely recommending DS as a worthwhile educational investment in technology, time, and resources (Chambers & Schreiber, 2004; Polman, 2004).
CHAPTER IV: MULTIMEDIA REPRESENTATIONS OF CREATIVE WRITING

Learning Technology, Collaboration, and Process

This exploratory study investigated multimedia aspects of technology, mainly images and music, combined with writing and storytelling. Mrs. A and Mr. Z agreed to work with me to create digital stories with their students. These projects were integrated with the seventh grade curriculum and were carried out both in their classroom and in the computer lab. Mr. Z stated that creating digital stories was “more of an exciting way to learn all these aspects of creating and writing and expressing their ideas.”

Since the first project incorporated social studies and communication arts, which Mr. Z taught, he came up with an idea: we would focus on creative writing and mythology by having the students write a story relating a Greek god or goddess to an average teenage day in present time. We thought that this assignment would help them learn about Greek history and creative writing, which were both part of their curriculum, but by having them relate the writing to their world and the problems that they faced, it was a way to personalize the story from a “safe” distance.

In an interview after the project was completed Mrs. A and Mr. Z talked about their goals:

Mr. Z: I think overall the goal was for them to be able to express themselves through a different form of media. They get so bored with doing the same thing all of the time and I really felt like this took them to a higher level of thinking. It was something that they experienced. And so overall they really learned more and improved their writing and did all of these things.

Mrs. A: My goal for DS is that the students become more involved in their story telling. Hopefully through DS there will be more focus on the detail or emotion[al] involvement resulting in a higher quality story.

Mrs. A and Mr. Z decided to bring all students to the lab every morning for 35 minutes from 8:15 to 8:50. This decision was made to accommodate instruction on the software and optimize adult support for student learning. A few students had taken an
enrichment course over the summer and had some prior knowledge, but most of the students were not familiar with the software to be introduced during these first five weeks, such as iMovie, iPhoto, iTunes, GarageBand, and FirstClass (for clarification on the software, see the Definition of Terms, p. 15). Three students were part of the gifted program and were not required to make up class work, but two of them chose to complete a digital story while the third one decided not to. Consequently, they were not present for much of the technology instruction that took place in the lab.

**Day 1: Introduction and group selection**

Students were grouped to offer each other support and collaboration during this first project. I was not present when the student groups were chosen in the classroom on October 31, but Mr. Z and Mrs. A told me that they wanted the groups to be set up as high/low (in terms of academic achievement). To allow the students some semblance of power in the selection process, they had the students keep selecting a partner until Mrs. A’s and Mr. Z’s formula for success was met. They were concerned that if students got their first choice of a best friend that the students’ work would suffer so their choice of partner was manipulated by the teacher’s approval.

Betty and Geri worked collaboratively on the first project and serve as an illustration of the journey. They did not associate with the same group in school, so they were not each other’s first pick (see Literature Review p. 21, Social benefits of collaborative process: Bers & Cassell, 1998; Lachs & Wiliam, 1998; Weis et al., 2002). They did, however, get to know each other through this process as Betty explained:

> Working with my partner was fun. I honestly did not hang out with my partner and like most of my friends, really good friends, and her friends never would hang out [either], but now I [realize] that she’s really funny and that she’s really nice.
Geri had been previously exposed to some of the multimedia software in a summer enrichment class and came into the project with a personal interest in Greek mythology as she explained in an interview: “When I was [in] fourth grade or something, I used to totally be like the biggest Greek fan, like ever. I wanted to know everything [about the gods and goddesses].” Geri’s interest level was key to her ability to get involved and complete schoolwork. She is an African-American female who turned 13 years of age during the study. Her total Gates-MacGinitre Reading score was past high school (PHS) grade level performance as compared to the national norm. She had the highest reading score of her peers in this seventh grade, but had difficulty completing her work. Her grades of C’s, B’s, and A’s did not reflect her capabilities as evidenced in tests and some coursework. She had always been very social, easily distractible, and had attended this school since kindergarten. A report card comment from a previous teacher stated that: “Geri can do anything she sets her mind to.” But Geri has tended to have incomplete or missing assignments, which has been noted as a lack of effort and adversely affected her grades.

Betty did not consider herself a “computer person” nor was she as interested in gods or goddesses, thus it was not surprising that Betty looked to Geri as the expert. Prior to starting at this school as a fifth grade student, Betty was home schooled and attended a “school of the arts” three days a week. She is a white female who also turned 13 years of age during this research. Betty was not reading on grade level when she began at this school. She is currently a B student. Her performance in the sixth grade on the Terra Nova test taken in April 2005 indicated her national placement at the seventh year first month (7.1), but her vocabulary and reading comprehension based on the Gates-MacGinitre
Reading score indicated that she was performing below grade level at sixth grade third month (6.3).

**Day 2: Research**

Many students were not totally happy with their partner selection and expressed their discontent both verbally, with complaints that they couldn’t be with their friend, and with their physical demeanor as they came into the lab that day. Most students grumbled that they did not get their first choice, but chose seats close to the friends that they had wanted to work with. This made for a noisy room.

Mr. Z provided students with a rubric (see Appendix C). Then each group selected and researched background information about a god or goddess by their Greek and Roman names. Most of their information was gathered using the Internet for research, but they also used a collection of books from the school library (see Literature Review p. 28, Research tool: Polman, 2000; p. 32, Research skill: Carver et al. 1992).

**Days 3, 4 & 5: Writing and submitting their story**

Mr. Z was out of town for three days at a conference while students were writing their story. Most of the time, students worked on their stories for about 80 minutes a day during this initial writing stage, both in the lab (see Figure 1) and in their classroom (see Introduction p. 10 & 11, Writing: Kajder, 2004; Kemper et al., 2006).

Figure 1: Student groups working in the computer lab.
During this first week, I observed that some students were doing all of the creative writing for their group, so when I inquired, they told me that their partner would type it up. Some students worked at home and emailed the document to school to continue working. Some students did all of the writing and typing while their partners had no input because they told me that they weren’t interested (see Literature Review p. 33, Juggling constraints: Norman, 1988; Carver et al., 1992; Polman, 2000). The students who did not do any of the writing did not hide it (see Literature Review p. 29, Difficult to motivate and engage students: Polman, 2000).

The essays were due on Friday, day five. All but five groups met the deadline and of those, three groups emailed them to me over the weekend. One group did not complete the essay and the other group turned their paper in on Monday. A status report of papers I had received and those anticipated were sent to all of the students via email (see Literature Review p. 24, Social interactions: Vygotsky, 1994; Lachs & Wiliam, 1998; Polman, 2000; Beach & Myers, 2001; Weis et al., 2002; Wertsch, 1991).

Geri’s longstanding interest in the subject matter may have increased the likelihood that she applied herself to this project and turned in their essay on time. The title gave me some insight into Geri’s experience in middle school and presented the dramatic question. For all of her computer experience, I noticed that she did not use spell check before submitting the following story:

HOW APOLLO SURVIVED MIDDLE SCHOOL
(On mt. Olympus) “Oh yeah! I bet you couldn’t last one day on earth!!!”
Apollo: “O yeah well I bet that I could last for one week.
Artams: Fine then I will send you to earth.
Apollo finally reaches the earth. He was one of the beutiful gods. His hair was dark gold and his eyes were stormy blue.
Apollo was walking down the street and saw a rent sign for a duplex.
Apollo: I’m going to buy this place.
So he did and he realized that he was still wearing Greek clothes. So he went to the mall to buy clothes with the money Hadies gave him. He went to American Eagle and bought clothes. He needed to go to school to win the bet. Thema High was the school he was going to for a week. Apollo decided to make up a fake name so that it wouldn’t be obvious. His “name” was Jake Simpson.

- The next day -
The alarm was blaring and Apollo sleepily pulled an arrow from under his pillow and used it to shut off the clock. He got up and took a shower put on jeans and a t-shirt made breakfast of Pop tarts and orange juice. He made his way to the bus stop thinking why did I have to say a week. He arrived at the bus stop and then the bus came and he was off to the first day of school.

- At school –
Apollo looked down at his schedule and signed, Apollo: where’s room 402 which was Greek mythology. On his way down to the room he saw two kids beating up one another. Apollo: what are you doing? He survived the scene before him and pulled the two boys off the one boy who was brushed and a bleeding nose. Apollo: close your eyes and hold still the student reluctantly obeyed. Apollo’s hand’s glowed blue and the kid’s nose was healed. Apollo was gone and in class before the kid opened his eyes.

~ Gym ~
When Apollo walked in the gym, Coach: OK!!!!! Fire!!!!!!! All the sudden 200 big red balls come flying at Apollo. He jumped into the air dodged all the balls. He walked away before anyone could ask him how he did it. He left all the girls swooning and all the boys steaming with jealousy.

-After school –
Apollo: Man am I wiped. He said, as he fell back onto is waterbed sighing. Apollo immediately fell asleep.

~Mt. Olympus –
Artemis was looking trough a magic crystal mirror she saw Apollo during gym class, and when he got home. She said to her self, : dorm he’s going to win the bet, and imp going to loose my set of crystal arrows.

~At school -
Apollo was walking through the halls deep in though he haddent noticed a girl until it was too late they both crashed into eachother and their books, paper, and pencils went every were. Apollo: I’m sorry I’m Jake Simpson sorry for knocking you down, want can I do to make it up to you. Girl: o its nothing im fine my name is Amy Sumerewaga. All the sudden Apollo saw him and her in a vision. He got all existed and he said Apollo: hey do you want to go the dance with me. Amy: sure id love to!!!!!!

- Back on Mt. Olympus –
Artemis: oh he’s actually found a date to the dance!!!!!! Aphrodite!!!! Afro ides: what Artemis? Artemis: I want you to help with the girl who Apollo is in love with my brother, can you make it so no one can love him he’s cheating! Aphrodite’s: what? And how can I do that!!! Artemis: sing ok Apollo made a bet with me that he could last a whole week on earth, and get a girl friend to let him take her to the school dance. Anyway he is cheating he used his
powers to find a girl in his vision he saw, and asked her out. I will have to give up my crystal arrows! I love those arrows!!! I can’t lose them, I just can’t.

-At the dance-
Amy: where’s Jake. He said he would meet me here at in hour ago? Apollo: Amy!! Hi I’m sorry. Amy: I thought you wouldn’t make it!! Apollo: well I’m here lets dance. Destineys child- lose my breath is playing lets go!!! Amy: lets ok. Apollo and Amy danced till 11:00 then Apollo time at earth was over so he bid Amy good night and was gone.

I found their story to be very creative. The “dare” between siblings gives another insight into Geri’s everyday experience, as did some of Apollo’s happenings on earth, like waking up and getting to school. I liked how she kept Artemis in the story by keeping track of Apollo. Her presentation of school culture included getting lost at school, breaking up fights, and literally running into people in the hall (see Literature Review p. 30, Problem-finding in social world: Beach & Myers, 2001). Geri’s writing style was very descriptive and specific yet there were inconsistencies. For example, the title said he was “surviving middle school”, but the setting was a high school.

**Day 6: Instructions, Timeline, and Feedback**

In response to a student inquiry, I emailed everyone this timeline for the project:

Monday, November 7, 2005
Candy asked a great question in which you may all be interested.

**Candy Friday, November 4, 2005 at 10:01 AM +0000 wrote:**
when r we going to do the movie

We have a couple weeks of preparation yet.
Nov. 7-10 Make revisions and create scripts.
Teach FirstClass email, iMovie, storyboarding and iPhoto.
Nov. 14-18 Create storyboard and plan our shooting (videotaping) schedule.
Begin videotaping.
Nov. 21-22 Create music. This is a two-day week due to Thanksgiving.
Music for movies will be completed.
Nov. 28-Dec. 2 Continue videotaping as needed, download video and record narrations into the computer.
Dec. 5-9 Finish putting the movie together. Peer critiques.
Dec. 12-13 Movie viewing.
Students wrote this first draft as a textual story without imagining it as a movie. This meant that some of the textual imagery could be represented in a picture and some of the scenarios would not work within the limitations of our movie making setting. One example Geri explained: “Like we had this one scene when he [Apollo] had to dodge like a million dodge balls but we couldn’t edit that so [we left it out].”

After reading their essays, I told the students about the writing problems that I encountered in their stories; missing introductions, lack of character development, incorrect dialogue punctuation, and useless info that did not enhance the story. I offered ideas about how to get creative with the super human powers and settings. Most of the essays only used the god/goddess traits in negative ways through descriptions of fighting and stealing boyfriends. One story talked about “getting drunk” and giving a student a “swirly.” I found it to be excessively violent in a meaningless way so I asked Mr. Z to discuss rewriting the story with these two boys, which he did. Mrs. A stated that, “the biggest challenge was the lack of well developed stories. Many of the stories were missing essential story elements.”

For the most part, students did not introduce the characters using the requirements in the rubric. We went over the rubric and discussed opening paragraphs (see Literature Review p. 26, Modeling & coaching: Collins et al., 1990). Used as an example, Darien’s introduction contained Ares’ physical description, human flaws, relatives, or descriptions of the god’s superhuman qualities:

Once upon a time there was a Greek god named Ares. Ares was 17 years old and in the 12th grade. Ares’ mother Hera loved him very much, but his father Zeus didn’t like him that much. Ares’ roman friends called him Mars. That’s what all the Romans called him. Ares was tall and handsome but vain and cruel. He lost his temper really quick and was known for that. Ares always had a lot of anger
and he always needs somewhere to take it but he can never find an activity or sport that involves as much anger that he has. Ares has the ability to throw fireballs at people.

Most of the settings took place only in a school environment since that is the children’s everyday experience, but were lacking creativity. Examples were given on how to be creative with superhuman powers, like Robert and Marshall’s approach.

Poseidon’s first day of high school got off to a rocky start when he found out that the school was on land. Poseidon then ordered the horses to drag the school underwater. Luckily for the other gods, they could not drown because they were immortal.

The dialogue punctuation was incorrect in all of the student work. Mr. Z and I passed out *A Wrinkle in Time* and turned to a page with dialogue so that students could reference correct punctuation (L’Engle, 1973). Then we had them look in their writing textbooks to see how a television script was written (Glencoe, 2005). They were given a choice to use either format, but most students chose to use the script format.

Students had included dialogue that did not enhance the story, or contained repetitive or useless information. I introduced the concept of “Economy of Words” (Lambert, 2002) and returned their stories with my comments for their consideration. In my judgment at the time, the stories were “okay” for the most part, but could be improved considerably (see Literature Review p. 25, Community of practice: Lave, 1990). I wrote, “Show not Tell” on many papers. I realized that some descriptions in the text could be easily shown with a picture in the video, and therefore did not need to be so explicit in the audio narration (see Literature Review p. 21, Language as image: Goodman, 2003, p. 4). A couple of stories needed a lot of work. One in particular was “A Day in the Life of a Teenage God.” It was a series of scenes but not a story. There did not seem to be a point and the characteristics of the particular god were mentioned but not
demonstrated or even part of the story. I spoke with those students and tried to get my point across, but I’m not sure that they understood. I hoped that seeing more stories at the end of this project would help them in the long run.

**Day 7: Optimizing student groupings and turning essays into scripts**

One problem that we encountered the second week was that sometimes students did not sit with their group and were not on task or did nothing. Mr. Z suggested a seating arrangement might ensure more order and help students work together.

I discovered that collaboration was difficult for students and teachers. For students, the collaboration problems showed up when one student did little to nothing to contribute to the creation of the story and the other did all of the work. For me, since Mr. Z was new and was absent the previous week, I was not sure of his expectations and grading procedures. This confusion was evident when students were making changes to their essay and Mr. Z wanted them to incorporate the changes into their script. It took me a little while to understand, but it finally made sense to me that the changes to the story could be corrected as the students converted their essay into their script. So that’s what they did. Mr. Z explained his challenges and frustrations with the project: “I guess the challenge [was] not knowing what order I need to do things or what [were] the best directions…We kind of learned as we went along” (see Literature Review p. 25, Situated cognition: Brown et al., 1989).

Students began to transfer their essays into scripts on day seven. When they left the lab for another class, Mr. Z and I went to each computer and read the scripts and gave feedback on their documents. Both classes returned for 90 minutes to finish their scripts and emailed them to me for review and feedback.
Mr. Z caught me in the hall to tell me that when we asked the students to stop at 11 a.m., they all couldn’t believe that that much time had gone by already. He told me this to emphasize that the students were engaged in what they were doing and time had flown by for them (see Literature Review p. 21, Narrative process: Bers & Cassell, 1998; Lachs & Wiliam, 1998; Weis et al., 2002). It was a noisy room most of the time since the groups discussed their project within each group, asked other groups for help and recruited fellow students to be part of the cast for their movie (see Literature Review p. 21, Collaborative process: Bers & Cassell, 1998; Lachs & Wiliam, 1998; Weis et al., 2002). Mrs. A commented on this later:

I think the engagement level was a big surprise. This is a group of students who easily get distracted and off task. Although that did happen, there were many instances of students helping others get their project done. I was surprised how willing the students were to share themselves with each other. Most were very willing to share their work with each other and most took feedback pretty well.

Geri and Betty transformed their story into this script and submitted it via email.

Narrator: There once was a god named Apollo, he was the god of the sun, and music. Seeing the future, healing, and being able to hit any target and never miss were some of his powers. He had golden blonde hair and stormy blue eyes. His parents were Zeus king of the gods & goddesses and a titan Leto. One day he had an argument with his sister Artemis here’s how it all started.

Artemis: Oh yeah! I bet you couldn’t last a day on earth!
Apollo: Oh yeah well I bet I could last a week!
Artemis: Ok then I’ll send you there now.
Narrator: Suddenly Apollo was on earth. He looked at his surroundings and started to look for a place to stay. He was walking down the street and saw a rent sign for a duplex.
Apollo: I think I’ll rent this place.
Narrator: So he did and he realized that he was still wearing Greek clothes. So he went to the mall and bought new clothes with the money that Hades gave him. He needed to go to school so that he would win the bet. He was going to Theca High. Apollo also decided to make up a face name so it wouldn’t be obvious. His fake name was Jake Simpson. The alarm was ringing loudly so Apollo sleepily pulled out one of his magic (god only) arrows and used it to shut the clock up. He got up and took a shower, put on jeans and a t-shirt and made breakfast. After breakfast he started off towards the bus stop. Then before he new
it he was off to his first say of school. Apollo looked down at his schedule and sighed
Apollo: Where is room 402?
Narrator: Which was Greek mythology. On his way down to the room he saw two kids beating up on another student. He came and split up the fight, and healed one of the boys. He was off to his other class before anyone knew who he was. On mount Olympus Artemis was watching Apollo’s progress on earth.
Artemis; Hmmm…he’s doing well so far but he’ll never win my crystal arrows! NEVER! *Evil laugh*
Narrator: Apollo was walking though the [halls] deep in thought he didn’t notice a girl until it was to late. They both crashed onto each other and there papers, pencils, and books went everywhere.
Apollo: I’m sorry for knocking you down, I’m Jake Simpson.
Amy: Oh its nothing, I'm fine. My name is Amy Summeregawa.
Apollo: Will you go to the dance with me?
Amy: Sure I would love to!
Narrator; at the dance Amy was waiting for ”Jake “to show up.
Amy: Where is he? He said he’s meet me by the punch bowl.
Apollo: Amy! Hi I’m sorry for being late.
Amy: It’s ok let’s dance
Narrator: Apollo and Amy danced till 10:00 at night then Apollo walked Amy home and bid her good bye.

Their story was the only one that offered a reason why the god, Apollo, decided to come to earth. In both the story and the script, Apollo used his healing powers after a fight scene, although Geri cut down some of the descriptive details in the script version. Even so, the story and script presented the dramatic question, but there was no resolution about whether Apollo received the golden arrows.

Mr. Z was impressed with the level of participation in the digital story project, especially compared to other assignments (see Literature Review p. 21, Engagement: Bers & Cassell, 1998; Lachs & Wiliam, 1998; Weis et al., 2002), as he explained:

We just took a test in spelling [in the classroom] and I didn’t receive papers from 3 or 4 students. Even though we grouped students in such a way that there was a high/low and worker/slacker [for the project], it is amazing that each group turned in the assignment. It is really hard for me [Mr. Z] to get assignments from everyone. When I look around the room [computer lab], most of the students are working [on the script] and there will be more
opportunities for students that are not participating as much in the writing portion to work on the iMovie.

**Day 8: Viewing digital story examples and introducing storyboards**

To help the students visualize a finished product, I showed examples of movies from: Kid’s Vid (2001), last year’s class, middle school children from San Francisco, one of my movies, and the “momnotmom” video (Soundarajan, 2000). I explained and showed transitions and effects within the movies that were shown. I distributed the “momnotmom” storyboard and we talked about it (Lambert, 2003). Then I handed out the blank storyboards with the student scripts that I had read and commented on (see Literature Review p. 33, Effective feedback: Carver et al., 1992). Students created a storyboard and finished or changed scripts as needed. I explained that their script was a working copy and that they were to email me any version with significant changes. For the most part I received two revisions, but one group sent a third.

Geri and Betty were observed as they read the script aloud, figured out how long it would be, and decided on “tweaking a few things.” They added these last few lines as a closure to their story (see Literature Review p. 18, Metacognitive skills: McGilly, 1994):

Narrator: Apollo went back to Mt. Olympus to claim his arrows.
Artemis was totally freaking out.
Apollo: Hand over MY arrows!
Artemis: Aww come on do you really want them?
Apollo: Yes, now hand them over
Artemis: Ok, ok no need to yell.

Betty added the 20 seconds it took to read the additions to the three-minute script. The girls worked on the content and timing of their script for less than nine minutes, received group instruction about the storyboard for five minutes and then Geri played around with the font coloring and shading in their script for about fifteen minutes while
Betty looked on. I found it interesting that they spent this much time changing the font, since they would be the only ones who would see their script (Blumenfeld et al., 1991; Polman, 2000).

**Day 9: Storyboarding**

Students hovered over their papers filling in their storyboards for the entire class period but only two groups finished. Some groups had to add more information or redo the storyboard because they did the bare minimum, which was not acceptable.

I was very busy answering a lot of questions and continuing to clarify. I explained to the students that they would have three types of pictures: video, photo/image, and graphic/KidPix drawing. Whenever I asked Mr. Z and Mrs. A for specific help with a student group, they would take care of it. Not surprisingly, I found that twenty groups with 41 children in one room at one time were too many for me to give one-on-one help. It occurred to me that we could divide the room or something. Mr. Z expressed his feelings, “I guess my only frustration is that I haven’t used it often enough that I didn’t feel like I could answer questions as efficiently or as expertly as I would like to.”

**Day 10: Graphic organizer**

Mrs. A observed that many students were having trouble filling in the storyboard. She felt that this was because they did not understand or were unable to express the parts of their story. Students were given a graphic organizer to fill in the story elements about their script, which answered the following questions (see Literature Review p. 33, Organization skills: Carver et al., 1992):

- Who were the characters?
- Where did the story take place?
- When did the story take place?
- What was the problem?
How was the problem solved?

Some students wrote the bare minimum while other students answered in complete sentences as they filled in the graphic organizer. Several students were asking questions to see if they were filling it out correctly because they had trouble with identifying the problem and solution, which was not surprising since many of their stories did not have problems and solutions in them at that point (see Introduction p. 11, Revise writing: Kemper et al., 2006). Since there was no school on Friday, students were requested to complete their storyboard, script and graphic organizer by Monday. I composed an email to inform students of the third week’s expectations:

Activities for week of Nov. 14.

**Monday:**
8:10 class time: iMovie instruction and printed tutorial
Turn in storyboard
Email Script to t kulla
When finished read iMovie handout.
View iMovie tutorial and KidView website.
Here is the link to a great iMovie 4 tutorial with videos showing the process.
This is a website to explore for tips and learning about making digital stories.
REMEMBER: Do not sign up for KidView website. Just click on back if asked for personal info and return to "free access" pages.

**Tuesday:**
8:10: I will return storyboards and give camera instruction.
Take pictures. (We only have three cameras, so we'll need to share.)
Download to iPhoto.
Create pictures in KidPix as needed.
Begin working in iMovie with photos and titles.

**Wednesday – Friday 11/16-11/19/05**
Continue taking pictures and begin shooting video.

**Day 11: Teaching iMovie and iPhoto software and submitting final script**

On Monday, the third week of the project, both classes came into the lab at 8:15 to learn about iMovie and iPhoto. I demonstrated by taking a couple of pictures,
connecting the camera to the computer and downloading some pictures into iPhoto. Then I went into iMovie and went over the menu items, the shelf, viewer, timeline and access buttons as seen in Figure 2 (see Literature Review p. 26, Modeling: Collins et al., 1990). They received a printed iMovie tutorial. Instructions were given for about 15 minutes and then students worked on their storyboard for about 15 minutes. Students that were finished with their storyboard, viewed the links provided for iMovie tutorials in their email (Apple, 2006).

Figure 2: Part of iMovie

Betty and Geri submitted the second draft of their script that day. After ten minutes, Geri completed her first picture using KidPix, while Betty came and went taking pictures with other groups. Betty would have rather taken pictures with a camera, but Geri did not agree and kept playing around in KidPix. In the final movie, there was only one KidPix image used (see Figure 3), with eight photos and three video sequences.

Figure 3: KidPix image colored by Geri.
Mr. Z commented on the technological aspects of this project based learning environment in an interview (Polman, 2000):

I think a lot of the students were introduced to iMovie, so that was a major thing. The biggest advantages that I see are that students are very interested in technology. So it’s a new thing, it’s interactive. I can talk to them, but listening to me they don’t retain. And even just writing, when they just write and type it out and use word processing that in itself is not as much of a learning tool. It’s just regurgitating by typing what they’ve already had to write for a rough draft or whatever. Using this DS project has really caused them to get into their creative juices and get things flowing and come up with new ideas and look at new ways to express themselves.

Over the next two and a half weeks both teachers monitored the children outside of the lab videotaping and taking pictures in the hallways and other locations throughout the school (see Literature Review p. 26, Cognitive apprenticeship: Brown et al., 1989; Collins et al., 1990; Conway, 1997). For the most part, I was left alone in the lab to work with students on their projects, downloading images, importing video, and exporting KidPix images. Mrs. A remarked:

Many of these students have never worked with most of the programs used for the iMovie creation. The technology applications allow students to get more involved in the story, to become a part of it. It is not the routine paper and pencil form of expression. It is in a format that students are willing and excited to share with others. That is not usually the case with the typical written story. I think technology allows students to put more feeling into the story through the picture and sound (music) choices. I think the exposure to the technology programs is very worthwhile for the students. For some of these kids this is the only opportunity they will have to learn some of the software before they get to high school.

**Day 12: Rearranging student groupings, process organization, and learning KidPix**

Halfway into the project, Mr. Z and Mrs. A decided to reorganize groups to rectify some problems that arose. The two gifted children became partners and their original partners were joined with other students who had been working alone. Since Harry was in the gifted program and missed most of the instruction, he decided to opt out
and not complete a movie. One other student did not complete an iMovie either, because he was failing in math and needed math tutoring. So Alex was moved from his group of three to become Kelly’s partner. The new groups were: (1) Alex and Kelly, (2) Sharon and Richard, (3) Deron and Molly, and (4) Scott joined Jeff and Sonny.

Both classes in the lab were shown the checklist on the board that contained all group names and the categories; script, storyboard, photos, KidPix, video, sequenced, title, credits, transitions, voice over, music, complete, and exported (Figure 4).

Figure 4: Checklist on board

I demonstrated KidPix image creation and taught students how to export the image as a JPEG to the desktop. Students were asked to complete their storyboard and turn it in by the end of the day. They were also asked to email their revised scripts to me. Fourteen groups met the deadline. Six groups turned them in the next day. Students who were finished began creating pictures in KidPix, exporting them as JPEGs to the desktop, and dragged the JPEGs into iPhoto. Students continued taking photographs and downloading them into iPhoto. Even though Mr. Z’s class left the lab at 8:50 a.m., Mrs. A’s class was able to stay until 9:30 a.m. and continued working on images, photos, and storyboards. I trained students on the use of the cameras, downloading images and
photos into iPhoto, and explained to one group how to fill in their storyboard (see Literature Review p. 34: Technology training: Edelson et al., 1999).

Day 13: Tutorials, Image Creation, and Script Revisions

On day 13, I had received all but one storyboard, but had not received six revised scripts. Both classes came to the lab on Thursday for 90 minutes. I told students that there should not be any students just sitting around and gave the example that if one person was writing or drawing, then their partner could be drawing another picture or looking at tutorials on the websites. I showed both classes the iMovie links in the tutorials and asked students to make sure that they viewed them and referred to them if they had questions throughout the process (Apple, 2005). After about 20 minutes, some students began to work on their illustrations in KidPix while others left the classroom with Mr. Z or Mrs. A to take photographs. I helped students download pictures and export images from KidPix.

Day 14: Videotaping: Learning image composition and problems with organization

On Friday morning I set up two video cameras for students’ use and helped Jack and Mona upload video. Since they were the first, they were designated the experts to help fellow students videotape and import to iMovie. Many students were taking pictures and the batteries started to die because they were leaving the cameras on while they figured out what they were doing, who was in the picture, how they were going to compose the shot, and which shot to take next. Students helped each other take pictures and download them. Teachers supervised students as they took pictures in the hallways and classrooms, while other students worked in KidPix and iMovie on the computers in the lab.

Teachers informed me that students were coming out into the hallway to take
pictures with the students they needed but wasted a great deal of time organizing what they were going to do. It seemed that the storyboard planning was ineffectual (see Literature Review p. 33, Thinking Skills: Carver et al., 1992). In addition, Mr. Z made a suggestion to write out camera instructions (see Literature Review p. 25, Developing cognitive structure: Bruner, 1966). He said, “Even though we are teaching and telling them, they are not remembering all of the steps. A checklist on the camera would help.”

**Day 15: Downloading and editing video and images in iMovie**

By Monday of the fourth week, I had created and distributed instructions for cameras, KidPix, and helpful tips for the students (see Appendix D). Students worked in the lab for 40 minutes. We took inventory to see the progress of the groups. Only three groups had finished creating pictures in KidPix. Five groups had finished their photographs and one group had videotaped and downloaded to their computer. I gave a brief instruction to the whole class about editing a video clip and working in the timeline of iMovie (see Literature Review p. 26, Modeling: Collins et al., 1990).

Students videotaped, took photographs, and downloaded images into iMovie for the remainder of the class period. Mr. Z was out of the building so we had one less teacher to assist students. I stayed in the lab and helped students while Mrs. A monitored students in the hallway and classrooms as they videotaped and took pictures (see Literature Review p. 26, Coaching: Collins et al., 1990). With the four large windows that looked into hallway from the lab, I could oversee some students as they took pictures just outside the lab.

**Day 16: Camera, iMovie, and GarageBand Instruction**

On Tuesday both classes were in the lab for 40 minutes. I passed out the camera
instruction sheet and a packet that included seven lessons on iMovie from the Apple How-to Guides online (Apple, 2005). I went over the instruction sheet and packet in about 10 minutes. Then I showed the students how to look at one image in the timeline that had been rendered with Ken Burns’s effect and could not be edited unless it was deleted. After deleting the image in the timeline, I demonstrated how to estimate the amount of time needed for the image that went along with their script.

Mrs. A and I monitored students while they videotaped, took photographs, and downloaded images into iMovie. Mr. Z noticed that there were several students sitting at their computers waiting for their teammates to finish taking pictures, so he gave a brief demonstration about how to create titles (see Literature Review p. 26, Modeling: Collins et al., 1990).

Two of the video cameras needed new DV tapes. Some students needed to be shown how to work the cameras even though they had the instruction sheet provided. Mrs. A helped one group put makeup on to simulate a black eye for their video portion. One video camera “ate” a tape. Two camera batteries went dead.

When videotaping one group’s video in the hallway, Alex made a loud noise and screamed, “I’m a bird.” I heard this when I was helping the group import the video into iMovie. I spoke with Alex privately about the situation and how what he did messed up the recording. He said that he understood and wouldn’t do it any more.

I showed two more groups how to download their video into iMovie. Mr. Z helped a student download photographs. One group worked on creating music using GarageBand so I instructed them to use an instrumental loop in ABBA form for 32 measures to use as the background music (see Literature Review p. 26, Coaching: Collins...
et al., 1990).

**Day 17: Image creation, videotaping and manipulation in iMovie**

On Monday after the Thanksgiving holiday, I prepared all of the cameras and we began the class by checking students’ progress while I filled in the chart on the board. Almost 60% of students were finished with taking and downloading photos. Over 60% were finished creating KidPix images, exporting as JPEG and importing into iPhoto. Less than 10% had completed importing video.

I told the students the following information:

a. I had checked email accounts on Wednesday, 11/23/05 and was disappointed that three students had lost their email privileges. I explained that these students were using their emails for 10 minutes during class time and needed to focus on completing their project.

b. I would be out of the building for training Tuesday and Thursday mornings for a new assessment program.

c. The students needed to be finished videotaping this week.

d. The following week would be spent working in iMovie and recording narrations.

Some students needed planning time that day, some groups took pictures, and two groups videotaped. Mrs. A brought in two sign-out sheets for taking pictures and video to help with organization. Two groups of students were designated as video experts who would help other groups videotape while I was out of the building. I emailed everyone:

Please help me keep the board updated. Email me your status for Photos, KidPix, Video, if they are sequenced in iMovie, etc. Only one member of each group need respond. I will be giving further instructions on recording narration and editing video this week.

Geri and Betty began to discuss how they would videotape parts of their story. Deron, who was supposed to play a key character that got beat up in their story, was absent. Betty convinced Geri to narrate the script while she timed it, rather than just sit
there and do nothing. By reading it aloud, Geri discovered: “it sometimes [doesn’t] make sense, like it starts out with incomplete sentences.” Betty was concerned about the comprehensibility of their story to their audience and remarked “we knocked out some stuff so it would save some time.” Perspective is an important aspect for an author to consider (Bers & Cassell, 1998; Chambers & Schreiber, 2004; Weis et al., 2002). Geri and Betty were metacognitively aware of how they had gotten to the problems they were facing in the editing and cutting down process (McGilly, 1994).

Betty asked Geri: “Is it possible that you can have a picture and then videotape like for voices? Like have videos almost like a slide show, but have your word talking?” Betty was developing her multimedia literacy by inquiring if the technology was capable of putting their voice with an image in a particular way (see Literature Review p. 26, Exploration, and p. 28, Knowledge construction: Collins et al., 1990; Jonassen, 2000). Geri responded: “Like have music and sound. Like there’s a picture of Apollo and Artemis arguing.” Geri was aware that a multitude of software could be open at the same time to move among them depending on the task. She was working out a scene and integrating it with the medium as Betty continued to describe her ideas: “See like right here, when you guys are arguing, the narrator could say, ‘there once was a god named Apollo’…and she goes on. And it shows a picture of you guys arguing.”

Geri complained at how long the images were taking to render and discovered that she had the Ken Burn’s effect on all of the pictures that she just sequenced. At first Geri did not even notice, until it was slowing her down from moving on to the next step (see Literature Review p. 18, Monitoring: McGilly, 1994). Through this frustrating experience of waiting for the images to render, Geri commented that she would
“remember to uncheck the effect the next time” (see Literature Review p. 27, Mindtools: Jonassen, 2000).

They began to record the voiceover as Betty pressed the record button while Geri read a line. Agreeing that the timing was perfect, Betty left to take a picture with another group while Geri continued to work. Terry came by to make comments about what she was doing and ended up helping Geri:

Terry: That’s an odd picture. Why do you keep staring at it?
Geri: I don’t know. I’m resizing it, ’cause I need to crop the people in the background.
Terry: Go to crop.
Geri: This is crop.
Terry: Well where’s the cropping tool?
Geri: If you click that then see all of this little grey area, then it will be gone. But I need to be down there, but not chopping off people’s heads. Maybe I’ll just fix the colors.
[Terry used the mouse to help.]
Geri: You are so smart.
Terry: There you go.

