Educational Uses of Digital Storytelling Around the World

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Abstract: The purpose of this research study was to determine how educators, students and others around the world are using digital storytelling to support the educational process. This study provides a general framework about educational uses of digital storytelling in different countries and describes the different perceptions of people in different cultures about this technology. An online survey was used to collect responses from a group of educators, students and others in educational settings to determine how they are using digital storytelling for educational purposes. The results show the current situation of educational uses of digital storytelling around the world and explore some of the benefits and challenges educators face in implementing digital storytelling in their institutions.

Introduction

As technologies continue to evolve at a rapid pace, digital devices such as digital cameras, multi-functional cell phones, and personal computers, are increasingly being used in education to facilitate learning. Digital storytelling (DS) is one method for using these digital devices to support the educational process. There are many definitions of digital storytelling, but in general terms, digital storytelling is defined as telling stories and sharing information with multimedia tools and resources (need citation). In Ohler's (2008) book, *Digital Storytelling in the Classroom,* the author describes digital storytelling as a creative process in which a traditional story is combined with personal digital technology, such as a computer, video camera, and sound recorder. The Digital Storytelling Association (2002) elaborates on digital storytelling as "… the modern expression of the ancient art of storytelling… using digital media to create media-rich stories to tell, to share, and to preserve. Digital stories derive their power through weaving images, music, narrative, and voice together, thereby giving deep dimension and vivid color to characters, situations, and insights." According to Robin (2009), digital storytelling in an educational setting is a process of creating short stories that allows students and educators to enhance their information gathering and problem-solving skills, and to, facilitate the ability to work in a collaborative team. Digital storytelling is commonly used by people to tell their own stories, and it also allows users a chance to create a social community around these stories. This use has grown because of the relatively low cost of digital devices, the ease of learning to create digital stories, and the availability of many sites on the web where stories may be displayed and shared (Meadows, 2003).

Digital storytelling has gained even more popularity through the use of web-based tools and blogs among almost every age group in numerous countries around the world. Although research studies about educational uses of digital storytelling have been conducted in specific countries, there is limited information about the current situation of using digital storytelling in education throughout the world. A major focus of this research study was to determine how educators, students and others around the world are using digital storytelling to support the educational process. In addition, the study provides a general framework about the educational uses of digital storytelling globally, describes how people in different cultures perceive this technology, and explores some of the benefits and challenges they face in implementing digital storytelling in their institutions.

Background of Research

Meadows (2003) stated that digital storytelling is a personal story which makes use of digital cameras, computers, and non-linear authoring tools to form short, multimedia narratives. Robin (2008) further classified digital stories in three categories: personal narratives, stories that examine historical events, and stories that are primarily used to inform or instruct.

The Center for Digital Storytelling (2010) has been very influential in identifying the major components of a digital story by breaking the creative process into seven steps. This process, known as "The Seven Elements of Digital Storytelling" includes the following components: (1) *Point of View* shows the purpose and author's perspective of the story, (2) *A Dramatic Question* arouses the audience's curiosity and will be given an explanation by the end of the story, (3) *Emotional Content* involves the audience in the story, (4) *The Gift of Voice* helps the audience understand the story through personalization of the narration, (5) *The Power of Soundtrack* supports the story with appropriate music, (6) *Economy* avoids overloading the viewer with excessive use of visuals and/or audio, and (7) *Pacing* provides a rhythm to the story and deals with how slowly or quickly the story is told.

Robin and Pierson (2005) described multiple ways of using digital storytelling in the classroom and presented an expanded and modified version of the Seven Elements of Digital Storytelling. The expanded elements, combined with the traditional seven elements are shown below.

1. The Overall Purpose of the Story	6. Pacing of the Narrative
2. The Narrator's Point of View	7. Use of a Meaningful Audio Soundtrack
3. A Dramatic Question or Questions	8. Quality of the Images, Video & other Multimedia Elements
4. The Choice of Content	9. Economy of the Story Detail
5. Clarity of Voice	10. Good Grammar and Language Usage

Sadik (2008) conducted a research study on digital storytelling as an integrated approach for engaged student learning. The results of the study showed that the digital story projects implemented by Egyptian teachers supported students' understanding of specific content in an academic course. In addition, the results illustrated that teachers are willing to use digital storytelling for teaching content and to provide more effective instruction

Heo (2009) conducted an experimental study to show the effects of digital storytelling on pre-service teachers' self-efficacy and professional dispositions. According to the study, "Knowledge and skills of personal technology can be transferred to educational technology settings with the help of digital storytelling" (p. 423). Li (2007) investigated the use of digital storytelling to integrate multimedia technologies into higher education. In that study participants were pre-service and in-service teachers in higher education. The results contributed to the understanding of the advantages of technology-based experiences, showing that these experiences can improve students' learning skills during the incorporating phase of technology implementation in education.

