Increasing Reading Comprehension with Digital Storytelling

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Abstract: Digital Storytelling is growing in popularity. It can be used as a learning strategy in multiple content areas, including increasing reading comprehension. This paper examines the alignment between the digital storytelling process and the scientific-based reading research comprehension recommendations of the National Reading Panel. It also examines the effect that creating a digital story has on teachers' understandings of how digital storytelling can be used to increase reading comprehension.

The topic:

With increasing access to digital cameras and multimedia software in K-12 schools, digital storytelling is growing in popularity. The Internet provides access to several web sites devoted to students' digital stories about their favorite places, historical events, and significant events in their lives. According to the Center for Digital Storytelling, a digital story should include the following elements: 1) a point of view 2) a dramatic question 3) emotional content 4) personal voice 5) an effective soundtrack 6) economy of images and 7) effective pacing (Lambert, 2002). Educators are discovering that digital storytelling has the potential to become a valuable educational tool for students when taught in an effective manner.

Motivation for the work:

A review of literature on digital storytelling reveals multiple connections with the learning process. First, digital storytelling projects have been shown to increase student motivation. Students are more motivated when their work has meaning and is authentic (Levin, 2003). Bransford, Brown, and Cockling (2000) explain, "Learners of all ages are more motivated when they can see usefulness of what they are learning and when they can use that information to do something that has an impact on others…" (p. 61). In the *Telling Their Stories* project, high school students in San Francisco created digital stories about the Holocaust survivors, WWI Camp Liberators, and Japanese American Internees (The Urban School of San Francisco, 2006). The students who created the stories of the Holocaust survivors saw how their work had a direct impact and meaning for others outside the classroom (Levin, 2003). Second, digital storytelling projects can support collaboration. In many cases, students work collaboratively when they create their digital stories, working in collaborative groups to storyboard, script, and peer edit their stories, which supports the learning process. Finally, digital storytelling addresses multiple intelligences. According to Greenwood (2003), "Educationally, video production is a cross-curricular, collaborative experience that appeals to all types of learners and requires many different intelligences. By its natures, video production is cross curricular, combining writing, public speaking, acting, and aesthetic education with whatever subject area students are documenting" (p. ix-x).

Digital storytelling also develops specific skills and understandings. Digital storytelling projects foster technology literacy. The Scott County School District in Kentucky has adopted digital storytelling as a project for their second graders as a way to help students meet required technology standards (Digital Storytelling in Scott County Schools, 2006). Digital storytelling projects also develop literacy skills. Students participate in the writing process as they revise and edit each other's stories. Fourth grade students in Lexington, MA created digital stories about a significant place. According to their teacher, "fifty percent of the battle of student writing was won. They were committed to a topic" (Banaszewski, 2002). Middle school language arts students in Virginia created digital stories about events that were significant in their lives. Since writing was difficult for most of the students, the teacher believed that the digital storytelling project provided the students with a new way to share their personal stories. According to the teacher, students acquired a greater understanding of what it meant to be a writer and they were more motivated to read for the significance of the personal stories they read (Kajder & Swenson, 2004). Kajder, Bull, and Albaugh explain that "the technology can provide a connection to tap into students' existing visual, oral, print, textural, and technological literacies" (2005, p. 42). Digital storytelling projects also develop critical thinking skills. Students must not only determine the significant detail to include in the story but also select pictures or video to illustrate their ideas. Finally digital storytelling can develop and assess students' understanding of specific curricular content. When students put together what they know with words and pictures, teachers can see what they know and what they don't know (Armstrong, 2003).