Geri might have sat there for a while not having success and not asking for help either. Maybe because she did not think she needed it or she just liked to play around until she stumbled upon the resolution or got distracted by the next thing.

At the computer next to Geri, Nelly and Bart were having trouble trying to download a picture from the camera, so Geri helped them. As Geri was helped, now she was ready to help her neighbor on their computer.

Bart: I don’t know how to put this thing in.
Geri: Put it in the other way.
Nelly: You stupid ass.

I found it interesting that even though the students knew I was videotaping them, they would still call each other names occasionally. Sometimes there was anger behind it,
sometimes it seemed a way to interact, and for example, sometimes children at this age hit each other when they like each other. This banter was out of frustration.

In this classroom scenario and the previous one, collaboration was not just between group members: throughout the classroom students were helping each other. This peer input builds self-esteem when students are viewed as the “expert” and comradeship goes beyond the computer lab. They felt like they not only had something to contribute, but were valued members of their peer group.

Students multi-tasked as they worked on their project and helped each other with different aspects of the technology. They were not only switching gears and sharing their knowledge, but were reinforcing their knowledge base by teaching what they knew. Sometimes in the process of teaching, they discovered something else and learned something they did not know (see Literature Review p. 24, Working together: Cremin, 1961; Polman, 2000).

**Days 18 and 19: Compilation**

Students took pictures, videotaped, and finished KidPix images. I informed the students that Friday was the deadline for completing all images, and movies were to be completed during the following week. Two groups were almost finished. I reviewed their movies and suggested that they redo their voiceovers when the room was quieter.

Geri and Betty had videotaped and downloaded a fake fight scene to their computer. About 20 students were crowded around her computer trying to see the video. I asked all students to go back to their seats, which they did. I told them that they would see it in the finished product. I spoke with Geri about disrupting the class and asked her not to do it anymore. I continued to work with students, but within five minutes another
group of students were crowded around Geri watching the video over her shoulder. I asked her to quit the program and go back to her classroom. She was watching the fight scene over and over again admiring her work and did not seem to be progressing. In hindsight, I wish that I would have just used the projector for the whole class to see the fight scene at one time and then we could have all gotten back to work.

I was a bit worried about the fight scene because Geri and Betty had picked the “underdog” of the class as the victim of the fight. But after watching the video, all of the boys had smiles on their faces and were really enjoying the “play fighting.” They could have acted angry or brave, but they looked really happy. It might have been that they were getting to do something that was forbidden at school or that they were enjoying being stunt men and “taking a punch.” The “victim” was proud of his acting ability and the perpetrators seemed to thrive by doing something “off limits.” To my surprise, with all of the positive attention, the boys’ self-esteem grew and the “underdog” was the center of admiration. Everybody wanted to know how they did it. What looked “cool”, arguably prevalent in our violent movie culture, distracted Geri and Betty from telling a tight story, even though no one (except me!) seemed to mind.

After viewing the tapes from different class sessions, it seemed that there was a bit of wasted time which prior research shows is common for project-based classrooms (Blumenfeld et al., 1991; Polman, 2000). Some students just sat there while their partners were involved in videotaping for other groups. There was a lot of movement and noise since most of the students were trying to figure out who, what, where, and how to videotape. Some students were into socializing and did not seem to be making progress (Czikszentmihalyi, 1990). Mrs. A stated in her interview:
I also think there was some frustration in the work ethic of some of the students. While most were on task and making progress, there were a few who spent the majority of the time off task and not really getting anything accomplished.

**Day 20: Image creation, videotaping and manipulation in iMovie**

On Thursday afternoon, Mr. Z’s class came into the lab for 40 minutes. I spoke with the class about staying on task and finishing their movies. I sat and worked with groups to view their movies and gave suggestions and specific instruction about extracting audio from video, splitting the video clip, and deleting or editing the audio clips. I sent an email requesting students email their final script.

Mr. Z told me that it was great to see every student working and engaged in the project. Four students who had not been very engaged in the writing or iMovie compilation thus far, were working on creating music in GarageBand. I helped students transfer images and music from one computer to another. Mr. Z remarked on their work:

Most of them, really worked hard and wanted to do a good job. I feel like some of the students just didn’t get it on some of the more technical aspects. And so they didn’t get what they wanted but they didn’t know how to fix it at that point. So it’s just going to be a matter of more exposure and more experience for them because they have to learn by doing. And the more that they have that opportunity I think they’ll improve.

As will be seen, students did get more exposure, and develop more expertise, with the subsequent projects, including the second one where they worked individually on personal digital stories.

**Day 21: iMovie compilation and recording narrations**

I got to work early Friday to put together a timeframe for completing the project. When I took it to Mr. Z he told me that he would be at a conference three days of the next week, so we had to view movies on Tuesday morning. He wished that we could have had more time to work on the “final touches.” I rearranged the proposed schedule to reflect
the changes and both teachers agreed that it was what we needed to do given the circumstances.

**Day 22: Revising the plan and the rush to finish**

Students were sent this email and told of the revised plan.

**Monday 12/5/05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:10</td>
<td>record narration</td>
<td>20 minutes</td>
</tr>
<tr>
<td>8:30</td>
<td>GarageBand Export to iTunes</td>
<td>20 minutes</td>
</tr>
</tbody>
</table>

Mrs. A and I will each critique five student movies & make suggestions.

**7F**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30</td>
<td>record narration</td>
<td>20 minutes</td>
</tr>
<tr>
<td>10:10</td>
<td>Garageband Export to iTunes</td>
<td>20 minutes</td>
</tr>
</tbody>
</table>

Mr. Z and I will each critique five student movies & make suggestions.

10:10-11:10 Both classes will make final changes and export full DV quality.

No one is to be out of their seat. If they get up, they leave the computer lab. All teachers will continue to view student movies and offer suggestions.

**Tuesday 12/6/05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30</td>
<td>Movie viewing</td>
</tr>
</tbody>
</table>

**Wednesday 12/7/05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:10</td>
<td>7F reflection</td>
</tr>
<tr>
<td>8:45</td>
<td>7A reflection</td>
</tr>
<tr>
<td>9:30 to 10:30</td>
<td>Videotape interviews with students.</td>
</tr>
</tbody>
</table>

Of course it didn’t go as planned. The classroom teachers sent all students, and they worked on completing their titles, credits, music, sequencing, transitions, and voiceovers. There were too many students in the room to have a quiet background for narration, so at 8:50 one class left the lab, and half of the other class stayed to redo voiceovers in a semi-quiet room. They worked for 30 minutes when I asked for five more groups to come into the lab to work on voiceovers and finalize their project. The other class was divided into two groups of five and worked in the lab for over an hour. Some groups stayed to continue working quietly. I sat down with groups to give suggestions on their projects and help adjust volume levels. There were two or three groups that came back to the lab for an hour in the afternoon. After the students finished their movies I
copied them to a hard drive for viewing on Tuesday. I had viewed and given feedback to 80% of the groups. Mr. Z summarized what he saw in the movies:

I saw new things I’ve not seen so far this year in students, in being able to create new music, to come up with elements of a story that they’ve not been able to express if they just typed it. When I look at [the] end product of the movie, the digital story, compared to the initial story that I got, a lot of times I saw some new excitement and some new spark in the story that wasn’t there before.

After school I sat and viewed all of the finished movies to make sure that I had not missed anything inappropriate. I had a concern about one movie that was far from complete and the voiceover made no sense. One voiceover track stated, “one tequila, two tequila, three tequila, floor” and the screen went to black. This had not been in their script and there was no storyline for it to make sense. Both group members came into the lab before school on Tuesday morning so we could discuss what happened to their movie. Neither student could give me a very good answer. Troy had been helping so many other groups, that he did not finish his own movie. Elizabeth’s voice was not in the narration and I asked her why she couldn’t have read the script even if Troy was with other groups. Both students just admitted that it wasn’t complete and wasn’t very good. They assured me that they knew what to do and could make a movie on their own for the next project.

Another group had saved 8 movies, five on the desktop and three in the movie folder. That group had assured me they were finished, but I should have gone and gotten them to show me which one to view since I selected the wrong one, which was incomplete. It was the only movie that I had copied incorrectly.

Adolescents have a difficult time sharing their feelings about their lives. It may be difficult for them to feel safe enough to share with their peers. Within their stories, the students had shared their problems about life as a teenager—those difficulties were
conveyed through the god or goddess in their story. See Table 5 for a list of teenage problems addressed and other components of each movie.

Table 5: Movies, groups, teenage problems and movie components.

<table>
<thead>
<tr>
<th>God</th>
<th>Students</th>
<th>Story Title</th>
<th>Teenage Problems</th>
<th>Movie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ares</td>
<td>Mona &amp; Jack</td>
<td>Day as a Teenager</td>
<td>Hating math, falling asleep in class, offers of help, teachers talking to parents, bullies, saving victim, did homework, reward from parent</td>
<td>No KidPix</td>
</tr>
<tr>
<td>Ares</td>
<td>Kelly &amp; Alex</td>
<td>Ares, The One Nobody Likes</td>
<td>Bully, fighting, getting in trouble for being late to class</td>
<td>Bloopers</td>
</tr>
<tr>
<td>Ares</td>
<td>Darien &amp; Cooper</td>
<td>Greek God Story</td>
<td>Needing help, getting tutoring, using anger wisely</td>
<td>Strong story</td>
</tr>
<tr>
<td>Ares</td>
<td>Troy &amp; Elizabeth</td>
<td>Once Upon a Time in Mexico</td>
<td>Teenage drinking</td>
<td>No narration, transitions, credits, &amp; story</td>
</tr>
<tr>
<td>Zeus</td>
<td>Barry &amp; Hal</td>
<td>Zeus as a Teenager</td>
<td>Being the new kid, getting in trouble, trying out for sports, anger management, kicked off the team for fighting</td>
<td>No music or transitions</td>
</tr>
<tr>
<td>Zeus</td>
<td>Jeff, Sam &amp; Scott</td>
<td>Hero’s Story</td>
<td>Bullies, fighting</td>
<td>Poor audio in video</td>
</tr>
<tr>
<td>Zeus</td>
<td>Mark &amp; Terry</td>
<td>When Teachers Find Out</td>
<td>Bullied, sticking up for sister, getting caught by teacher, suspended, talked to parents, grounded, snuck out, got caught, apology, resolution</td>
<td>No music or transitions</td>
</tr>
<tr>
<td>Poseidon</td>
<td>Robert &amp; Marshall</td>
<td>Teen Poseidon Going to School</td>
<td>Food fight, bad to good, bribed to win school election</td>
<td>No transitions</td>
</tr>
<tr>
<td>Hermes</td>
<td>John &amp; Blane</td>
<td>Hermes &amp; the Bully</td>
<td>Bully, friends stopped the bully, jealousy, forgiveness</td>
<td>Complete</td>
</tr>
<tr>
<td>Apollo</td>
<td>Betty &amp; Geri</td>
<td>How Apollo Survived Middle School</td>
<td>Taking a dare, rescuing underdog in fight, dating</td>
<td>No Transitions</td>
</tr>
<tr>
<td>Hera</td>
<td>Joy &amp; Molly</td>
<td>Hera</td>
<td>Mean girls, losing a best friend to the popular girls, forgiveness</td>
<td>No video, music, or transitions</td>
</tr>
</tbody>
</table>
Table 5 (Continued): Movies, groups, teenage problems and movie components.

<table>
<thead>
<tr>
<th>Athena</th>
<th>Candy &amp; Harry</th>
<th>Athena’s Life as a Teen</th>
<th>Going to the mall. Getting grounded</th>
<th>No Transitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athena</td>
<td>Bart &amp; Nellie</td>
<td>Athena’s Middle School Days</td>
<td>Popularity, making friends, fitting in</td>
<td>Weak story</td>
</tr>
<tr>
<td>Athena</td>
<td>Richard &amp; Sharon</td>
<td>Athena</td>
<td>Jealous, doing things just for other people</td>
<td>No video or music</td>
</tr>
<tr>
<td>Aphrodite</td>
<td>Jamie &amp; Leah</td>
<td>A Taste of Her Own Medicine</td>
<td>Revenge and jealousy</td>
<td>Audio out of sync</td>
</tr>
<tr>
<td>Aphrodite</td>
<td>April &amp; Amber</td>
<td>Aphrodite’s Boy Trouble</td>
<td>Talk to friends about working out problems w/many boyfriends</td>
<td>Complete</td>
</tr>
<tr>
<td>Aphrodite</td>
<td>Marsha &amp; Leslie</td>
<td>Life as a Teenage Goddess</td>
<td>Feeling stupid asking for help, failing math, getting grounded, sneak out with another guy and got caught, humiliated at school, missed classes, jumped to conclusions, got back together</td>
<td>No Music</td>
</tr>
<tr>
<td>Aphrodite</td>
<td>Sally &amp; Laura</td>
<td>Aphrodite’s Powers</td>
<td>Clean room Jealousy Resolution</td>
<td>No Music and Video</td>
</tr>
<tr>
<td>Aphrodite</td>
<td>Heather &amp; Deron</td>
<td>Troubles with Aphrodite</td>
<td>Not being liked, breaking up, betraying friendship, honesty, forgiveness</td>
<td>No Transitions</td>
</tr>
<tr>
<td></td>
<td>Reed &amp; Tom</td>
<td>No Title</td>
<td>Getting in trouble, invited to party, bothered by new kid, misuse of powers, sneak out of the house, getting grounded</td>
<td>No music, sound effects, transitions</td>
</tr>
</tbody>
</table>

Mrs. A felt that her “biggest frustration was with the stories themselves. I think they were not the quality that they could have been.” But Mr. Z shared at length about how this process impacted students’ writing (see Literature Review p. 36-37, Inquiry process: Edelson et al., 1999):

I did not expect to see as much of a change in the writing as I saw in writing assignments after we started this project. Students who just basically are not excited about writing and don’t write, I’ve gotten product since we’ve done this iMovie. I got better product out of their iMovies on some students that I didn’t
expect. They really learned about developing a character. They learned about story elements because they found as they went along that when they would watch their movie that things were missing and so they started to begin to think about all of the components that they had to have for doing that. But it also had an effect that I did not really anticipate to start with but it had an effect on their writing because I had other writing assignments going on at the same time we were continuing to go through this process of iMovie and I found that they were beginning to look at other aspects of what they needed to include in their writing to make their writing better. Overall they really learned more and improved their writing. I also think that they are going back and rereading.

They thought through how to represent parts of their story using pictures. They had to decide which parts of the story were the most crucial and discuss how they would represent them visually, whether to draw the image, take a picture, or create a scene to videotape (see Literature Review, p. 18, developing expert schemas and reasoning knowledge: Bruer, 1993; Larkin & Chabay, 1989). Geri described how she selected when to use an image:

Like stuff that you couldn’t envision in your brain, like an argument in between Artemis and Apollo. So we took a picture of that. And we added effects like the electric finger.

Geri explained her process of planning Apollo and his date’s hallway encounter:

Like you can’t really show someone bumping into each other without getting those little blurry movements lines. So we took a picture of that. And like things that we weren’t sure if you could imagine it or not, so we took pictures of it.

Geri and Betty’s final movie was missing transitions and credits. Geri explained: “We forgot to put the ending credits in, but that’s because Betty wasn’t there to remind me and I forgot on accident.” Betty performed in 25% of the movies that were made and although Geri missed Betty’s presence at times, it also gave her room to play on the computer without interruption. The images were creative and the videotaped fight scene was very well done even though it was peripheral to the main storyline. Looking cool in the video distracted them from telling a tight story and the resolution of “receiving the
arrows” was not used at all. The original story made sense and flowed but the movie was so heavily edited that much of the “story” was lost in the end.

**Mona, Jack, and Alex:**

**Cooperative grouping and learning technologies**

Alex, a 13 year-old African-American male student, was placed with Mona and Jack’s group because he had just transferred into this school at the beginning of this project. According to his records he had attended a different school every year of his education. After moving residences, he started this school year in one school in the district and was moved to this school because of an accusation of inappropriate behavior. His grades reflected B’s and C’s in elementary school with a C average in middle school. In the 2004-2005 school year he was absent 19 days averaging a little over two days a month. At the time of this study, he was receiving remedial reading and math tutoring. Standardized tests indicated that his reading comprehension and vocabulary was one and a half years below grade level.

Since Alex was settling in to his new school, Mona and Jack wrote the first draft of their story with no input from Alex. He spent his time in the lab on a computer using GarageBand, listening to the music he created. Even when he was redirected and taken off of the computer to join his group, he just seemed to sit there. Mona conveyed what he was like after he joined their group: “At first he didn’t really know what we were doing so we had to explain it a lot to him. So that kind of took us a little while…but he kind of goofed off a lot so…”

Mona was a white female, 13 years old at the time of this study, who had attended this school since kindergarten. She did not have an IEP and had been an A student since
third grade. Her second grade teacher described her as “cooperative and dependable, someone who always tried to do her best and sets a fine example for her peers.” Mona’s reading skills were above grade level in first and second grades. In second grade Mona tested as proficient and by grade four was assessed as advanced. Mona had met or exceeded grade level expectations throughout her schooling. Her national placements on fifth and sixth grade Terra Nova tests were the grade level equivalent of 12th grade in both April 2004 and 2005. Mona described how they put their ideas into their script:

We decided that we would all come together and whoever had the best ideas, we all voted and threw it all in there. We had to make a Greek god or goddess into a normal day life. We kind of just went through like what our problems are each day. ‘Cause Jack, sometimes he has problems with not turning in his work. So we did some of those like him getting yelled at. We did like my friend one time she fell asleep in class and got yelled at. So we did that into our day. Getting beat up and stuff like that.

Jack was a 13 year-old white male whose grades ranged from C to A. He came to this school in fourth grade. His records showed that he was absent three to five days every month during the fourth grade. Jack missed 17 days of school between January and March 2003. Despite these absences Jack made steady progress throughout that year and tested Nearing Proficiency in math and advanced in social studies. At the time of the study, he was a strong B student whose national placement on fifth and sixth grade Terra Nova test scores were the grade level equivalent of 8th year six month (8.6) in April 2004 and increased in 2005 to 9.8.

Jack was diagnosed as learning disabled in the areas of reading comprehension and written expression. In fourth grade his IEP required that he receive special instruction from the “resource” special education teacher in reading for 150 minutes weekly and 90 minutes weekly in written expression. That changed in fifth grade to 150 minutes of
reading instruction in the general classroom and 150 minutes of written expression from
the “resource” special education teacher. By sixth grade and at the time of this study in
seventh grade, Jack was receiving 150 minutes of reading instruction and 150 minutes of
written expression instruction in the general classroom. His disability affected his
performance in academic and non-academic areas in the following ways: need for review
and discussion to make connections, and a need for graphic organizers to help with
written assignments.

Jack worked best through cooperative learning opportunities, using graphic
organizers to help with written assignments, and by connecting new material and
concepts to previous background knowledge. Jack’s most recent evaluation suggested
that he had an average ability with strengths in visual processing. Reading and writing
were concerns. New content must be meaningful to help his average long/short term
memory. Jack’s reading skills continued to improve and he was becoming more
independent in the classroom. He had good study habits, used his time wisely, worked
well in a group and kept the group’s members on task. It was noted in his record that he
demonstrated good participation, asked for help when needed and was motivated.

On day four of the project, the day the first draft was due, I conducted a group
discussion to help students get ideas for their stories. Jack started by saying: “My story is
about Ares as a teenager. It talks about his day and everything that may or could go
wrong in a day. Things like that.” Jack asked the group for more ideas about Ares (see
Literature Review p. 24, Higher order functions and social interaction: Vygotsky, 1994;
Wertsch, 1991; Lambert 2002). To help us help him, Jack opened up his story document
and we continued the discussion:

TKA: What do you want the point of your story to be?
Terry: Are you trying to say like the difficulties of teenage life, like every day?

Jack: Like when he got in a fight, he threw a flaming ball of fire. Then at home he got into a fight with his dad, Zeus.

TKA: If I were able to throw fire and it were my story, I would think of how I could use fire in my teenage life...make believe of course...For instance, I could be at a campout. It is raining. All of the matches are wet. I could throw fire and make fire so we could make dinner. So that would be a positive way to use my power. Right? Are any of you thinking in terms of that, not just in school?

Since many of the students chose Ares, the god of war, the majority of their stories contained fights at school. I wanted the students to expand their stories to other aspects of teenage life and try to find positive uses for these superhuman powers.

**Ares 1**

A DAY AS A TEENAGER

One day Ares woke to his mom's voice then he said that, "What the heck is going on here?" And his mom said that his alarm clock did not work and he was late for school. Then he got dressed, went to school, ate breakfast, and brushed his teeth.

Then he went to school and was mad because he did not get to watch television. He got on the bus and went to school. "What a beautiful day," he said. When he got to school he found out that he left his five-page paper at home.

"Oh my god I forgot my five-page paper I'm dead," Ares said. That is when the fight started. Hades and Ares both got many cuts and bruises, but they got in even more trouble. After the fight he called his mom, Hera, and got his paper which was only a B-.

"Why do you have to get in trouble all the time? When you get home you are in big trouble young man, no television for a week."

"Why do you have to do this to me?" Then Ares noticed that he was still in the principal's office.

"Can you keep it down, please?" a teacher said.

"Sorry," Ares said.

"That's why you got in trouble you little punk," said Hades. Then he had math class and had a test that he didn't study for. Then he had to go to lunch. At lunch he got his food spilled on him. Then he had recess where he got mud thrown on him.

"Oh my god today is not my day," Ares said. After that, he had science where his shirt got burnt. Then his last subject was social studies where he got his test back and he got a B-. When he got home he had to tell his father, Zeus, that he got in a fight, got two B-s, and burnt his good shirt. Then his father grounded him for a week and said that he couldn't watch television for three weeks. Ares was so mad he started breaking stuff and throwing fireballs. So his father had to get his
lighting bolts and the fighting stopped there.
"Why do you all ways miss behave in school?" his mother asked later that night.
"I don't know. I just? its not my fault I was having a bad day and I forgot my paper. So I took it out on Hades. I am sorry," said Ares.
"Oh honey. Its okay," Just as she said that Ares was thinking to himself, 'Yes I got out of another one,' "But you do know," his mother continued, "you are still grounded."
"What?" said Ares.
"What did you think I was just going to let you off the hook?" Hera said, "I don't think so. If you can't do the time, don't do the crime." And she left him to sleep.

The next morning he woke up think about what his mother had said. He felt bad so he decided to be the best he could be today. So Ares went to school, walk in, and immediately Hades walked up to him and said, "Hey punk."
Then before he could continue Ares interrupted him by saying, "Look I sorry about yesterday. I was having a bad day and I think that you and me could, possible be good friends, if we'd just put our differences aside."
"Okay I feel the same way," said Hades with a laugh.
"Really?"
"Nope!" Then Hades pushed him, laughed, and walked away. Ares said to himself, "Well that went better than I thought it would, oh well I did my best."

Then Ares went on his way to class, where he got in trouble for sleeping.
"Ares Brazil wake up this instance." The teacher said, "I can't believe you are sleeping again. How will you ever learn anything if you don't pay attention?"
"I am so sorry. I just? sorry Mr. Hanky."
"I don't want to hear it Mr. Zrazil." Mr. Hanky said, "If I catch you sleeping again you’ll go to the office and I am calling your parents. Am I clear?"
"That's it Mr. Zrazil," said Mr. Hanky, "go to the office and go now."
At the office Ares was talked to. "What do you think we should do to get you to stop getting into trouble," said the principal, Mrs. England.
"I don't know what should we do?" said Ares in a mumbled voice.
Then Mrs. England said, "You and your mouth get into lots of trouble."
Ares replied with, "I know, but I can't stop getting into trouble."
"What do you mean, Ares," said Mrs. England?
"I mean that my house has so many problems."
"Like," replied Mrs. England.
"My half brother Apollo is bugging me and telling me to just goof-off and I can't get him to stop," said Ares.
"Well would you like to start to see a counselor tomorrow," said Mrs. England. "No because it make me feel weird and I do not want to tell every one my business," Ares said, "It is called my problems for a reason because they're mine."
"That's ok though, we can get you some help," said the principal.
"I know that, but I don't won't any help because my friends will make fun of me," he said
"That's not true."
"Yes it is!"
"Okay then, will you talk to your parents?" asked Mrs. England.
"Okay that sounds fair to me, I guess," replied Ares.
After that Ares went home, but when he was in the principal's office he didn't go to his other class, gym and forgot his books in his locker.
“Man I forgot to get my books at school. Mom I need to go back to school," he yelled down the stairs to his mom.
"Why?"
"I left my books at school," replied Ares.
"Why," asked his mom, Hera?
"Because I was in the principal office today and forgot to grab my books," explained Ares.
"What did you just say to me!"
"I said that I was in the principal's office, mom."
"That's it, you have been in the office too many times this year," yelled his mom.
"I know, but I will do better," apologized Ares.
"That is what you said the last time."
"I know, but I promise that I will do better this time."
"This is your last time to get it straight."
“Don’t worry mom I won’t let you down." So his mom and him drove up to school to go get his books, he did his homework and chores, then went off to bed.
The next day he was great he got an A- on his math test, didn’t get in any fights, and almost all his teachers said that he was improving as a student and that they were proud of him. When he got home his mom met him at the door, looked at his face, gave him a hug and said, “I am so proud of you.”
Ares then asked, “What are you talking about
“I am talking about,” his mom said, “how well you were today I had a call from the principal, Mrs. Hanky, and she said that you were showing that you are a great kid and that she knew that and she was proud at how much you improved.”
“Thanks mom,” he said, “and I am sorry for how I acted before.”

I suggested to Mona, Jack, and Alex that their story needed tightening. They also needed to remove repetitive text, since Ares went to school three times in the first six sentences. They needed to work on the story’s organization because the story did not progress with a logical order of events: he went to school and then he got on the bus (see Table 3 p. 12: Culham, 2003; Lambert, 2002). They were missing the introduction containing information about Ares. I reminded them to look at the rubric as guidance to
begin their story. They submitted their second draft in a script format after two days of revisions, and an even more tightened draft a week later as compared in Table 6 below:

Table 6: Comparison of script revisions.

<table>
<thead>
<tr>
<th>Initial Script Day 7</th>
<th>Final Script Day 13</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Narrator:</strong> This story is about Ares, the God of War. Ares’ superhuman abilities allowed him is to kill and throw fireballs at people. He is also known for his bad temper. Ares is tall and handsome, but vain and cruel with bronze skin. People might worship him because he could protect them because he is the God of War. <strong>Narrator:</strong> One day Ares woke up to his mom’s voice. Ares: What the heck is going on here? Hera: Your alarm clock did not work and you are late for school. <strong>Narrator:</strong> Ares then got ready for school.</td>
<td><strong>Narrator:</strong> This story is about Ares, the God of War. Ares’ superhuman abilities allowed him is to kill and throw fireballs at people. He is also known for his bad temper. Ares is tall and handsome, but vain and cruel with bronze skin. People might worship him because he could protect them because he is the God of War. <strong>Narrator:</strong> One day Ares woke up to his mom’s voice. Ares: What the heck is going on here? Hera: Your alarm clock did not work and you are late for school. <strong>Narrator:</strong> Ares then got ready for school.</td>
</tr>
<tr>
<td>Ares: What a beautiful day today</td>
<td>Ares: What a beautiful day today</td>
</tr>
<tr>
<td>Narrator: When Ares arrived at school he realized he had left his five-page paper at home. Ares: Oh my god I forgot my five-page paper I’m dead! <strong>Narrator:</strong> Then Ares had to go to math class and he had a test he didn’t study for. When he went to lunch his food was spoiled and at recess he had mud thrown on him. <strong>Narrator:</strong> He then went to science where he burnt his shirt. Finally, at his last class social studies he received his test back and got a B-. When he arrived home he had to tell his father, Zeus, that he got into a fight, received two B’s, and burnt his good shirt. Then his father grounded him for two weeks. Ares was so mad that he started breaking stuff and throwing fireballs. So his father had to get his lightning bolts and the fighting stopped there. Hera: Why do you always misbehave in school?</td>
<td></td>
</tr>
</tbody>
</table>
Table 6 (Continued): Comparison of script revisions.

<table>
<thead>
<tr>
<th>Initial Script Day 7</th>
<th>Final Script Day 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ares: I don’t know. It is not my fault I was having a bad day and I forgot my paper. So I took it out on Hades. I am sorry.</td>
<td></td>
</tr>
<tr>
<td>Hera: Oh, honey it is okay!</td>
<td></td>
</tr>
<tr>
<td>Narrator: Ares was thinking to himself, yes I got out of another one.</td>
<td></td>
</tr>
<tr>
<td>Hera: But you do know you are still grounded.</td>
<td></td>
</tr>
</tbody>
</table>

Ares: What?  
Hera: What did you think I was just going to let you off the hook? I don’t think so. If you can’t do the time don’t do the crime!  
Narrator: Hera left Ares to go to sleep. The next morning he woke up and thought about what his mother had said. He felt bad and decided he would be the best that he could be today. So he went to school, walked in, and immediately Hades walked up to him.  
Hades: Hey punk!  
Narrator: Before Hades could continue Ares interrupted him.  
Ares: Look I’m sorry about yesterday I was having a bad day. I think that you and me could be good friends if we would just put our differences aside.  
Hades: [With a laugh] I feel the same way.  
Ares: Really!!  
Hades: Nope!!  
Narrator: Then Hades pushed Ares laugh and walled away. Ares then went on his way to class, where he got in trouble for sleeping by his teacher Mr. Hanky.  
Mr. Hanky: Ares Brazil wake up this instant. I cannot believe you are sleeping again! How will you learn anything if you do not pay attention?  
Ares: I’m so sorry Mr. Hanky.  
Mr. Hanky: I don’t want to hear it Mr. Zrazil. If I catch you sleeping again you will go to the office and I will call your parents. Am I clear?  
Ares: Yes, Sir I hate math.  
Mr. Hanky: That’s it Mr. Zrazil go to the office and go now.  
Narrator: While at the office Ares was talked to by the principal Mrs. England.  
Mr. Hanky: Ares Brazil wake up this instant. I cannot believe you are sleeping again! How will you learn anything if you do not pay attention?  
Ares: I’m so sorry Mr. Hanky.  
Mr. Hanky: I don’t want to hear it Mr. Zrazil. If I catch you sleeping again you will go to the office and I will call your parents. Am I clear?  
Ares: Yes, Sir… I hate math.  
Mr. Hanky: That’s it Mr. Zrazil go to the office.  
Narrator: While at the office Ares was talked to by the principal Mrs. England.
### Table 6 (Continued): Comparison of script revisions.

<table>
<thead>
<tr>
<th>Initial Script Day 7</th>
<th>Final Script Day 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mrs. England: What do you think we should do to get you to stop getting into trouble.</td>
<td>Mrs. England: What do you think we should do to get you to stop getting into trouble?</td>
</tr>
<tr>
<td>Ares: I don’t know what we should do. I keep getting into trouble.</td>
<td>Ares: I don’t know what we should do?</td>
</tr>
<tr>
<td>Mrs. England We can still get you some help.</td>
<td>Mrs. England: We can still get you some help.</td>
</tr>
<tr>
<td>Ares: I know that but I don’t want any help because my friends will make fun of me.</td>
<td>Ares: I know that but I don’t want any help.</td>
</tr>
<tr>
<td>Mrs. England: That’s not true.</td>
<td></td>
</tr>
<tr>
<td>Ares: Yes it is!</td>
<td></td>
</tr>
<tr>
<td>Ares: ok that’s sounds fair to me I guess.</td>
<td>Ares: ok that’s sounds fair to me I guess.</td>
</tr>
<tr>
<td>Narrator: After that Ares went home. While at the principal’s office he missed his last class and forgot his books to take home.</td>
<td>Narrator: Then he left to go home. On his way home he saw this little boy in trouble. Some older guys were bulling him and beating him up.</td>
</tr>
<tr>
<td>Ares: (Yells) man I forgot my books at school. Mom I need to go back to school.</td>
<td>Ares: Leave that boy alone. Or I’ll hurt you.</td>
</tr>
<tr>
<td></td>
<td>Ares: So the bullies kept on teasing the little boy so Ares went into action using his powers he scared them off.</td>
</tr>
<tr>
<td></td>
<td>After Ares save the boy from almost getting his life ended. Thank you sir said the little boy.</td>
</tr>
<tr>
<td></td>
<td>Ares: From now on I’m going to help people in need because it feels good.</td>
</tr>
<tr>
<td>Hera: Why?</td>
<td>Mrs. England: Ok then will you talk to your parents?</td>
</tr>
<tr>
<td>Ares: I left my books at school!</td>
<td></td>
</tr>
<tr>
<td>Hera: Why?</td>
<td></td>
</tr>
<tr>
<td>Ares: Because I was in the principals office today and forgot my books</td>
<td></td>
</tr>
<tr>
<td>Hera: What did you just say to me!</td>
<td></td>
</tr>
<tr>
<td>Ares: I said I was in the principal’s office, MOM.</td>
<td></td>
</tr>
<tr>
<td>Hera: (Yelling) That’s is it you have been in the office to many times this year!</td>
<td></td>
</tr>
<tr>
<td>Hera: That’s is what you said the last time!</td>
<td></td>
</tr>
<tr>
<td>Ares: I know I will do better this time.</td>
<td></td>
</tr>
<tr>
<td>Hera: This is your last time to get it straight</td>
<td></td>
</tr>
<tr>
<td>Ares: Don’t worry mom I will not let you down!</td>
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Table 6 (Continued): Comparison of script revisions.

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<tr>
<th>Initial Script Day 7</th>
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<tbody>
<tr>
<td>After Ares returned home he did his homework, chores, then went off to bed. The next day he was great.</td>
<td></td>
</tr>
<tr>
<td>When Ares arrived home his mother was waiting at the door. She looked His face and gave him a hug.</td>
<td></td>
</tr>
<tr>
<td>Hera: I’m so proud of you!</td>
<td>Hera: I’m so proud of you!</td>
</tr>
<tr>
<td>Ares: What are you talking about?</td>
<td>Ares: What are you talking about?</td>
</tr>
<tr>
<td>Hera: I’m talking about how well you were today! I had a call from Mrs. England and she said, you were showing that you are a great kid and that she knew that and she was proud at how much you had improved.</td>
<td>Hera: I’m talking about how well you were today! I had a call from Mrs. England and she said, you save so little boy yesterday and I’m so proud of you.</td>
</tr>
<tr>
<td>Ares: Thank you mom I’m sorry for how I acted before.</td>
<td>Ares: Thank you mom I’m sorry for how I acted before.</td>
</tr>
</tbody>
</table>

The students provided an introduction and had tightened up the story by eliminating repetitive text and dropping some events. The main addition was Ares saving a boy from bullies with the resolution that Ares decided: “from now on I’m going to help people in need because it feels good.”

Alex had spent several days in the lab playing with GarageBand, but on day nine, they were all seated around one computer as they filled in their storyboard, drew pictures, and referred to the script’s numbered lines. Although Mona and Jack had numbered the lines on the script, they seemed to have trouble following their story and relating it to the storyboard. Within a minute, Alex discovered a pencil in front of him on the desktop and picked it up. Mona took the pencil from him, saying she didn’t want him to break it.
Within fifteen minutes the group finished organizing their story on the storyboard. They were ready for the next step, but did not want to tell me. Later, I asked Jack about his unwillingness to come and get me for help: “I didn’t want to appear stupid, like I didn’t know what I was doing.” I reassured him that everyone is learning and I hoped that he wouldn’t hesitate to ask for help anytime. Jack and Mona sent their final script. Mona shared with me in an interview: “We had to cut out a lot ‘cause the beginning ended up being like four minutes and the movie ended up being like two minutes.”