Research questions

The purpose of the current research study was to determine how educators, students and others throughout the world are using digital storytelling to support the educational process. This study aims describes a general framework about educational uses of digital storytelling in multiple countries to show the differences of people's perceptions in different cultures regarding this technology tool. The following research questions were explored.

1. How are educators, students and others using digital storytelling to support the educational process?
2. Are there cultural differences when using digital storytelling in education?
3. How do people's perceptions show differences about using digital storytelling in different cultures?
4. What are people's perceptions about learning when using digital storytelling in education?

Significance of the study

Digital storytelling is a relatively new educational approach that integrates the use of digital devices with traditional storytelling methods. There is some research about how digital storytelling is incorporated as a learning and teaching tool in the classroom, however, these studies focus on K-12 (Banaszewski, 2005), higher education (Butler, 2007; Dogan, 2007; Li, 2007) and adult learning. There are a very few research studies about peoples' perceptions of educational uses of digital storytelling around the world. In addition, using digital storytelling in education on a global scale has not been deeply investigated. The results of this study are important for researchers in order to understand how digital storytelling is used for educational purposes around the world. At the conclusion of this paper, the researchers provide a more complete view of educational uses of

digital storytelling around the world and offer a basic framework for future studies to investigate how this technology is gaining popularity around the world

Method

Quantitative research methods were used for this study. The data was collected through an online questionnaire from educators, students, and others who are interested in digital storytelling. The questionnaire sought to determine how respondents are using digital storytelling for educational purposes and included the following sections: (1) demographic questions, (2) perceptions of digital storytelling in the classroom, (3) personal use of digital storytelling, (4) training and support, and (5) availability of technology. SPSS software was used to analyze data and present results of the study.

Participants

The study included participants who are interested in or involved in educational uses of digital storytelling. and included teachers who use or may consider using digital storytelling in their classroom to support their instruction, students who use or may consider using digital storytelling in their learning, researchers who are interested in digital storytelling, college or university instructors who use or may consider using digital storytelling for instructional purposes, and visitors to the Educational Uses of Digital Storytelling website, located at: http://digitalstorytelling.coe.uh.edu

In order to reach a larger pool of subjects, the researchers collected e-mail addresses of potential subjects who are involved in some aspect of education and who have published journal articles or papers about digital storytelling, presented at a conference on some aspect of digital storytelling, created a website referencing digital storytelling, contacted the researchers expressing an interest in digital storytelling, and participated in a workshop about digital storytelling. These potential subjects were invited to participate in the survey through an e-mail solicitation. A link to invitation to participate and the questionnaire was also posted on the Educational Uses of Digital Storytelling website.

Data collection

The online questionnaire served as the main instrument in this study. The questionnaire included 22 multiple choice and open-ended questions in six sections. The first section included demographic questions about gender, age, residency, occupation, and place of employment or school attended. The second section dealt with the subjects' perceptions of digital storytelling in the classroom. The third section looked at participants' current use of digital storytelling. The fourth section asked about training and support for digital storytelling that participants have in their institutions. The fifth section focused on the availability of technology, and the last section investigated whether the participants have digital story examples they are willing to share with others. Approximately 20 minutes were required for subjects to complete the survey.

Data analysis

SPSS statistical software was used in order to calculate the descriptive statistics of the research dataset. The descriptive statistics included the frequency, percentage and total number of responses. The open-ended questions were analyzed using open coding (Strauss & Corbin, 1990). Researchers identified the themes emerging from the qualitative raw data including participants' answers for the questions under the category of "other" options. During the open coding analysis, the researchers created descriptive and multi-dimensional categories. The same categories included similar words, phrases, and expressions.

Results

In analyzing the research data, the researchers began by examining missing survey data. All responses were controlled manually using Microsoft Excel which showed that 173 participants attempted to participate in the study. However, 19 of them did not complete the survey, so the total number of respondents of the survey with usable data was 154.

Demographic Information of Participants

The first part of the survey included the demographic information of participants. The number of female participants (68%, n = 106) was larger than the number of the male participants (31%, n=48). (see the DS website for Appendix Table 1). The age group of the participants did not show much distribution, as the age of respondents' range was 18 to 55. The range distribution value was 11 (7%) to 28 (19%) (see the DS website for Appendix Table 2). All of the candidates were above 18 years of age. The most frequently cited age category was 18-25 years, and the median age group was 36-40.

