Effects of digital storytelling in a language arts classroom

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Effects of digital storytelling in a language arts classroom

Abstract
Digital storytelling is a process of writing a story using technology to create a movie of a personal story. The purpose of the review is to explore whether or not digital storytelling is an effective way for students in the language arts classroom to connect their writing with technology. The review begins with how technology is used with writing in the classroom. Then the process of digital storytelling is reviewed to understand the multiple steps: (a) pre-production, (b) production, (c) post-production and (d) distribution. The use of digital storytelling in the classroom and how teachers have used digital storytelling is the final part of the analysis in the review. After reviewing the research, digital storytelling was found to have offered the opportunity for authentic writing in the language arts classroom supported by technology and would appear to help students make connections with the language arts content.
EFFECTS OF DIGITAL STORYTELLING IN A LANGUAGE ARTS CLASSROOM

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Joseph J. Hegland

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ABSTRACT

Digital storytelling is a process of writing a story using technology to create a movie of a personal story. The purpose of the review is to explore whether or not digital storytelling is an effective way for students in the language arts classroom to connect their writing with technology. The review begins with how technology is used with writing in the classroom. Then the process of digital storytelling is reviewed to understand the multiple steps: (a) pre-production, (b) production, (c) post-production and (d) distribution. The use of digital storytelling in the classroom and how teachers have used digital storytelling is the final part of the analysis in the review. After reviewing the research, digital storytelling was found to have offered the opportunity for authentic writing in the language arts classroom supported by technology and would appear to help students make connections with the language arts content.
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INTRODUCTION

Digital storytelling is becoming a popular method for teaching the writing process in the classroom. It involves using multimedia to help tell a personal story (Bull & Kajder, 2005). Digital storytelling provides students with another means of sharing a story that they would like to tell (Bull & Kajder, 2005; Kajder, Bull & Albaugh, 2005; Ohler, 2006; Porter, 2004; Salpeter, 2005). Porter (2004) states that digital storytelling “takes the ancient art of oral storytelling and engages a palette of technical tools to weave personal tales using images, graphics, music and sound mixed together with the author’s own story voice” (p. 1). The final product in digital storytelling is a student-created movie that displays an author’s personal story told through the use of multimedia.

Writing provides a means to share a student’s thoughts and feelings. A problem that arises in today’s classrooms is the students’ need to find connection with their classwork and the content that the students are learning. In the language arts classroom this can include the students’ writing as part of their classwork. Bull, Albaugh and Kajder (2005) suggest that technology helps offer students the connections between their work and other content areas. This connection is then emphasized with digital storytelling as a way to enhance the writer’s expression (Kajder et al., 2005). Therefore the stated problem of students not finding connections between the classwork and their learning may now have a remedy. Digital storytelling may be a method that offers a solution to this problem.

As a new topic in the field, there is little research to support digital storytelling claims and most published information documents personal experiences of educated
individuals. This review will focus on the topic of language arts and the role of digital storytelling in improving learning. It will address how digital storytelling could be implemented in a language arts classroom. This paper shall review the literature that may indicate whether digital storytelling is a viable solution for authentic learning in the language arts classroom.

It would be difficult to review the digital storytelling process without first discussing how technology can be used in a classroom. The language arts classroom has a focus on literacy and many individuals have investigated the influences of technology on building literacy (Baker, 2000; Baker, 2001; Castellani & Jeffs, 2001; Hughes, 2005; Wong, 2001).

The process of digital storytelling will be compared with Porter's (2004) four phases of (a) pre-production, (b) production, (c) post-production, and (d) distribution. The different ways that people use digital storytelling will be compared to examine the process and how it affects the writing in the classroom. Research will be studied and personal experiences will be reviewed to examine the link between the digital storytelling and positive or negative experiences in the classroom. The review will then lead to solutions for the classroom. The personal experiences that will be mentioned will be from educated individuals who have tried this activity in the field, but have not had the opportunity to complete research with their personal findings. The benefits and concerns will help make a great leap towards whether this is viable in the language arts classroom setting.
The question(s) that will be addressed within this review of literature is:

1. Is technology effective in teaching writing in the language arts classroom? What grade level are you discussing?
2. What is the process for using digital storytelling in the classroom?
3. Is digital storytelling effective in the language arts classroom to help with teaching writing in the language arts classroom?
METHODOLOGY

The author reviewed multiple databases to find the available resources on the topic of digital storytelling. The databases of online articles used through the University of Northern Iowa library were Education Full Text, ERIC, Info Trac, and EBSCO. Google Scholar was an Internet database that was also used to search for research pertaining to the topic of digital storytelling. To search for available books on the topic, the UNIStar database was used to look for those print resources. To make sure that the authors and their research were credible the researcher checked articles from journals that were peer-reviewed.