I spoke with Alex about what he needed to turn in and told him that I would like to see him more involved with his group members. He assured me that he would, but on day ten, Mrs. A and Mr. Z decided to reorganize some groups and moved him to a new group to work with Kelly.

On day 13, Jack and Mona worked in the lab planning their pictures and video. They looked at the list on the board to decide what to do next. I discovered that they were ready to videotape, yet again neither one would ask me. It may have been because they were just being 7th graders, or they may be somewhat shy of authority, or because I was in high demand. After a short discussion they decided to take some pictures instead. Jack got Alex to take a picture, and then downloaded it.

Mona thought that the picture “look[ed] like a mug shot.” They tried their technology problem solving strategies to delete the picture they did not like, but it did not work, so they asked Mr. Z for help. At this point, Mr. Z took control and tried different things to delete the picture. Even though Mr. Z may not have been familiar with the software, he was not afraid to think logically and try something. This type of teaching demonstrates for the children that teachers don’t always know everything, but we’re
willing to figure it out. It is good for the students to see us think a problem through and
discuss it or witness “controlled floundering,” figuring out how to figure something out
(Pogrow, 1988).

After a few minutes, Mr. Z asked me for help and Mr. Z, Mona, and Jack learned
that since iMovie was accessing the pictures from iPhoto, the pictures had to be deleted at
the source (Brown et al., 1989). Sometimes something that seemed so simple as deleting
a picture, took some trial and error while presented a teachable moment. After they had
exhausted everything they knew to do, their debate continued about whether to delete the
picture of Alex that Mona did not like. It was amazing to me that these two spent a class
period arguing over whether to keep a picture or not because they did not want to tell me
they were ready to videotape. They spent a little time helping other students, asked Mr. Z
if they could videotape and he told them to ask me, which they did not.

On day 14, Jack and Mona shot their video scene, and I helped them upload their
video onto their computer. Since they were the first to videotape, they were designated
the experts to help others. They took more video, uploaded it to iMovie, and put it in their
timeline by themselves. They asked me to help them edit a clip, but we had run out of
time so I showed them how to edit later that day.

Mona and Jack recorded their voiceover into iMovie on day 16. Oral presentation
is part of the grade level expectations for the seventh grade and recording their voices
into iMovie offers a unique venue for learning oral presentation skills (Carver et al.,
1992). Learning how to speak “clearly and loud[ly]” is an important and sometimes
difficult lesson for children this age. They learned through this experience as they
listened to their recorded voice.
Jack and Mona spent several minutes playing around with the font and colors of titles in iMovie. Mona asked for help, so I helped her put the titles over black, and adjust the font. Mona continued to work on her computer alone while Jack videotaped for another group. When Jack returned, he approved the title Mona had created.

Mona and Jack were ahead of other groups at this point since they had all of their pictures, video clips and were working on their titles. For the next five days during the fifth week, Jack was pulled away to be in other movies or helped other group’s videotape. Jack performed in seven movies or 35% of all of the movies made. Mona worked with other groups too and performed in three movies (15%).

Their completed movie was two minutes and thirteen seconds long and contained: video, photos, title, credits, and transitions. They did not use KidPix to draw any images since it was optional. The only thing that they needed to work on was adjusting the volume since the music was a little loud and distorted at the end. The teenage problems Mona and Jack included in their story were some that Jack himself had experienced at times.

Jack was not intimidated by the computer and was willing to explore the software himself: “you taught me some things and I picked some things up just by looking around on there.” Mona had had some previous experience with the software from a technology enrichment class she had taken over the summer, but still added to her knowledge:

Such as, how to add transitions and affects and how you have to do them last or it might screw up everything ‘cause you’ll have to take them all out or you’ll have to like write them all down or something. Make sure you do it in order or it will mess you all up. I also learned how to add voice overs, and how to split clips and audio. I learned to add credits and change the fonts to my credits and title page. I learned a lot about the process of making an imovie.

Jack related this to his other schoolwork: “it helped me with writting because this story made me think about what all the diffret typs of storys that there were.”
Jack and Mona both commented on being each other’s partner, but saw it very differently. In an interview Jack shared that he liked working with a partner, “so if I was busy helping somebody with something we could still get some work done and we could share our ideas.” He wrote more about it in an emailed reflection:

My partner was a very good partner because we both did about the same work. My partner was a very good worker and helped with everything that they could they did some thing and I did som things. I think that me and my partner worked very good together. i think that I helped out my partner when she was stuck on somthing and the same for me.

Mona wrote:

My partner was okay. I thought I had more of the work to do. I felt like when he did something he did it wrong and when he left I had to redo it all. All we butted heads a few times. He was a good partner, but I would rather not work with him on the next iMovie.

You really have to have a good partner. You have to work together a lot otherwise it’s just not going to work. We communicated really well. Like if he was going to go leave, I’d make sure that I was working on it. If I was going to leave and he didn’t know what to do, I’d fill him in on what I did so he could continue.

Both Jack and Mona were competent and conscientious workers who collaborated well together (Carver et al., 1992; Beach & Myers, 2001; Polman, 2000). Jack took pride in helping other groups with technology, video recording and participating in other movies. Mona helped others too, but seemed to be the one who made sure that their movie was in order. Even though their group was ahead, neither of them wanted to ask for help and wasted time waiting for the next phase to begin. Luckily I saw this with the videotaped observations, or they might have been furthered delayed. Alex did not seem to have much impact since he did not contribute to the research, writing, or editing of the essay and script. He did play a part in their movie, but by this time, was pulled away from his new group.
Their writing improved through the editing process as they learned about economy of words, sentence fluency and word choice (Culham, 2003; Lambert, 2002). They edited their original story considerably. Even though Mona had prior exposure to the software, there was still a great deal of “controlled floundering” (Pogrow, 1988). They figured out how to work programs, use cameras, stage scenes, get the software to do what they wanted and develop their technology skills (Goodman, 2003). Both Mona and Jack were eager to contribute and were not afraid of the technology or new learning.

**Alex and Kelly:**

**Problems with collaboration and novice users**

When Mr. Z and Mrs. A rearranged the groups Alex joined Kelly on day ten. Kelly’s first draft of their story, “The One Nobody Liked,” was about how no one liked Ares since Ares was the god of hatred, violence, killing, and war. Their movie was the only one that added bloopers at the end. Table 7 shows the essay and script side by side.

Table 7: Comparison of essay and script.

<table>
<thead>
<tr>
<th>Essay</th>
<th>Script</th>
</tr>
</thead>
<tbody>
<tr>
<td>There once was a god named Ares. He was also known as Mars. Nobody</td>
<td>There once was a god named Ares who was also known as Mars, the god of</td>
</tr>
<tr>
<td>liked him. Not even his mom and dad, Zeus and Hera!!! He had one</td>
<td>war. Nobody liked him! Not even his mom and dad, Hera and Zeus! He had</td>
</tr>
<tr>
<td>brother and one sister; their names were Dionysus and Athena. His</td>
<td>one brother and one sister named Dionysus and Athena. Ares’ life was</td>
</tr>
<tr>
<td>aunts didn’t even like him!!! Their names were Demeter and Heats.</td>
<td>pretty normal, except for the fact that nobody liked him and he could</td>
</tr>
<tr>
<td>His life was pretty normal except for the part that nobody liked him</td>
<td>kill anyone whenever he wanted. Ares bad temper was his human flaw.</td>
</tr>
<tr>
<td>and he could kill anyone whenever he wanted. Ares was very tall,</td>
<td>Ares was very tall and was also known for being handsome.</td>
</tr>
<tr>
<td>handsome, and strong. He always looked like he was going into war!</td>
<td></td>
</tr>
<tr>
<td>The next day was the first day of school in his new school!!! This</td>
<td></td>
</tr>
<tr>
<td>school was not ordinary because most all the god’s went there. Also</td>
<td></td>
</tr>
<tr>
<td>most of the god’s had good, nice power,</td>
<td></td>
</tr>
</tbody>
</table>
Table 7 (Continued): Comparison of essay and script.

<table>
<thead>
<tr>
<th>Essay</th>
<th>Script</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Mom, I’m ready!” Ares said.</td>
<td>Alex: “Mom, I am ready for school!”</td>
</tr>
<tr>
<td>“Fine! Umm…I guess get ready.” His mom said boringly, Ares didn’t care his mom and dad hated him because actually he hated them too. So he walked to school that day and met the bully!</td>
<td>Kelly: “Fine I’ll get ready.”</td>
</tr>
<tr>
<td>“Watch out, stupid!’ the bully said.</td>
<td>Alex: I’ll walk to school today. Don’t worry!</td>
</tr>
<tr>
<td>“You!” said Ares</td>
<td></td>
</tr>
<tr>
<td>“What did you say?” said the bully!</td>
<td>Kelly: When he got there he met the bully!</td>
</tr>
<tr>
<td>“You heard me!” Ares replied. The bully was really mad and punched Ares in the face! “That’s it!” Ares said angrily, and killed the bully! Everyone immediately ran screaming. “Run, run. He is crazy!” everyone said yelling. As you can see his human flaws was his bad temper. “Ha, ha, ha,” laughed Ares. He then went to his math class and saw his teacher teaching already and knew he was going to be punished! You see the thing that Ares hated the most was to be punished! Also it didn’t help that he would be in front of the whole class when he got punished! “Ares, his teacher said furiously, I have told you many, many times that the way to a… “Better life is to be on time, Ares joined in, I know I know!” You see Ares had had many teachers that day already and they all had the same motto, the way to a better life is to be on time. So Ares had learned their motto. “Well if you think your so smart you can go to the principal and tell her what happened!” His teacher said grinning. “Oh you’re going to get it!” Ares said under his breath. BANG!!! The teacher hit the floor! Ares had killed her! After that everyone ran screaming,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kelly: After that Ares went to his math class when he saw his teacher he knew he was in trouble.</td>
</tr>
<tr>
<td></td>
<td>Nellie: Ares I know you have heard the motto here! The teachers have told you many times that a way to a…</td>
</tr>
<tr>
<td></td>
<td>Alex: Better life is to be on time! I know I know!!!</td>
</tr>
<tr>
<td></td>
<td>Kelly: The teacher was right Ares had heard the motto there. Nellie: Well if you think you are so smart then you can go up to the Principal’s office and see the principal! Alex: Oh what?</td>
</tr>
</tbody>
</table>
Table 7 (Continued): Comparison of essay and script.

<table>
<thead>
<tr>
<th>Essay</th>
<th>Script</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Run he is a maniac!”</td>
<td>Kelly: After that Ares went home.</td>
</tr>
<tr>
<td>Ares just laughed and started going home.</td>
<td>Alex: Mom.</td>
</tr>
<tr>
<td>When he got home thought about doing his homework but he did not have any homework because he would kill all his teachers before they could say anything. So he practiced killing people! For example he would turn a toy to life, then kill it!”</td>
<td>Laura: What now?</td>
</tr>
<tr>
<td>“Mom!” Ares said.</td>
<td>Alex: I’m board! Give me a cake or I’ll kill you!!!</td>
</tr>
<tr>
<td>“What now” his mom replied.</td>
<td>Laura: Um… ok honey.</td>
</tr>
<tr>
<td>“I’m bored! Give me a cake or I’ll kill you!”</td>
<td>Alex: I’m bored! Give me a cake or I’ll kill you!!!</td>
</tr>
<tr>
<td>He said.</td>
<td>Kelly: The next day Ares was sleeping and Athena walked in and tapped him on the shoulder. That scared Ares, so his defense was to kill her.</td>
</tr>
<tr>
<td>“Ok! Um…honey. She said That’s life Ares thought.</td>
<td>Alex: Oh my god what have I done?</td>
</tr>
<tr>
<td>The next day he killed five people one including the detention teacher and the principle! Ares knew he would never get in trouble because when he killed someone everyone would be too afraid of him to get him in trouble! From then on he loved school! He would just lay back and relax and have other people would do his homework.</td>
<td>Kelly: Ares knew just what to do!</td>
</tr>
<tr>
<td>The next night he was practicing killing people and his sister walked in! She tapped his arm and he got scared so right when he turned around he killed her!</td>
<td>He brought the person from school that could bring people back to life!</td>
</tr>
<tr>
<td>“Oh no! Ares said, what am I going to do now?”</td>
<td>Alex: Oh my god what have I done?</td>
</tr>
<tr>
<td>Only if I did not have a sister then I would not get in trouble. And if I had not killed my sister I would not be in trouble. You see Ares knew a boy from school that could bring his victims back to life. Mom is going to kill me! So he went to the person that had that power and they brought her back to life! “Whew” Ares said. Later on Ares was playing video games when… “Ares come take out the trash. ”His mom yelled.”</td>
<td></td>
</tr>
</tbody>
</table>
Table 7 (Continued): Comparison of essay and script.

<table>
<thead>
<tr>
<th>Essay</th>
<th>Script</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I could kill you, but unlike some people I would be sad when one of my relatives died!”</td>
<td>Bloopers added:</td>
</tr>
<tr>
<td>Ares replied not really telling the truth.</td>
<td>Alex: Hello ladies and gents. These are some of the bloopers we have today.</td>
</tr>
<tr>
<td>Hera felt sorry for him but she knew he was a killer. He kills just for fun. She thought.</td>
<td>Kelly: This time I messed up a lot because I forgot that we were recording.</td>
</tr>
<tr>
<td>The next day his mom acted as usual!</td>
<td>And this time we had to do it ten times because we had to keep on redoing it.</td>
</tr>
</tbody>
</table>
| “She doesn’t even care about me! Ares said under his breath. Well all I need is my powers!” | Alex: Yo, I want to give a shout out to all my peeps. I want to thank my moms first. Yeah you know my name Alex a.k.a chicken.
| Ares couldn’t believe that his mom did not care but on the other hand he really did not care about her either! So his life went on normally except for the part that he killed people! So no one liked him and he did not like anyone either, it was pretty simple. So as you can see from Ares very, very bad temper was how he got to be the god of hatred, violence, killing, and war. | |

The storyline was simple but disturbingly violent, so I asked Kelly how she decided which everyday problems to write about in the script: “We didn’t have that many problems but we only had one idea, so we used that one.” This explained the lack of imagination shown in their writing.

Kelly did not have any computer experience of her own. I don’t believe that Mr. Z and Mrs. A realized that they were putting two new students together in one group. Alex looked to Kelly for direction, but since Kelly was not sure of what she was doing, she had difficulty guiding him too.

Alex was finishing his third week at this school and was getting by with doing very little. He hadn’t done any research nor written an essay or script. I don’t believe that
he even read the scripts since he would ask his group members for direction about what they wanted him to do.

Transferring, downloading, and saving were all things that were demonstrated with a projection system to the entire class, but until they need to know it, students do not have a frame of reference to attach it to and therefore, do not internalize the information until they do it. Seeing and doing are two different things. It is important to offer the “walk through” instructions at the time the student needs the information so they have access to it when they are ready. It was a great deal of information to take in when we were working within so many different and new programs, KidPix, FirstClass, messages, attachments, transferring to different computers, downloading and importing into iPhoto. Students may have been stuck on something. So, they reverted to asking each other for help and they knew whom to ask too (see Literature Review p. 25, Community of practice: Lave, 1990). The only problem was that some of those students were not getting their own work completed.

Kelly and Alex commented about what it was like to collaborate after the project:

Kelly: My partner Alex is ok. He is aggravating sometimes but mostly ok. He kept on throwing my eraser though! He also would joke around a lot but sometimes he would do that too much! Like when we need to get something done and I would tell him to stop joking he would not, so we would barely get whatever we were doing done on time! But that only happened once! So again he was not that bad!

Alex: Me and my partner both worked really hard at this project. We also had our disagreements but we worked them out together. I was gone most of the time because I had to take pictures with other groups. I worked on most of the sounds and some of the pictures and she work on the rest but at the end we both worked the same amount. Try not to make any mistakes, be on the same page as your partner and work really hard at it and do a good job. I would not mind working with her again but I would prefer to work with a boy because girls have a different perspective of things and I work better with boys.
Kelly said that creating an iMovie helped her “understand writing better, like picturing it in my mind and stuff.” She found the music to be the most challenging and used Alex’s creation. Both Alex and Kelly liked learning how to use the video camera the best. Kelly expressed that she would, “need help with exporting” if she did another project since this was her first exposure to computers. She said that she would remember to “turn down the music and turn up your voice” for the next project.

Their three-minute movie contained three images from KidPix, five photos, and two video clips. Kelly narrated, videotaped and made the pictures in KidPix (see Figure 5). Alex acted in the video portions, took the photographs, and created the music. The movie contained the title, credits, effects, and transitions. They had found the time to include some entertaining bloopers.

Figure 5: Images created by Kelly using KidPix.

Summary

Alex and Kelly had a weak storyline and difficulty collaborating. They were novice computer users who learned a multitude of technology during this process although it was not clear how much Alex actually knew or learned. He seemed to understand GarageBand. Alex was highly distractible. This group did not ask for help but responded to proximity and offers of help. It was important for teachers to be available for this reason. Kelly’s learning curve was focused on mastering the technology aspect rather than the story. Alex was establishing himself socially and acted in four movies, but
was not the best partner. Within two months of starting at this school, a behavioral problem occurred, and Alex was sent to yet another school.

**Discussion**

Mrs. A felt that in this project, “the biggest challenge was the lack of well-developed stories.” For the next project she wanted: “more direct instruction and emphasis on the story up front with individual practice to be sure students have the background to produce a story of quality.” Mr. Z wanted next year’s first project: “to start out with something smaller so that they can get the basic skills of iMovie down and feel comfortable with those. And then add [other software] as we go.”

Two questions were emailed to the students after the viewing. They were: “What did you learn about the process of creating a movie?” and “In what ways, if any, does creating iMovies assist you with other schoolwork?” I also asked them to add a comment about working with their partner.

The first DS project was the most intensive for learning the technologies needed to create a digital story, such as: email usage, Internet research, iPhoto, GarageBand, iMovie, iTunes and KidPix software, digital tools like, camera and video camera use, and aspects of performance, like storytelling, narration, acting, and performing stunts. Heather wrote that she “also learned some things from watching other peoples’ movies.” There was also incidental learning, like saving often (Lave & Wenger, 1991, cited in Kearsley, 2005). Terry said:

*Imovie has really kickstarted me on getting able to use the computers to help me better my reports and school work because before I felt that importing and all that was kind of overwhelming but now I know that I can do it.*
Students also learned about script writing, creative writing, organization with the use of a storyboard, collaboration, working within deadlines, and the process of creating a multimedia representation as a product of their creative writing assignment. Many students wrote in their reflection that it was hard and fun. Nellie said: “I learned that it is a hard process but it is worth it in the end.”

Some technological aspects were reinforced such as, accessing their server folders, directing saved documents, conducting an Internet search and taking notes. Some aspects were reinforced for a few students who had used email accounts from home, but was new learning for the majority; they learned new email software and used it to create, send, and receive messages and reply with quotes. They also learned to attach files and spell check their messages, even though they may not have used it.

Students learned to create a song using GarageBand, copy and paste music loops, export to iTunes, use a keyboard to record a track, adjust track volumes, create emotion with music, and enhance the story with music.

With iPhoto they learned to import photos from a camera, import photos from the Internet, create a new album, drag photos into an album, print a contact sheet, edit, duplicate, and rotate photos.

Students learned how to use digital cameras and digital video. Sally commented:

My favorite part about making iMovies was learning how to operate new things, cameras and how to make films. It was a good experience for us. We learned how to download files, how to make movies, how to make sound, how to film things, how to import and export things, and most of all it taught us how to work together and how to take your time on things that are important.

Collaboration was learned through peer editing, teaching others, learning from peers, negotiation, critical friends, communication, and giving and receiving emotional
support. Marsha wrote: “It also helped me learn when to be social and when not to be social. It also helped me make more friends… Friends I can help, and friends that can help me with schoolwork” (see Literature Review p. 30, Collaborative skills: Carver et al., 1992; Beach & Myers, 2001; Polman, 2000). Darien said:

I learned that when you are working on your iMovie you have to be working and not playing all the time because if you play you probably want get something done. When we first started working on these iMovies I was talking most of the time but then I started to see if you I didn't work I wasn't going to get anything finished. I also learned that when you are writing your script and taking these pictures it's other people that still need the camera. Also when you are taking someone from their group to take a picture or video tape you need to hurry up and get them back to their group because they have work to finish just like you.

There was a great deal learned about creating iMovies, such as: how to import a song from iTunes, access photos, download video, sequence images and video, edit images, video and audio, adapt narration for presentation, adjust speaking, adjust image time and size, add title, credits, effects, transitions, record and edit voiceover, use sound effects, adjust audio volume levels, include emotional quality, and export the movie (see Literature Review p. 27, Mindtools: Jonassen, 2000). Students suggested to: “save often” and make sure you “time things just right [or] it can throw off the entire movie.”

Leah wrote the most comprehensive list about what she learned from this process:

I learned how to use a video camera and a digital camera. While i was using the digital camera, i learned how to export the pictures. also i learned how to use kidpix. with the video camera i learned how to export video and cut things out and split things. I learned how to cut things from another part and ad them to other parts. I finally understood to add effects and sound effects. i learned how to use e-mail. i understood how to use garage band and how to export the music and how to expand it or copy it to make it longer. i understood how to use i photo and export pictures from i photo to i movie and to arrange the clips and change the amount of time they stay there. also, how to make a title and fix the music to how long it is and the volume. also, i learned how to do voice over. I learned how to change the volume for it, play, record, stop, and all the other little thingys that go with it.
Students learned about essay writing, how to create a story with a point, adapt an essay to script, tell a story with a dramatic question, use supporting evidence, organize a story, create a storyboard, use anecdotes, economize words, edit script to align with pictures, and include emotional quality and voice in their story (Culham, 2003; Lambert, 2002). They learned to share and receive critical feedback from the group (Gordon, 1999). And they reinforced their learning about different types of writing such as: a five-paragraph essay, creative writing, and reflective writing. Leslie learned: “that it is a good thing to keep well thought out organization so you can know which clip is which and then when you want to put them in order it is much easier to find them.”
CHAPTER V: FINDING YOUR VOICE WITH NARRATIVE PERSONAL STORIES

Writing and Multimedia Synthesis, Collaboration, and Voice

For the second project the students were to write a narrative personal story. Children were given a letter explaining the assignment to their parents on Friday, January 6, 2006. Mrs. A and Mr. Z read the letter with their class, explained the assignment and answered student questions before sending the following letter home. The students were excited about the assignment. There was a momentary pause initially as they thought about their topic, but then their hands shot into the air and they started asking questions about whether this topic or that topic would be okay. The level of noise began to rise in the room as students thought of ideas and began to share with each other. I composed this letter to the parents using categories described by Lambert (2002).

Dear Parents,

Stories are used to teach lessons about life, so when we tell stories, we make a point about something. The next iMovie project will be writing a personal narrative or story and then making it into an iMovie. Students will need to choose an event that has shaped their life and then find photos that are related to the event. They may need your help finding the pictures, with the details of the event, such as where it happened, as well as who was involved. Please help your child bring in pictures to scan that relate to their story. New photos can be taken if needed.

As an author it will be up to the student to determine what they're trying to convey to the audience and from what perspective they will tell their story. The audience should be considered in planning their story. The following are questions the author should consider. What is the message from this story? Why is it important for this story to be told? What should the audience understand about what has been shared?

Examples of story topics:

• Adventure stories that include vivid memories about travel, vacations, or experiences that challenged them to change their perspective about life.
• A story about a place in their life.
• Character stories about what inspires them, about meaningful relationships with other persons, or even a pet.
• Memorial stories honoring or remembering people who have been in their lives.
What is or had been their relationship to this person?
How would they describe this person?
Is there an event/incident that best captures their character?
What about them do/did they most enjoy?
What about them drove them crazy?
What lesson did they give them that they feel is important?
If they had something to say to them, that they may have never heard them say, what would it be?

• Accomplishment stories about achieving a goal. These stories fit into the desire-struggle-realization structure of a classic story.
  What was the event (time, place, incident, or series of incidents)?
  What was their relationship to the event?
  Who else did they experience the event with?
  Was there a defining moment in the event?
  How did they feel during this event (fear, exhilaration, sharpened awareness, joy)?
  Why did they learn from this event?
  How did this event change their life or shape who they are today?

• Lesson stories about learning a life lesson.
  One student asked to make a story about not smoking. This is possible if there is a reference to a personal experience as to why this is so important to them in their life.

If your photos are saved on a computer, please email jpegs to me.
Thanks for your help.
Sincerely

Several students commented that this project was different from the first one, “because it was more personal and it was a true story.” Reed, Mona, and Candy said that they could “relate to [the topic] more.” Laura reflected, “We actually got to pick a good story that happened to us and that we like. It’s a project that’s a true story and that you know much more about.” Many students noted that they worked without a partner for this project. Jack put it this way, “I worked on my own and I did all of the work.”

**Day 1: Writing initial draft with Mr. Z’s class**

Students in Mr. Z’s class began writing their personal story in the lab on Thursday, January 12, the first of 18 days. I talked individually with each student about their story to see if they were on the right track and discussed their ideas (see Literature
Review p. 30, Transformative communication: Pea, 1994). Students turned in what they had written during the 40-minute class for me to review. I received 18 out of 20 papers.

Mona initially wanted to write her personal story about the house she grew up in since she had just recently moved. She wrote this first draft on the first day.

My Old House

My address at which I use to live was …The house I grew up in and the house where I lived for 12 3/4 of my life. I miss the house so much. I remember everything in it; there are so many memories. Such as, when I had Survivor birthday parties, we would runaround and do fun little challenges. All my friends came and we reenacted the show. I had to parties like that. Another memory of my old house was when Molly, David, and I were playing baseball in my basement and we had a tiny ball and a water wiggler as a bat. Well Heather went to hit the ball and the water wiggler busted. It was so funny and we didn’t get in trouble. Also when I had nothing to do I could walk four housed down and hang out with Sam and Barry was usually there. I loved my house my lime green room and my fun blue curtains.

Day 2: Writing initial draft with Mrs. A’s class

The students had a four-day weekend to celebrate Dr. Martin Luther King’s birthday, so Mrs. A’s class began writing their stories on Tuesday in the lab. Again, I spoke individually with each child during the forty minutes to hear their story ideas and answer questions. They printed and turned in their rough draft for me to read after class.

I had asked three students to leave their pictures with me to practice using the scanners. After school, I scanned their pictures onto a computer and put them in a folder with their name on the desktop for them to put into their server folder the next time they were in the lab. Three parents also emailed pictures, which I downloaded for each child.

Day 3: Comments and rewrites

I read and made comments on all of the student stories and returned them to the students in Mr. Z’s class on Wednesday during their forty-minute class time in the
computer lab. I helped students read my handwritten notes and answered their questions. I emailed two students my comments since I had so many suggestions and my handwriting can be hard to read. Students added to their stories and incorporated my suggestions if they wanted to. Because this was a story about them, I emphasized that, and only offered suggestions about their writing that they could take or leave. It was their story to tell in the way they wanted to tell it.

There were six boys and one girl who chose to write about sports. Terry wrote about the impact his coach had on his life. Barry and Blane described their involvement with baseball. Troy told about his accomplishments in wrestling. Jamie wrote about her passion for ice-skating. Jack and Bart both wrote about soccer. Jack focused on teamwork and how much he learned from his coaches, while Bart focused on his accomplishments:

The first year I joined a select soccer team was in 1999. There were 17 kids at try-outs. I was one of the lucky few that made it. I started playing at midfield then I was moved up to forward.

Bart emanated confidence in his soccer abilities and had the beginning of a story in the “desire-struggle-realization structure of a classic story” (Lambert, 2002, p. 28). The following email to Bart is an example of the types of questions that I wrote as comments on student’s papers.

Hi Bart,
In case you have trouble reading my writing... The questions that I wrote on your paper are...
How has soccer or playing on the select soccer teams changed you or made you who you are?
In what ways?
Why is playing soccer important to you?
How does playing make you feel?
What have you learned about yourself and other people?
How do you feel about winning/losing?
What have you learned about winning/losing?
Bart could have chosen any one of these questions to find his spark and channel the “point of his story.” My goal was to evoke his self-reflection on a deeper level and look for a global theme about what he accomplished by playing the sport he loved.

Initially, Jack told me that he had wanted to do a story about his “favorite soccer team,” but did not know if he could find any pictures. So he started drafting a story about a game with marbles and army men that his father had made up. But when he discovered the soccer team website, he started downloading pictures and rewrote his story to describe his “home away from home.”

My Favorite soccer team
My Favorite soccer team was the Midwest Strikers. This was my favorite soccer team because on my other team we had no teamwork and it was not as fun as my current team. My team right now is one of the best in indoor because we know how to work together my team is pretty good in the outdoor set but we still need some improvement. Soccer is a very [hard] sport to play and it takes a lot of work to get to where your soccer coach wants you to be to be in skills and other fundamentals. On my first soccer team my coach was very easy because he let everything flyby and we never learned anything so we never got better. Right now my soccer team is going to play outdoor and I have to get ready but I should be ready I have been on my soccer team for three years. In these three years I have learned more than I ever had. My first soccer coach was John M. he was a lawyer and never really had time to coach a soccer team so we always lost. My second coach was Joe M. and in just one day I learned more than ever. My current soccer coach is Mr. N. and he is the son of a great soccer player as well as a soccer coach and he is getting us ready for the outdoor set.

Jack wanted to capture in his story “all of the teamwork we have and how fun it is. I just thought of the fun things that we did and talked about my coaches and went from there.” I sent the following version to him to demonstrate how to edit his story with my underlined suggestions.

My Favorite Soccer Team
My Favorite soccer team was the Midwest Strikers. This was my favorite soccer team because on my other team we had no teamwork and it was not as fun as my current team. My team right now is one of the best in indoor soccer teams
because we know how to work together. My team is pretty good in the outdoor set but we still need some improvement. Soccer is a very hard sport to play and it takes a lot of work to learn the skills and other fundamentals. My first coach was very easy. He let everything flyby and we never learned anything so we never got better. Right now my soccer team is going to play outdoor and I have to get ready but I should be ready. I have been on my soccer team for three years. In these past three years I have learned more than I ever had. My first soccer coach was John M. He was a lawyer and never really had time to coach a soccer team so we always lost. My second coach was Joe M. and in just one day I learned more than ever. My current soccer coach is Mr. N. and he is the son of a great soccer player as well as a soccer coach and he is getting us ready for the outdoor set. 75 seconds

Rearrange the order

Soccer is a very hard sport to play and it takes a lot of work to learn the skills and other fundamentals. My first coach was very easy. He let everything flyby and we never learned anything so we never got better. He was a lawyer and never really had time to coach a soccer team so we always lost. In just one day I learned more than ever with my second coach. He taught me how to …. My team right now is one of the best indoor soccer teams because we know how to work together. My current soccer coach is the son of a great soccer player as well as a soccer coach and he is getting us ready for the outdoor set. How are you getting ready?

Jack described his team, “like kind of family ‘cause we all know what’s going on and we all help each other out when we can.” I hoped that he would include some anecdotes to communicate how he felt.

On the third day I created an instruction sheet for the scanner and went over the instructions with the students while demonstrating the scanning procedure (see Appendix E). I also showed the class how to save the JPEG files in their folder, drag them into iPhoto on their computer and locate them in iMovie (see Literature Review p. 26, Modeling: Collins et al., 1990; Conway, 1997).
Kelly had emailed a question regarding the class instructions. “r we going to change our stories to a script soon?” After I responded to Kelly via email, I sent all of the students this email of the current goals:

iMovie 2: Personal stories
The plan is for stories to be finished and pictures scanned by Fri. [Day 5]
Turn stories in when they are ready for feedback from Ms. Kulla and your classroom teacher.
Scan pictures to server folder.
Edit story.
When you have received seating assignments for this project
Move pictures from server folder into iPhoto.
Create new iMovie project
Sequence pictures in iMovie.
Begin working on script when two teachers have given you feedback on your story.
Next week you will write your script and work in iMovie.
Don’t just sit around, create a song in GarageBand for this project or play around with your pictures in iPhoto.

After class I used Elizabeth’s pictures of her vacation cruise with her family to practice using the scanner and emailed her a request, “May I use your photos to teach the class about iPhoto? I want to show everyone how to reduce red-eye and enhance pictures. Let me know if it is okay with you.”

Day 4: Scanning and saving images

Elizabeth stopped by the lab and said that it was okay to use her pictures as an example for the class. Mrs. A forgot to bring her students on that day, but Mr. Z’s class came in the afternoon. For the students who had less than seven pictures, I taught them how to make duplicates in iPhoto and offered the option of adding effects and cropping the same picture in different ways using one of Elizabeth’s pictures.

Two students decided that they were unable to do the project based on other commitments in their gifted program. I trained three students in each class on using the
scanners with the instruction sheet. They agreed to be the experts who would help other students scan their pictures.

**Day 5: Rewrites and selecting images**

I returned the stories with my comments to the students Friday morning in the lab. Students made changes to their story during this 40-minute class period and resent their stories to me via email. Jack made some of my suggested changes and made some other changes too. He said that he learned “that you don’t have to change your paper because it’s what you want, but you can.” Jack explained how he wrote his final script:

I looked at my script and looked at all of the pictures I had and saw, okay, this sounds like a good beginning, so I can put this picture here with these words. And this picture is good here.

Based on the images that they had available to use, Mona was one of several students who had changed her topic after the initial draft. She explained her reasons in an interview after the movie was completed.

I really wanted to do my old house. I wanted to write basically how I grew up there and how I had a lot of fun times there. Basically I didn’t want to forget what it looked like…but I didn’t have a lot of pictures on that, so I just decided to do fifth grade camp ‘cause I had a lot of fun and I had a lot of cool experiences there. And I wanted to remember it when I got older.

Mona described how she decided to put her ideas into her script and how she selected her pictures:

I first selected my theme and then basically, I went by what were my friends’ favorite parts and my favorite parts [of camp]. I went by like some of my pictures too ‘cause I had a picture of Leslie where she was like smiling. And I talked about how boys were her favorite part of camp. I just basically went along with the pictures. I picked out my pictures of what was most significant to me and what pictures I liked the best. I had to pick out some [pictures] ‘cause I had a lot. I basically went by the ones that were funny pictures or pictures that weren’t messed up ‘cause I had a bunch of blurry pictures ‘cause I took them too fast or something.
In creating a multimedia representation of a story, selecting the pictures to represent the memories is an important part of the process. Picking out the pictures that stimulated memories of camp was Mona’s favorite part of the whole experience besides “putting together iMovie all together.” She selected anecdotes that she had pictures for and seeing the picture and remembering the experience made her laugh. Her enjoyment allowed us to experience fifth grade camp through her eyes.

Finding images that represented and supported the story were critical, but there were ways to be creative with the images as well (Goodman, 2003). When Jack was looking for pictures he had some trouble:

> It was kind of hard because [the soccer team website] had pictures, but most of them are with my whole team and a lot of them are us not playing and just joking around in our free time at tournaments.

Several students expressed that their pictures brought back memories of their particular experience and remembering the event helped them to write their story. Jack emphasized what he liked best about the project:

> Looking through the pictures because I could see on our website, where I got most of our pictures, it had a lot of old teammates on there that moved on and it was nice to see. And I asked my mom what these teammates were doing. And it’s nice to see what they had done.