While much has been written about the use of digital storytelling to develop critical and creative thinking skills, content area understandings, and writing skills, the potential for digital storytelling to develop reading comprehension has not yet been fully examined. All teachers must be teachers of reading no matter what the specific content area or grade level. We have learned that with the proper execution, lessons utilizing printed texts in math, social studies, and science can simultaneously develop reading skills. Might this also be true of digital storytelling? With effective implementation, might digital storytelling meet multiple learning objectives including improved reading comprehension? With increasing pressure to meet state standards for reading achievement, educators have narrowed the curriculum, often even eliminating instruction in the arts, science, and social studies. Do educators understand how digital storytelling might be used to increase reading comprehension? How does creating their own digital story affect teachers' understandings of the potential of this strategy as a tool to teach reading? These questions provided motivation for this examination of the alignment between digital storytelling and best practices for increasing reading comprehension.

Major questions addressed:

1. How does digital storytelling align with best practices for increasing reading comprehension?
2. How does creating a digital story affect teachers' understanding of how digital storytelling can be used to foster increased reading comprehension?

Conceptual framework:

The study is grounded in multimodal literacy and multimodal transformations. In the field of language arts, text is considered more than a mode of carrying print. The word "text" is a verb as well as a noun due, in part, to its Greek etymology meaning "to weave." In multimodal literacy, text is understood as something that has been changed as it also changes something, including narrative forms, relationships, access to public forums and awareness of local knowledge. Multimodal does not simply mean that more than one mode of representation is available or used at the same time. Multimodal means that ways of signing – print, images, and voices – are selected and used to animate social life and social actions (Enisco, Katz, Kiefer, Price-Dennis, & Wilson, 2006). Harste, Woodward, & Burke (1984) contend that the multimodal nature of the linguistic sign is a key feature not only in literacy but also in literacy learning. The reading-writing connection is expanded and changed. Multimodality reflects the shift from page to screen that supports a wide array of modes and media essential to students' literate futures.

The method:

To examine the alignment digital storytelling with best practices for increasing reading comprehension, we analyzed the processes involved in creating a digital story in terms of the National Reading Panel Report's (2000) scientific-based reading research recommendations for increasing reading comprehension.

To determine the affect of creating a digital story on teachers' understanding of how digital storytelling can be used to increase reading comprehension, we asked a group of 11 students in a graduate course on use of multimedia in the classroom to explain how they thought digital storytelling could improve reading skills. (There were 3 elementary teachers, 7 high school teachers, and 1 non-educator). Prior to answering the question, the students completed a brief literature review on digital storytelling and read selected chapters from *Digital Storytelling: Capturing Lives, Creating Community* by Joe Lambert (2002). Thus teachers initially understood the digital storytelling process and had read about its benefits. The students then created their own digital stories, focusing on significant events in their lives. The students used Windows Movie Maker to create their stories and were guided by a rubric. After creating their digital stories, the students again were asked to explain how they thought digital storytelling could improve reading skills. The authors compared the responses for changes in understanding. Since all teachers are considered to be teachers of reading, it was our assumption that these teachers were trained in strategies for teaching reading.

Major points:

How does digital storytelling align with best practices for increasing reading comprehension?

After examining the National Reading Panel Reports' list of scientific-based reading strategies, we determined that Digital Storytelling supports increased reading comprehension in multiple ways. Table 1 outlines the strategies:

National Reading Panel Report Comprehension Recommendations	Rationale	Alignment with Digital Storytelling
Cooperative learning and Reciprocal teaching	Readers can learn by listening to their peers as they read and helping one another use strategies that promote effective reading comprehension.	Students work collaboratively to peer edit and/or to create group projects.
Fluency	Fluency develops from reading practice and involves more than rate of reading. Fluency supports comprehension when words are expressed to convey meaning.	Students build fluency as they practice reading their written narratives expressively prior to recording them.
Story Mapping and Graphic Organizers	Giving structure to text increases overall understanding of story structures both linear and nonlinear.	Students create storyboards prior to writing their narratives.
Mental imagery	Providing mental images helps readers link the text to their own experiences and increases comprehension. It requires metacognition.	Students select images to illustrate their narratives.
Sequencing	Giving structure to text increases overall understanding of a variety of possible story structures	Students select the proper sequence for the events in their stories.
Summarizing	Summarizing helps readers identify the main ideas and essential supporting details.	Students identify the main ideas of their stories to limit the length of their finished projects.
Vocabulary Development	Reading comprehension depends upon word knowledge.	Students select the proper words to convey meaning in their stories and consider the power of word choices.