Numerous descriptors were used to help find articles and other materials to review. The main descriptor used was “digital storytelling.” This was used most often because it dealt with the topic, but there was so little information that there were not many more descriptors that could be added. Other terms that were used to sort through information were “interactive storytelling” and “storytelling and technology.” The word “research” was added to the searches to see if there were any materials that were more closely connected with research in the field. The research then moved towards descriptors such as “technology and language arts” to help find information that would connect the idea of technology and how it benefits language arts.

The research was reviewed in two different ways. The first was to determine whether the information was relevant to the topic of digital storytelling or the use of technology with writing. The articles were evaluated to see if there was research to support either idea. Research was difficult to find because the process of digital
storytelling is relatively new there is little formal research supporting its use in the classroom. There were articles that were selected because the topic and information was used in a classroom, but no formal research was done. This type of article needed to be used to review how digital storytelling was used in the classrooms to support ideas. The research dealing with technology and writing was put into place to help address the lack of formal research with digital storytelling and bring research-based solutions. However it is important to note that the personal experiences that were found in these articles were similar among other authors making their points on the effectiveness of digital storytelling.

The second time the materials were evaluated, it was to determine how they could be used in a paper reviewing the effects of digital storytelling in the classroom. If an article or book did not fit into the topics of benefits, processes, or use of technology with writing then it was set aside. After evaluating the written work, the researcher also reviewed the author(s) to ensure that the author(s) of the article was appropriate for writing about the topic. If it was found that an author did not seem to have appropriate credentials, then the article was not used. The articles that made the cut, after reviewing, were used and finally placed into the section that was needed to help support the ideas presented in the section of the paper. It was from this that the researcher was able to construct the review of the literature.
ANALYSIS AND DISCUSSION

To understand how digital storytelling can benefit the classroom, the first logical place to review literature would be in the area of technology in the language arts setting. Next it would be valuable to analyze how to use digital storytelling and see what would be the benefits or concerns in the classroom.

Technology in the Language Arts Classroom

Language arts is a subject in which learning can be facilitated by using technology in the classroom. Becker's (2000) research of k-12 educators found that the majority of computer use in the classroom is word processing. In the same research, when teachers were asked the three ways they use computers the most, the second most important use was for students to express themselves through writing. Discussions have arisen about whether or not technology is actually beneficial in a classroom, or more of a nuisance. Jane Healy (1998) declared that numerous forms of technology are used incorrectly in schools. She used the term “edutainment” to describe how certain forms of technology have more entertainment value than actual educational value. Other writers found that when it was used correctly in the classroom setting, technology could be an effective tool in the learning process (Hughes, 2005; McNabb, 2005; Palloff & Pratt, 1999). These authors wrote about the possibility of technology being used effectively in the classroom by embedding the technology within the subject curriculum. The idea of integrating the technology within the subject curriculum led to the students creating better projects with the technology used as a tool to support learning.
How Technology Should Be Used

A report by Hughes (2005) supported the idea that the use of technology in the setting of a specific subject was more effective than just using the technology on its own. The study looked at numerous teachers and how they experimented with technology with their students in the classroom. The participants found it useful to use technology in the classroom, except on one occasion. On that occasion, the participant did not have the students use the technology in the content-area subject. The teachers needed to find a way to use technology with the subject they were teaching otherwise using the technology was not worthwhile. Therefore, from the teacher standpoint, the use of technology in the classroom is not beneficial for the students unless they can use it with a subject curriculum. In planning to use technology with writing, the research shows that the first place to contemplate its use would be by combining the technology in the language arts classroom (Hughes, 2005).

Understanding technology has recently been defined as a literacy in education. Students learning computer technology and computer software with a subject curriculum in school helps them create a relationship between the technology, themselves and the content (Palloff & Pratt, 1999). Integrating technology into the language arts curriculum helps to foster the students' ability to use technology. Their ability to understand how to use computer technology is found to increase after working on a project such as a digital story. Huffaker (2004) found that students were using word processing and demonstrating their use and understanding while also creating their piece of writing. This research
showed that it was effective for students to not only use the word processing separately, but that it was more beneficial to use the technology with their writing.