Writing these types of personal stories help preserve memories of a specific time in our lives. They can help us reflect on a lesson learned, express grief or loss, or crystallize a precious memory that helped us become more of who we are. Stories can express our feelings about ourselves or those we have strong feelings about, or an event that defined us or just a moment in time. Mona’s experiences at fifth grade camp were one of these adventures that shaped who she was and inspired her to reminisce.
Fifth Grade Camp
By: Mona

Fifth grade camp rocked! I miss it so much. Everyone one [of] my friends were there. Including my new friends that I made like, Katie, Karrie, and Shelly. Also had my awesome consolers [sic]; Karen and Rena. I remember we danced to Karen’s radio. I so cannot dance. I remember going to breakfast ever[y] morning and Karen would lead us in this fun song that she made up. We also sang and danced to Gigolo. At camp we also went fishing, at the lake, which was very pretty. I actually caught a fish and I didn’t have to touch it because the teacher was afraid I’d hurt it. I was so proud of myself because I had never gone fishing before and mine was 8 1/2 inches long.

My cabin members rocked. I loved my cabin; Leah, Sara, Leslie, and Sally: were all in my cabin. I remember Leah had a stuffed Wooly Mammoth, named Bosso. We use to take Bosco from her and hid him. She also had a duck, but I forgot its name. We had a party like everyday, even Mrs. Roberts had fun! Some of my other friends like April and Betty weren’t in my cabin but we still had a blast. The boys were also there, which Leslie loved.

The whole camp also had to do plays, ours was fun! Leslie got to put make- up all over Katie’s face. I also remember when all the consolers [sic] got up and song the song, The Twelve Days of Camp. It was really funny.

I read 25 stories over the weekend and made comments on the papers. Many students needed to work on organization. Some of the comments I wrote on their papers were: work on order, move sentences around, intro, then what, when, where, who, and why was it important to you, and what did you learn? Some students needed to use more “I” in their story to describe their experience and not just report or describe an event like Jeff did in his first draft:

My Story by Jeff
I’m going to write about my vacation to Florida. This vacation means a lot to me because it was the first real vacation that I can still remember. Also the members of my family that came on the trip added to its importance to me and its sentimental value. On this trip we went to Orlando, specifically we went to almost all of the Disney theme parks resulting in us staying in Florida for like seven days. This was the first trip I made to Florida but believe me it was not the last. I had several excursions to Florida prior to my first trip. None of which can even come close to the emotional value of my first trip.

I wanted both of us to re-experience his trip as he described it in his story. My feedback on Jeff’s paper was intended to help him write with more “I” in his story:
I was ___ years old when my family
  Piled into a car
  Went to Florida
  Took a plane ride
I want to feel like I’ve been there, not being told about it.
Describe the journey.
How did you get there?
Where did you go when you got there?
When?
Why?
What happened? What was fun? Describe a memory.

Jeff needed more practice writing with these questions in mind while re-creating
the spirit of adventure he felt. After a while he discovered that he did not have pictures to
support that story, so he changed his mind and wrote a different story about a sporting
event he attended with his friends.

**Day 6: Organizing, saving, and scanning images**

I spoke with both teachers Monday morning, day six, and requested that both
classes come to the lab for instruction for 30 minutes. It was important for all learners to
see instructions more than once, so I went over how to scan pictures into their server
folders, and taught them how to import and edit pictures in iPhoto. I also read two
students’ stories aloud, Elizabeth’s and Reed’s. Elizabeth’s story demonstrated the
organization comments that I wrote on some papers and Reed’s story was a great
example of an “I” paper:

**The origin of Billy Joe Bob**

I have always been fascinated with snakes. I plan to form my life’s work
around them. That is why when my parents said they were serious about getting
me a pet snake I was eager to start looking. I didn’t know when I was going to
get him, so I got started as soon as possible. We decided to use the tank that my
sister used for her pet newt, and we got different care sheets for snakes that were
an option. We decided on a corn snake around early December, so we decided
that we would get him just after Christmas. Sure enough, Christmas morning
there was a tank laying out in front of the tree, with everything that I needed for a
pet corn snake. The next day we went out and looked at the different baby corn
snakes they had. I wanted Billy Joe Bob the second I saw him. I picked him out of the tank and held him up. I didn’t need to look at any more of them. I knew this was the one I wanted. I held on to the small cardboard box that contained my corn snake all the way home. I put him in the tank that we had set up for him and put the bag of small mice in the freezer. I called my friend Nathan over and we got him out to hold. We both agreed that I had made the best choice. I still believe that to this day. He has grown to more than triple the length of when I first got him. He loves to be held, and it is always fun to hold him. I hope I can bring him in some time and get him out.

I explained to the students that during the next class they would be dividing up into smaller groups of about seven to ten children with one teacher. Students’ would read their story to their group and group members would give suggestions to the person about their story, starting with the phrase “If it were my story…” In the DS workshop that I attended this was referred to as a “story circle” (Lambert, 2002, pp. 93-101).

Day 7: Story Circle

Mrs. Ferris, an instructional teaching assistant, worked with seventh grade students sometimes. On this particular day, she came to the lab to assist with the story circle. The plan was for her to learn the facilitation process by helping Mr. Z with his story circle group and then lead a group for the other class’s story circle.

Mr. Z and I hadn’t planned in advance how to divide up the students into groups for the story circle, but when a student suggested to the class that we divide into two groups, boys in one and girls in the other, no one objected. On the contrary, the girls eagerly formed in a circle while the boys moved a bit slower. Mr. Z’s class divided into two groups consisting of 9 boys assisted by Mr. Z and Mrs. Ferris, and 8 girls assisted by me. Teachers mediated each group of students in the peer editing and feedback process of the story circle. Mutual respect was emphasized while individuals read their story aloud to the group. Group members were asked to actively listen while each story was read and
then make suggestions starting with the phrase, “If it were my story I would…” Since
there weren’t many comments at first, I changed the rules so that each group member had
to say one positive specific statement about what they liked about the story before giving
a suggestion if they had one.

Mona was the first volunteer to read her camp story to the eight girls in her story
circle. I had written on Mona’s paper asking if she remembered the song they sang at
camp, but she did not remember. So when she brought it up to the group, they helped me
to understand that it was a “made-up” song. Sally explained. “She [our counselor] would
say something and then we’d repeat her and then we would dance the entire way [to
breakfast].” All of the girls reminisced about their camp experiences and their camp
counselors (Bruner, 1966):

Sally: Yeah, she was really cool. And then we ate candy in our cabin when we
weren’t supposed to have candy. They brought us candy anyway and …
Kelly: We never got candy.
Sally: Ha, ha.
[Everybody laughed.]
TKA: So what was your most favorite thing about camp?
Mona: Being with my friends the entire time.
Sally: Mine was the cabin. I liked the cabin.
TKA: What about the cabin?
Sally: The people in it [and] it was nicer than the guys.
Leslie: It was nicer than the guys.
Mona: It was a lot cleaner than the guys.
Sally: There’s was all dirty.
Mona: We had to go and it was just gross.
Marsha: Did you guys get the necklaces with the little piece of wood?
Everyone: Yeah.
Marsha: I still have mine.
Sally: I have my banner.
[Kelly and Candy were quietly listening.]
TKA: Do you have pictures?
Mona: I’ve already scanned them.
We spent about five minutes hearing Mona read her story and then listened to all of them discuss fifth grade camp. There was only one comment that Marsha offered to Mona: “to add in more about the activities that you did.” I thought it was a great first draft and encouraged her to write a concluding paragraph about her adventures at camp. Later Mona commented:

Yeah that [story circle] helped me a lot. ‘Cause with my story, I didn’t really know how to add in stuff but my friends were there too, so they knew how to add it in and that really helped.

This was the beginning of the second week of the project and their stories were still forming, but Mona had already scanned her pictures and was ready to go. The girls, for the most part, had a strong start on their stories and were very communicative with each other. For this reason, we were only able to hear stories from half of our group, while the boys’ group finished before us.

The boys’ stories were not as well formed and I thought that Mr. Z might be able to offer them more assistance in two ways, as the communication arts teacher and as a male. The boys’ stories were much shorter than the girls’ for the most part. Some of the boy’s stories were only a couple of lines long. Mr. Z commented that the boys just weren’t talking very much or giving many suggestions other than “needs organization,” like Tom’s:

Icy creek By Tom
One day in the creek my three cousins and I where in the creek and we found two doors and we where war of the lands the way to play is you have a small trinket and if you get it you take it to your land then you have their land till they take it back. Also the creek was frozen over. So one of my cousins made a treaty and took over the creek from Spencer. So then we where off to take my older cousin Cody he had the woods by the highway and he had the tunnel that went to the other creek but we do not go there. So when we got the field it had ice all over it was covered in ice so we took the doors and went sledding. Then we slid down the hill that goes up to the field.
Marsha wrote an adventure story based on a particular vacation where she learned about other cultures and had many new experiences. Ten of her classmates wrote about their adventures too, five girls and five boys. This was the type of feedback that was given in our story circle about organization. She began by reading her story aloud to our group:

**My trip to the four corners**

2 years ago I went to the four corners. I also learned a lot about its history, for instance it’s the only place in the United States where four corners meet, the states that meet are Arizona, Colorado, New Mexico, and Utah. It is also the home of the Anasazi or the cliff dwellers. Their culture mainly centered in the four corners. Also in about A.D. 1100, the Anasazi built homes called cliff dwellings in canyon walls. So I learned a lot but it was also a lot of fun because my mom, my brother and my sister got to drive there in a station wagon. Once when I was sitting in the front seat my sister and I started to fight then we start hitting each other. So my mom stopped the car and my brother had to put a wall of pillows. When I was in the four corners I went to some cliff dwelling, like Hovenweep, Chaco Canyon, and Mesa Verda.

I also learned that pueblo Bonita; an ancient apartment building has 800 rooms. The last thing that I learned was that the largest cliff dwelling, cliff palace has more that 200 living rooms and about 250 to 300 people lived in it at once. I also went to two reserves, when I was there in one of the reserves I got a small jar and a real turquoise necklace that had a horse on it. When I was in Colorado I went to a museum and I saw buffalo bill’s grave. Buffalo bill was a famous showman. I also learned that he was a solider in the civil war and that his real name was Tom Frederick Cody. This affected me a lot because it taught me about ancient times that way I could teach it to others. That is my trip to the four corners.

Students offered their suggestions to Marsha:

Sally: If it were my story, I’d write like more fun times about it. Like you told us what you learned, but you didn’t tell us if it was fun or anything.  
Candy: If it were my story, I would take out the historical stuff because that really doesn’t like affect you. And I would put more like stuff that you did with your sister.  
Marsha: It did really affect me because it taught me a lot about it and while I was on the trip I got closer to my brother and my mom.  
TKA: You don’t tell us that though.  
Mona, Sally, and Laura: Yeah you could write that.  
Mona: I think she should leave the information, ‘cause it kind of does like
teach us stuff and she puts in her own input about it while she talks about it. So I think it was okay that she did it.

TKA: Has anyone else ever been to the four corners area?
Sally: No.
Mona: I didn’t even know there was one. It taught me something.

TKA: What I was thinking that I wrote down in my notes and I don’t think you got them yet. I was thinking that if it were my story, I would give the introduction and you could combine the first three sentences. On my trip to the four corner where... List the four states... meet. And then talk about getting there. We all traveled in a station wagon. Because it was such a long drive, we started getting in a fight. So you can start with an introduction of where you went. Then talk about what the trip was like. Then have a paragraph for each state. Right? Because in each paragraph you could give your description of what you saw and what you remembered in each state. You could organize it a bit differently.

Marsha: I don’t remember exactly. I think New Mexico is when I got the turquoise necklace and the small jar. And I don’t remember a lot about Utah or Arizona.

TKA: New Mexico is where Chaco Canyon is.
Marsha: Mesa Verde is in Colorado.

TKA: Right. You’ll have to look it up. So what I would like you to do is just organize it a bit differently. Start with an introduction, then tell us an anecdote about being in the car for that long, how you got into a fight. That’s an anecdote. Tell us about where you went first.

Marsha: We actually started in Colorado and then we went around like this.

TKA: Okay. Start with a paragraph about Colorado and Mesa Verde. I was really impressed when I saw Mesa Verde and what your impression was of that place. Which one was your favorite?
Marsha: I have very good pictures of cliff palace.

TKA: So that’s my suggestion. Organize it in the way that you visited and tell us about each place that you visited and one experience in that place. One experience was the place where you bought the turquoise necklace. Maybe when you went to Mesa Verde, there was another experience. An overall ending paragraph was how close you got with your family. You think?

Our comments were meant to help her organize her experiences and evoke what deeper lessons she learned from her travels about herself and the world. She obviously loved this trip, but I wanted her to tell her story with more anecdotes. In this instance, Marsha’s writing ability did not transfer into her multimedia representation. Her story was lost to a travel scrapbook of picture descriptions and she did not seem to know the
difference. I was left to wonder, “How do I reach them? How do I teach them about storytelling to help them understand?” That is why I talked to them about their writing. That is why I tried to find what interested them, to reach that spark that made them want to open up and tell their story (see Literature Review p. 30, Transformative communication: Pea, 1994). And this was their favorite project. They were motivated to write about themselves and yet some students missed the point.

**Day 8: Story Circle**

The next day Mrs. A’s class came into the lab and we broke up into three groups of seven for a story circle since three students attended “gifted” class. Mrs. A, Mrs. Ferris, and I were each facilitators of a group. Students took turns reading their story to their group and students responded with what they liked and what they would change if it were their story. All students received feedback within the 35 minutes.

Mrs. A reported to me that in her group, Laura kept asking each person who read, “What was the point?” Or remarked that it wasn’t a story with a beginning, middle, and end. After one person read their story Laura remarked, “Now that’s a story.” I’m not sure to whom she was referring, but her story contained the elements she was looking for in other people’s stories (Culham, 2003; Lambert, 2002). This is the story that Laura read:

**The Birth of my Amazing Sister Macy**

One day, a very special day my amazing sister Macy was born.

It was May 10th 2003! Well actually her birth was kind of UN expected.

One sunny afternoon I was at a baby sitters house, She was curling my hair when all of the sudden we got a telephone call! It was my grandparents saying that my mom was in the hospital and about to have her baby in like 2 hours or so! So I rushed to the hospital and went to the gift shop at St. Francis to get some balloons for the new baby girl. When I went to the room I saw my family and my mom was sitting there in pain waiting for the baby to be ready to come out! 3 hours later we were getting very ancí [sic] and UN patient. And before I knew it, it was 1:00 Am in the morning. My papa and grandma were sleeping and I was there with, Taylor, Lexy, Cole, and my uncles with their Girl friends. 2:00
Am. The doctors rushed in the room and she was ready! Everyone woke up really fast and the baby came right out! The doctors cleaned her up. The amazing thing is when my mom held her in her arms for the first time, with all of us gathered around her, she didn’t cry or scream at all! She just looked around with her cute small eyes wondering what in the heck was going on! When I first saw my new little sister I just sat there staring [sic] at her like she was the most amazing baby ever and has now finally arrived here on earth at last! She was so cute that I couldn’t keep my eyes off her! I couldn’t believe that I had another sister! It was unbelievable and the most shocking and wonderful thing that’s ever happened! Then when we got home I held her in my arms for the first time. I was the happiest kid ever! I couldn’t stop adoring her and wanted to be with her every second! I knew that since she was now here my life would be much more exciting and wonderful! We knew just the right name for her! Macy Theresa! We thought of the name Macy because no name could suit her better and we loved that name. So that is how my story ends.

Laura’s story had an introduction, beginning, middle and an ending. I helped her with the “economy of words” in my comments to her on her paper by deleting quite a few and using more “I” at the beginning of some of her sentences. Her story had a point (see Literature Review p. 22, Point-of-view: Lambert, 2002).

Mr. Z returned with both communication arts classes, for 40 minutes each. Students worked on their stories and scanned pictures while I worked with some of them.

**Day 9: Preparing images, scripts, and music**

Mr. Z’s class came to the lab for 40 minutes. Students worked on their scripts, created music in GarageBand, scanned pictures, and a couple began their iMovie. Most of the students sent their documents to me electronically via email, so I sent my suggestions back the same way. My goal was to help them with spelling, economy of words, suggested deletions and rewording some of the sentences. Mona hadn’t changed her story much from her initial draft, but did add a concluding paragraph. Table 8 that follows is a demonstration of this feedback using Mona’s edited story on the left compared to her actual movie narration on the right.
Table 8: Edited draft compared to actual script.

<table>
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Day 10: Preparing images, scripts, and music

On the tenth day of the project, Mrs. A’s class came to the lab for 40 minutes and worked on their scripts, created music in GarageBand, scanned pictures, and a couple students began their iMovie. Some students emailed their changed stories to me while I worked with five students on their scripts. Mr. Z’s class came to the lab for 40 minutes and worked while I continued to work with students.

Mrs. A’s class returned to the lab for 40 minutes. I worked with four students, trying to draw their story out of them. I did this by asking them questions and scribing while we talked, then offering suggestions to enhance the story.

I related that even I have trouble writing my stories. I usually began writing my stories by getting an idea, then finding pictures and then writing all of my thoughts about...
the story that the pictures helped to tell. Then I would rework my words over and over again until the story made the most sense with the least amount of words. In the DS workshops that I have attended, the facilitators helped draw out each person’s story through the story circle experience and with their personal guidance. They were ready to give help and assistance during the writing process and movie-making process. More heads are better than one, and sometimes another person can offer a suggestion that really helps the author tell their story (see Literature Review p. 33, Effective feedback: Carver et al., 1992).

The last story that I created about my nephews did not have enough “I” in the story. I needed help in figuring out who was my audience, whether it was a story to them or about them. I had rewritten it a couple of times and was closer, but one of the facilitators of the workshop sat down and offered the pronouns that I needed and couldn’t figure out myself. That experience helped me to understand that almost everyone needs help finding words and telling their story. This is what I wanted to offer to my students.

I know that these children needed hands-on help with concrete writing discussions and assistance to tell their story, perhaps in part because they did not have the same kind of experiences of facilitation in making their own digital stories. I was unable to recruit the other two teachers to offer help in the same way (Beach & Myers, 2001). Mrs. A shared with me later, that she wanted this to be the students’ work and not hers, and so she hesitated to take too active a role.

Friday after school, I began compiling the emailed stories into one document and put them in alphabetical order. For some students, I went into their server folder to get their story. Two weeks into the project, thirty-five student stories were compiled into one
document. We were missing stories for five students. I put hard copies into Mrs. A and Mr. Z mailboxes at school and attached the stories with the following email.

Hi Mrs. A and Mr. Z, 1/28/06

I have put both classes’ personal stories in your mailboxes for you to review. They are also attached. They are in alphabetical order of Mr. Z’s class and then Mrs. A’s.

I am missing final stories for Hal, Heather S., Candy, Barry, and Troy.

As the children are creating, we need to sit with students and teach them about storytelling by drawing their story out of them and helping them throughout the process.

We need to be hands on. Each student must have feedback and personal contact from two teachers when writing and moviemaking. In some cases, it helps students for us to scribe for them, so that they can talk it through.

I would like the viewing to take place on Wed. morning, February 8. Reflections and interviews to take place February 9 before the long weekend.

Parents are asking when they can see the children’s work and I need time to compile the movies onto a DVD for parent viewing during conferences.

It may be possible to have an alternate date of viewing on Monday, Feb. 13 with reflection on Valentine’s Day, but it is cutting it a bit close for compilation.

Thanks for your collaboration and efforts to complete this project.

I edited student work and offered students feedback like these comments on Bart’s draft:

AvAlOn F.C.

The first year I joined a select soccer team was in 1999. There were 31 kids at try-outs. I was one of the lucky few that made it. I started playing at midfield then I was moved up to forward.

Then the next year I was moved back down to mid-field. How did you feel about that?

Soccer is important to me because my dad and my brother have played soccer so I have wanted to follow in there footsteps. Soccer has made me me because everybody knows that I play soccer for a select team. Soccer makes me feel like I’m at home when I’m not at home. I like to win because I am very competitive. I don’t like to lose because it isn’t very fun.

When your team beats a team that’s better than yours you fell like you’re the best team in the world. Then if you score a goal against that team you I feel like you are I’m the best soccer player. I still play soccer on Avalon and we have moved up from the B division to the A division. We go all around for soccer tournaments. The last time we went to a soccer tournament was in Kansas City. We got second place because we lost in double over time.

What does soccer do for you? What have you learned about yourself?
Bart’s story had come a long way since his first draft. His story conveyed an important part of his life, a legacy that he was fulfilling. In contrast, Jack’s story did not reveal his “home away from home” feelings in his final draft:

My Favorite soccer team was the Midwest Strikers because we have so much teamwork and it’s so much fun. My team is one of the best in indoor, but we still need some work to get to where we are in outdoor. Soccer is a very hard sport to play because it takes a long time to get the skills and fundamentals where your coach wants you to be. My first coach was very easy because he let everything fly by and we never learned how to do anything. My first soccer coach for the metro soccer team was John M. but he was a lawyer and never really had time to coach soccer so we always lost. My second coach was Joe M. and in one day I learned more than I ever had because he played with the pros and he taught me so much. My current coach is Mr. N. and he is the son of a great soccer player and he is also a great coach.

I felt at a bit of a disadvantage helping so many students, especially boys with their sports experience that was such a part of their self-image. I tried to accept them where they were and to inspire them to think a little deeper. The males and females told their stories very differently. For the most part, the boys needed more help in articulating what mattered to them, what sparked their interest or hit an emotional chord in them. It was a challenge for me to relate to their experiences, since I found I could relate more to the girls. As a teacher, I was looking for a good story and the boys were trusting enough for me to help them find their stories through my questions and feedback. It is only natural for these adolescent boys and girls not to think deeply about their life experience, but it seemed easier for the girls to express themselves in words and feelings. In addition, all students needed to feel safe enough to share their stories with each other, and maybe even more so for the boys. John commented, “that you have to make rough drafts and have other people read them multiple times.” Barry learned that “when you’re writing a
personal story you have to talk about your feelings.” Robert discovered “that it is easier
to write about something that you like than something you don’t.” Harry stated. “You
need to think creative and use your mind.”

**Day 11: Helping students with storyboards and troubleshooting**

I helped Jeff, Geri, Hal and Troy during class on Monday, day 12, with their stories. Hal had only written: “My life has changed in many ways in the past few years. One way my life has changed is I am more…” Troy had written about his wrestling trophies, but it was not a story, it was a report of his winnings. Both classes came into the lab at for 35 minutes to figure out the seating because sometimes they were with their homerooms and sometimes they were divided differently in communication arts class. Since students were beginning their work in the iMovie program, we needed to make sure that the computers were available for students either way. While Mrs. A worked on the seating chart, I passed out the edited papers and answered questions. Mr. Z helped un-jam a printer in the hallway, and helped some students with their computer.

The classes split into two group and each group of students returned for 50 minutes. I helped students scan pictures; explained my suggested changes, sat with Troy, Jeff, Geri, and Marshall to discuss their stories. I moved pictures from my email that students or parents had sent onto student’s computers, discussed the timeline with both groups and decided on February 13 as the viewing day. We only had three days that week to work and four days the following week to finish. In addition, a total of eight students were absent in both seventh grades.
I passed out blank storyboards and refreshed their memories about how to fill them in. Students were given five days to complete the storyboards that were due at the end of the week. Mrs. A observed:

Kids can sit at that computer and look like they’re doing something, but not make any progress. I think that the amount of time that went into it, you would have expected the product to be better. You would have expected to have more… I don’t want to say quality to it… but it is a quality to it. A lot of these were just thrown together at the last minute. You know the kids had the last couple of days with somebody saying this is due Wednesday, and that’s when they actually did something, where all along they’d been doing stuff, but it wasn’t stuff that was making any progress. And again it’s the same way in the classroom. If we give them a project that they have two weeks to do, they’re busy for the two weeks, but it seems like most of the work is done in the last couple of days.

Most of the students had made changes and completed their stories. Some students worked in GarageBand while others worked in iMovie or iPhoto. About six students had not brought pictures to school yet. Some students called home and left messages to remind themselves to bring them in. I started offering the school’s camera to take home and Kelly was the first taker (see Literature Review p. 35, Affordances and constraints: Brown & Duguid, 1990; Norman, 1988; Pea, 1993; Polman, 2000).

**Day 12: Working independently**

Tuesday, day 12, I attended a conference and was out of the building. Kelly was not able to use the camera because I hadn’t realized that the memory card was sitting on my desk and not in the camera. After fixing the problem, she took the camera home again the next day.

Mr. Z’s class worked in the lab for 40 minutes on GarageBand, iPhoto, and iMovie. We discovered that James’s pictures were deleted on the computer where he had been working. We were very disappointed because he had taken a camera home and had downloaded some great pictures. I realized that since I had not taught students how to
empty the trash, James’s pictures were probably still in the trash on that computer and I was right. We recovered his pictures and transferred them to his server folder.

**Day 13: Preparation and the flu**

Neither 7th grade came into the lab on day 13. Three students took cameras home. Four students brought pictures in which I scanned or downloaded for them. Two students were writing stories about fifth grade camp, so I got pictures from a camp teacher and saved them for the girls (see Literature Review p. 33, Juggling constraints: Carver et al., 1992).

There were many students who did not feel well. Every day about ten students (25%) were absent in the seventh grade. There was a stomach flu that lasted about two days and a respiratory flu that lasted longer. These illnesses moved through both classrooms over this two-week period of compilation.

**Day 14: Organizing images**

Both 7th grades came into the lab for group instruction on Friday for 40 minutes. I taught both classes how to create a folder in iPhoto using their name and pictures and reference that folder in iMovie. This helped cut down on looking at other photos from other projects. I reviewed instructions about creating special effects in iPhoto and reminded students that we only had three more days to work on their projects, plus their storyboards were due. All but two students had pictures and a completed script.

I told students that they would benefit from recording their script into iMovie as a way to see how long to make their pictures. Pictures needed to be sequenced without Ken Burns or any effects so that their timing could be adjusted which relates to organization
of RQ1. I reviewed how to increase the input volume in system preferences before recording their voices.

Students had not brought their folders containing their pencils, scripts, or storyboards to the lab. After group instructions, they had about 15 minutes to work and spent much of the time printing scripts and going back to their classrooms to get what they needed (see Literature Review p. 32, Project management skills: Carver et al., 1992).

Troy was the one student with nothing completed. I kept seeing him walking around the room watching over other student’s shoulders. He said that he had a wrestling match over the weekend and took a camera home so that his mother could take pictures.

I posted the day’s goals:

- Create folder in iPhoto
- Storyboard due today
- Create a voice track
- Sequence your pictures without effects.

**Day 15: Voiceovers and working with images**

On Monday students worked on their projects for almost three hours. The first group consisted of students that needed some extra time. Students came into the lab without any pencil, script, storyboard or folder. I warned them to come prepared every day that week since it was the last three days of compilation. I assisted students with their voiceovers and picture problems and emailed them this checklist for iMovie completion.

Checklist for iMovie completion
- Go to System Preferences and turn up Input volume EVERYDAY.
- Record NARRATION
- Sequence Pictures WITHOUT EFFECTS
- Adjust timing of pictures
- ADD TITLE ONLY
Hal and his father had burned a CD with pictures, but Hal had saved the image of the CD in his server folder and not the pictures. Luckily the CD was on my desk and I was able to help him transfer his pictures into his server folder and into iPhoto for him to use. He left the lab to work with his resource teacher and finished his script.

Many students needed a refresher on how to crop the pictures in iMovie. I taught about six students how to use the crop and move tool in the iPhoto tab in iMovie and left them to update their photos. Mr. Z and Mrs. A walked around the room and helped students as needed. Mr. Z was in the lab for 35 minutes. Mrs. A was in the for an hour and a half and made sure students were working. She answered questions as needed and then graded papers for about fifteen minutes.

Troy had brought the camera back to school and downloaded three usable pictures: one picture of his medals, one picture of him in a wrestling hold, and the third picture of him just before a match. Since he needed more pictures for his iMovie, I helped him make duplicates of his pictures in iPhoto. I was not sure what he was going to come up with since his story was not a story and he had so few pictures (see Literature Review p. 22, Dramatic question: Lambert, 2002). Troy’s “story” consisted of showing a picture of his wrestling medals and describing how many he had and how many tournaments he had won. Mrs. A commented:
I think a lot of them learned that they tell stories that don’t really have a point. Because that was a lot of the peer comments that they got…Their story was supposed to be about something, but really all they were doing was describing something. They had a very difficult time getting away from that.

Even though Mr. Z’s class was in the library across the hall from the lab, about six students were sent into the lab to record their voices. The plan was to rotate more students into the lab, but these students stayed the entire time working on their iMovie.

One math class came in for 45 minutes, many of them without any pencil, script, storyboard or folder again. I reminded them to come prepared every day. I was frustrated that many students had to go back to their classrooms to get what they needed.

Mona thinks fast and talks fast, so she was learning to slow down her narration. She described how she put the iMovie together (see Literature Review p. 33, Presentation skills: Carver et al., 1992):

I put them [scanned images] into my iPhoto and then into iMovie. Then I put them in order. I kind of messed up at first and started adding transitions and then I realized that I had to take those back out and I had to delete those. And I did like all of my voiceovers one day really fast like I messed up a lot. I talked really fast. I messed my picture times and everything. Then I added in my title page and my credits and then my transitions.

I’ll probably keep in mind that I’ll have to time stuff slower. Like I can’t talk as fast as I did the first time. Like when I’m talking ‘cause I was going way too fast and I messed up all of the times on my clips. I had to redo it and everything and it got really confusing. [After I re-recorded it] I thought it was a lot better, but like I messed up at one part and then I had to add it in and it kind of sounded like, duh. It sounded weird. The most challenging was definitely putting in the voiceovers like finding the right volume and timing it and everything, ‘cause I’m not exactly good with watches. That was really hard. So I had to have Sally help me. She sat next to me.

The other math class came in at 10:15. Most of the class was on task and working. I helped Tom record his voiceover. It was nothing like his script. He was composing his story to go with his pictures as we went. He had no storyboard. Many students did not get the point of the storyboard. Since Tom had trouble composing his story, he needed his
pictures to help him. This was an example of a student who was not a strong writer and was having trouble getting his thoughts down on paper, but he had a story idea, he had the pictures, and he worked best telling his story as he looked at the pictures.

Quite a few students were scrambling to finish their stories. I assisted some, and students pitched in to help one another with final edits, pictures, and voiceovers. As children came back from being absent, others were falling sick. Some students were going home during the school day due to illness. Jack was sick for two days of the fourth week during compilation (Carver et al., 1992).

**Day 16: Compilation and troubleshooting**

The day before the movies were due, I realized the problem we had been having with the computers and saving the iMovies were because many students had saved their movies to their server folder and not the computer. This caused problems that were fixed by students moving their movie back onto the computers. Students were in the lab for almost three hours in the morning. I worked individually with ten students.

During this time Mrs. A came up to me and told me that a couple of students had told her that they were finished. She wanted to know what they should do next. I asked her if she had looked at their finished product and she said, “No.” I emphasized to her that finished products needed to be viewed by a teacher, because sometimes the creator misses things that need to be corrected. She said that she understood and we parted to work with more students (see Literature Review p. 26, Coaching: Collins et al., 1990).

I felt bad that I did not help the girls as much as the boys. When I would look over at the girls, they always seemed to be working and did not usually ask for my help. It seemed to me that they had grasped the ideas of storytelling more readily than the boys.
except for Joy. Joy’s story was a description of the events of her favorite birthday party at a hotel. It was formulaic: “First we did this, then we did that, then we went to the pool. It was the best birthday party ever.” I was unable to get her to understand how to translate these events into a story after several attempts and suggestions. My only hope was that she would come to understand after seeing all of the finished digital stories.

It was evident which students had not worked with the program during the last project. It seemed that they let their partners do most of the work on the first iMovie. Some students were really independent and seemed to know what to do. Some students who hadn’t contributed as much on the last project did not seem to know what to do or have the initiative to go to the next step on their own. They seemed to just sit there and look at their computer or start to mess around with each other, Troy and Blane in particular. Mark hadn’t brought in pictures again and hadn’t picked up a camera to take home either.

On the other hand, some students had taken the initiative to write a story and create a movie. James was removed from the Myth project because he needed math tutoring. He had written his story, taken pictures, and worked diligently to complete his first movie this time. About ten students had taken a back seat on the Myth project and did a great job on their personal story and movie (see Literature Review p. 29, Motivation: Polman, 2000).

The most challenging part for Jack “was probably putting in all of the transitions. Figuring out the time and how long the words needed to be and trying to fit it in.” Learning how to use the storyboard more effectively would have helped Jack with his timing to match the pictures with his script. I decided that it was important to require the
use of the storyboard for the third project and focused my attention on helping students use it as an organization resource, which relates to RQ1 and RQ2. Jack commented on the contrast between the first and second project:

They’re really different ‘cause the first one we could put movies in there. This one we just had pictures. So it was kind of a little more interesting with movies, but it was just as good with pictures too. I liked this topic more, but I liked working with a partner better. The best part was watching everybody’s [movie] and just seeing what everybody did. I learned a lot about people. It takes a lot of work and for a good one, you have to have everything in it.

**Day 17: Compilation**

At this point I realized that there was no way I was going to be able to sit down with every student to view his or her movie and offer him or her feedback. So on day 17, I viewed movies and left notes on each computer for every student about his or her iMovie. I worked for three hours and still did not get to five student movies. I spent about ten minutes per movie offering suggestions that I wrote for each child on his or her computer (see Literature Review p. 35–36, Constraints: Polman, 2000). I distributed the reflection document electronically for anyone who finished and left instructions about saving their final project.

Kelly was a novice computer user who had caught on very fast. She demonstrated her technological proficiency with this iMovie project and enjoyed sharing her character story about her pet dog. She showed initiative as the only one out of the forty students who incorporated a home video of her pet into her iMovie. She learned, “how to scan pictures and how to edit and take things out of the story that weren’t needed.” She commented that, “writing helps me in class.” Kelly was one of the students who did not make any changes to her story. The main difference between her first draft and her actual movie script was the addition of her closing paragraph.
So having a dog taught me a lot of things like having a pet is a responsibility and that you have to be careful with pets. Even though having a dog has its ups and downs, I’m glad that I’ve got my dog Buddy.

Even though Kelly was absent a couple of days during the fourth week of compilation she still completed a 2-minute 34-second movie that was only lacking music. The use of her storyboard helped her with organization by putting the pictures in order, timing them and matching them with her script. She learned how to “do transitions and how to make the pictures longer.” She collaborated with her friends and asked them to assist her if she needed help (RQ1, RQ2, & RQ3).

Jack ran out of time before adding music to his movie. He commented on the impact of music in his movie (see Literature Review p. 23, Soundtrack: Lambert, 2002):

It’s nice to have some background music. You don’t necessarily need music, but it’s always nice to have in there. I know I didn’t get that done for this one, but it’s nice to have it in there. ‘Cause it can take up the space that doesn’t have words and it still sounds like something is going on in there.

This was an astute observation that the sound track can add to the story even though, and maybe especially when there are no words. Jack would have selected a “rock beat, or downloaded a song like ‘Bohemian Rhapsody’ by Queen.” He expressed that “I probably need help with music because I don’t normally listen to it anymore. I’m kind of busy with homework and soccer and school and all that.”