National Reading Panel Report Comprehension Recommendations	Rationale	Alignment with Digital Storytelling
Writing	Reading instruction is most effective when combined with writing instruction.	Students write narratives prior to recording them. Students explore various styles, tones, and perspectives.
Transactional Comprehension Instruction	Meaning is constructed as readers transact with one another and the text to create meaning.	Students create, share, and critique digital stories under teacher guidance and scaffolding.

Table 1: Alignment between Digital Storytelling and the National Reading Panel Report

How does creating a digital story affect teachers' understanding of how digital storytelling can be used to foster increased reading comprehension?

While digital storytelling, if properly implemented, can be used to support all of the National Reading Panel's recommendations, this alignment was not clear to the teachers in this class, even after reading a text and several articles on the topic. Table 2 shows that prior to creating their own digital stories, students had a limited understanding of the potential link with reading instruction. After creating their own stories, the understandings were definitely clearer. After the students responded to the question regarding reading alignment, the professor who was also one of the author's of this article, provided the class with the National Reading Panel's recommendations. Through discussion, students began to see many more connections with reading and acknowledged that digital storytelling could be used to meet many more standards, including reading standards, than they had originally thought.

National Reading Panel Report Comprehension Recommendations	Number of teachers who identified this alignment prior to creating their own digital stories. N=11	Number of teachers who identified this alignment after creating their own digital stories. N=11
Cooperative learning and Reciprocal teaching		
Fluency		4
Story Mapping and Graphic Organizers	1	2
Mental imagery	3	5
Sequencing		2
Summarizing		3
Vocabulary Development	1	
Writing	1	2
Transactional Comprehension Instruction		

Table 2: Teachers who identified reading strategies implicit in Digital Storytelling.

Results implications:

Like most instructional strategies, digital storytelling can be used for multiple purposes. Table 1 reveals that digital storytelling can be used not only to teach content, such as the Holocaust, but with specific execution, digital storytelling can also simultaneously support increased reading skills. Table 2 reveals that unless teachers actually engage in creating their own digital stories and participate in professional development designed to identify the potential for using the strategy to increase reading comprehension, teachers may either not utilize the strategy mistakenly thinking it better to teach reading skills in a more traditional, isolated manner, or use it with the narrow

focus of meeting core content standards, such as learning more about the Holocaust. We recommend teachers engage students in digital storytelling using a transactional comprehension instructional approach, so that the application of known and newly learned reading skills and strategies can be applied within and beyond that context. Teachers should also incorporate the following when using digital storytelling lessons with their students:

Active Listening: Have students read their narratives to their peers for editing purposes as well as sharing the finished projects.

Cooperative learning: Have students work in groups to create group projects and/or to provide feedback when editing individual projects.

Fluency: Have student read and rehearse their narratives multiple times until they can read it expressively with ease.

Graphic Organizers: Have students provide a story map of their projects before writing their narratives. These will resemble storyboards used for movies, which integrate the visual as well as the verbal flow of the story. They may be linear or nonlinear.

Mental imagery: Have students critically evaluate the meaning of images that they choose to illustrate their narratives. Encourage strategic selection of images.

Sequencing: Have students provide a storyboard of their projects to identify what narrative and images will develop each scene.

Vocabulary: Encourage students to incorporate new, interesting, and aesthetically powerful word choices in their stories.

Writing: Have students complete the writing process to produce a polished narrative prior to recording. This includes brainstorming, drafting, rereading and revising, editing, and soliciting feedback from teachers and peers.

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