Technology is considered to be more beneficial when writing is the main focus and technology is used as a means to produce and share what the students have created (Fan & Orey, 2002; Hughes, 2005; McNabb, 2005; NCREL, 2003; Palloff & Pratt, 1999). Palloff and Pratt (1999) used the term "double-loop learning" as a way to describe a "learning process and is the foundation of a transformational learning process (p. 62). The term describes the ability to learn how to use the technology along with learning specific subject matter. This type of learning integrates the two areas instead of students learning about technology in one classroom and a subject in another classroom. Palloff and Pratt express that the students develop a better understanding of technology because they would have a reason to be using it. The connection between the subject material and the technology experience would be more beneficial than using them in different contexts.

Other authors offer similar findings about technology and writing being combined together to be more beneficial. McNabb (2005) suggests that the use of technology in the language arts classroom does not separate the subject and technology use. This creates a setting that is more beneficial to students. He provides research showing that when technology is used in the classroom setting, as opposed to separate from the classroom setting, the students find more meaning and it provides advantages to not having technology. Students with special needs or those who need extra help, benefited from having the technology usage directly in the classroom setting.
Writing in the Classroom

How writing is taught is a crucial concern in the language arts classroom. One of the concerns deals with making sure the writing is authentic. Authentic writing is created by having students write a piece that is real-life centered, or it affects them personally to create the story (NCREL, 2003). The students need to understand and connect with the writing to have it make more sense. When students connect with the writing they have a better idea of how to work with the writing (McNabb, 2005; NCREL, 2003). Authentic writing helps the students develop better writing skills because they know the content of the writing, therefore they can then concentrate and be active participants in the writing process. When this occurs, the students do not wait for the teacher to give them the topic or try to understand the topic while writing. Instead, when given the opportunity to make connections with their personal knowledge and create authentic pieces, the students are considered more active participants in the writing process (Fan & Orey, 2002). The students became active learners through being able to write about topics that dealt with personal experiences or related to the real world. Fan and Orey discussed the importance for students to have that connection to writing so they concentrate on the writing process and less on trying to learn about the topic.

Students can also benefit from the use of group work during the writing process. Group work allows them to share ideas and understand the writing process together. It also allows for the students to learn from others' experiences (Colombo, 2002). Beyond writing, working with other students allowed the students to concentrate on cooperative learning skills and sharing personal experiences. The students then used the cooperating
skills while writing so some students could help others that may be struggling (Fan & Orey, 2002). The information about writing raises the question of whether technology can benefit in the writing classroom.

*Using Technology with Writing*

Concerning technology and writing, the issue that stands out first and foremost is that students need to learn how to use the writing process before implementing it through a word processor. This helps the students concentrate on little advances at a time instead of having to learn the topic they are writing about, the process of writing, how to type, and how to use the program all at once. Give students experiences with each area before exposing them to both writing and computers at the same time. Combining technology and subject matter is considered beneficial, but Wong’s (2001) research showed that trying to learn how to write at the same time as learning the technology may be too overwhelming. After spending time learning how to write and how to use technology, the students can use the technology to complete their writing. However, once the students have a better understanding of the writing process and how to use computers, combining the two have been found to have positive results (Wong, 2001).

In the classroom, the use of technology can help with some of the minor problems that can occur with writing. Using a word processor allows students to revise what they are writing as they are writing. When a student makes a mistake with a pencil he or she would need to rewrite the section. Word processors allow students to type a story and make revisions as necessary. This causes students to be more motivated to write because they do not have worry about rewriting the whole story if mistakes are made. Research
from MacArthur, Ferreti, Okolo and Cavalier (2002) also found that the use of word processors benefits students with learning disabilities, where the handwritten process of revising their papers may be a challenge for them. Instead of anxiety about revising, the learning disabled students are able to concentrate on the writing process. While revising the paper, the computers also allow students to use spell checkers to assist them with the spelling of their paper. The researchers suggested that the technology helps the students concentrate on the subject they are studying and writing, while the word processor helps fix only minor details of the piece of writing (MacArthur et al., 2002).

Computers have been found to be motivating to students in their writing. Fan and Orey (2002) found that the inclusion of multimedia in the writing process helped motivate students more with the writing process. Students were found to not only learn the writing process with the use of technology, but that it allowed them to experience other features of word processing, including formatting, and using that with the writing process. This allows students to become less bored with the original writing process and motivates students to use their writing in multiple ways.

Baker (2001) examined how students learn more about writing when publication happens after the writing, which is the final stage of the writing process. This emphasizes the idea that the technology is just a tool for the writing process; it should not take over the project. It makes the process more authentic because the students are actually printing their work to share. She suggests that when using all the technology; students would be able to create numerous documents with different capabilities that computers are able to add to pieces of writing. These capabilities include pictures, colors, fonts, and other style
changes. Technology and writing can work together as long as they are used as partners and writing is the first priority (Baker, 2001).