His 57-second movie contained transitions, effects, title and credits, but he was missing music. He needed to read louder or turn up the microphone volume inside of the computer. Jack wrote in his reflection: “I learned that I can do one of these iMovies on my own and that I did all the work.” He felt that it was a “little easier with a partner because if you’re sick, you have to make all of that work up.”
Even though Mona was absent three days during the third week, she had completed her 1-minute 55-second movie that included: transitions, image effects, sound effects, title, credits, and music. Her story was complete and she demonstrated a good use of sound effects and picture effects. I would have liked more music in her movie because what she did use was very good. She explained why she created music for a specific part:

I wanted to do something upbeat because I had a perfect part to put it in where I was talking about that [camp director’s] crazy picture. I wanted to do something fun ‘cause it was camp.

Mona used supporting evidence in her story and learned more about the writing process because:

This project is very different because I can relate a lot more because it is my life. It also is not as factual my iMovie has more of my opinion. It assists me with my other schoolwork because I can work better with computers and the stuff I learn here I can take home and teach to my parents so they can be informed too. I know also more about writing stories, using storyboards, and the editing process.

Students worked on their movies for an hour. We were still dealing with student absences, so a couple of students did not get to finish, several students did not add music, and Mark still hadn’t brought his pictures in.

**Day 18: Final day of compilation**

Thursday was the end of the trimester, so students were finishing up projects for the grading period. I asked both classes if everything was finished because I was downloading on Friday for viewing on Monday and Tuesday. Mark finally brought four pictures to school and scanned them into his server folder; however, he never came back and put them into his iMovie. Half of Mr. Z’s class came to the lab to finish up and several in Mrs. A’s class came after that.
When I stored the movies on Friday, there were several who had not done the last step of exporting their project as a Quicktime movie, which I did for them. I exported forty iMovies and was surprised to find that Mark had recorded his voiceover but without images. All movies were shown as they were.

We viewed half of the movies on Monday, February 13 and the other half on Tuesday, February 14. It was good that we showed the 40 movies on two different days so it was not too long to sit. Students were respectful and attentive. I noticed that some students put their heads down, slunk down in their chair, or looked embarrassed when it was time to show their movie, but as soon as it started, most of them sat up and watched their finished product. I saw these projects as a building process: when you internalize each aspect you can learn something new and build onto it (see Literature Review p. 32, Reflection: Collins, 1996, and p. 33, Reflection skills: Carver et al., 1992).

Jack’s story about his accomplishments in sports revealed a sense of fulfillment and competence (Kindlon & Thompson, 2000). His soccer team was a family and a “home away from home.” Although he exemplified self-confidence in his technological abilities during classroom observations his reluctance to ask for help from the teachers belied that by not wanting to “appear stupid.” Jack took ownership of his story by acknowledging his power to take or leave suggestions, even though he usually incorporated the suggestions.

Mona’s initial idea was about a place in her life but change it to an adventure story about her experiences at fifth grade camp. Mona was organized, competent, on task and helpful to others. Her communication level was high as demonstrated by her quickness to volunteer to share her story with the story circle and the way that she relied
on her friends to actively interact. Mona enjoyed reminiscing and telling her story. She was self-reliant and self-confident who was able to work independently and offer help whenever she could.

**Geri’s Personal Story:**

**Procrastination and not finding one’s muse**

Geri also created a personal story about fifth grade camp, but it was not as positive an experience as Mona’s. Geri described the assignment during an interview. “We had to think of a personal story that had affected our lives. Even though we’re like only 12 and 13, so we haven’t had life-altering experiences.” Geri really liked the fantasy aspects of story creation for the first project. I was surprised to learn that inspiring her to write a personal story would be challenging.

Geri’s initial ideas were not a story, but a description. She explained her thought process in an interview.

At first I was going to write about something I liked, Anime, but that was really hard ‘cause like everybody who hangs around me knows a little bit, ‘cause it sort of just rubs off and I talk about it all of the time. It’s sort of difficult not to know, but like, it’s just something that’s really complex and if you don’t understand it and you’re not careful, you’ll get totally liked washed away.

It was not clear to me how she planned to change her description of Anime into a story, so I asked questions trying to evoke understanding:

**TKA:** How is that a personal story?
**Geri:** Well because it’s sort of...like without it, I’d be sort of boring. That’s what makes me incredibly spontaneous and really, really, really, really hyper seeming but not hyper.

**TKA:** How does anime make you hyper seeming?
**Geri:** Because like over the years, like now when someone sneaks up on me, instead of just like jumping or something, which is not really interesting. I make a little squeaky noise. Because I’ve accidentally, I guess that rubbed off from an anime that I was watching. And I’ve sort of developed a way to make these little faces that’s really funny. And like without anime I
wouldn’t have learned how to do that or tried to learn how to do that, or figured out how to do that at all. Then I wouldn’t be me. Without anime I’m very boring and just like plain.

Although she may have been able to turn her ideas into a story, I responded to her first draft with these questions to inspire her to think about herself and what her interests could tell us about her:

What do you like? Why? How can you relate to it? What does it teach you? Tell me more about you! Your pictures could demonstrate anime. Don’t explain so much.

After students thought about the pictures that they had to represent their ideas and how to turn their ideas and pictures into a story, four students out of five of my case subjects changed their stories (see Literature Review p. 33, Representation and reflection skills: Carver et al., 1992). Geri was one of them. On day ten, I asked Mrs. A to work with Geri. She told Geri that what she had written wasn’t a story and she needed to rewrite it differently and left her to work on her own. In her post-interview, Geri told me about her thought process and why she chose her new topic.

TKA: How did you pick the story that you decided on?
Geri: Because fifth grade camp was really fun and I met a whole lot of people and I found out that both of my camp counselors knew my brother.

TKA: How did you decide to put your ideas in the script?
Geri: I decided to put in what I had put in the little parenthesis because that’s what I thought. ‘Cause I didn’t catch a catfish ‘cause I don’t like worms and you had to touch it and you had to put it on the hook and it’s gross. I used corn. And Ashley caught a catfish because she wasn’t afraid to touch the worm and Heather was in the same group, but she was on the other side of the little dock thingy so I didn’t see if she caught something. And the fire thing that was pretty good because I didn’t get my marshmallow caught on fire like everybody else.

At fifth grade camp

It was a Monday morning and the whole class was buzzing with excitement. Today was the day we got to go to fifth grade camp! Every one was ready to get going, Ashley, Heather and I were all so excited we were jumping around with everyone else. Finally we climbed aboard the bus and we started off for camp.
Everyone had a seat partner mine was Ashley. It seemed like everyone on the whole entire bus had a camera and was getting snap happy. Ashely and I were at the back of the GIANT travel bus along with Adam C., Mark, Ben, & Barry. Candy and Heather were stuck up in the middle while Ash and I chatted the whole way and made faces at people during stoplights. We reached camp around one o’clock and every one was tired because we all probably stayed up late last night and gotten up early. As we walked up the trail to the empty lot near the dining hall the other school’s people were already there. We were told to line up behind orange cones, I was super worried Danielle, Heather, and I would be separated from each other due to our chat factor, but we all got put in the same cabin side and the same group #10. As all us girls went up the small trail to our lodge the boys had to walk up a huge hill it was so funny. During the week we did all sorts of things like fishing (Danielle caught a catfish), marine biology (more like stream biology XP), archery (my aim was not so good back then… ^_^”) a nature directional thing (so not fun), an obstacle course, (evil!!!) a fire building thingy (cooking with fire yay! XD) and some fun side events that we would do at night (like hikes, scavenger hunts, collecting things. also when we were just hanging out in our cabin things sometimes got a little crazy. Like when we first had to choose bunk beds (top vs. bottom) out camp counselors actually let us pick our own bunks I was lucky I got the best one, the top bunk nearest the door but I was above one of the counselors, Chris, but both our counselors were nice so it didn’t Marker. Some of the coolest things about camp were all the new friends I made, the fact that my counselors both knew my older brother, and the really fun things we got to do. I was really sad when the week was over I missed my new friends but just a couple of weeks ago Jane and Chris (AKA Janey and Chrissy) were at my house (to visit my older brother of course). That was my fifth camp experience.

Geri brought her pictures in the third week, but she only had four pictures to use. Knowing she needed more, I provided 12 pictures from a presentation for parents that showed the camp facilities. Later, Geri and I discussed “the reason that delayed you so much in bringing pictures in?”

I think it was because the week before, a lot of kids had their pictures in advance, and like I had forgotten like forty million times and then like on the day where you said. ‘You have to have these pictures.’ I’m like, ‘Oh, snap.’ Now I was running around. I was like, ‘what album are they in? It’s the green one. Are they under my bed? Is it in my closet?’ But I found it on my bookshelf. And you said I had to have like 10 pictures and I only had like four. ‘Cause like my camera ran out. The rest of the pictures were all blurry.

Because I guess at first I’m like, ‘Oh it’s two weeks from now. Or like a week from now. I’ve still got forever. I remember where they are.’ And then when like it’s the day that I have to have the pictures or I’m not going to finish the
project even though I already didn’t finish it because I was sick. But like I was like scrambling around, running around trying to find the book and I’m like ‘Oh no. This is bad, really bad. I shouldn’t have procrastinated. I should have gotten the book. I should have put it in my bookbag. I should have done something.’ Oh yeah, and I found out Mom had more camp pictures, but they were like hidden in a box in the basement.

Surprisingly, Geri’s favorite part of creating the movie was “picking out all of the pictures and seeing all the different memories.” Her most difficult part was “starting.” Many of the students were sick one, two or three days during the project but were able to complete their movie anyway. Geri’s illness, however, just happened to be three of the four days of the last week at which time she usually would have pulled it all together. The one class period that Geri was present during compilation, Mrs. A sat with her to help her focus, put her pictures in sequence in the timeline of iMovie, and record her voiceover. I asked Geri about her procrastinating philosophy:

TKA: When we finally got down to this you were only here for one day of the three days of compilation. But we had been working on the script for a couple of weeks before that and there were times that I would look at you and see that you were not doing anything. The one day that you were here for a forty-minute period, Mrs. A sat with you and you were able to get all of your pictures in and all your voiceover. If you had not had a teacher sitting there with you, would you have done that yourself in one class period?

Geri: I would have gotten like some of the voiceover in. I probably would have put the song in first because like…when I see the finished product, it sort of sounded weird. And not just because I was hearing my own voice, it just sounded plain because there was no music in the background, everybody else had like background music or like nothing. So…I probably would have put the music in and had half the voice or something.

Even though she spent a few class periods creating a song using GarageBand, it never made it into the movie. She said that when she had prepared the song, “I used an acoustic guitar and some piano because it sounds more campish and it’s not as loud.”
Her final project had a story, title and credits, but was missing music, transitions, and effects. In the end, only one sentence was deleted between the final script and the actual movie script. Geri preferred doing the “myth” project to the personal story.

I think the first iMovie story was better than the second one because like with the first iMovie story we had video and stuff and we had more time and like when my partner was there she was really, really helpful. So with a fantasy story it’s a lot more fun ’cause in a normal story people don’t fly without like a plane and people don’t like shoot lightening out of their fingers.

We teachers felt that this project would have gone faster than it did because, as Geri said: “I already had a story. All I had to do was find the pictures and scan them and, well, that was about it.” Geri chose an adventure story but was not as motivated for this topic. She was the only student who preferred to create a fantasy enhanced story rather than a true story. Geri’s distractibility coupled with her procrastinating nature hindered her ability to complete her movie. Most of the other students who were ill were able to complete their movies except for Geri. Although Geri was technologically knowledgeable, her self-perception of competency got in the way of evaluating her own product and thus inhibited her potential to absorb new knowledge and implement suggestions.

Betty’s Personal Story:

Writing with Emotion and Multiple Aspects of Voice

One focus of the second project was to evoke an emotional quality that had not been expressed in their previous storytelling, which relates to Voice in RQ4 (Culham, 2003; Lambert, 2002). Betty did not know what to do at first when the personal story was assigned. After the project was over, she told me about her thought processes on deciding upon a topic.

It was either between my ski trip, but then April was doing that, so that was out…And of my best friend, Leah, but I didn’t have a lot of pictures of me and
her. So, I did a story about my Grandma and it was about how important she was to me. She smoked and she died and all of the stuff that she’s missed from it since then. It was my big (point), what I was trying to get to everybody was not to smoke because you’ll miss a lot of stuff like you’ll get lung cancer and die.

Students had about ten days after the project was assigned and before we began writing to think about their topic, talk with their parents, and investigate what pictures were available to them. Betty submitted the first draft of her personal story about her Grandmother on Day 2 after writing for 40 minutes in the lab.

I had a grandma that was the best. My mom and dad would go to work everyday, and I would go to her house. She would tech me how to cook. She was the best cook ever. She made the best pasta ever! Every other food she cooded was goog, don’t get me wrong, but her pasta waas they best! My grandma would LOVE to scare people! She would always watch scary mories and then scare people after. One time my dad and his 3 sibblings were watching a scary movie with my grandma and then they noticed she disaperied. They thought nothing of it. They thought that she may have gone to the bathroom or something, but that was not it. They herd a scraching at the door and no one wanted to go get it. Well finally my dad went to go get the door, my drandma was out side at the door with a pantiehoes on her head to make it look like her face is disformed.

I wrote notes on her paper to inspire her to think about the anecdotes that she had chosen to tell about her grandmother and what other memories that she might share.

“What did your dad do? Who told you this story? Your grandma, your dad, or were you there? How did you feel? Tell me more about other memories!”

After a week had transpired, Betty had added another paragraph to her story, made corrections on her spelling and shared it with the class on Day 8 during a story circle. This was their first experience with a story circle and students were encouraged to give feedback to each other in a constructive manner. Molly read Betty’s story because Betty’s voice had not yet recovered from an illness:

My grandma was the best. My mom and dad would go to work every day, and I would go to her house. She would teach me how to cook. She was the best cook
ever. And one of my favorite things she made was pasta. Every other food she cooked was good, don’t get me wrong but her pasta was the best!

My grandma would LOVE to scare people! She would always watch scary movies with my grandma and then scare people after. My dad told me a story of when he was about 7 or 8, he and his 3 siblings and my grandma were watching a movie. Then they noticed she disappeared, they didn’t think anything of it. They thought that she was going to the bathroom or something, but that was not it. They herd a scratching at the door and no one wanted to get the door. Then finally my dad went to go get the door, my grandma was outside at the door with pantyhose on her head to make it look like her face was deformed.

But one day on August 12 1999 she died. She died of cancer, she smoked all the time and well that is how she got the cancer in the first place. She was great I don’t remember much because she died when I was about 7 or 8. But there was 1 memory that I know I will never forget. We used to live with them for a wile because we were looking for a house, well I would go up to the kitchen every morning and sit with her and eat Frosted Flakes. We would look out the big window and watch the leaves “dance” around in a circle out side. She would always tell me they were dancing for me. Even though I don’t remember a lot of memory’s the ones that I do remember I will always remember them. She probable would be alive right now if It she never would have smoked and she would be able to see every one grow up. Because of her death she has missed a lot of things, like me and my family growing up, my 3 cousins have gotten married, and my cousins has 2 little daughters, Kalyn and Julia. We all miss her so much and we will never forget her. Never.

Robert and Sam agreed that it was “real good.” Robert continued, “It was touching. I mean my grandpa died the day I was born so I get the feeling of it.”

Molly commented that it was good because of “the emotion that she put into it.”

Everyone began to reminisce about his or her grandparents, so I asked a question:

TKA:  Did her dying from smoking give you an opinion about whether you are going to smoke or not?
Betty:  Yeah. I’m not going to.
TKA:  Okay. Because of that?
Betty:  Yes. Because she’d still be alive probably right now if it wasn’t for that and she could see everybody growing up.
TKA:  Well I think that’s a really big lesson. You almost said it, but you didn’t completely say it. So if she hadn’t smoked…What I learned most from my grandmother is if she hadn’t smoked she wouldn’t…you have it there, but you may want to change the wording a little bit so that we know that she taught you that.
After the project, Betty reflected about the impact of the story circle on her writing. “The story circle helped me with ideas that I would never have thought of and my grammar and stuff. I liked helping other people too.”

Betty submitted her third draft two days later. The only thing that had changed was an additional paragraph at the end that described how her grandfather was coping with his loss:

My grandpa has always missed her and lived by himself until this year, he married one of his best friends growing up. He is much happier. And even though she is not my grandma, she still is part of the family and we all love her.

I suggested to her that “you might want to put a closing about what your grandmother has taught you about not smoking and sticking around.” Betty’s pictures were powerful and enhanced her story. I asked her to describe how she selected her pictures.

Well I thought of my story mostly. I had to take out the part out with her scaring, like she loved to scare people because I had no pictures of her scaring people. And I thought but like some of the pictures that I did was the ones that mostly brought back memories. Like when I looked at them I was like, “That’s the one. I remember that.” Or this is a good picture of her. It was mostly of my story, what it was mostly about.

She dropped the part about her Grandmother scaring people since she did not have any pictures to support it. She also decided on a stronger ending about her feelings about missing her grandmother and left out the part about her grandfather. Her actual movie script reflected these changes and incorporated wonderful anecdotes (see Literature Review p. 23, Voice: Culham, 2003; Lambert, 2002).

In her 1-minute and 45-second movie she had included: title, credits, transitions, effects, and music even though she was absent February 2 and 3. “I liked my 2nd one the
best because I picked the subject and it was on my grandma and I would put more
emotion into it and I just enjoyed doing it better.”

My Grandma
My grandma was the best. My mom and dad would go to work every day, and I would go to her house. She taught me how to cook. She was the best cook ever. And one of my favorite things she made was pasta. Every other food was good, don’t get me wrong but her pasta was the best!

No matter what she could put a smile on anybody’s face. We all loved her. But one day on August 12 1999 she died. She died of cancer, she smoked all the time and well that’s the reason she got the cancer in the first place. She was great. I don’t remember much because she died when I was about 7 or 8. But there was one memory that I know I will never forget.

We used to live with them for awhile because we were looking for a house, well I would go up to the kitchen every morning and sit down with her and eat Frosted Flakes. We would look out the big window and watch the leaves “dance” around in a circle outside. She would always tell me they were dancing for me. Even though I don’t remember a lot of memory’s the ones that I do remember I will always remember them.

Her family misses her very much and wishes she would have never, ever smoked, then she could have seen her family grow up. She also hasn’t seen my two cousins, Kalyn and Julia or my two cousins’ graduations. She died seven months after Mike was born so she didn’t know him very well. We all miss her very, very much and we will never ever forget her.

This kind of personal story was different than when the students were making up a fantasy story on the first project. Betty really picked an important topic that mattered to her and wove it through her personal story. She had selected a universal theme, a lesson learned from someone very important to her that was no longer with us. Her mother and father cried when they saw the movie. Betty described her own feelings after seeing her work:

When I was putting it all together I was mostly thinking about [how] I need to get this done and everything, but when I watched it on the big screen, I was like ‘Wow, I really miss her.’

Betty told me that she did more work this time, and reflected that she is “better at computers.”
At first I didn’t know what to do really, like when I was working with Geri on the Roman one and also I didn’t really like that subject, like I wasn’t really into gods and goddesses and all that, but she was. So I kind of let her do most of the work. With this one, I…really got into it and I put all my feelings and I did my best.

Being “into” the topic really inspired Betty to want to do her best and learn more about creating an iMovie and tell a story that mattered to her. She went on to describe what she learned and how she learned it.

I learned a lot from this one, a lot more than from the other one. I learned how to work the iMovie by myself. April was sitting right next to me, and she’s really good with computers. I knew some of the stuff, but like the music, I needed help all the way with that. I was like, “What do you do?” And she showed me like step-by-step of everything.

It was good that Betty had someone to help her fill in her learning gaps. This type of peer helping also reinforces the learning for the “teaching” student and allows for collaboration even when students are working independently. Betty went on to describe getting help in other areas, but still felt that she had internalized the knowledge.

And I asked her like questions [about pictures], and she’d show me and I’d remember them for the next pictures that I’d do. And this time I had to do it myself and I also figured it out myself sometimes because April would be working on hers and you’d be working with someone else, so I kind of had to do it myself and see, but I’d save it before, just in case.

Betty knew that the best way to add new knowledge was to save her project the way she liked it before exploring. She also felt “that you have to be able to be ready to learn. iMovies are hard if you don’t pay attention. I learned to edit the work good or else the story will be bad.” It was challenging but worthwhile for her to create the music and learn so many different things while transforming her story into a multimedia movie.

I know more about computers and the whole writing process like helped me. I think it’s fun just all of it, like putting it together and knowing that you made it and that you can be proud of it. And I like making the music. That was fun ‘cause I like music and stuff. Putting it all together was cool and then like having it in your story, in your movie, it made the movie even better. I liked that.
Betty’s story was a character story (p. 111) about the meaningful relationship she had with her grandmother. It was also a memorial story through which she learned a lesson about life and not smoking (Lambert, 2002). Betty began this project with a perception that she was not a “computer person.” She had deferred to her partner on the first project, but had found her motivation in her personal story. Being able to express her feelings about her grandmother was her inspiration. The technology became a means to honor that memory and share her story. Betty positioned herself next to her friends and asked them for help when she needed it. Betty had a great sense of accomplishment with her storytelling abilities and technological gains and wanted to do it again (Goodman, 2003).

Summary

Student reflections revealed that all but two students said that they learned more about computers and the technologies for making iMovies. Blane learned that, “it’s not as easy as it looks. It’s actually a lot harder than I thought, although it was really fun and educating.” Students mentioned that they learned about the process of creating a story and a movie, including writing, order, organization using the storyboard, editing, editing other people’s work and how important it is to listen to directions.

Collaboration took place because even though students worked independently, Mona “helped three or four people this time.” Mona wanted to have a partner on the final project because “sometimes I don’t get stuff done and my partner will help me. And if I don’t know how to add something in they will help me.”

Students specifically mentioned learning about images, music, and iMovies. They learned to scan, enhance, remove red-eye, crop, make their own folders, import, and export photos and access images in iMovie. Darien did not know that “you could scan
pictures and they show up that clear on the computer.” Students learned how to export
music, access it in iMovie, and adjust the volume, sequence pictures and make them
longer and shorter by changing the timing, add a title, transitions, voiceovers and credits.
Marsha thought that it was easier to do voiceovers when you have someone helping you
and that it was important to make sure that the volume fits your voice. Marshall learned
to control where and when the voices end.

Jack, Mark, Richard, Amber, and Elizabeth learned that they could do one of these
iMovies “on their own [so they] learned more and did more.” Terry, Jack, Darien stated
that they “got to do what I wanted and make all of the decisions.” Candy, Reed, April,
Barry, Jeff, and Mona “could relate personally to this project,” which made it “more fun.”
Sally said that this project “was easier because I wasn’t always explaining everything to a
partner, I could just do it with out any irruptions.” In contrast, Molly “didn’t like working
alone [because] working with a partner you can get a lot more done.”

In the end, 58% of the girls and 29% of the boys completed storyboards for this
project. This informed us that we needed to spend more time teaching the importance of
how and why to create and use a storyboard for the third project. It confirmed my
observation that the girls understood the benefit of organizing their images and words in
that way.

During this writing process, students were to bring in their photographs from
home and scan them. Approximately 20% of the students scanned their pictures within
the first week, 48% the second week, 25% the third week, 5% the week of compilation
and one student brought his pictures after the project was due.
32% of the girls and 38% of the boys did not use music in their movie. When I inquired why they did not use music this time, many students said that they ran out of time. Since the students were working independently, they were responsible for the entire movie. Some of these students said that they were sick, some did not have experience with creating music since they had deferred to someone else who was more “into it”, others told me that they did not feel that music creation was their strength, and in some cases, it just did not interest them as much as other aspects of movie creation.

Overall, 40% of the stories were character stories. Half of those were about pets and half were about family and friends. Adventure stories comprised 25% of the movie topics about vacations or travel. Twenty percent were accomplishment stories about sports, all but one written by the boys. Two stories or 5% were written in each of these three categories: memorials, a place in their life, and life lessons learned. Some stories fell into more than one category as seen in Figure 6. For instance, an accomplishment story about sports was also about a meaningful relationship with a mentor, or a meaningful relationship story was also a memorial with a life lesson learned. Figure 6 also shows the comparison of story topics of the boys and girls. Fifty-percent of the boys wrote about family, 33% wrote about sports accomplishments, 10% wrote about pets, and the remainder wrote about life lessons. Over 50% of the girls wrote about relationships and adventures, including trips with family and friends, but in contrast, 30% wrote about pets.

Figure 6: Personal story topics.
CHAPTER VI: DIGITAL PERSUASIVE STORIES ON ENVIRONMENTAL ISSUES

The third project was based on environmental issues, which is part of the seventh grade Science curriculum that Mrs. A teaches to both classes. Since this was Mrs. A’s selected topic, Mr. Z was not involved with this project. Because the lab was occupied every afternoon during their regular time for science, Mrs. A brought her math class configuration to the lab in the morning almost daily for 16 days. For this reason I refer to each class as Math7 and Pre-algebra. In addition, Mrs. A added the component of persuasive writing to reinforce that skill. Mrs. A’s goals were:

[Science] content, persuasive writing, and to make students more aware of their effect on the environment because typically we score really, really, really poorly in that section [on the state test]. Our kids know that pollution is bad. They know that we should recycle. They know all of those things, but they don’t really have the full impact of it. So for me to get that impact in a relatively short period of time, with exposure to a whole lot of topics, is very, very valuable.

Day 1: Introduction, topic selection and group selection

Mrs. A introduced environmental issues to both of her classes on February 21, 2006 during a 40-minute class period. She told a story using a made-up situation about a day in the life of a teenager. The scenario illustrated ways that we use and misuse resources in a typical day. For instance: taking a long shower, water wasted in the bathroom by letting the water run, using chemical substances like hair products, warming the car, grabbing coffee from the store in a Styrofoam cup, wasted paper from a pop quiz, Styrofoam plates at lunch, wasted food at lunch, and the trash generated at that lunch. During the guided discussion that followed, they talked about environmental issues, food chains as a concept review, and speculated about what might happen if you interrupt the food chain. By telling a story about one person’s typical day in this way, Mrs. A got them
to think about our environmental impact and students came up with twelve topics as possibilities on which to focus.

Mrs. A emailed me the list of topics: rainforest, air pollution, oil/gas waste, water waste, animal testing, Styrofoam, recycling, extinction, littering, deforestation, chemical pollution and oil spills. Both classes came into the lab that morning, Math7 from 9 to 9:30 a.m. and Pre-algebra from 9:40 to 10:20 a.m. Although four students wanted to work alone, the other students chose groups of two, three or four on their own and researched environmental ideas to create a story as shown in Table 9 (see Literature Review p. 32, Research skills: Carver et al., 1992). Their environmental topic had to affect humans.

Table 9: Student groups and their environmental research topic.

<table>
<thead>
<tr>
<th>Class</th>
<th>Student Groups</th>
<th>Environmental Issue Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-algebra</td>
<td>Barry, Terry, Robert, and Bart</td>
<td>Effects of second hand smoke</td>
</tr>
<tr>
<td>Pre-algebra</td>
<td>Jeff, Darien, and John</td>
<td>Indoor air pollution</td>
</tr>
<tr>
<td>Pre-algebra</td>
<td>Tom, Saul, and Scott</td>
<td>Rainforest destruction</td>
</tr>
<tr>
<td>Pre-algebra</td>
<td>Sally, Molly, and Mona</td>
<td>Paper recycling</td>
</tr>
<tr>
<td>Pre-algebra</td>
<td>Heather and Candy</td>
<td>Global warming</td>
</tr>
<tr>
<td>Pre-algebra</td>
<td>Reed</td>
<td>Deforestation</td>
</tr>
<tr>
<td>Pre-algebra</td>
<td>Mark</td>
<td>Water waste</td>
</tr>
<tr>
<td>Pre-algebra</td>
<td>Deron</td>
<td>Power plant pollution</td>
</tr>
<tr>
<td>Math7</td>
<td>Geri and Hal</td>
<td>Global warming</td>
</tr>
<tr>
<td>Math7</td>
<td>April, Betty, Kelly, and Leah</td>
<td>Styrofoam pollution</td>
</tr>
<tr>
<td>Math7</td>
<td>Sharon, Joy, and Nelly</td>
<td>Animal Testing</td>
</tr>
<tr>
<td>Math7</td>
<td>Amber, Elizabeth, Laura, and Leslie</td>
<td>Chemical pollution</td>
</tr>
<tr>
<td>Math7</td>
<td>Marsha and Jamie</td>
<td>Pet over-population</td>
</tr>
<tr>
<td>Math7</td>
<td>Sonny, Saul, &amp; Jack</td>
<td>Air pollution</td>
</tr>
<tr>
<td>Math7</td>
<td>Troy and James</td>
<td>Waste and landfills</td>
</tr>
<tr>
<td>Math7</td>
<td>Marshall</td>
<td>Military waste</td>
</tr>
</tbody>
</table>

Mrs. A felt that this third project really “brought together the technology part for them. They could guide their own way more so” (see Literature Review p. 32, Project management skills: Carver et al., 1992).
Day 2: Research

Mrs. A’s Pre-algebra class came into the lab from 9:40-10:20 a.m. Students continued to research their topics. I sat with Sally, Mona, and Molly to help them figure out how to calculate how much paper their class recycled. We discussed whether to count the papers in their recycling bin in their classroom daily or at the end of the week. Since this project had a deadline and the recycling bin was only emptied once a week, the students decided to count how many papers were in their classroom recycling bin on Friday and divide the amount of paper by the number of days in the week and the number of students in their classroom. I took their picture as they counted the papers and helped them to download the pictures into iPhoto on their computer. In the end, the students found that this did not work well and gathered data about the amount of paper recycled monthly from the company who collects the school’s recycle bin.

After asking if they had any other pictures, Sally, Mona and Molly told me that they were dragging pictures off of the Internet research sites into a word processing document. I explained that they needed to be in JPEG format and dragged into iPhoto to be used. After playing with it for a few minutes, we discovered that they needed to drag the original from the site onto the desktop, open it up and save it as a JPEG onto the desktop before dragging it into iPhoto. In addition, they needed to keep track of the website addresses of the pictures that they used so they could reference them properly.

Leah, Kelly, Betty, and April comprised a group who are representative of the knowledge building for being persuasive and using voice. They researched factual content about Styrofoam pollution, which relates to RQ2: How does writing a story and constructing the video influence students’ learning? In the process of creating this digital
story, students developed their voice, which included the point of the story, and oral presentation skills. Betty noted that involving emotion about this particular topic was difficult for her compared to her personal story. Betty described what they were doing on day two:

We’re doing Styrofoam... We are getting information about Styrofoam like the trays that we use at our lunch cafeteria and why they are bad for the environment. Right now we broke up our work by like everybody [is] searching the web and getting as much information as they can and then putting it in Microsoft Word and then whenever we’re done we’re going to put it all together into a story to make an iMovie.

In order to do an Internet search, they had to know how to spell:
April: How do you spell environment?
Betty: I don’t know. en
April: Like that?
Betty: You’re right. Okay. So there’s nothing back over here so I’m going to go to Google.

It was surprising to me that they did not seem to be finding substantial research since there were four people searching the web on four computers. Maybe their search criterion was not specific enough or maybe the words were misspelled. In any case, Kelly and Leah looked like they were reading information on their computers because of the intense looks on their faces. April and Betty were much more chatty.

April: Why don’t you just type it in up there?
Betty: Because I want to go right here. I’m going to DogPile.
April: I’ve never been there.
Betty: Neither have I. I’ll try it.

All of the girls continued to work independently on their own computer. Leah and Kelly talked about what they were finding while Betty found a link to “see the house made out of Styrofoam.” April and Betty’s conversation went from boys to bowling in gym, or whether they liked someone’s haircut, and how hungry they were. They even joked about what they would like the next project to be, while Leah and Kelly worked
quietly. Betty said to April: “Why can’t we do an iMovie on our favorite rapper?” April replied: “Like Nelly?” They both started singing.

April: That’s cute.
Betty: I know he’s cute.
Leah: What’s for lunch today?
Betty: I don’t know.
Betty to Kelly: Do you know what’s for lunch?
April: I mean seriously, do you ever even put your food on the plate?

Thinking about the Styrofoam plates in the cafeteria made them think about lunch, which then brought them back to their use of the Styrofoam plate that their lunch was served on. Mrs. A reminded the class to save their websites so everyone in the group could have access to them if students moved to different computers or if anyone was absent. She explained: “So make sure you save that website across the top where you put the notes. Also, you’ll have to reference in your bibliography in your credits.”

After the project was over, Betty explained how they worked as a team. “It was all of us that put it together [but] for the first part we did just sit around and let Leah and Kelly work.”

**Day 3: Research, downloading images, and copyright**

I gave a short demonstration to the entire class about saving pictures from the Internet and explained copyright briefly. Most of the students had indicated at the end of the personal story project that they did not understand copyright and “Fair Use Guidelines.” Heather wanted to use several images and graphs from the Wikipedia site, so we sent an email to ask for permission to use the images. I sent it through my email to protect her identity, but she provided the email address from their website and stood by me as I composed the email request. Within 15 minutes we received a reply from a
Wikipedia volunteer, explaining that generally Wikipedia content was usable free of charge, but some images had links explaining their copyright limitations.

I forwarded this email to all of the students in the seventh grade so that they could see what an inquiry of this type would provide. We decided that the “Fair Use Guidelines” would apply for educational use purposes and continued to enforce proper citation of images and text obtained from any Internet sources.

Day 4: Accessing and Downloading Video

On Friday morning I spoke with Mrs. A before school began and suggested that we download video clips from UnitedStreaming™ so the students could incorporate the information and video into their movies. The UnitedStreaming™ service provides educational video, text, still images and audio materials to members of the educational industry through streaming and downloadable technology delivered via the Internet or a secured Intranet site at www.unitedstreaming.com. The school district obtained a license on behalf of the users in the community to access and use the product for educational or research purposes during the school year (Discovery Education, 2005). Students could edit the video clips to no more than 30 seconds to meet Fair Use Guidelines. I sent all students two emails. The first contained websites for their reference.

Project Three   Environmental Topic Web Resources
http://www.epa.gov/students/
Group topics
Air
Conservation
Human Health
In your neighborhood
Waste & Recycle
Water
Earth Day is only two months away!
What about one group from each class doing an overview explanation on Environmental topics
http://www.ecokidsonline.com/pub/index.cfm
This is great for answering questions too.
http://www.howstuffworks.com/

The second email contained ideas about how to divide up the work within the group since some students seemed to be sitting around while other students worked.

Group members divide up and research aspects of the problem.
1. Worldbook search on Environmental Pollution then particular topic
2. UnitedStreaming™ videos I will help you access and download
3. Web research http://www.kidsclick.org
   Under Science & Math click on The Environment
Second Hand Smoke
Anti
http://www.epa.gov/iaq/schools/tfs/guidef.html
http://smoke-free.eire.org/secondhand.htm
http://www.oma.org/phealth/2ndsmoke.htm
Pro
http://www.smokingaloud.com/ets.html
http://www.davehitt.com/facts/
http://www.forces.org/evidence/evid/second.htm

The Pre-algebra class came into the lab for 40 minutes in the morning. I helped each group log onto UnitedStreaming™ and showed them how to search for and download video clips and cite the source. I modeled downloading Quicktime video clips for both classes (Collins et al., 1990; Conway, 1997).

I only saw Math7 students once the first week. I was told that they were researching in their classroom using the laptops on Thursday and Friday for 40 minutes each day. Since I was unavailable to help them, I was not aware of their progress.

Day 5: Persuasive Writing Review, Class Discussion, and Organizing Information

On Monday, I downloaded a Persuasive Writing PowerPoint (Purdue, 2000) from the web to Mrs. A’s computer. She had developed a persuasive writing handout to help the students organize their information (see Appendix F). Mrs. A used the PowerPoint in
a ten-minute review and discussion about Persuasive Writing for students in both classes (see Literature Review p. 30, Brainstorming techniques: Beach & Myers, 2001). We then passed out the outline and downloaded it to their computers so they had the choice of filling in the paper by hand or word processing. The remaining 30 minutes of both class periods were spent brainstorming and discussing student examples to help them complete their outline. Each group presented their topic and their main ideas were discussed. Most groups needed to research supporting evidence to their main ideas. Only one or two of the sixteen groups took notes on the outline provided during the discussion with Mrs. A.