Process of Digital Storytelling

Digital storytelling uses real-life examples of students and combines that with the use of technology to create a product where students can show what they understand (Porter, 2004). Some examples have included a person reflecting on Hurricane Katrina, a memory of a favorite pet, personal experience in the Peace Corp, and learning about their mother’s past. Porter (2004) offers four phases for making digital stories. These phases include: (a) pre-production phase, (b) production phase, (c) post-production phase, and (d) distribution phase.

Pre-Production Phase

The pre-production phase is, “the development and planning phase” (Porter, 2004). The main concept of this stage is the planning. Here one develops what is going to be included in the story. This includes writing the story and setting up storyboards (Howell & Howell, 2003; Kajder & Swenson, 2004; Lambert, 2006; Ohler, 2006; Porter, 2004, 2006; Salpeter, 2005). The important part of the pre-production phase is outlining the story so that the students are prepared for creating the images on the computer. Storyboarding can be used to assist in the planning process. The students should concentrate on planning so that little time is wasted in the creation. Howell and Howell (2003) discuss that time is saved by creating a storyboard because students then have a plan and they can stick to that plan, rather than not knowing their next steps. Laying out the process of their writing would be similar to the planning and brainstorming that
would happen with the original writing process, giving the students similar experiences while also using a different form of a project, the digital story. Lambert (2006) also provides insight stating that not only does storyboarding save time by making sure the students know how to plan and what to use, but it also lets them understand what not to use in a digital story. Not searching for extra pictures, music, or videos saves a large amount of time rather than finding all the materials first and then only using part of them in the end product.

Students also need to have an idea of their direction and purpose when they create their story. They need to outline the story before the story is written. Banaszewski (2002) used this technique. It caused students to think about the piece before they wrote. Stories need to start with the pre-production phase because this is where the ideas are formed. Without ideas, either through brainstorming, writing, or storyboarding, the story would not piece together. Porter (2004) recommends planning for the audience that will be viewing the piece so that it makes sense to them. She also claims that there needs to be a purpose for the project so that the story stands out, rather than all the bells and whistles that could come along with the story. Planning is the key to having a successful digital story. Otherwise the story may be lost in the final product, or at least not shown to its fullest potential possible (Banaszewski, 2002; Howell & Howell, 2003; Lambert, 2006; Porter, 2004, 2006; Salpeter, 2005).

Production Phase

The production phase is where the students start collecting the materials they are going to use for the creation of the digital story (Porter, 2004). In this part of the process,
the students connect the writing to other visual and audio elements. Images and audio should not be acquired at random. The students are responsible for finding pictures and audio that fit the overall message of the story. Students look for images that represent the story, and could be used to as much as replace words in the script. Taking time to find images that fit the story is important to this phase in the process (Banaszewski, 2002; Eagleton & Hamilton, 2001; Kajder et al., 2005; Porter, 2004; Salpeter, 2005). This may be a longer process for some students than for others depending on the resources and what resources the students have available to them at home. Banaszewski (2002) used digital stories in his curriculum and found that it takes long periods of time to create stories due to what was needed by the students. Proper planning from the pre-production phase will help in this phase because students will be looking for pictures and other media that will match their original plans. Porter (2004) provides insight into using not only pictures but also other types of media, such as video, which can also be beneficial to the project.

The other important part of the production phase is collecting audio. Some of this can be included in sounds or music, but the other important element deals with the creator’s voice being used to tell the story. Audio clips are helpful to add another element to the story besides reading and viewing pictures. Students are able to find other sounds that will benefit the situation (Kajder et al., 2005; Ohler, 2006; Porter, 2004). The use of this media helps make an impact in the story. The student’s actual voice has the most impact on the digital story. Their recorded voice brings the student into the story more and helps make the personal connection that is needed with the story (Banaszewski, 2002).
2002; Bull & Kajder, 2005; Kajder & Swenson, 2004; Lambert, 2006). Not only are students connected, but also they can add personal feelings through their voices that would not be heard by just reading the text. Lambert (2006) describes the voice as being magical and allowing the voice to show the power of the situation and times where the person may have been vulnerable. No one else can show the feelings of the story better than the people that experienced the story for themselves.

Post-Production Phase

After collecting the images and sound, the next phase is to combine everything together and do the final editing. Everything is in place; the parts of the digital story just need to be synched together for the final product. Porter (2004) states, “The post-production phase has one process step: Putting IT all together” (p. 110). This process uses the computer to help edit the materials into a story form. There are many different kinds of programs that could be used on the computer to help create the digital stories. The programs that researchers have suggested include iMovie, Pinnacle Studio, KidPix, and PowerPoint. (Howell & Howell, 2003; Lambert, 2006; Porter, 2004). Each program allows the students to use their different media and combine them into a show that would be viewed by other people. The numerous programs that could be used allow for students to have multiple options and offers options for schools to have these programs available for the students.

The story is the focus of the learning and should be the focus of the final digital story created by the student (Banaszewski, 2002; Kajder et al., 2005; Kajder & Swenson, 2004; Lambert, 2006; Porter, 2004, 2006). Students should combine their pictures and
audio to create the story first into a rough draft. When that has been accomplished then
the students can continue to add other effects offered by the program. After the drafts are
completed and reviewed by peers or the teacher, the students may do the final tuning that
is needed to really make the story stand out to the audience (Lambert, 2006; Porter, 2004,
2006). Students tend to want to use special effects first, but it takes planning by the
teacher to make sure that the students concentrate on their stories first. Having them
understand that the extra effects are secondary to sharing the message (Banaszewski,
2002). Allowing the students to add effects may require more time for making their
digital story, but if the students do not have time to finish all the effects, the story may be
shared because the original story they are trying to tell has already been created in the
program (Bull & Kajder, 2005; Kajder et al., 2005).

Distribution Phase

The distribution phase involves the process of dealing with showing the final
product to the audience (Porter, 2004). Digital storytelling allows students to show what
they understand through a technology format and real-life examples. Therefore, it would
make sense that the students have an opportunity to share their stories and experiences
with other students after creating their projects. Digital storytelling can allow students to
use many skills that they may not use in the classrooms during other writing projects
(Ohler, 2006). The students’ ability to have effective communication is the reason behind
the project. They have spent numerous hours of planning, writing and creating the
project. The final goal is to have an interactive digital story that can communicate their
message. The best response that authors have found is to have the students share what
they have created to see if they are able to communicate the message effectively with their fellow students (Kajder & Swenson, 2004; Porter, 2004). This would then allow the creator to receive appropriate feedback about their piece of work.

After watching a digital story, students can give feedback to help improve the story that can then be changed to make the story stronger. Growth in the student’s work can be seen with the ability to share and receive feedback from other students (Salpeter, 2005). Revising and editing are part of the writing process and also part of the digital storytelling process. The students are able to work with each other to improve upon their final product. It is important to have this sharing time because the students worked to create a story to share with an authentic audience, their classmates. Therefore it is vital for the students to actually share their story to the class (Kajder & Swenson, 2004; Porter, 2004). The collaboration in the classroom helps to create community among the students. The storytelling allows the students to share and work through editing and praises with other students. Banaszewski (2002) used personal classroom experience to demonstrate how to create a better classroom sharing experience. He found that it would be beneficial for the teacher to show his or her own digital story to the class. Showing the story allows the students to see a final product and talk about appropriate praise and criticism to give to the author of the digital story.

Porter was able to demonstrate the purpose of the four processes of the digital story. Other experts in the field use similar processes, but not under these four titles. Using the four processes, the next section will be looking at the digital storytelling process and what research says about its connection to writing. The review will look at
how it connects and what the benefits or concerns are of digital storytelling in the classroom.

The Use of Digital Storytelling

The power of writing and technology has been reviewed along with the process of digital storytelling. Digital storytelling uses its process to combine writing and technology. Although the amount of research is limited, it has been conducted by people looking at how writing and digital storytelling connect and whether it is beneficial. Using digital storytelling, its benefits and concerns and examples of how it is used is the next stage for the reviewer to see if digital storytelling would be effective in the language arts classroom.

Writing and Digital Storytelling

Digital storytelling uses technology to help create a writing project that does not use the traditional paper and pencil format. The use of the technology causes the students to employ their own ideas and work without the final product of a written paper to show what they understand (Lambert, 2006; Porter, 2004, 2006). Digital storytelling focuses on not only the technology aspect, but also on the writing process during its creation. What has been shown by authors in the field to be effective is when a digital story has the elements of a handwritten story including a powerful message, character development and an interesting plot (Abidin & Razak, 2003). Without these elements, students did not have a very powerful piece of writing and it was difficult for the viewer to understand or enjoy the digital story that was being told. Baker (2000) also examined classrooms that compared the writing processes using brainstorming, drafting, editing, revising, and
publishing to demonstrate the use of these steps in creating beneficial digital stories. The more the writing process was used the better the digital story.