Students were given a 500-word limit on their script, but Mrs. A explained that they must first write each main topic with details in paragraph form in their own words using the outline provided. Everyone indicated that they understood. After their outline was complete, they used it to write their script, fill in the storyboard and then started on their iMovie (see Literature Review p. 33, Organization skills: Carver et al., 1992).

**Day 6: Researching and organizing information**

Tuesday, Math7 came into the lab from 9:30 to 10:20 a.m. Mrs. A directed students to fill in the information using their research and our class discussion from the day before. As students took notes from their web research, she emphasized that the text of their essays needed to be in their own words not copied and pasted from the Internet. Mrs. A sat with Geri since her partner was absent and worked with her during the class period. I helped two groups briefly. Mrs. A reported to me that Geri spent half of her time on websites that had nothing to do with her topic.

I moved over to Joy and Sharon and helped them for the remainder of the class time. Joy told me that she did not know what to do. Sharon was not sure either but neither
would ask for help. I showed both of them the outline and delegated that Sharon could fill in one main point and Joy could fill in another from their research. Sharon had the research opened on her computer, but Joy said that she did not have it. The girls were sitting right next to each other, but Joy would not ask a direct question of Sharon, so I directed them to select points to write about. I think that Joy would have sat there watching Sharon work for the entire class period if I hadn’t made sure she knew what to do. James and Troy were both working on separate computers, but neither of them had written anything down on the outline by the end of the class period. Overall, the Math7 students seemed to lack focus and the ability to delegate. They also had difficulty asking for help, which I felt was because asking for help would mean that they would then be expected to work rather than just look busy and get by without doing the required work.

**Day 7: Organizing Research**

Mrs. A got the Pre-algebra group started for their 45-minute lab time, with a reminder to incorporate the previous day’s discussion of their main ideas into their research outline. When completed they were to email it to me, print it for Mrs. A, and begin to write their essay. Many of the students needed an electronic outline, so I emailed the document to those students.

I assisted two groups, then wrote a hall pass for Betty and April to go to the cafeteria to ask the cook about the number of Styrofoam plates used each day. For the remainder of the time, I helped Tom locate and download pictures on deforestation. Mrs. A worked with three groups, including Leah and Kelly.

Seven students had not completed a book project for their reading class and stayed in the classroom while the rest of the students came into the lab from 11:40 –
12:30 to work on their outline. By the end of the class period I had received five outlines out of sixteen projects. I was not at school on March 1, but the students used the lab. I received five more outlines via email while I was gone.

Betty, Kelly, Leah, and April’s group turned in their outline and their script by the end of the second week. Kelly described how they put their ideas into the script: “Well we kind of just asked each other what we wanted and then we figured it out along the way.” Their outline contained a great deal of information that Kelly and Leah had found on the Internet. They put their names next to the section of the research they were responsible for.

Persuasive Outline
Styrofoam

I Introduction
   A. Catchy statement
   B. Thesis statement
   C. Conclusive statement

II Body
1. Marine animals/dolphins and whales (Leah)
   Detail- Since Styrofoam is so buoyant; it is easily carried to different areas by wind and water. Styrofoam causes the same problems that plastics do to the marine environment. Styrofoam cups and food containers can easily be broken up into little pieces and then carried into the ocean. Marine animals cannot distinguish the difference between a piece of Styrofoam and floating plankton or fish eggs, so they eat up the scraps. This can cause digestive tract diseases and intestinal blockages.

   Detail-. Angular pieces of floating Styrofoam can cause serious injuries to animals that gulp down their prey, such as dolphins or whales. Blockages and stomach ulcers result from ingesting this careless waste.

   o Example- Surveys conducted by the Department of Fisheries and Oceans estimate between 100,000 and 500,000 pieces of marine debris float in BC's coastal waters. 77% of that debris is Styrofoam. That is over 400,000.
   o Proof/Evidence

2. Health problems (Kelly)
   Styrofoam has also been known to cause health problems for people. Polystyrene contains a neurotoxin, which can cause fatigue and also chromosomal disorders. It has only been recently discovered that polystyrene can sometimes stick to the
food you eat. In 1991, a group reported that volatile styrene monomers were detected in eggshells stored in polystyrene containers at supermarkets. Egg dishes cooked with these contaminated eggs contained seven times more ethylbenzene and styrene than those prepared from fresh farm eggs that had not been packaged in Styrofoam. Researchers suspect that the volatile compounds can migrate through the porous shells into the whites and yolk of the egg.

Detail years ago people found out that polystyrene caused cancer. Many different types of food can break down the polystyrene; so then you would eat it and get sick with cancer or something very similar to that. Such foods are: food containing vitamin A or vitamin D, dairy products, or heated foods. This is basically all types of food. Since many school children have been eating off of Styrofoam plates from first grade to the present, then cancer is very threatening!

Example this year about 552,200 Americans are expected to die of cancer- more than 1,500 people a day. Cancer is the second most popular death and about 1 in 4 death is from cancer.

3. Landfills Kelly
Detail Styrofoam is also bad for the environment mainly because it is basically non-biodegradable. A Styrofoam cup has a life span of about 400 years, and in the United States, we use so much of it. I read that we use enough Styrofoam cups in one year to encircle the Earth 436 times. Just imagine how much space they can take up in landfills... especially if they’re going to be there for 400 years!

   a. Detail
   b. Example
   c. Proof / Evidence

III Conclusion
A. Restate thesis
B. Summarize main points
Reemphasize main idea in third person

Day 8: Writing Scripts and Downloading Images

The next day the Pre-algebra group worked in the lab for 40 minutes on their scripts and gathered pictures. One student began working on his storyboard. I answered questions for several students and then asked each group if they knew how to download pictures from the web and demonstrated for them if they needed help. Mrs. A worked with Betty and April. Kelly needed help doing a search for the percentage of Styrofoam in landfills and I emailed her some links and printed out some articles. By this time, I had
received everyone’s outline except for Marshall, Reed, and Geri and Hal, all of whom were in the Math7 class.

I asked Kelly and Betty in their post-interviews if they thought that their group was too big or the work was unfairly distributed. Both girls enjoyed working with their friends:

Kelly: I liked it with four [group members] because you had less work and you could focus on one main thing and the other people could focus on one thing. It was hard because all of my partners were in [Mrs. A’s] class so whenever we weren’t in pre-algebra it was kind of hard to meet up with them.

Betty: It was fun because they’re all like my best friends. We got more research since we all did research and then April wrote [the script] because she is good at that. In the second part, [Kelly and Leah] were just looking up different pictures of marine animals and me and April were the ones that were focused on the iMovie. It was kind of weird cause me and April [messed around at] first and then them.

Even though April wrote the script with Leah and Kelly’s research information, Betty explained how their group members helped decide what would be included in the script:

We picked out the main topics. We searched for Styrofoam and then we found the polystyrene and we started researching more on that and then we learned about the marine animals and stuff. We copy and pasted our research and then sent it to April. And then the one day we all decided which ones were the best to go into the script, the ones that would actually get your attention and the one’s that actually meant something and then we put them into the script.

This group’s collaborative style worked well for them. Even though all of them were not involved to the same degree at all times, they all had input and allowed each other to wax and wane in their participation without name calling, coercion, or frustration. This acceptance fostered collaboration and critical friendship through supportive feedback and input (Gordon, 1999).
Styrofoam Pollution Script

Styrofoam is harmful to both the environment and the marine animals. Since Styrofoam is so buoyant it is easily carried to different areas by wind and water. Therefore making it dangerous for the marine animals. Styrofoam causes the same problems that plastics do to the marine environment. Styrofoam cup and trays can easily be carried into the ocean and other waters. Marine animals cannot distinguish the difference between a piece of Styrofoam and floating plankton or fish eggs. So they eat the Styrofoam. This can cause digestive tract diseases and intestinal blockages. Angular pieces of floating Styrofoam can cause serious injuries to animals that gulp down their prey, such as dolphins or whales. Blockages and stomach ulcers result from ingesting this careless waste.

Surveys conducted by the Department of Fisheries and Oceans estimate between 100,000 and 500,000 pieces of marine debris float in BC's coastal waters. 77% of that debris is Styrofoam. That is over 400,000. Styrofoam has other harms too. Styrofoam has also been known to cause health problems in humans as well. Polystyrene contains a neurotoxin, which can cause fatigue and also chromosomal disorders. It has only been recently discovered that polystyrene can sometimes stick to the food you eat. In 1991, a group reported that volatile styrene monomers were detected in eggshells stored in polystyrene containers at supermarkets. Egg dishes cooked with these contaminated eggs contained seven times more ethyl benzene and styrene than those prepared from fresh farm eggs that had not been packaged in Styrofoam. Researchers suspect that the volatile compounds can migrate through the porous shells into the whites and yolk of the egg. Years ago people found out that polystyrene caused cancer. Many different types of food can break down the polystyrene; so then you would eat it and get sick with cancer or something very similar to that. Such foods are: food containing vitamin A or vitamin D, dairy products, or heated foods. This is basically all types of food. Since many school children have been eating off of Styrofoam plates from first grade to the present, then cancer is very threatening! This year about 552,200 Americans are expected to die of cancer, which is more then 1,500 people a day. Cancer is the 2nd most popular death and about 1 in 4 deaths is caused from cancer. Styrofoam also is bad for the environment because it is non-biodegradable. (Which means that it really cannot dissolve.) A Styrofoam cup can last around the time of 400 years, and think of how many schools and families use Styrofoam cups. In the United States we use the most Styrofoam than any other country! While recycling and reuse to grow in popularity, mostly the entire waist goes to landfills. Mostly everyone assumes that the trash that they through away designates. The truth is that Styrofoam takes 400 years to designate.

Day 9: Citing Resources while Downloading Images and Video

On Friday, Math7 worked in the lab for 35 minutes in the morning. I spent the class period with Jack, Sonny, and Saul teaching them how to download pictures and
video from the web and save references. Even with showing Sonny how to copy and paste Internet web addresses for references by sitting with him and walking him through it, when left alone, he continued to download about eight more images and forgot to copy and paste the references into the Word document open on the desktop.

The Pre-algebra class came into the lab for 40 minutes that morning. I showed all of the groups how to download video and pictures and cite the Internet source. Since the script was due that day, I suggested that the group members split up, one student write the script, one group member download video with resources, while another group member search and download images with resources. Mrs. A walked around and made sure students were on task. I found that most students were not saving the video reference, so I re-taught the class. Some students had to find the references again to cite the source.

**Day 10: Story Circle**

Mrs. A and I conducted a story circle with both groups on Monday, day ten. The Pre-algebra group was in the lab from 9:30 a.m. to 10:15 a.m. and the Math7 group followed from 10:20 a.m. to 11:05 a.m. We directed each class to gather in one large circle while one student from each group read their script. The students were encouraged to listen actively and begin their feedback with, “If it were my story I would…” The Math7 class was relatively quiet so Mrs. A and I made comments and encouraged students to give each other feedback. Students gave more input by the end of the period.

April read their script to the story circle, which revealed several issues. Kelly, Betty, and Leah were quiet and did not offer any input for the three minutes their story was discussed (see Literature Review p. 33, Representation and presentation skills: Carver et al., 1992).
Heather: When you burn it?
April: It sends off like a gas, the toxins it has in it.
Heather: Oh, okay.
Lee: I really didn’t get all of the [language].
Mrs. A: Too many big words?
Scott: Yeah.
Mrs. A: If this is your audience, do you really need some of those big words?

Mrs. A’s comment refers to RQ3, the perspective, the audience, and who is telling the story. The story circle continued:

Heather: What were your three points?
April: Ah. Marine animals, cancer and landfills.
TKA: I would like to hear a point at the end, like I made a note on your paper.

April read my comment written on her paper: “at the very least, don’t microwave your food in Styrofoam containers.” Mrs. A was aware that the students did not understand what we were talking about by the looks on their faces, so she explained:

Mrs. A: You know those white Styrofoam containers if you put your food in the microwave and heat it in there, you’re basically putting that cancer causing ingredient into the food that you’re about to eat.
TKA: You know…how they melt?

Mrs. A: When you have a take-out, when you have left-over food, when you say I’ll take this to go…transfer it from that Styrofoam container onto a plate before you put it in the microwave.
TKA: Don’t ever put Styrofoam in the microwave.

Everybody started to talk about all of the things that come in Styrofoam and how much they use it and took it for granted. It was obvious that April needed practice reading the script aloud and needed to replace some of the words with more understandable verbiage. April needed to consider, and write for, her audience, children her own age. If she did not understand or couldn’t pronounce words, then her peers would have difficulty understanding her point. This project was different from the others, in that they were integrating other people’s words about a content area they were just learning, rather than simply generating their own language to relate a story they were making up or relating. It
was the first time most of the students read their stories aloud, so many of them read either too fast, too softly, or stumbled over the words. The Pre-algebra group was more talkative and offered useful comments for the most part.

The ability to hear each other’s stories sparked discussions and debates. By reading aloud, students were able to practice reading and witness each other making mistakes and stumbling over their words in front of the group. Teachers were able to guide the interaction and teach about appropriate feedback (Gordon, 1999).

**Day 11: Referencing, downloaded images and video**

On day 11 of 16, students who needed to download videos and pictures came into the lab for 35 minutes at 8:15 a.m. Later that morning Math7 students continued to search and download pictures during their 40-minute class period. Three of the Math7 groups had downloaded many pictures without websites, so the pictures were unusable. I sat with them and talked them through the process. Five groups needed to download movies, so I showed them how to download to the desktop and reference properly. Several other groups were redoing searches because they did not save the references. I suggested that one person in four different groups create music in GarageBand if they had nothing else to do. For this last project, I realized that students could print all of their pictures on a contact sheet from iPhoto to be cut and pasted onto their storyboard. So Mrs. A and I helped students move JPEGs into iPhoto, create a new folder, and print a contact sheet to complete their storyboard.

I also helped students search for pictures and videos and demonstrated how to download properly while listing references and websites in a Word document. Geri and
Hal had not turned in their outline or script and stayed in the lab an extra 40 minutes to finish. They emailed their outline, but did not finish the script.

At 10:20 a.m. the Pre-algebra class continued to search and download pictures. Two groups had downloaded some pictures without websites, so they were unusable. Bart’s computer would not download a video properly in Explorer, so I tried Safari, a different web browser, after class and had no problem downloading the video clip for him. The students were given the same assistance as the earlier class. Mrs. A worked with groups by answering their questions and made sure they were spending their time wisely. Candy was making a song in GarageBand, but when Mrs. A asked her if she had all of their pictures, she said. “No.” So, Mrs. A told her to work at getting more photos.

Betty described how they delegated finding or taking pictures: “We thought to ourselves what kind of pictures that we wanted and we broke it up between the people and then we took pictures in the cafeteria and stuff.” Mrs. A went to the cafeteria to check on them as I continued to work with students who were having trouble finding video and/or images on the web (see Literature Review p. 32, Research skills: Carver et al., 1992). Kelly’s favorite thing about the project was “getting the pictures,” but it was also one of the most challenging for her because “it was kind of hard finding the pictures you wanted off of the Internet.”

**Day 12: Storyboarding**

The seventh grade went on a field trip March 8 so they were out of the building all day. The next day, just before our 9:30 a.m. class, the fire alarm went off due to a faulty wire and everyone went outside in the pouring rain. We all got soaked. After the all clear, both seventh grades came into the computer lab to work on their script, images,
and storyboards. Some students looked up pictures, some students sat on the floor and cut out pictures from their contact sheet to paste onto their storyboard, other students worked on their script, while other groups practiced reading and timing their scripts.

No one’s storyboard was complete. The main problem was the lack of ability to know what the voiceover would be. Three groups thought they had completed their storyboards so I explained how to proceed with the next step. They were to read their script out loud, time each part of the script that went with each picture on the storyboard and write down the amount of time it took them to read the part of the script that went with that picture. With this planning they were better prepared to sequence their photos in iMovie for the appropriate amount of time. This directly impacted their organization with regards to RQ1 and increased their understanding of timing and planning. Mona acknowledged how we kept building on their knowledge as they learned more. This related to the notion of learning by creating multiple representations of ideas (Reiser et al., 2001; Suthers & Hundhausen, 2003).

Kelly and Betty commented about creating the storyboard this time (see Figure 7). Kelly agreed that it helped to print the contact sheet. “Everybody kind of [searched for pictures] and then I helped everybody put them in place where they needed to be [on the storyboard], but mostly Betty and April [did it].”

Figure 7: First page of storyboard
Betty: First we figured out what we were doing. Then we made a storyboard, which helped a lot because in my last iMovie I didn’t really do the storyboard. This one we just followed it and it was real easy. And then we put it all together and added the music and everything. The storyboard matched our script.

TKA: It took a couple times to do the movies before you could get the concept of the storyboard.

Betty: Yeah. I thought like the storyboard didn’t really matter, like it was just there for you, but I really thought it was helpful for us to help us.

Mona: Yeah, it was a lot easier [to do the storyboard], ’cause I understood it more. I knew exactly what I had to do so I knew what to look for and I was kind of ahead of what we needed to do.

Their process of researching images and creating the storyboard by organizing the images to tell a story directly relates to RQ1. By this third project, they really understood how and why to organize images with a storyboard and plan the story with their images and text. The storyboard helped them to understand how to convey the story.

**Day 13: Storyboarding and constructing multimedia stories**

For 40 minutes Friday morning on the thirteenth day, Math7 students worked on storyboards, downloaded pictures, took pictures, timed their script, added conclusions to their script, started to sequence their pictures in iMovie, and began to record their voiceover. Pre-algebra students continued to work in the same way during their class time. That afternoon, Mrs. A’s class came to the lab without their storyboards even though Mrs. A asked them to bring what they needed, all but two groups had to go back to their classroom to get their paperwork.

After school Mrs. A stopped by the lab to see how I felt the project was going. I said that I thought that everybody was “on track” and that they would finish next week. We agreed that their research skills were very weak and that they had not revised their original script very much, if at all. We needed to teach next year’s group how to research.
Mrs. A did say that this was a very good way for the students to learn about environmental topics, which relates to RQ4 and the integration of specific curricular content. It would normally be taught for three weeks in the regular curriculum and that the children tended to learn about one topic and lose interest. Using iMovie in this way kept students interested and exposed them to more topics when they saw each other’s final movies compared to the traditional classroom instruction. She noted that the students were engaged and there was a lot of discussion about the topics among class members even when not directly working in the lab.

**Day 14: Problem Solving**

Four groups had not completed their storyboards by Monday, day 14, so they came into the lab to finish at 8:20 a.m. I received three of their storyboards right away. Reed, on the other hand, hadn’t even started. He had only seven pictures and no resources saved. The pictures that he had chosen were poor resolution and were fuzzy when used in iMovie. He and I spent twenty minutes trying to find the web addresses of the pictures that he had. Yahoo images were taking forever to load, so we only found two pictures in that amount of time. I kept searching for him for another 30 minutes to find larger images that would not distort when he projected them on the wall from iMovie. When he returned with the Math7 class at 9:30 a.m., I left him to decide what he wanted to use from the several pictures I had downloaded. His final movie was under a minute with only six pictures and no video.

These were the final three days for compilation, so I passed out a completion checklist to both classes (Appendix G). Students were expected to record their voiceovers as soon as possible. Jamie and Marsha were the first group to finish. I reviewed their
movie and made a couple of suggestions about capitalization on the title page and adjusted the volume for narration and music. In my assessment, they had done a good job presenting animal overpopulation.

Pre-algebra class followed Math7 in the lab for 45 minutes. I helped Elizabeth and Leslie’s group move their movie off of their server folder onto the hard drive, assisted Deron with editing his downloaded movies, and helped students with title slides and citing sources in the credits.

I had extended a challenge to Leah and Kelly after their personal story project. I asked Kelly to use GarageBand and Leah to record her voice. Kelly had not used GarageBand yet, so I asked her to create the music for this last project. While April and Betty were putting the movie together, Kelly with Leah’s help, created a song: “I learned how to do GarageBand and put it in [iMovie].” Learning to use GarageBand was another highlight: “I liked GarageBand. I just put everything together since it was my first time and then they just decided to [use it].”

Their storyboard was turned in to me at the beginning of the fourth week, day 14 of 16. That day they worked in iMovie adding a title screen, the credits, and their resources. The girls had taken a picture of themselves for the credits and debated on which one looked the best. After selecting the best picture, they discussed what title to use and emailed their websites to Leah for the credits.

The girls continued to discuss the title and credit fonts and font colors while they were all crowded around one computer to view the results. April and Leah took turns using the mouse. Leah hummed while Betty looked on. Kelly was doing something on her computer. Their voiceovers were complete and Kelly told me:
I learned how to do voiceovers more. I didn’t know everything about it, but now I know most of it. And I liked putting all of the times in iMovie and setting it and then making the voiceovers like right where it’s supposed to be.

Leah stutters, so she had not recorded her voice on any of the other projects nor read her stories aloud in the story circles. I asked her mother after the personal story project, if it would be okay to request that Leah do part of the voiceover for the last project. Her mother was supportive and told me that Leah would refuse if she didn’t want to do it, so it was okay with her to ask Leah. Leah did record her part of the narration for their movie, so I asked Betty how it went in the group:

It was kind of hard because I love Leah, she is like my best friend, but she gives up. She’s the kind of person who’ll be like, ‘Oh I can’t do it.’ And then she’ll just quit, like when we went on this ski trip, and me and April and now Kelly kept on saying, ‘You can do it if you practice.’ And so we let her read over the script a couple of times and then we had her read it out loud and then she pretty much did it on the computer. There were a lot of mess-ups, where she started over again, but after awhile she started getting the hang of it. I really think she got better. TKA:  My intention was not for her to be embarrassed. My intention was for her to hear her voice and the more you practice...
Betty:  The more you get better. Yeah. When April and I were busy, then she was doing it perfectly so we started to watch her and she said, you guys messed me up. But it’s really whenever no one is watching then she can do it. She is a really good reader. She is a really good reader and I knew she could do it.

**Day 15 and 16: Compilation**

On Tuesday, day 15, the Math7 class was in the lab from 9:30-10:15 a.m. and Pre-algebra followed from 10:20-11:05 a.m. Everyone was engaged in completing his or her movie. I checked several movies and suggested changes. After school I viewed all of the movies that I hadn’t seen during class and left comments for the students. There were two groups that needed to finish their voiceovers. These were the suggestions that I left for Betty and Kelly’s group:

Dear April, Leah, Betty, and Kelly:
April please re-record voice 5 (Styrofoam or Polystyrene)
See me about pronunciation
Leah thanks for recording your voice. I’m proud of you for trying so hard. You have done what I requested and you did a great job. In the end, you may do what feels best to you, whether you keep your voice in the final project or not. I love hearing your voice!
Did you mean to leave the 17 seconds of black? Please delete or replace. Let me see it after you get all of the narration in.

In the final movie all four girls took turns narrating the script. It contained 21 pictures, music created by Kelly, a title and credits. Betty said: “We could help each other and we all enjoyed working as a team.” Kelly agreed. Leah’s bravery to record her portion of the narration gave another dimension to RQ4 by adding her voice.

On the final day of compilation, two groups came to the lab to finish their voiceovers at 8:15 a.m. From 8:50 AM to 9:30 a.m. I helped James in Math7 edit the video clips, extract the audio and put them in the timeline. I looked at movies as students were finished and gave final suggestions.

I continued viewing movies with Pre-algebra students from 9:30 to 10:20. Some students wrote their reflection (see Literature Review p. 26 & 33, Reflection Skills: Carver et al., 1992, Collins et al., 1990; Jonassen, 2000). I helped any student that needed to finish up in the afternoon for 30 minutes and then Marshall and I made a song for his movie for 30 minutes.

The finished products were very good for the most part. All of the movies contained transitions, title, credits, effects, and a resolution. The content was informative and effective. Only two movies were missing music, James and Deron, because both boys were sick during the compilation. Ten of the sixteen groups used video in their final project, 87.5% of the Pre-algebra class and 37.5% of the Math7 class. Table 10 depicts the class, topic, students, and the images and the length of their movie.
Table 10: Student groups including topic and images of environmental movie.

<table>
<thead>
<tr>
<th>Math7</th>
<th>Topic</th>
<th>Pictures</th>
<th>Video</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharon Joy Nellie</td>
<td>Animal Testing</td>
<td>18</td>
<td>0</td>
<td>1:40</td>
</tr>
<tr>
<td>Amber Elizabeth Laura Leslie</td>
<td>Chemical Pollution</td>
<td>12</td>
<td>0</td>
<td>1:48</td>
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<tr>
<td>Marsha/Jamie</td>
<td>Pet Overpopulation</td>
<td>9</td>
<td>2</td>
<td>3:20</td>
</tr>
<tr>
<td>Marshall</td>
<td>Military spending</td>
<td>10</td>
<td>0</td>
<td>1:43</td>
</tr>
<tr>
<td>Reed</td>
<td>Ocean Pollution</td>
<td>6</td>
<td>0</td>
<td>0:52</td>
</tr>
<tr>
<td>Geri/Hal</td>
<td>Ozone</td>
<td>13</td>
<td>0</td>
<td>1:35</td>
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<tr>
<td>Troy/James</td>
<td>Waste</td>
<td>11</td>
<td>4</td>
<td>2:36</td>
</tr>
<tr>
<td>Sam, Harry, Jack</td>
<td>Air pollution</td>
<td>9</td>
<td>2</td>
<td>2:50</td>
</tr>
<tr>
<td>Pre-algebra</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>April, Betty, Kelly, Leah</td>
<td>Styrofoam</td>
<td>25</td>
<td>1</td>
<td>3:58</td>
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<tr>
<td>Deron</td>
<td>Power plant</td>
<td>8</td>
<td>5</td>
<td>4:00</td>
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<tr>
<td>Mark</td>
<td>Water waste</td>
<td>10</td>
<td>0</td>
<td>1:50</td>
</tr>
<tr>
<td>Heather/Candy</td>
<td>Global Warming</td>
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<td>1</td>
<td>1:40</td>
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<tr>
<td>Sally, Molly, Mona</td>
<td>Paper Recycle</td>
<td>20</td>
<td>1</td>
<td>4:06</td>
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<tr>
<td>Tom, Saul, Scott</td>
<td>Rainforest</td>
<td>9</td>
<td>6</td>
<td>2:00</td>
</tr>
<tr>
<td>Jeff, Darien, John</td>
<td>Air pollution</td>
<td>13</td>
<td>1</td>
<td>2:26</td>
</tr>
<tr>
<td>Barry, Terry, Bart</td>
<td>Smoke</td>
<td>9</td>
<td>1</td>
<td>1:48</td>
</tr>
</tbody>
</table>

Geri and Hal on Global Warming:

Piecemeal understanding and problems with collaboration

Geri and Hal were partners because they happened to be sitting near each other on the first day of the project and decided to work together. Geri selected the topic of ozone depletion and with Hal’s approval they researched during the first week.

On the fifth day each class participated in a guided discussion and informally presented their research while Mrs. A helped them organize their ideas and research into an outline format she created (see Appendix F). Mrs. A talked to Hal and Geri for a little over three minutes to discover their three main points about their topic:

Mrs. A: So Hal and Geri. What’s your topic?
Geri:  At first we were going to do the ozone layer, ‘cause people are always talking about it and it’s something that people can actually believe, even though they can’t really see it. But then we decided to change it to global warming ‘cause that you’ll actually notice, if you go to Florida, it’s a lot
hotter. With global warming, the pollutants that are coming from our cars and our factories and like all of it. The sun it gets trapped in the earth’s atmosphere, like…and if that keeps happening then it’s going to get way too warm.

Mrs. A: Okay. So that’s an explanation. So what are your three main points.

Geri: Well to stop global warming we just need to cut down on…’cause factories that make electricity, factories that make coal, yeah it makes acid rain, but it also the pollutants makes…like go up into the atmosphere and make acid rain like pollute our atmosphere…The point is that the heat is staying in and it is supposed to not do that and if it keeps doing that it is going to be too hot for all of us to live.

Their research influenced them to change their topic, but they did not seem to have a firm understanding of it. Geri continued to ramble, but ended with a cohesive point. She knew a little information, but talked so much that it was hard to tease out her main points about global warming. Mrs. A paraphrased for her:

Mrs. A: So that’s one thing. It is going to get too hot. I heard you say something about the ozone layer and I heard you say something about acid rain.

Geri: The pollutants…

Mrs. A: No. But those can be your three topics.

Geri: How?

Mrs. A: Does that make sense?

Geri: No. One part of it makes sense but what does acid rain have to do with global warming? Like the only thing I said about acid rain, the factories that make the pollutants that make acid rain, some of that gets into our atmosphere and they stay there instead of coming back down as rain.

Mrs. A: But aren’t they the same? Exactly. That’s how. So they stay in your air and aren’t those the same pollutants that are causing problems with global warming?

Geri: Yes. Also hairspray. Very bad.

Mrs. A: You’ve got a lot to go on. Do you feel like you have three main topics?

Geri: No. Two.

Mrs. A: No you feel like you need a little more. Okay what are your two?

Geri: One topic that we have are like the acid rain thing and the other one is like how hairspray and all the other things, and the factories that make them…like the pollutants…like any kind of factories and cars besides the one that run on electricity spew pollutants and they get up into our atmosphere like they are supposed to. So that’s messing up our atmosphere.

Mrs. A: Okay. So you have factories. You have automobiles and you have people using some of the chemicals that they use.

Geri: Personal.
Mrs. A: Yeah. How’s that?
Geri: Oh. Okay.

Geri said “okay” but she did not write anything down. Hal was listening but stayed quiet. He was absent the next day when they were to fill in their outline, so Mrs. A offered to be Geri’s partner for the class period. I asked Mrs. A to write down her thoughts about working as Geri’s partner. Mrs. A described her experience:

Initially I tried to let Geri tell me what she wanted me to do. After all, we had just gone over the instructions with the class and determined that the draft outline was due at the end of the class period. After her talking in circles vaguely about her topic, I pulled out Geri’s outline and started prompting her through it. Her topic is global warming. We established three subtopics or areas of research. I did a couple searches and pointed out information that could be plugged into her outline. I worked with Geri for about 15 minutes, pointing things out and making notes. I then went to work with other groups that had questions. When I returned to Geri about 15 or 20 minutes later, she had nothing more than what I wrote on her outline and she was researching general information about her topic. She did not have any references for websites she had visited and no record of any notes. It appeared that she spent the entire 40 minutes surfing the web with nothing productive to show from it even though she had very clear guidelines and direction when she started. This type of behavior is consistent with what is generally observed in the classroom.

Mrs. A’s observation illustrates the challenges of research on a complex topic like global warming for a student this age, even when her partner is an adult! Global warming is a considerably more conceptually difficult topic than some of the others, and it is probably unrealistic to expect a child to grasp it sufficiently to make a strong video about it (see Edelson, Gordin, & Pea, 1999). This problem, coupled with Geri’s distractibility, made it difficult for her to research.

Geri was absent on the eighth day of the project and I did not see Hal making any progress nor asking for any help. I’m not sure what he did during that class period. On the tenth day of the project Geri contributed to the story circle discussion, but did not get feedback on their story because it was not yet finished. Hal and Geri were behind
schedule. Almost all of the students had submitted their outline the week before. Geri emailed their persuasive outline about Global Warming on the twelfth day.

I Introduction
   Catchy statement- save our planet for the greenhouse effect
   Thesis statement- There is Global Warming because Industrial Sources, Personal/Home Sources, and environmental Sources
   Conclusive statement- That is why we need to save our planet

II Body
   Main Point 1- Industrial Sources
      Detail- cars burn fossil fuels because gas from fossil fuels are greenhouse gasses.
      Detail- power plants that use fossil flues make an absence [obscene] amount of greenhouse gas
      Example- industrial factories spew pollutants into the atmosphere trapping our planet’s heat and raising our climate
      Proof / Evidence- A iceberg forty feet tall melted down to two inches
   Main Point 2- Personal/Home Sources
      Detail- each year we put five tons (per person) of greenhouse gasses into our atmosphere
      Detail- our homes release 3 tons of greenhouse gasses each year
      Example- hair spray
      Proof / Evidence- hair spray destroys the ozone layer and if there is no ozone layer there will be more heat for a while
   Main Point 3- environmental Sources
      Detail- our planet makes it’s own greenhouse gasses
      Detail- plants can also help stop global warming
      Example- natural gasses
      Proof / Evidence- scientists at nasa say that in a matter of years at this rate a majority of the icebergs at the north pole will be gone

III Conclusion
   Restate thesis- There is global warming because Industrial Sources, Personal/Home Sources, and environmental Sources
   Summarize main points- the point is that global warming is a real threat but it can be stopped.
   Reemphasize main idea in third person- we can stop global warming if we work together!

Their outline was filled in but was lacking in detail and there were no resources listed. Geri told me, “we just decided to make it a little more interesting, something we could relate to.” She described how she put her ideas in the script:
I decided I didn’t want to sound all boring and factish like, really monotone like the sort of thing you’d find on the Discovery Channel late at night. Pretty boring. We didn’t want to put too much science in and make it really drony.

Geri’s was the last group to submit their script on day 13 of the project.

**Global Warming**

_Geri:_ Save our planet from the greenhouse effect!

_Hal:_ There is Global warming because of Industrial Sources, Personal/Home Sources, and environmental Sources.

_Geri:_ That is why we need to save our planet!

_Hal:_ Cars burn fossil fuels because gases from fossil fuels are greenhouse gasses.

_Geri:_ Power plants that use fossil flues make an absence [obscene] amount of greenhouse gas. Industrial factories spew pollutants into the atmosphere trapping our planet’s heat and raising our climate.

_Hal:_ An iceberg forty feet tall melted down to two inches due to global warming.

_Geri:_ Each year we put five tons (per person) of greenhouse gasses into our atmosphere, our homes release 3 tons of greenhouse gasses each year.

_Hal:_ Hair spray destroys the ozone layer and if there is no ozone layer there will be more heat for a while. Our planet makes it’s own greenhouse gasses as well. But plants can help stop global warming too. Scientists at NASA say that in a matter of years at this rate a majority of the icebergs at the North Pole will be gone.

There is global warming because Industrial Sources, Personal/Home Sources, and environmental Sources.

_Geri:_ The point is that global warming is a real threat but it can be stopped.

_Both:_ We can stop global warming if we work together!

Geri and Hal had just spent three weeks researching and writing about global warming, but had some gaps in their knowledge base. They had saved 8 pictures, but needed 10 to 15 to use in their iMovie. Since they were lagging behind the rest of the class, I wanted to ensure that she knew how to save pictures off of the web and help them stay on task:

_TKA:_ What’s your search?

_Geri:_ The ‘effects of global warming.’

_TKA:_ Your words read, ‘global warming effects.’ Why not just put global warming and see what you come up with? Oh I like the tornado picture. Are you using it?
Geri shook her head no.  
TKA: That’s not a tornado, that’s a hurricane picture. Did you know that [experts] speculate that the increased amount of hurricanes were due to global warming?  
Geri and Hal shook their head no.  
Geri: Oh yeah, we could use that picture on the part where we talk about our changing climate.  
Hal: You should get that one.  

I helped Geri save six pictures and websites in about ten minutes. Geri showed Hal what the JPEG looked like since Hal did not understand the picture formats, and then Hal helped Geri drag all of the photos into iPhoto. As a cooperative group they sometimes filled in each other’s gaps through collaboration. Even though they had 15 pictures, they continued looking for images for another ten minutes before deciding to start on their storyboard.  