While allowing students to not only concentrate on the main writing process, there are other concepts of writing that make a story interesting. Digital storytelling has been found to go beyond the use of just the main features of story including using a plot, characters and a message. Huffaker (2004) found that imagination was used frequently with digital storytelling in the classroom. Students were also able to create a specific language style and voice. The students could then use their voice to tell an effective story. Finally, using their piece of writing, students were also able to discuss social roles and how that could work in a piece of writing. In the digital story, the students’ ability to create an effective story is still not lost in the middle of the technology being used. The writing is most important.

Digital storytelling allows students to create pieces of writing that are authentic to them. The students are not given a piece of writing that they have no connection to, but rather they create a piece that shows their understanding of the curriculum and its connection to their own personal lives (McNabb, 2005). Researchers found when writing is more authentic to the students, they produce better work because they are connected to the piece and able to show their understanding of the material (Castellani & Jeffs, 2001; Iacchia, 2005; NCREL, 2003). The students are able to explore emotions, thoughts, and the writing process because they are clear on the material and understand the story. They are able to use what they already know and create a meaningful story to share with other people (Iacchia, 2005). The students are motivated by the technology therefore they are
able to use their ability to demonstrate their knowledge because the piece of writing that they are creating is an authentic piece of work (Castellani & Jeffs, 2001; Iacchia, 2005; NCREL, 2003). Digital storytelling has connections with writing, but it is also important to review the benefits and concerns of digital storytelling in the classroom.

**Benefits of Digital Storytelling**

The use of digital storytelling in the language arts classroom did reveal some benefits. One benefit that stood out was that creating the digital story was a great use of motivation to get the students writing. (Adams, 2005; Castellani & Jeffs, 2001; Stoner, Easterbrooks, & Laughton, 2005; Weis, Benmayor, O'Leary, & Eynon, 2002). The motivation came from several factors. The first factor was that the students were motivated by creating an authentic piece of writing (Castellani & Jeffs, 2001; Iacchia, 2005; NCREL, 2003). Students were motivated because they are connected to the topic by the piece of writing. The other factor that researchers found from students was the students' ability to use the technology while creating the digital story. Adams (2005) found students who learn better from visual means are more attracted to the use of digital stories because the story is not on a sheet of paper, but rather on a computer screen with pictures and sounds. Adams also discovered that the students found the use of digital storytelling more memorable. Additionally, student motivation was found to be a main reason for teachers to want to use digital storytelling (Adams, 2005; Castellani & Jeffs, 2001; Stoner et al., 2005; Weis et al., 2002).

A second benefit of digital storytelling is that technology makes the process of actual writing easier for students. For students who have a difficult time with
handwriting, using technology to create a story is a benefit to them. The students are still in control of what is written, but the actual task of handwriting the story is difficult. Using the technology allows the students to concentrate on their stories and not on handwriting (Stoner et al., 2005). Students are able to type or record their story, but the students are still responsible for the story. Technology is beneficial when used as a tool to help aid students or take the role of a task that may be difficult to some (Healy, 1998). As a tool, technology has the ability to help students who struggle. Teachers using this in the field found that students created a better piece of writing when allowed to use technology while creating their digital story instead of just writing the story by hand. Students also wrote more while using technology instead of writing by hand (Stoner et al., 2005).

The use of authentic writing is a third benefit of digital storytelling. Students are able to work with writing pieces that are meaningful to them. The students can demonstrate their multiple abilities to write while using a topic they are familiar with (Castellani & Jeffs, 2001; Iacchia, 2005; NCREL, 2003). Students enjoyed writing because they could examine their own personal experiences. Students were able to take an event from their lives and understand what happened, how they felt, and how to portray what they were thinking to another person. Students found pride in their work and concentrated more on their topics because they were personal experiences (Weis, Benmayor, O'Leary, & Eynon, 2002). Students examined their work, were able to analyze the stories, and saw how effective they really were to the audience. Students were found to spend more time wanting to review and edit pieces of writing that they created on the computer than they did when it was a handwritten piece of writing.
Finally, students were more apt to collaborate in a group setting. In the distribution phase students took their stories and share it with other students in the class to see their response and get feedback from their classmates (Porter, 2004). Students worked with a specific audience in mind and were found to be eager to share their work with other students. Baker (2000) found during the writing process the students were willing to work and share with classmates to get feedback on what would make their stories better. By collaborating with other students the digital story’s author was able to revise their stories with input from the audience. This allowed the students to focus their piece of writing on a specific audience by getting feedback, which would help them. The students were more willing to share and receive feedback in this format than in their handwritten work. However the use of digital storytelling was not always found to be beneficial. While doing research there were concerns with digital storytelling.

**Concerns of Digital Storytelling**

The use of digital storytelling has produced benefits that have been demonstrated through research and classroom experience, but there have also been some concerns with the use of digital storytelling in the classroom. The concerns deal with the use of technology when it comes to writing the digital story.

When implementing digital storytelling in the classroom, the teachers who are implementing have to support the digital storytelling process. When teachers were having difficulties incorporating digital storytelling into their classroom it was due to the fact that they were having problems accepting or being able to use the technology (Salpeter, 2005). If teachers were confused as to how to use the different programs for creating the
story they did not feel comfortable attempting the project with their classroom. The teachers needed to feel they understood the technology and how to teach it to the students. Healy (1998) offered that teachers might have a tendency to feel a lack of empowerment when doing a project with technology and the students are showing more knowledge than the teacher. This could cause negative feelings that keep them from using the technology that is available to them. If this were to be implemented into a school, teachers would need training on how to use the technology so they feel more empowered when put in front of the classroom.

The technology that is involved in digital storytelling can be expensive depending upon what the school chooses. The different types of programs and the computers would have to be part of the school's budget. However, what also makes the use of technology difficult is when the teachers have learned to use technology and are trying to allow their students to make a digital story, but the technology does not work. Technology may work the majority of the time, but having it break down or the need to be updated has caused teachers to not want to attempt this as a writing project. After creating the written piece, the rest of the project is dependent on the technology work, and not having that work is a frustration to the teachers (Gold & Serim, 2002). This frustration was then found to cause teachers to be less likely to want to try this type of technology in their classroom. Over time, though technology has become more affordable and easier to stay updated and keep running. If there are problems, often they are found to be easier to fix, or a cheaper replacement can be put in its place (Adams, 2005). This may put teachers at ease when planning to use the technology in their classrooms.
It would also take some work with students to make a quality project. One of the concerns of teachers is that students were more focused on creating a project that used all the creative effects and transition rather than making sure the story was at its highest quality (Baker, 2000). While using a movie editing program with many different effects available may have seemed like a great idea, some students were found to be distracted by these effects and lost their focus of their story. Baker also talked about how the teachers’ focus should continue to remain on the story and what they need in their story to be effective. When talking about the post-production phase of digital storytelling previously there was information from people in the field suggesting that the students should be told to focus first on their story that they are writing. Once their story is complete and they have a rough edit of the story on their computer program, then they can work on fine-tuning their project with other pictures that may help their story (Lambert, 2006; Porter, 2004, 2006). Students need to also be taught how to focus on what effects are appropriate so even after writing the story they do not use effects that will distract people from the story, but rather make it stand out to the audience (Baker, 2000). Teachers need to use caution when talking about students figuring out what is important in the story and what is extra to the story. Students need guidance when it comes to finding out information they can use and teachers need to help them work through what is important information. The revision process and collaboration helps the students also find what is important in their story and what does not really need to be included in the final product.
Knowing the benefits and concerns is advantageous to a person trying to use digital storytelling. It is also helpful to have ideas of different ways to incorporate digital storytelling into the classroom. Having some tested ideas from teachers can be helpful.

Uses in the Classroom

Digital storytelling could be used for numerous topics in the classroom. People that have been instrumental in using and teaching digital storytelling have emphasized using this process as a way for students to write about their personal experiences so they have a personal connection to their writing. This has been discussed throughout this review as a way to get students to write authentically about a topic. Writing about a personal topic was found as a positive way for students to get excited about their writing and connect with the topics that they were talking about in school (Castellani & Jeffs, 2001; Iacchia, 2005; Lambert, 2006; NCREL, 2003; Porter, 2004, 2006). When students were given the ability to write about an experience they knew they were able to create a story that demonstrated their understanding of the writing process.

With local history being easily accessible and students possibly already having background knowledge about the topic, there may be another area for a teacher to have the students concentrate on creating a digital story. Students have the ability to take something local or something meaningful to them from around the world and do research to create their digital story. Adams has used digital storytelling in this way and has found it beneficial for students to use it beyond their own personal experience, but extended to another topic that they may find interesting (Adams, 2005).
Another suggestion is to allow students to use stories that they may find in or out of the classroom. Students may then take these stories and find ways that they connect to their own life. The digital storytelling would then go through this process of talking about and sharing how the story has connected to them personally (Joseph, 2006). This allows students to find information from another source and see how something in a book or world may connect to something that they are dealing with in their own life. Joseph found benefit in having students see what could connect with their life and personal experiences.