Their interaction deteriorated with every passing minute until they finally started calling each other stupid for no obvious reason. They kept repeating “You’re stupid” to each other for more than 30 seconds and then changed the subject to printing the contact sheet from iPhoto. Hal prepared to paste their pictures on their storyboard, while Geri fixed the script. I did not understand their name-calling, since they did not seem to be angry at each other. They just seemed to enjoy the banter. I asked them about their interaction and they just laughed it off by saying that’s “just how we talk sometimes.”  

Geri sang to herself while she worked on her computer. Hal got another storyboard and scissors to cut the pictures apart. Then asked for Geri’s help to make sure that he put the pictures on the storyboard in the right order. They both started to sing “la, la, la” to the melody of “Dance of the Flowers.” Hal worked on the storyboard, cutting out the images, while Geri looked at her computer as she continued to hum. Sometimes Hal would hum too. No one talked for about two minutes then Hal started to hum again.
After a five-minute break, Geri started to play in GarageBand and after awhile, she asked Hal to listen to the music she was working on. “What do you think of this? I think I need to delete some stuff. It is kind of campish.”

Hal listened to the music and then said, “I don’t know. I’ll have to see if it goes with our pictures.” Geri had filled in the outline, wrote the script, and found most of the pictures. Hal helped, but followed Geri’s lead. It appeared he put the storyboard together and they both worked on the iMovie together. Geri described how they sequenced the pictures in iMovie:

I tried to select pictures that would sort of go with what we were saying like when the iceberg melted down to like two inches, I had a picture of an iceberg, whole lot of water. Also when I talked about when we raised our climate, I had a picture of a temporal globe.

I expressed to Geri during the interview that she sounded like she “didn’t really know what global warming was.” She was able to explain it to me. Sometimes she didn’t use the right words, like when she was talking about movie transitions and said, “transmissions make everything better, ‘cause like last time … put in the transmissions.”

She found it “hard” to be Hal’s partner because he “was sort of sitting there like a lump on a log.” Her favorite part of the project was “doing the voiceovers because Hal kept messing up on the hairspray part, so he kept having to do it over and over and over again.” She liked “making the music.” She had created it from scratch for her personal story, but didn’t use it, so she “used the song that I used for camp because it was really simple and basic.”

Geri’s collaborative style was to be “in charge” consciously or not. Her first partner was inexperienced and Hal seemingly acquiesced to Geri as the “leader.” Geri’s procrastination did not serve the group well, but Hal did not seem to be a driving force
either. Geri was not as interested in the topic, which may have been because it was harder to personalize since it was fact-based. Although she was prone to vacillate in her decisions, their changing topic seemed to stem from a difficulty to conceptualize or understand the environmental issue deeply. Geri assured me that she understood her topic and wanted to make it understandable in her writing even though she seemed to have gaps in her understanding.

**Jack, Sonny and Harry on Air Pollution:**

**Difficulties in building understanding and a cohesive group**

Like Geri and Hal, Jack’s group had problems with collaboration, lacked cohesiveness and had difficulties building understanding about the topic and among themselves. Jack explained how he selected his group members, Sonny and Harry.

The collaboration part is the most challenging. [I liked] just being able to have other people in the group even though all of my friends were over in Pre-algebra. I thought maybe Harry [would make a good partner] because he does work, but then Sonny didn’t have anybody, so he came over to our group. It was good, but having two people that really aren’t doing anything, it’s kind of hard.

Jack described how they selected their topic:

We thought we were going to do acid rain and then we looked deeper into it and we found that air pollution is a big cause of it, or helps cause it. So we thought this also causes lung problems and cancer and can’t be cleaned up so we went to that.

On day 5, after spending three days researching air pollution, Mrs. A gave instructions about how to write their story in a persuasive format. Jack was the first volunteer to discuss his group’s research on the effects of air pollution:

Jack: It causes acid rain, lung diseases, and affects our air quality.
Mrs. A: How does “affects our air quality” different from lung diseases? Are they kind of tied together? And you know, I don’t. I’m just tossing the question.
Jack: Kind of.
Mrs. A: They’re kind of the same. So would it make a stronger statement if you put air quality and then put lung diseases under air quality?
TKA: So would that be main topic and then sub-topic, sub-topic?
Jack: Yeah probably.
Mrs. A: So acid rain could be one of the main topics.

Jack, Sonny, or Harry could have been filling in the outline as the discussion continued, but no one did. They were trying to define three main points related to air pollution as the deliberation proceeded:

Mrs. A: Air quality would be a second topic and you could put lung cancer under that. Asthma. Asthma is a big one. You could say something in there about not being able to clean it up. We need to stop doing it because we can’t fix it.
Jack: Yeah.

On day six, Jack’s group filled in their persuasive outline referring to the class discussion and their research. The outline that Jack filled in for the group began with Step 1: choose a topic. Step 2: write a thesis statement. Harry worked at a computer while Sonny and Jack discussed what to write:

Jack: Okay. Thesis: blank, blank. We’re on camera. Write a thesis statement. We have to write a main topic one, main topic two, and main topic three.
Sonny: Okay. Put outdoor air pollution.
Jack: I’ll put that. Outdoor air pollution.

Jack wrote, “outdoor air pollution is bad for your health, can’t be fixed and it helps make acid rain.” He made a note in the margin to “start with acid rain causes lung disease and can’t be cleaned up. What is it?” They continued:

Jack: Okay step three is references.
Sonny: Computer. Put down websites names and stuff.
Jack: Yeah. I’m going to say yahoo to what causes air pollution …

Jack was very good at keeping on task and took pride in completing his work unlike Sonny, who tried to get by with as little as possible in the classroom. He was,
however, working well filling in the outline with Jack as Harry tried to find a way to be useful on the computer. He was looking at pictures:

Harry: See all of these pictures?
Jack: We’re going to use those for the iMovie.
Harry: What should I do?
Jack: Ask her for one of these nifty little papers. Bibliography…

Harry got up to ask for an outline. When he returned with it he asked Jack, “Okay. What do I do? Fill me in.” Jack told Harry to “write outdoor air pollution” so that he could be involved and then proceeded to the next step on the outline.

Jack: Write down take notes. Introduction “catchy statement.” Okay, what’s our catchy statement? Air pollution. Air pollution is something that can’t be fixed and is very bad.
Sonny: You’re going to say that much for a catchy statement?
Harry: Where do I put that?

Sonny announced that he was tired and leaned back in his chair while Jack continued to fill in the outline and kept Harry on task as they moved on to the second page. Jack was definitely the leader of this group. All three of these boys have IEP’s and receive special instructions based on their needs. Jack moved his chair over to Harry and whispered in Harry’s ear. Harry asked Jack, “Why do I have to do it? You’re that desperate?” Jack covered the microphone with his hand and said, “Please. I’m that desperate.” Harry went to ask for help.

Jack was very competent, but embarrassed to ask for help. He told me later that he did not like asking the teacher for help because he did not want to appear stupid. Harry reported: “She’ll be here in a minute.” Jack asked Sonny not to “dance” right now while they waited for Mrs. A for about three minutes:

Mrs. A: Okay Jack, what’s the problem?
Jack: I need some help. We need some help.
Mrs. A: Okay. It looks like you guys might need some help. What’s yours? Air pollution. Let’s give you some direction here. So what are your three topics? What’s your main point?
Jack: Get it cleaned up.

Mrs. A wrote on Jack’s paper for him and began to fill in their information next to the main points of the “Body” after the “Introduction” on the outline. Sonny and Harry wrote what she said on their papers too.

Mrs. A: It can’t be cleaned up. [Main Point 1]
Jack: It’s bad for your health. [Main Point 2]
Mrs. A: Okay.
Jack: And it can cause acid rain. [Main Point 3]
Mrs. A: Contributes to acid rain.
Harry: Acid rain, what’s that?

This question came five days after the project had started. I wondered if Harry had done any of the research with his group for three days during the previous week. Mrs. A’s two-minute intervention continued with an explanation of acid rain:

Mrs. A: It’s when bad chemicals are in the water system. Okay. So this is what you have as your three main topics. So now you can plug in. What do you mean it can’t be cleaned up? How do you know that? What details do you have on it? You know something about chemicals stay in the…I don’t know ‘cause I don’t know the details about it. So give as much detail as you can about it. You may not have example or proof of evidence. Then, bad for your health. So what’s it do?
Jack: Causes lung diseases.
Mrs. A: You guys had some good points yesterday about that, you know, causing lung disease, contributing to asthma,
Jack: Cause cancer.
Mrs. A: Cause cancer. So that’s that kind of stuff you have here, but you don’t just want to say it, you want to get it off of something that gives it some factual to it. Okay? And contribute to acid rain. So find something on there that talks about that. And then support your detail there. Now it makes sense?
Jack: Yeah.

Sonny had his head down on the desktop as Mrs. A and Jack finished talking.

Harry had been absent the day before and missed the group discussion about their topic.
He was looking at his computer. When Mrs. A walked away, they joked around for a few minutes, then Jack went back to writing details on the outline while Sonny pulled his chair back to the desk. Harry found something on his computer that he wanted Jack and Sonny to see, so Jack pushed his chair over to Harry’s computer around Sonny to look:

Harry: Look at the map. Look at the map.
Jack: Okay you want to click on the acid rain part? Copy these three things down.
Jack: Harry just do it.
Harry: But you know you can’t read my handwriting.
Jack: Sonny could you copy that down?
Sonny: You know I can’t do it. Well for one thing I’m not even trying to write. Shit.

Jack covered the microphone and talked to Sonny. Sonny knocked himself in the head as they both smiled. In an interview Jack described his group experience:

Having a group can make it easier or just as hard. I’m not saying that I did all of the work, but I did a good amount of it. Harry would be there, “What do you want me to do?” and I would be like “I don’t know. I’m trying to do this.” And I’d have to tell him what to do and Sonny just tried to sit there sometimes.

Jack continued to write notes on the outline from the Internet while Sonny spun around in his chair and did nothing. Then Jack put the paper over his face and laid his head back before asking Sonny to do something: “I need you to find out why air pollution can’t be cleaned. Let’s slowly try to finish this.” Jack whispered to Sonny about the camera but Sonny and Harry continued to talk about a store. Jack tried to redirect them by saying, “Sonny, you’re doing a good job finding out about the air pollution stuff.”

Sonny moved back to work on his computer as Harry asked Jack, “What do you want me to do?” Jack walked away. The boys continued to talk about whether they were going to a dance and how much it would cost, and then they started to talk about the new
stadium under construction. These “off task” behaviors of Harry and Sonny continued for
about fifteen minutes when Jack finally asked Sonny to get help, but Sonny didn’t leave
his seat. Jack sat on his hands while Sonny tied his shoes and Harry looked on. They
seemed to get very little accomplished during the last five minutes of class, but Jack
turned in the outline the next day. By Friday, day nine, Jack emailed their story.

Outdoor Air Pollution

It’s bad for your health can’t be cleaned up and helps form acid rain. What is this
you my ask It Outdoor air pollution. Air pollution should be stopped because it
can never be fixed and more and more people are getting lung problems as well as
other things like asthma. Air Pollution can’t be cleaned up because it stays in the
air gets into homes and house it causes smog. Air pollution is bad for your health
because it can get in your lunges. If you live in a city like Las Angeles the air
pollution will be higher and you are always in the pollution. It also can contribute
to cancer. Last it has the affect of giving you asthma with can be bad for if you
run or do any other exercising activities. Outdoor Air pollution is also a
contributes to Acid rain because the pollution gets into the air and then gets rained
down into the water. Then it gets into streams and kills fish and other under water
life animals. We now that Outdoor Air Pollution kills fish because scientists have
studied the fish and have confirmed that fact. So this is why Outdoor Air
Pollution should be stopped because it is bad for your health and cause lung
problems. Acid rain, bad for your health and, can’t be cleaned up are three things
and the list just keeps coming. This can be prevented if on high Air Pollution
days you stay inside as much as you can.

During the story circle on day ten, Harry volunteered to read their script. Since it
was the first time he had read it aloud, he read slowly and stumbled over many words. It
was hard to follow the topic because of his reading delivery. Reed and Jack read over his
shoulder and offered help once or twice.

Mrs. A: So if it were my story I would…
Sonny: I would read it better.
Mrs. A: Practice reading.
Harry: Sonny, you didn’t want to read it.

In the final movie, they had Harry do the voiceover. His delivery was slow and
somewhat awkward, but it was a way for him to contribute and he was willing to do it.
For the most part it seemed that Jack filled in the outline and wrote the story. Sonny researched pictures. Harry created the music in GarageBand. Jack told me that creating music in GarageBand was not a real interest for him so he stayed busy with other things. Sonny wrote the storyboard, while Jack helped sequence and time the images.

As mentioned previously, a new addition for this project was viewing, downloading, and utilizing professionally created video clips from UnitedStreaming™. The boys found a couple of great clips that taught about acid rain and air pollution and used them. They had viewed one video that showed an experiment simulating acid rain, so Sonny, Jack and Harry with Mrs. A’s help, videotaped their own experiment by dropping chalk into a glass container filled with vinegar. The chalk’s disintegration simulated the corrosive nature of acid rain. They downloaded it to their computer. This was great progress compared to their learning curve on the first project.

On day 14 Jack and Sonny worked with iMovie adding the title and credits with their resources cited. Jack typed on the keyboard while Harry talked to Sonny about saving GarageBand in his server folder for a moment. Since I had watched the classroom observation and knew of these boys’ reluctance to ask for help, I stayed close by so I would be available if they needed some. Jack asked for help spelling “special” as they were typing in credits, and a few minutes later I asked about their progress. They said they were working on credits, and then would do voiceovers. I reminded them to wait to do the transitions after voiceovers, so the timing would work.

Jack, Harry and Sonny still did not have a closing or resolution and were coming up blank as I was trying to draw it out of them. Since their topic was air pollution and acid rain, I suggested that they ask viewers to drive less and walk or ride a bike, but Jack
said that they probably would not do it. This indicated that there were two parts to solving a problem; steps needed to be taken and people need to be willing to take them. The students were not just interested in completing the assignment to my satisfaction, but wanted to complete it to their own satisfaction as well.

Thirty minutes into the class period, they asked for help from Mrs. A since I was helping another group. When Mrs. A couldn’t figure out the problem, she asked me to help them. One of the audio tracks on their iMovie had no sound. I noticed that the check box for that audio track in iMovie was unchecked which made that track silent. When I checked the box to activate the sound, they all looked at each other since they remembered turning off that track, but had forgotten to turn it back on.

Jack did not have many suggestions for me to improve collaboration “because you can’t stick a camera on everybody and watch what they do.” But, “if somebody did really good on their first one, you could have them just get a pass grade” and then have them focus on helping other people.

Jack gave me an insight about how students view schoolwork and why they sometimes do not make the connection that creating movies might assist them with other schoolwork:

It doesn’t exactly tie into schoolwork. Schoolwork is all that math and stuff like that. This was more focused on finding things, putting them in writing, this helped with typing and writing process. It’s kinda schoolwork.

To summarize, their collaboration was challenging for Jack. Harry offered to help, but looked to Jack for direction. Sonny was able, but did not want to do much of anything. This resulted in a tenuous collaborative effort. Jack seemed to be the leader, but had difficulty delegating and then when he did delegate, ran into a lack of follow through
on the part of his group members. This collaboration did not support each other’s learning about the topic nor foster knowledge building. Jack was left to cope with little support, which contributed to a lack of deep understanding about their topic. The UnitedStreaming™ videos offered more explanation and exposure than they had found with their own Internet searches. It may have benefited this group to have limited the topics and offered more pre-screened resources to help drive the process forward, as in a WebQuest (Dodge, 1995).

**Mona, Sally & Molly on Recycling:**

*Effective collaboration and envisioning storylines*

On the fourth day of the first week of the Environmental Issues project, Mona had been conducting research with her group members, Sally and Molly. Their topic was recycling paper and the class began with them checking in with each other before they began converting their research into a script. These three girls were good friends. In fact, Molly and Mona were cousins. It was obvious that they cared about each other as they told each other how they felt. Within a very short time they were able to focus their attention on their task and began to discuss their research:

Molly: Okay. How it affects us…
Mona: Let’s see what our resources are.
[Molly logged onto her server folder to open their notes saved on a document.]
Molly: ‘Cause we’re getting our research out.
Mona: How much paper does an average student waste a day?
Molly: It’s affects us. Okay. This is ways to reduce paper.

Sally was not feeling well that day and wanted to go home. Mona and Molly had done an Internet search and were reading from the web. Mona continued to read while Molly and Sally talked quietly how the school nurse wouldn’t let her go home or call home since she did not have a fever. Even though Mona and Molly showed compassion
for Sally, they continued to work, shuffling papers trying to look for the one they wanted.

Unable to locate it, they turned their attention back to the computer. Sally was holding her head but looking at the computer also. Mona read the papers in her hand:

The three R’s, reduce, reuse, recycle. That’s smart. You have a worksheet and you put it in a plastic sleeve kind of thing and you have the students write on it with a crayon and erase it with a carpet square and they can reuse it again next year. Isn’t that cool? It’s like a dry erase board, but it’s a worksheet. You put the worksheet in there and then [they discuss this further]. Take only what you need. One ketchup packet, one pepper packet, one set of flatware and remember to recycle your cans and bottles. Before starting a new school year see what can be used and what can be recycled. Many copy from their server doc. If you drive to school try carpooling.

While Sally left the room to see the nurse, Mona and Molly continued to read to each other and share their research. Mona described in an interview how they divided up the work:

We had to pick our topic, which was pretty easy. We decided that we had to do our notes, so we all did that. And then we combined our notes and picked the best stuff that we liked. Once we had gotten the most interesting stuff we started adding on to that with pictures and what we were going to say and stuff like that.

Sally was absent the fifth day when the outline was discussed. By the ninth day of the project during the second week, the girls had completed their persuasive outline.

Persuasive Outline
Recycling

I Introduction
   A. Recycle or we will die!
   B. Paper waste
   C. If you don’t recycle

II Body
   1. Oxygen lose by cutting down trees
      • By cutting down trees, we lose oxygen.
      • Without oxygen we die. Oxygen is what we breathe everyday to live.
      • If you have asthma, if people keep on cutting down trees and wasting paper, it will make it harder for the people with asthma to breath.
      • It has been proven that trees make oxygen and when you cut down thou trees, oxygen is lost.
   2. Factories Pollute the Air.
Factories cut down trees and take the trees to make paper. While they are using the machines to cut down the trees they are polluting the air.

Also, when they are making the paper the machines pollute the air by, creating smoke.

Have you ever been driving by a rather large factory and you seen smoke coming out of the chimney? Well when that happens that is polluting the air. This pollutes the air by people breath in the smoke and its not good for them. The factories make smoke that travels threw the air. Then people breath in the smoke and its not good for them. People have tested to see if the smoke pollutes the air and it does.

Smoke is not good for

3. Main Point: Clear Cutting

Many paper companies are clear cutting trees to make paper, but what you probably don’t know is that when you clear cut you cut the small trees and the big trees they also usually leave the dead trees behind. Also people think that clear cutting reduces the chance of fires, but it really just adds to the chance because clear cutting leaves cut-over areas with slash open to the direct sun which dry out and increase fire hazard.

Another thing that people think is true about clear cutting is that old growth rainforests are full of sick, diseased and decadent trees and young forest are healthier. That is actually a myth thought because old growth rainforests are healthy ecosystems which have evolved over thousands of years to be more resistant to insects and disease. They are naturally regenerating, with trees of all different ages. Decaying wood retains water and supports new life. The needles of big, old trees filter water and their roots hold soils in place. A young even-aged forest which follows clear-cutting is much more prone to fire, insects, disease and erosion.

An example of this is in the states of Maine, California, and Texas. Here are some pictures from clear cutting. People cut down trees to get there paper when they could recycle and we wouldn’t have to cut down has many trees. Lastly, sciencist have notice that where many wildfires are occurring is where trees have been cleared for paper or other recyclable materials.

III Conclusion

C. Paper waste
D. Our main points are Oxygen lose, pollution, and clear cutting.
E. Paper waste is a major factor in pollution and someone should do something about it soon.

http://www.snowwowl.com/rrtreesclearcutting.html maine pict

Their outline was substantial but only one resource was listed. It was possible that they had put their resources on a separate page from the outline, which was not turned in. They did list their resources on the credits in the movie. They had all of their main points, examples and supporting evidence. They were ready to present their defense for paper
recycling but had not shown their resolution or action taken to reduce or recycle. On that same day (9), they submitted the rough draft of their script:

MONA- wasting paper is an important issue at schools across the Untied Sates. People waste TONS of paper daily. Our test shows that students at [our school] waste about 6.229 tons of paper in a month, which is 12,457.10 LBS. Just by the students at [our school] recycling we save 18.67 cubic yards of space in landfills. Our mado [motto] is Recycle or we will Die of Oxygen loss.

MOLLY- it’s a proven fact that trees provide oxygen. By eliminating trees to make paper, we have less oxygen. If we don’t have oxygen then we cant breathe. People need oxygen to live. People in general need air to breathe, but people with asthma need cleaner air to breath otherwise they will have asthma attacks.

SALLY- to make paper people need to cut down trees. This pollutes the air because all of the smoke that comes from the machines which makes it harder for people with asthma to breathe. Have you ever been driving by a rather large factory and you seen smoke coming out of the chimney? Well when this happens it pollutes the air. When people breathe in the smoke it gets into their lungs and that’s not good. People have tested to see if smoke pollutes the air and it does.

MONA- Many paper companies are clear cutting trees to make paper, but what you probably don’t know is that when you clear cut you cut the small trees and the big trees they also usually leave the dead trees behind. Clear cutting adds the chance to fires because clear cutting leaves cut-over areas with slash open to the direct sun which dry out and increase fire hazard.

MOLLY- Our project is about paper waste, we did A LOT of research on this project. Our main points are Oxygen loss, pollution, and clear cutting. Paper waste is a major factor in pollution and someone should do something about it. Sally, Mona and myself did research on ways to save paper. Here are some video clips you can watch.

On the tenth day of the project during the third week, the girls participated in the story circle with their Pre-algebra class. Mona began reading their rough draft aloud when Sally started to laugh. Mona began laughing too while she was reading, “people need oxygen to live. People, in general, need air to breathe.” Since Mona and Sally couldn’t stop laughing, Molly took over and finished reading it in two minutes and forty-nine seconds. Mrs. A began the discussion:

Mrs. A: Why were you laughing?
Mona: ‘Cause she was laughing.
Mrs. A: Okay, why were you laughing?
Sally: I was laughing ‘cause she started laughing when she was reading it.
Mrs. A: Because it’s very repetitive. You’re saying you need oxygen.
Barry: You’re stating the obvious.
Mrs. A: You’re stating the obvious. Thank you Barry. So do you really need to say that? It was difficult to read because you’re thinking, ‘Okay this is goofy.’ This is your audience. If you really think it was that silly, you need to change it so that you can get through it without giggling.
April: It uses really little words, like big and little words.
Molly: I don’t even know what comprehend means. But people like Bart need this little word movie.
Mrs. A: Did you calculate how much paper that was per student?
Sally, Mona, and Molly: No.
TKA: Where did you get your statistics?
Sally: From this piece of paper that [the principal] gave us.
Mrs. A: Yeah. On that sheet it has cubic yards. It’s 18 cubic yards.
Molly: All of the paper we throw away, we should put it in one room and see if it fills up the room.

Mona told me what happened to the script between the story circle and the final version: “Molly [wrote the script] at first and then I had changed it a lot after us reading it, ‘cause it didn’t make much sense. So I made a bunch of changes” (see Literature Review p. 29, Transforming: Beach & Myers, 2001). I did not observe them collecting their images or making their storyboard, so I asked Mona how they selected their images:

[We selected our pictures] off of our topic. At first we wanted to [take] pictures from outside, but then we didn’t have enough time. Along the line we had to add in more pictures, so we had to take them at short notice when we realized that our script was a little bit different so we had to get different pictures.

On day 14 Molly was working in GarageBand while Sally and Mona adjusted the volume of the music in iMovie so that the voiceover was more predominant. Sally had created the song because Mona said: “Sally’s way more creative.” They watched the movie together as Molly moved the mouse:

Mona: She’s going to say we should change it. We should move it down to 80%. Yeah. It is too loud there. I don’t like my voice.
Sally: That’s why. The volume for our people’s only 64%. Click on one of these.
Molly: 100. 100.
They adjusted the volume on the music clips in iMovie and shared the responsibilities for the decisions they were making about their iMovie. All three were involved and taking turns. Molly raised her hand for me to check their work and allowed me to sit down to look at their movie with them. I began to listen to their movie and gave them feedback about what I was thinking. As we looked at their pictures in iPhoto, I explained why some pictures were blurry in their movie.

After explaining about pixels, we continued viewing their iMovie:

TKA: Wish you would talk slower. Would you like me to move these up so it will start talking? Watch.
Molly: That’s good.
TKA: Yeah. I think your voice needs to be higher Mona, ‘cause their voices are really loud. Could I make a suggestion? You could put a sign that says, ‘Our motto.’ It helps to reinforce the words if you see them too. You could just put a title in. You could put it over where you are saying it, because this is blurry. This is 9 seconds long. Oh. Let’s put your motto over that.
Molly and Mona said the motto: Recycle or we will die.
TKA: Because you guys talk really fast, I think it will be enforcing the words.
Sally: So you see the words as we’re saying it.

I typed in their motto and they told me that they wanted it over a picture rather than over black. Then I suggested using the “drifting” title effect and they liked it. We then discussed the timing of more photos. They went to the cafeteria to take pictures of students eating lunch and returned a few minutes later, ready to download. While they were gone, I listened to the rest of their story and gave them feedback when they returned. I left them to import their pictures and make their changes. In the end, they left the Chapel Hill bus in, but put it with the appropriate narration. Their movie contained all of the necessary components including a video clip about recycling.

In her written reflection Mona said that she “learned how to write better paragraphs, convert notes into paragraphs, take notes from the web, and how to edit
scripts down.” She said that the story circle “was fun. It helped us a lot. Hearing them kind of gave us ideas on what they had to say.” She liked, “learning something new and trying to persuade people to recycle more and save stuff.” Mona explained that this third project was “different because the first two were my points of view. I had to take a lot more notes on the web for this third one. I didn’t like the subject of this last project as much as the others, but it was still a lot fun to work on because I like the groups and how we got to pick them.”

Because the process was “so natural” Mona did not realize all of what she was learning. Mona emphasized her involvement and development in the writing process as she contributed to the their script and reflected about what she learned. The girls were equally competent, caring, and communicative. Their collaboration was cohesive and on task while they had fun. They tended to work ahead due to their organization and they understood and used their storyboard.

I shared with Mrs. A that many of the students reflected that they hadn’t learned anything that related to the classroom. I was surprised to learn that she thought this was a “good thing:”

They don’t perceive this to be some big learning thing because they’re taking it and they’re integrating it. They are using it and now they are assimilating it. And it’s become a part of them. And if you would ask them they’d say “oh no I’ve always known that.” And it’s the same thing that I remember sitting down with kids and showing them how to do. If you would tell these same kids, “Okay we’re going to learn to use the scanner today. Go over there and get some pictures and let’s scan it.” They are going to find that totally useless. But taking all of this and putting it together, they are learning all along the way. I don’t think there was a single day that didn’t go by that these kids didn’t learn something. But they don’t realize. I don’t think they need to realize it. I think it is a good sign of learning when you don’t realize you’re learning because it means you’re engaged, it means that it’s interesting, it means that all of those good teaching things have come together so that a kid is doing exactly what they are supposed to be doing. They are getting a lot out of it and they don’t realize it because they are so engrossed in
what they are doing that learning isn’t their concern. They’re not doing it for the sake of learning they are doing it for the sake of something else. I don’t think there’s anything wrong with it.

Though her comment surprised me, it reflected the fact that incidental learning is powerful, and sometimes it is not noticeable within the flow of an engaging project (Czikszentmihalyi, 1990).

Summary

Through this process, Mrs. A wanted the students to “think things out” and “become better critical thinkers.” She thought that using multimedia was a benefit because,

It’s not just put it on paper. Hopefully, now they can picture it and sequence that stuff in their mind and maybe organize it a little bit better. Hopefully, make them stronger writers; giving more detail, ‘cause that’s the thing that I think kids at this age have difficulty with, giving a lot of detail or support. This project could have done very easily [as a] research project. It could have been a paper, pencil, go research. You know you have the same amount of time 2, 2 ½ weeks or whatever it is to do it. Come turn your paper in. Even before the formal showing [of the movies], these students are more informed about the topic than what they would have been if they were doing a single topic. There’s a lot of talk. There’s a lot of discussion. There’s a lot of sharing that you don’t have with the standard research.

Even though persuasive writing and environmental issues were integrated, Mrs. A felt that the persuasive portion of the end product was “lacking.” Students “don’t understand writing for this purpose. They can do factual, factual, factual, but when they have to put it all together and come up with the impact statement, it’s weak.” For Betty, writing about her feelings was a key component for her writing involvement. She expressed that she felt a lack of emotional connectedness to the environmental topic, which made it harder to write about. On average, students worked twelve to fourteen hours to complete the third project.
Two unexpected by-products that came from this process were “discussions that were sparked by something that was just seen and shared by everyone” and increased self-confidence.

Some of the students who “blend in” in the regular classroom, were very eager to help and they are not given that opportunity someplace else, so that boosts them up in their self-confidence. Other kids are able to look at them differently. Kids that aren’t as knowledgeable academically, have abilities technology wise that could put them on the same level as somebody else given the opportunity.

After each project, students reflected on a few questions and responded via email (see Table 11). Of the students that responded, about 19% of them stated that creating iMovies did not help them with other schoolwork. The majority of students (over 50%) felt that creating iMovies helped them with writing. An equal amount (12%) mentioned that the projects helped them learn about computers and collaboration. One student reflected that it “helped with speaking in front of the class.”

What Betty learned about their environmental topic relates to RQ3 and content: “I learned pretty much a lot of stuff like that Styrofoam is not biodegradable and you can recycle it but it costs more money and it’s bad for the landfills and marine animals.”

Writing was more fact-based for this project. Kelly told me that creating a digital story helped her with her schoolwork because “I learned how to imagine what the iMovie would look like when we were writing it.” Now when she writes, she visualizes her writing. This relates to RQ1 since creating the multimedia representation of their story influenced how she thought about her writing.
Table 11: Student responses to lessons learned.

<table>
<thead>
<tr>
<th>Learned about Technology</th>
<th>“Use UnitedStreaming™ to download”, “edit and incorporate video within their iMovie.” “Took notes from the Internet. Searched, cited, and downloaded images from the Internet.” “Copyright.” “Print a contact sheet and time images for the storyboard.” “Create a song using GarageBand”. “Copy and paste music loops.” “Export music from GarageBand to iTunes.”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learned about the Writing Process</td>
<td>Students learned how to “organize my thoughts and ideas with a graphic organizer,” “create a storyboard,” “order events,” and “turn a story into a script.” They learned how to “write better paragraphs with supporting evidence,” “take notes from the web,” “convert notes into paragraphs,” “write a thesis statement,” “write an essay,” “make their writing more convincing,” “adapt an essay to a script,” and “edit scripts down so it isn’t too wordy.” They learned “how to edit and match a script to align with pictures,” “how to work with a lot of people when you write the story,” and “the writing circle.”</td>
</tr>
<tr>
<td>How was this project different for you from the first and second project?</td>
<td>“The first and second movies were made up stories and this one was educational towards the environment and taught us something.” “We got to inform and persuade people.” “I was more sure about what I was supposed to be doing.” “I actually got to work with people I enjoyed working with and actually did stuff.”</td>
</tr>
<tr>
<td>Does creating iMovies assist with other schoolwork?</td>
<td>“Creating iMovies taught us more about writing and collaboration, and the computer.” “We learned how to use the Internet and find resources and information on different topics.”</td>
</tr>
</tbody>
</table>
CHAPTER VII: DISCUSSION

This chapter summarizes findings of this study examining multimedia and traditional literacy, and answering the question “How does creating a ‘digital story’ impact children’s literacy skills?” I will also explore findings that include unexpected discoveries about collaboration, cooperation, and involvement among teachers and students. Figure 8 depicts a graphic representation of the research questions and related findings put forth in this discussion. In addition, this chapter includes limitations of this study and suggestions for future research.

RQ1: In what ways did storyboarding and organizing images to tell a story influence students’ understanding? RQ2: How did writing a story and constructing the video influence students’ learning? Upon reflection, organizing images within the storyboard to tell a story were part of the process of constructing the video. Therefore, RQ1 and RQ2 were inter-related and combined:

In what ways did writing a story, storyboarding, organizing images to tell a story, and constructing the video influence students’ understanding?

Throughout the process of creating three digital stories, students made gains in traditional literacy, including growing sense of voice, related to audience. As Mrs. A described, “It is not the routine paper and pencil form of expression. It is in a format that students are willing and excited to share with others.” Students deepened their understanding about the organization of the story through editing, reflecting, and feedback. The reflective process was used to evaluate and revise the design, for example; editing the essay and script to be represented by an image, as well as, acknowledge lessons learned and problems that existed (Collins et al., 1990; Carver et al., 1992;
The recursive process was used throughout the story development and movie creation (Lane, 1993). Students learned the value of including enough supporting detail, like when Betty told us why her Grandmother was important to her with an anecdote, but not extraneous detail, when she deleted the part about her Grandmother “scaring people” (Lambert, 2002; Porter, 2004).

There were gains in multimedia literacy (see Figure 8), both fluency in the constituent technologies it took to compose the equivalent of basic multimedia paragraphs, and fluency in decisions about how one expresses oneself with multiple media. Basic multimedia composition procedures learned by the large majority of students included scanning and/or digital still cameras, photo touchup and management software, digital video cameras, software, digital music composition software, digital video editing software to sequence images and scenes, pan zoom and time images (e.g., Jonassen, 2000). Even though a few students had prior exposure to the software, there was still a great deal of “controlled floundering” (Pogrow, 1988). Each subsequent project reinforced the knowledge implemented and built on it by introducing new components. This afforded improvement of the instructional processes to enhance students’ understanding and influence their learning. Surprisingly, when mastery was achieved, students did not always recognize how much they had learned, in part, because it was tied to authentic activity, context, and culture (Brown et al., 1989; Czikszentmihalyi, 1990). Mrs. A commented:

I think it is a good sign of learning when you don’t realize you’re learning because it means you’re engaged, it means that it’s interesting, it means that all of those good teaching things have come together so that a kid is doing exactly what they are supposed to be doing. They are getting a lot out of it and they don’t realize it because they are so engrossed in what they are doing that learning isn’t their concern. They’re not doing it for the sake of learning they are doing it for the sake of something else.
How does creating a 'digital story' impact children's literacy skills?

RQ 1 & 2
Writing a story, storyboarding, organizing images to tell a story constructing the video

TRADITIONAL LITERACY
- Writing
- Reflecting
- Revising
- Critiquing

MULTIMEDIA LITERACY
- Fluency in decisions about how on expresses oneself with multiple media
- Authentic activity, context, & culture

ORGANIZATION
- Develop expert schemas & reasoning knowledge

STORYBOARDING
- Critical thinking
- Sequencing images & ideas

RQ 3
Learned about perspective of story

MULTIPLE PERSPECTIVES GAINED
- Project based learning
- Performance

GROUPING EXPLORATION
- Modeling Coaching
- Articulation Reflection

RQ 4
Develop voice, include emotion, point of the story and oral presentation skills

EXPRESSION FLUENCY SKILLS
- THINK about how words and images complement one another, some ideas may be difficult to express with images, different types of music contribute to the message of and enjoyment of a video and story.