The previous examples were some successful attempts of digital storytelling for teachers in the field. There are numerous ones that are being attempted in the field. The main focus from reviewing the writers is that people are trying to find ways for students to connect more with topics and their own writing.
CONCLUSIONS AND RECOMMENDATIONS

The use of digital storytelling in the classroom is still a new idea in the field of technology. People are trying this process and new information and research is appearing all the time. However, there is already a lot to learn from what has been presented in research and teachers in the field experimenting and trying to digital storytelling in their classrooms.

The first question that was asked at the beginning of the review was, "Is technology effective in the language arts classroom to help with writing?" The use of technology in the language arts classroom was the first area to start this review because it was beneficial to see if technology in general was helpful in the classroom. What stood out as the largest factor in effective technology use in a classroom was when the technology was used for a purpose in a specific content-area. Technology was not as beneficial when the students used it outside of their regular classroom. The technology had to be integrated into projects they were doing in class (Healy, 1998; Hughes, 2005; McNabb, 2005; Palloff & Pratt, 1999). Students understood the reason for the technology when it was part of what they were learning. Palloff and Pratt used the term double-loop learning to describe how students were learning the technology while learning their content together rather than separately. As long as technology is being used in the setting, it appears to be beneficial to the students when it is used properly. Also in the language arts classroom, using authentic forms of writing was considered beneficial to students. When students had to create a piece of writing on a topic that they had no life connection, it was difficult for them to show their best work. Students were more motivated by
writing about topics that they knew and had experience (Castellani & Jeffs, 2001; Iacchia, 2005; McNabb, 2005; NCREL, 2003). Research findings show that as long as writing was authentic and in the classroom setting, the use of word processing and other computer technology needed to make digital stories appeared to be beneficial.

The second question at the beginning of the review was, “What is the process for using digital storytelling in the classroom?” The process of creating a digital story can look different depending on whom you are reading. Porter (2004) put it into the simplest form with the four main parts of creating a story: (a) pre-production, (b) production, (c) post-production, and (d) distribution. Other authors had their own twist on this process, but it lead to the same outcome. Students created their work, told a story, and were able to share that story with students in their class (Kajder & Swenson, 2004; Porter, 2004). Digital storytelling focuses on the idea of giving students another means of sharing a story that they would like to tell (Bull & Kajder, 2005; Kajder et al., 2005; Ohler, 2006; Porter, 2004; Salpeter, 2005). All authors focused mainly on the first part of this process, which was to write a story. The story was the basis for the project and without that the story would not have been possible. Therefore, the process used with digital storytelling supports the use of writing by helping bridge a connection with the writing process with using a new medium to present the story.

The third question at the beginning of the review was, “Is digital storytelling effective in the language arts classroom to help with writing?” Research reviewed shows that the process of creating digital stories connects well with writing in the language arts classroom. Students used much of the writing process while creating their digital story.
They included numerous steps of the writing process and included many parts that made a story interesting for the reader (Abidin & Razak, 2003; Huffaker, 2004). Writing a digital story also gave the students an authentic context within which they could work, which agreed with numerous research and personal experiences. (Castellani & Jeffs, 2001; Iacchia, 2005; McNabb, 2005; NCREL, 2003). The benefits involved motivation for the students (Adams, 2005; Weis et al., 2002) and allowed them to collaborate with other students. Some of the concerns involved the general use of technology. This included getting the teachers to use the technology (Salpeter, 2005), making sure the technology was continually working (Gold & Serim, 2002) and discussing the importance of the story over other extra features of the programs (Baker, 2000).

Looking at all the information about digital storytelling, it appears to be an effective way to get students to find connections with their writing. Digital storytelling is focused on getting students to write about personal experience, which allows them to connect personally with their piece of writing. The process of creating a digital story connects with the writing process so the students are working with the writing process while writing and making their digital story. Students appear motivated as well to write and create these stories while examining and revising them so that they are understandable by other people. The problems with technology could be fixed with training and trained staff to support the technology. Overall digital storytelling appears to be a technology solution for students to create a unique piece of writing.

In the future there is a lot of research that could be completed on the topic of digital storytelling. There is very little research now, it would be helpful for teachers to
have more justification for the use of such an idea in the classroom. The next step would be comparing the writing of students in a class that does not use digital storytelling and one that does. From there the research could see the difference in the student’s ability to write a story and understand that process. With this type of research, other teachers would be able to see any benefits or problems from using digital storytelling.
REFERENCES