ORAL PRESENTATION SKILLS
- Multiple projects were necessary
- 1st project focused on technological tools and organization of the process
- 2nd project focused on the story incorporating voice and emotion
- 3rd project: students recognized voice and emotion when not present

SOCIAL LITERACY
- Collaboration and cooperative groupings promote authoring environments

- Intellectual partners
- Competent sense of self
- Students worked within group and across group

- Community of practice
- Share and receive critical feedback
- Transformative communication and collaborative skills were developed

- Peer editing
- Teaching others Learning from peers
- Negotiation Critical friends Communication Giving and receiving emotional support
I was surprised to discover the extent to which the level of interest in the topic impacted the participation and outcome. Some students chose not to participate in writing the first creative essay, but were engaged in the media development. All but one of the students echoed that they liked creating the “personal, true story” the best. Even students who did not engage in the writing portion for the first or third projects, wrote, edited, and created a multimedia story about themselves (Davis, 2004). Project-based learning within the context of personal story greatly accelerated the learning process of multimedia technologies and allowing students to select their topic created ownership and increased motivation (Beach & Myers, 2001; Chambers & Schreiber, 2005; Edelson et al., 1999; Lambert, 2002; Polman, 2000).

Storyboarding was another developed skill for the students and for myself, as the students grew to comprehend the value of planning and I was better able to instruct them in a step-by-step manner. It is important for teachers to give explicit instruction while modeling the design process, as well as coach students to help them accomplish their task (Carver et al., 1992). Creating the storyboard was too abstract for many students at first, until they experienced the process of creating a digital story or two. Printing the pictures on a contact sheet was of great benefit for sequencing the images and ideas to tell the story. At first, Betty “thought the storyboard didn’t really matter, like it was just there for you, but [by the third project] I really thought it was helpful for us.” Mona agreed, “It was a lot easier [to do the storyboard on the last project], ‘cause I understood it more.” Sequencing images to tell a story became organic and married.

Through the process of creating a digital story, critical thinking and knowledge construction were transferable and generalizable to story development and active problem
solving. Metacognitive skills and strategies were utilized and developed to monitor and regulate one’s own learning through planning activities, such as, storyboard, monitoring activities during the learning and checking outcomes (McGilly, 1994).

Organization was important in two ways: to order their experiences in the form of stories (Bruner, 2002), as well as conveying the story in the multimedia representation. Students thought through how to represent parts of their story using pictures and began to “understand writing better, like picturing it in my mind.” They had to decide which parts of the story were the most crucial and discuss how they would represent them visually, whether to draw the image, take a picture, or create a scene to videotape (see Literature Review p. 29, Critiquing: Beach & Myers, 2001). In this way students developed expert schemas and reasoning knowledge (Bruer, 1993; Larkin & Chabay, 1989). Leslie learned: “that it is a good thing to keep well thought out organization so you can know which clip is which and then when you want to put them in order it is much easier to find them.”

The first DS project was the most intensive for learning the technologies needed to create a digital story, such as: email usage, Internet research, iPhoto, GarageBand, iMovie, iTunes and KidPix software, digital tools like camera and video camera use, and aspects of performance, like storytelling, narration, acting, and performing stunts. Some technological aspects were reinforced such as, accessing their server folders, directing saved documents, conducting an Internet search and taking notes.

RQ3: What have the students learned about perspective in their story?

Narrative is the foundation for what makes us human (Bruner, 1990; Lambert, 2002). Through the process of modeling, coaching, articulation, reflection, and exploration while creating personal stories, students came to understand perspective in a
new way (Atchley, 2000; Collins et al., 1990, p. 481-482; Lambert, 2002; Porter, 2004). As a result of the process of editing images and text to convey a story, students gained insight into who was telling the story, why they were telling it, and who they were telling it to (see Figure 8, p. 209).

As Beach & Myers said, “Students learn that worlds are constructed through language and texts” (2001, p. 4). The classroom is a perfect place to engage, develop and explore how language, signs and texts are used continually to construct and negotiate within a social world. Beach & Myers (2001, p. 17) defined six inquiry strategies that form the basic framework for the various inquiries into social worlds.

1. Immersing. Students entered into the activities of a social world in the computer lab to create digital stories. They experienced this social world as a participant and were also able to observe this social world as they learned the process and viewed each other’s final projects. Creating digital stories offered many different activities with which the student experienced the social world as a collaborator, creator, group participant, and observer of classmates and artifacts.

2. Identifying. Defining concerns, issues, and dilemmas that arise in a social world, or from conflict across multiple social worlds.

Students developed interpersonal skills while creating digital stories. They learned to work cooperatively and collaboratively. They learned how to convey feedback and negotiate concerns, issues, and problems while creating their DS. Students also learn to consider their audience and consider ways to convey their story. Through negotiation within their group, with the teachers, within the class, within themselves, and while
relating to the written text and the visual representation of their story, students learned that there are multiple perspectives to navigate and consider as they make choices.

3. Contextualizing. Explaining how the activities, symbols, and texts used in one or more social worlds produce the components of a social world—identities, roles, relationships, expectations, norms, beliefs, and values.

Students negotiated between text and images in their classroom and in the computer lab with different roles, such as, teacher, learner, creator, author, musician, composer, director, videographer, friend, participant, leader, actor, editor, scriptwriter, storyteller, researcher, narrator, critic, evaluator, and analyst. They also learned about contextualizing as they changed their notes and ideas into an essay, the essay into a script, and the script into a movie. While doing this, they considered whom they were writing for (i.e., their audience, friends or family, classmates, or teachers). They also considered for what purpose they were writing, whether to persuade, entertain, make a point, or share about themselves.

4. Representing. Using symbolic tools to create a text that represents a lived social world or responds to a represented social world

Creating their written text and transforming it into a multimedia representation used different tools to convey their message, as a personal story, creative writing or to be persuasive. Text, images and music could be used independently to represent or respond to story or interwoven in many combinations to transfer and transform the intended message.

5. Critiquing. Analyzing how a representation of a social world privileges particular values and beliefs; analyzing how particular literacy practices
within a social world promote certain meanings while marginalizing other possibilities

Children analyzed their interactions within their cooperative groups, while debating how to divide up the work, who was good at what (strengths), who was willing to do what (willingness), and what needed to be done. They examined what message they wanted to convey and decided how best to convey it. They were aware that through discussion, analysis, and negotiation of their final choice (i.e., selection of wording, phrasing, images, etc.), they were choosing to eliminate a host of other possibilities. They also took into consideration when offering and/or receiving feedback, of the persons involved. Students recognized that they learned more about the critical content knowledge related to environmental science in the last project as they discussed and viewed each other’s topics and movies. Mrs. A stated that the students had more exposure to the content as well.

6. Transforming. Revising one’s meanings for the components of a social world, changing one’s actions and words within a social world to construct more desirable identities, relationships, and values

Students knew that this was their work and their words and they had the ultimate choice of what story they wanted to tell and how they wanted to tell it. Reflective activities and knowledge building through brainstorming assisted the process of story creation (Beach & Myers, 2001; Carver et al., 1992). Learning to create story generated memory structure and also developed cognitive structures (Bruner, 1966; Schank, 1990). Several students identified in their reflections and interviews that they benefited from
organizing and sequencing their text and images using the storyboard even though they did not understand it at first.

RQ4: In the process of creating their digital stories, how did students develop their voice, which included emotion, the point of the story, and oral presentation skills?

Expressive fluency skills gained by many students included thinking about how words and images can and do complement one another, how some ideas could be difficult if not impossible to express with images, and how music of different types contributes to the message of and enjoyment of a video and story. As Mr. Z put it, the “digital storytelling project…really caused them to get into their creative juices and get things flowing and come up with new ideas and look at new ways to express themselves”. This supports prior research that students were more engaged in the narrative process of telling stories using technology (Bers & Cassell, 1998; Lachs & Wiliam, 1998; Weis et al., 2002).

Oral presentation was a natural part of the narration process, and the technology allowed the students to practice and retake, which helped students (including one with a stutter) to develop and show off their skills, rather than shy away (Culham, 2003; Lambert, 2002). The narrative development coupled with the presentation component was an interactive process in which the audience and peers played a critical role (Carver et al., 1992; Culham, 2003; Davis, 2004; Hayes & Matusov, 2005). Students self-evaluated and self-regulated their speech patterns when recording their voices to speak more slowly and with more emotion depending upon the content of their story (Lambert, 2002).

At times there seemed to be a disconnect between the students and the curriculum. Students would “do” an assignment, but didn’t really care about it. With the production
of a personal story, many students wanted to express themselves in a way that they had not done before. Telling a story about themselves mattered to them, so they came to understand how and why to include emotion in their story. This insight was made clearer when they created the third movie about an environmental topic. Students commented that they didn’t feel emotion about it. They couldn’t find the “hook” that made them want to “care” about the topic and portray that in their writing. Therefore, they had difficulty trying to persuade people. They became aware, maybe for the first time that something was missing, and in this case it was an emotional connection to the topic that had an impact on their writing, which affected the audience impact as well.

Multiple projects were essential to master the tools for DS (see Figure 8, p. 209). The first project focused on technological tools and organization of the process. The second project focused on the story while developing voice and including emotion. It also ensured understanding of the process and tools. By the third project students came to understand organization by utilizing the storyboard more effectively and added yet another genre of writing to their repertoire. The children came to recognize the importance of voice and emotion and when it was not present.

**Social Literacy**

I was surprised at the extent the students benefited from and commented about, both negatively and positively, collaboration and cooperative groupings. Working within—group and across group helped students understand perspective and develop social literacy. For the first and third projects, students worked within cooperative groups while collaborating with other groups as they constructed knowledge through exploration and learned by doing (see Figure 8, p. 209). They also helped each other learn by conversing
and demonstrating for each other. They were intellectual partners who supported learning by reflecting, within the story circles, throughout the creation and construction phases, and after projects were completed (Jonassen, 2000; Lambert, 2002). The collaborative processes promoted an authoring environment for students to synthesize, theorize, and interpret the classroom culture while developing and expressing their critical and creative thinking (Vygotsky, 1978).

Social benefits were noted throughout the collaborative process even when students were working independently on their personal stories (Bers & Cassell, 1998; Lachs & Wiliam, 1998; Weis et al., 2002). Students acted as teachers to each other by passing on information learned and giving feedback to classmates on each other’s projects (Cremin, 1961; Polman, 2000). Higher order functions developed out of these social interactions as they learned to share and receive critical feedback within the group (Goodman, 2003; Gordin, 1999; Vygotsky, 1994; Wertsch, 1991). In this way, digital story creation supported Lave’s (1990) theory that learning as it normally occurs is a function of the activity, context and culture in which it occurs (i.e., it is situated) in a “community of practice.” Project based learning environments did engage transformative communication and collaborative skills were developed (Polman, 2000).

Collaboration occurred in peer editing, teaching others, learning from peers, negotiation, critical friends, communication, and giving and receiving emotional support (Collins et al., 1990; Conway, 1997; Kearsley, 2005: Lave & Wenger, 1991). Marsha wrote: “It also helped me learn when to be social and when not to be social. It also helped me make more friends… Friends I can help, and friends that can help me with schoolwork.” Darien shared:
I learned that when you are working on your iMovie you have to be working and not playing all the time because if you play you probably won’t get something done. When we first started working on these iMovies I was talking most of the time but then I started to see if you I didn't work I wasn't going to get anything finished. I also learned that when you are writing your script and taking these pictures it's other people that still need the camera. Also when you are taking someone from their group to take a picture or video tape you need to hurry up and get them back to their group because they have work to finish just like you.

During the second project, collaboration took place even though students worked independently. Mona “helped three or four people.” Marsha thought that it was easier to do voiceovers when you have someone helping you. Molly “didn’t like working alone [because] working with a partner you can get a lot more done.” Some groups did not ask for help but responded to offers of help, like Mona: “Sometimes I don’t get stuff done and my partner will help me. And if I don’t know how to add something in they will help me.”

Paradoxically, most students enjoyed learning that they could do one of these iMovies “on their own [so they] learned more and did more.” Several students stated that they “got to do what I wanted and make all of the decisions.” Sally said that the personal story project “was easier because I was not always explaining everything to a partner, I could just do it with out any irruptions.”

The majority of students preferred to work in a group which I found surprising for two reasons: students enjoyed creating their personal story the most, which was created independently and, ironically, even though group members did not always fully contribute. Mrs. A mentioned two unexpected benefits: “student discussions that were sparked by something that was just seen and shared by everyone,” and newly acquired tools became incorporated into a more competent sense of self (Davis, 2004). As Mrs. A put it:
Some of the students who “blend in” in the regular classroom, were very eager to help and they are not given that opportunity someplace else, so that boosts them up in their self-confidence. Other kids are able to look at them differently. Kids that aren’t as knowledgeable academically, have abilities technology wise that could put them on the same level as somebody else given the opportunity.

This research corroborated cognitive outcomes for DS that included: perspective taking (Bers & Cassell, 1998; Chambers & Schreiber, 2004; Weis et al., 2002), problem solving (Chambers & Schreiber, 2004; Howell & Howell, 2003; Weis et al., 2002), creativity (Chambers & Schreiber, 2004; Lachs & Wiliam, 1998; Weis et al., 2002), and higher order thinking (Chambers & Schreiber, 2004; Howell & Howell, 2003; Weis et al., 2002) which includes the use of narrative stories related to learning processes (Bruner, 1990).

**Limitations**

Although the majority of the students finished their project by the designated viewing, the timelines for completion were adjusted. The Math7 group had difficulty allocating resources and time to different segments of the project. Mrs. A commented: “While most [students] were on task and making progress, there were a few who spent the majority of the time off task and not really getting anything accomplished.” In addition, team members had difficulty delegating work and motivating group members to participate, which contributed to a lack of deep understanding about their topic (see Literature Review p. 32, Project Management; Carver et al., 1992). A few students procrastinated about bringing in images or writing or completing their movie, although it seemed that this was part of some students’ personal norms, since this was not exclusive to this project or the topic, but was pervasive throughout their educational experience.
Whilst the students conducted research and downloaded images and videos from the Internet, it became evident through observation and intervention as described in Chapter VI (pp. 166-178) that more direct instruction was needed about conducting searches, referencing resources, and understanding primary and secondary sources (see Literature Review p. 32, Research Skills; Carver et al., 1992).

There is still progress to be made in the area of “writing to learn” (e.g., Bruer, 1993). The environmental issues project was the most challenging for students. After coming to understand writing with emotion through the creation of their personal story, they recognized their lack of connectedness to the environmental topic and their difficulty in “relating” to it on an emotional level (Lambert, 2002; Porter, 2004). This was precisely why the topic was chosen, to help them to develop their understanding about this part of the curriculum and offer exposure and connection to the global community.

Students still need help with creating well-developed stories as evidenced by missing resolutions and persuasive components. Some students were able to write a comprehensive story, but lost the essence of the story in the editing process. Other students had difficulty writing, but were able to look at their sequenced pictures and narrate their story. This meant that some students had difficulty-transferring visual to written, while others had difficulty transferring from written to visual (see Literature Review p. 33, Organization and Representation Skills; Carver et al., 1992). The practical constraints of the learning context included: time, teacher training and development of curriculum framework and rubrics, student ability, and access to technology (Edelson et al., 1999).
Another limitation was the anticipation of having three teachers in the computer lab working with students throughout the process. This did not occur as I had envisioned, mainly in the areas of iMovie support and story creation, although the teachers assisted students by teaching, monitoring, coaching, and viewing. Since the other teachers did not feel as knowledgeable about the process or technological aspects; they deferred to me as the leader, and I ran into the same problems as the students when delegating within a cooperative group. Prolonged integration of professional development would benefit teacher involvement, confidence, and curriculum integration. Sometimes the teachers saw what needed to be done and took care of it. Sometimes we differed in how we offered help. Sometimes the other teachers filled in gaps that I was unable to fill since one of us needed to be in the lab while they monitored students videotaping in the hallways. At these times, I was not able to witness their teaching techniques, feedback, nor engagement with the students.

Some practical limitations regarding the technology were: battery expiration, giving personal feedback to 43 students during compilation, managing that many people at one time, and unforeseen technological problems that needed to be addressed. Other limitations were the amount of time it took to teach all of the technologies, the level of commitment and involvement of the teachers, the lack of student engagement with particular content, and the curricular tie-in that fulfilled the grade level expectations and sparked an interest in the students. Lastly, the interest in the digital story creation may diminish once the novelty has worn off, so we teachers must work at selecting engaging topics.
Further Research

Further research is needed to develop digital story projects that are both engaging for the students and support the curriculum. Research to explore cultural and gender differences may prove informative to refine instruction. It would also be beneficial to develop techniques for younger students to participate in story development by creating their own digital stories. Multi-grade collaboration creating digital stories could offer one-on-one student support, but research would be necessary for planning and developing best practices for implementation. We must find a way to engage student interest about themselves and the world that inspires exploration rather than shutting themselves down. Using digital stories to find their spark may captivate children’s imaginations and influence them to find their muse. In our school, we are looking forward to expanding the creation of digital stories to all grade levels utilizing cross-grade collaboration, as well as, exploring strategies for best practices of this implementation. Linking some of these practices to standardized outcome measures of literacy would be an important contribution for further research.
REFERENCES


Media Literacy Online Project (2002). Media literacy review. Available at [http://interact.uoregon.edu/MediaLit/mlr/home/indes.html](http://interact.uoregon.edu/MediaLit/mlr/home/indes.html).


http://www.dese.state.mo.us/divteachqual/profdev/


*Phi Delta Kappan*, 70(10), 752-758.


APPENDIX: A

CONSENT AND ASSENT FORMS
Informed Consent for Participation in Research Activities

Developing Literacy through Digital Storytelling

Dear Parent:

We are asking for your permission to allow your child to participate in a research study on developing literacy using digital storytelling, conducted by Therese Kulla-Abbott, Ph.D candidate, in collaboration with Joseph Polman, Ph.D, from the College of Education at the University of Missouri-St. Louis. In order to expand and teach writing skills, students will be writing stories. Their stories will be combined with images using iMovie to create a digital story. Digital Storytelling is the use of digital video, scanners, software, cameras, computers, & the development of narratives to tell a story. The information below details the study and attempts to answer questions you may have. We ask that you read this form and ask any questions you may have before agreeing that your child participate in the research at their school.

Why am I being asked to participate?
Your permission is requested for your child to participate in a research study about developing literacy using digital storytelling among middle school students. Your child’s participation will help us to better understand how using computers will impact reading and writing.

Your child’s participation in this research is voluntary. Your decision whether or not to allow your child to participate will not affect your current or future relations with the University or your school. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

What is the purpose of this research?
The purpose of this study is to better understand how literacy skills are impacted through the use of digital storytelling. This understanding will be used to inform improvements in the design of this and other related technologies, as well as curricula utilizing them.

What procedures are involved?
If you agree for your child to be in this research, you can expect:

• That I will interview some students after each digital storytelling activity about their views on learning about communication arts, literacy development, and the digital storytelling activity. The interview will be audiotaped
• That I will observe your child for several days during the conduct of the digital storytelling activities, and videotape most class sessions during the unit.
• All proper nouns, including names of participants as well as locations, will be referred to by pseudonyms only in all notes taken throughout the study and in the final write-up. I will keep a record of pseudonyms used. This record will be kept confidential throughout the study.
• That I may access and use your child’s standardized test scores to see if there are any relationships between digital storytelling activities and testing gains. The test scores will only be identified by a made-up name.
What are the potential risks and discomforts?
There are no potential risks or discomforts of this research, beyond those to which your child is normally exposed in his or her day-to-day life within the school.

Are there benefits to taking part in the research?
There are no direct benefits to you, your child, or the other participants involved in this study. However, it is my hope that this study will contribute to improving teaching and learning with technology in communication arts.

What other options are there?
You may choose for your child not to participate in the research, or any specific part of it, with no negative repercussions.

What about privacy and confidentiality?
No information about your child will be disclosed to others without your written permission, except:
- if necessary to protect your rights or welfare (for example, if you are injured and need emergency care or when the University of Missouri-St Louis Institutional Review Board monitors the research or consent process); or if required by law.
There will be an area in the computer lab that will be "off camera" designated for students who do not wish to participate in the study. Any non-participating students will be able to work on their computer and will not be videotaped.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your child’s identity. If photographs, videos or audiotape recordings of your child will be used for educational or research purposes, your child’s identity will be protected or disguised to the extent possible. Any information that is obtained in connection with this study and that can be identified with you or your child will remain confidential and will be disclosed only with your permission or as required by law. Personal data, videotapes and responses to surveys will be kept in locked files at the University, and electronic files made from them will not contain your child’s name.

What are the costs for participating in this research?
There are no additional costs for participating in this research.

Will I be paid for my participation in this research?
You and your child will not be paid for participating in this research.

Can I withdraw or be removed from the study?
You can choose whether your child is in this study or not and you may withdraw your child at any time without consequences of any kind. Your child may also refuse to answer any interview questions they do not want to answer and still remain in the study.
Who should I contact if I have questions?
The researcher conducting this study is Therese Kulla-Abbott. You may ask any questions you have now. If you have questions later, you may contact the researcher by phone at 314-427-8254, or email at tkulla@psdr3.org.

What are my rights as a research subject?
If you have any questions about your child’s rights as a research subject, you may call the Chairperson of the Institutional Review Board at (314) 516-5897, or email ora@umsl.edu.

Remember: Your child’s participation in this research is voluntary. Your decision whether or not to allow your child to participate will not affect your current or future relations with the University or your school. If you decide for your child to participate, you are free to withdraw him/her at any time without affecting that relationship.

You will be given a copy of this form for your information and to keep for your records.

I have read the above statement and have been able to express my concerns, which have been satisfactorily responded to by the investigator. I believe I understand the purpose of the study as well as the potential benefits and risks that are involved. I hereby give my informed and free consent to allow my child to be a participant in this study.

Signature of Participant

Signature of Parent

Date

Printed Name of Parent

Printed Name of Child

Signature of Researcher

Date (must be same as participant’s)
Assent to Participate in Research Activities (Minors)

Developing Literacy through Digital Storytelling

Dear Student and Parent or Guardian:

1. My name is Therese Kulla-Abbott and I have been the Instructional Technology Specialist at Remington School since 1991. I am working towards a Ph.D. in Educational Technology at UMSL.

2. I am asking you to take part in a research study because we are trying to learn more about how students like yourself learn communication arts and the use of technology through digital storytelling.

   If you agree to be in this study, I may interview you once or twice about communication arts, technology, and what you learned. In these interviews, you and I will talk about what you think, and what you did in class. I will audiotape this interview so that I can listen to it later. During the interview, you have the right to turn off the audiotape at any time. You also have the right to "pass" on any question that you do not want to answer.

   I will also make videotapes of you, your teacher, and your classmates during the classes. Since I will be teaching and assisting students with their projects, these videotapes will help me observe what is happening during classes so that I may write down notes about what I see, hear, and think about what is happening. It will be your job just to be yourself and to act the way you always do in school. This is what I want to learn about and try to understand better.

3. I may write papers and give presentations about the use of the digital storytelling. When I write about your classroom, I will make up names for you, your teacher, your classmates, and your school. I may access your standardized test scores to see if there are any relationships between digital storytelling activities and testing gains. The test scores will only be identified with made-up names.

4. You won't get anything for being a part of my study. But I hope that we can help teachers learn more about teaching communication arts using technology.

5. Please talk this over with your parents before you decide whether to participate. I am also asking your parents to give their permission for you to take part in this study. Even if your parents say "yes," you still can decide not to do this.

6. If you don't want to be in this study, you don't have to participate. Remember, being in this study is up to you, and no one will be upset if you don't want to participate or if you change your mind later and want to stop.
7. You can ask any questions that you have about the study. If you have a question later that you didn't think of now, you can call me at 314-213-8016, email me at tkulla@psdr3.org, or ask me at school.

8. Signing your name at the bottom means that you agree to be in this study. You and your parents will be given a copy of this form after you have signed it.

<table>
<thead>
<tr>
<th>Participant's signature</th>
<th>Date</th>
<th>Participant's Printed Name</th>
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<td>Parent or Guardian’s signature</td>
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<td>Researcher's Signature</td>
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Informed Consent for Participation in Research Activities

Developing Literacy through Digital Storytelling

Dear Teacher:

You are invited to participate in a research study on developing literacy using digital storytelling, conducted by Therese Kulla-Abbott, Ph.D candidate, in collaboration with Joseph Polman, Ph.D, from the College of Education at the University of Missouri-St. Louis. The information below details the study and attempts to answer questions you may have. We ask that you read this form and ask any questions you may have before agreeing to be in the research.

Why am I being asked to participate?
You have been asked to participate in a research study about developing literacy using digital storytelling among middle school students. You have been asked to participate because your efforts at integrating technology into literacy instruction will help us to better understand the potential of such instructional practices.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University or your school. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

What is the purpose of this research?
The purpose of this study is to better understand how literacy skills are impacted through the use of digital storytelling. This understanding will be used to inform improvements in the design of this and other related technologies, as well as curricula utilizing them.

What procedures are involved?
If you agree to be in this research, you can expect:

- That I will interview you before each digital storytelling activity about your ideas on teaching and learning about communication arts, the background of the specific class, and your goals for the unit. The interview will be audiotaped
- That I will observe you and your students several days during the conduct of the unit, and videotape most class sessions during the unit.
- That I will interview several of your students about their views on digital storytelling, communication arts, and their literacy development.
- All proper nouns, including names of participants as well as locations, will be referred to by pseudonyms only in all notes taken throughout the study and in the final write-up. I will keep a record of pseudonyms used. This record will be kept confidential throughout the study.

What are the potential risks and discomforts?
There are no potential risks or discomforts of this research, beyond those to which you are normally exposed in your day--to-day life within the school.
Are there benefits to taking part in the research?
There are no direct benefits to you or the other participants involved in this study. However, it is my hope that this study will contribute to improving teaching and learning with technology in communication arts.

What other options are there?
You may choose to not participate in the research, or any specific part of it, with no negative repercussions.

What about privacy and confidentiality?
The only people who will know that you are a research subject are members of the research team. No information about you, or provided by you during the research, will be disclosed to others without your written permission, except:
- if necessary to protect your rights or welfare (for example, if you are injured and need emergency care or when the University of Missouri-St Louis Institutional Review Board monitors the research or consent process); or
- if required by law.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity. If photographs, videos or audiotape recordings of you will be used for educational or research purposes, your identity will be protected or disguised to the extent possible. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Personal data, videotapes and responses to surveys will be kept in locked files at the University, and electronic files made from them will not contain your name.

What are the costs for participating in this research?
There are no additional costs for participating in this research.

Will I be paid for my participation in this research?
You will not be paid for participating in this research.

Can I withdraw or be removed from the study?
You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you do not want to answer and still remain in the study.

Who should I contact if I have questions?
The researcher conducting this study is Therese Kulla-Abbott. You may ask any questions you have now. If you have questions later, you may contact the researcher by phone at 314-427-8254, or email at tkulla@psdr3.org.

What are my rights as a research subject?
If you have any questions about your rights as a research subject, you may call the Chairperson of the Institutional Review Board at (314) 516-5897, or email ora@umsl.edu.

**Remember:** Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University or your school. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

You will be given a copy of this form for your information and to keep for your records.

I have read the above statement and have been able to express my concerns, which have been satisfactorily responded to by the investigator. I believe I understand the purpose of the study as well as the potential benefits and risks that are involved. I hereby give my informed and free consent to be a participant in this study.

**Signature of Participant**

______________________________  ____________________________
Signature of Participant          Date

______________________________
Printed Name of Participant

______________________________  ____________________________
Signature of Researcher          Date (must be same as participant’s)
APPENDIX: B
INTERVIEW QUESTIONS
Student Interview Questions

1. Please describe what you and your group did in your project with the DS. (see list of issues to prompt about DS below.)

   Issues to prompt students and teachers about DS:
   - Storyboarding
   - Story structure
   - Scripting
   - Shooting video
   - Collaboration process
   - Digital editing
     - Titles
     - Transitions
     - Credits
     - Audio
     - Music
     - Narration

2. What was your step-by-step process of creating a digital story?

3. How did you decide to put your ideas in the script?

4. Why did you select the pictures that you did? (go through them one by one)

5. How did you decide where to put your pictures in the movie?

6. What did you learn about your subject from creating this movie?

7. What did you learn about the process of creating a movie that you will keep in mind next time?

8. What reasons did you have for the music you chose?

9. What part did you like the most about putting the movie together?

10. Do you have any suggestions about how to teach this process?

11. What did you learn from this experience?
12. Is there anywhere in the process that you need more help?

13. What did you like best about the project?

14. What was most challenging for you?

15. In what ways, if any, does creating movies assist you with other schoolwork?

   Issues to prompt students and teachers about communication arts:
   - Writing process
   - Storytelling
   - Audience impact
   - Sequencing
   - Evidence
   - Perspective

16. (On the second and third projects only) How did creating the second/third digital story (movie) compare to your previous digital story experience?

   Students will provide reflective responses via email after each project to the following questions.

   1. What did you learn about the process of creating a movie?
   2. In what ways, if any, does creating iMovies assist you with other schoolwork?
   3. How did creating the second/third iMovie compare to your first iMovie experience?

   **Teacher Interview Questions**

   1. Please describe what your students did, in summary. (see list of issues to prompt about DS on page 56.)
   2. What do you feel students learned from the experience?
   3. What were your goals in implementing DS?
   4. What advantages do you see in using technology in this way to teach literacy skills, over other approaches to the content?
   5. What challenges did you experience in using DS?
6. In what ways did DS affect students’ literacy skills? (see list of issues to prompt about communication arts on page 57.)

7. Please describe any frustrations you had with this project, and its use in the classroom.

8. Please describe any benefits you see with using DS, either expected or unexpected.

9. Is there anything that you would like to do differently for the next project?

10. Do you plan on doing this again next year? Why or why not?

11. If you did the unit again next year, what would you keep the same, and what would you change about your implementation of the unit?
APPENDIX: C

RUBRIC FOR MYTH PROJECT
Rubric

Create a story about how your Greek character would handle one of the problems that teenagers face. (Think about the ideas we discussed in class.) Use everything you know about your Greek character. Be sure to include all of the criteria below:

Character development ______ 30 pts
  *Physical description
  *Superhuman qualities
  *Human flaws
  *Relatives

Organization ______ 20 pts
  *Logical order of events

Content ______ 20 pts
  *Problem identified
  *Solution (be creative)

Setting ______ 10 pts
  *Time
  *Place

Usage and Mechanics ______ 20 pts
  *Sentence structure
  *Spelling
  *Punctuation
  *Grammar

TOTAL ______ 100 pts
APPENDIX: D

CAMERA AND IMAGE INSTRUCTION HANDOUTS
Camera

Please conserve batteries by turning off cameras when not in use!

**Canon Powershot Taking pictures**
Round dial on Auto
Back button on red camera icon
Turn on camera
Focus by holding down the button ½ way
Take picture by pushing down all of the way.

**Canon Download to iPhoto**
Move switch on back to blue icon
Plug into computer and side of camera
Turn on camera (iPhoto will open)
Download and delete originals
Turn off and unplug camera.
Set switch on back to red camera
Put camera and cable on teachers desk

**Sony camera**
Take off lens cap
Turn camera on by pressing button forward on top
Hold button down ½ way to focus
Press same button all of the way until hearing click
Turn camera off.

**Sony camera download to iPhoto**
Plug cable into side of computer and camera
Turn camera on.
Download and delete originals
Drag camera to the trash (eject)
Turn camera off
Put camera and cable on teachers desk

**Saving KidPix**
File: Save As
Name it what it is with your initials .kpx
Save in My Pictures (to make changes)

**KidPix exported to iPhoto**
File: Export
Name it what it is with your initials .jpg
Save to Desktop
Open iPhoto and drag .jpg into iPhoto

When you open iMovie, all images in iPhoto will be accessible.
**Video Camera**

**Recording Video**
Set up camera on tripod or hold steady against your body.
Move button to MOVIE (Sony) or CAMERA (Canon)
(Make sure blank DV tape is inserted)
View display to adjust camera position
Press RECORD (red) button when ready
Make sure you see Recording or Rec on display

When finished recording press the record button to pause.
Return to off position.

Remember: the microphone is built into the camera, so have students speak loudly.

**Downloading Video**
Connect the computer and Video camera with a firewire cable.
Open iMovie project
Turn camera to Play (Canon) or VCR (Sony)
iMovie will read the camera.
Press IMPORT on iMovie screen
iMovie will automatically bring in all video clips
When finished importing all video, REWIND the camera and turn it off.
Put camera and firewire cable on teacher desk.

**iMovie tips**
Adjust timing of clips by reading script and watching the clock.
Adjust timing before dragging into timeline and rendering.

Editing Video clips
Highlight clip
Move or play clip into position
Edit > Split video clip at play head.

Remember to EDIT > UNDO if you make unwanted changes.

SAVE OFTEN

Importing AUDIO: Apple > System Preferences > Sound > Input > Internal Microphone
!TURN UP INPUT VOLUME EVERY DAY! Do NOT distort.
APPENDIX: E

SCANNER INSTRUCTION HANDOUT
Put several pictures on scanner bed

Open Your Server Folder on the desktop

Open (double click)
1. Hard Drive
2. Applications folder
3. Image Capture

(When your pictures appear on computer screen)

Set
Resolution: 300dpi
Scan: to your server folder’s picture folder
Automatic Task: NONE
Image Correction: Automatic

Draw marquee around picture
Name picture
Click on Scan

Move Marquee
Name picture
Click on scan

Do this for each picture
(Press OVERVIEW after loading new pics on scanner)

Checking your server folder for scanned pictures
Put Server in trash and remove pictures from scanner

Let the next student know that the scanner is ready for them.

Go to your computer and open your server folder
Open iPhoto
Drag from server folder into iPhoto
APPENDIX: F

PERSUASIVE WRITING HANDOUT
PERSUASIVE WRITING HANDOUT

Step 1: Choose a topic
Step 2: Write a thesis statement
   Thesis ____________ (because) main topic #1, main topic #2, and main topic #3
Step 3: References
Step 4: Write first outline
Step 5: Bibliography information
Step 6: take notes
Step 7: Write final outline
Step 8: Write first draft
Step 9: Revise first draft
Step 10: Write final draft

Persuasive Outline

I Introduction
   D. Catchy statement
   E. Thesis statement
   F. Conclusive statement

II Body
   1. Main Point 1
      1. Detail
      2. Detail
      3. Example
      4. Proof / Evidence
   2. Main Point 2
      1. Detail
      2. Detail
      3. Example
      4. Proof / Evidence
   3. Main Point 3
      1. Detail
      2. Detail
      3. Example
      4. Proof / Evidence

III Conclusion
   F. Restate thesis
   G. Summarize main points
   H. Reemphasize main idea in third person
APPENDIX: G

IMOVIE CHECKLIST HANDOUT
Checklist for iMovie completion

☐ Uncheck Ken Burn’s effect
☐ Adjust picture timings and sizing (no black around pictures)
☐ Sequence pictures (put in order)
☐ Add Title
☐ Turn up volume in System Prefs
☐ Record voiceover
☐ Adjust timing of pictures and edit voiceover as needed
☐ Add effects (like Ken Burns)
☐ Add transitions
☐ Add credits
☐ Then add music
☐ Adjust audio volume levels.
☐ Have your group check it.
☐ Make changes
☐ Have a teacher check it.
☐ Make changes.
☐ File to Share as Quicktime

See Final instructions for music & sharing.
Type out answers to reflection questions.
Email attachment to t kulla.