Distribution of Respondents by Country

The responses for the questionnaire came from a wide variety of countries. The respondents who are using or familiar with the concept of digital storytelling were from twenty two different countries around the world. The United States had the most respondents (52%, n=78), with Turkey second (11%, n=16), followed by Canada (9%, n=13), Norway (6%, n=9), United Kingdom (5%, n=8), Ireland (3%, n=4) (see the DS website for Appendix Table 3) A few responses were also received from Chile, Tanzania, Sweden, Switzerland, Austria, Japan, Slovakia, Taiwan, China, Bangladesh, Italy, Denmark, Finland, South Africa, Malaysia, and Korea.

Primary Occupation of Respondents

The demographic part of the questionnaire included a question regarding the primary occupation of participants. Since the questionnaire had the option for participants to select many occupations, the total number of responses related to occupation (N=180) was higher than the total number of survey respondents (n=154). In addition, three respondents did not respond to the question about occupation. While most of the respondents who were interested in educational uses of digital storytelling were college or university instructors (n=51), the second highest response was student (n=41). Other occupations included museum outreach officer, teacher trainer, community nutritionist, storyteller/author, health educator, media specialist, digital storyteller in healthcare, community education specialist, video consultant, international digital storytelling/locative media artist, community engaged artist / filmmaker, digital storytelling coordinator, video journalist, and project leader in human rights and democracy (see the DS website for Appendix Table 4).

Perceptions of Digital Storytelling in the Classroom

The participants' perceptions regarding digital storytelling in the classroom were measured in three questions that included the benefits, the subject areas, and the purpose of educational uses of digital storytelling with students.

Benefits of Digital Storytelling for Students

Approximately 45 percent of the respondents stated that digital storytelling allows students to improve their understanding of subject area knowledge, writing skills, technical skills, and presentation skills. Forty-one percent of the participants stated that digital storytelling helps students improve all of the skills specified in the question. Thirty-five percent of participants agreed that digital storytelling allows students to improve their research skills; 27 percent of them agreed that digital storytelling improved overall academic performance (see the DS website for Appendix Table 5).

According to the responses in the "other" category, 29 respondents answered the open ended question. The researchers identified five themes that deal with the improvement of student learning using digital storytelling. The themes are reflection skills, language skills, higher level thinking skills, social skills, and artistic skills. (see the DS website for Appendix Table 5A).

Reflection Skills

Six respondents indicated that digital storytelling allows students to improve their *reflection* abilities. Two answers in this theme include reflection on experience in practical studies. The other answers suggest that digital storytelling helps to improve reflection skills by "integrating personal stories in an academic context." One of the respondents stated that "DS helps to improve students' ability to reflect on experiences and learn from them." Two of the respondents also stated that using digital storytelling helps to improve students' "self-reflections." The respondents said "In healthcare education, digital stories are used to help students reflect on difficult (threshold) concepts, develop empathy, reflect on practice, consider challenging issues from a very human perspective."

Language Skills

Seven respondents indicated that digital storytelling helps to improve students' *language skills*. The answers in this theme include listening and speaking skills, narrative skills (both written and oral), and pronunciation skills for foreign language.

Higher Level Thinking Skills

Nine respondents stated that digital storytelling helps improve students' *higher level thinking*. Two respondents specified that digital storytelling improves higher level thinking such as creative thinking. The other responses for this theme are problem solving, motivation for learning, metacognitive skills of learning, empathy, self-evaluation, analysis and synthesis, creativity, finding one's own voice, and critical thinking skills. The responses also included the observation that digital storytelling "gives them a outlet for expressing themselves, thoughts and ideas specific to their personalities." Another respondent said that digital storytelling allows students to "think more deeply about a topic and personal resonance."

Social Skills

The fourth theme of the improvement of students learning with digital storytelling is *social skills*. Eight respondents indicated that using digital storytelling improves students social skills. The respondents describe the

social skills as "community connections," "groupworks," "the possibility to know other people, and understand that their identities which are connected with a social context." According the responses, digital storytelling also improves students' "sense of community, empathy, and collaboration," and "social interaction and communication skills." One of the respondents specifically stated that digital storytelling "allows a sense of community membership in class and school that for many of our students is a first chance to declare self-value." Another response is about students' confidence, and this respondent wrote of the benefit of "feelings of their stories and concerns being represented in curriculum, connectedness to one another and their communities."

Artistic Skills

The last theme that emerged was that digital storytelling allows students to improve their artistic ability.

Finally, two critiques about using digital storytelling in education were noted. The first critique is "I say all of the above but with reservations. It depends on the purpose and how digital storytelling is used whether it does all of the above." The other critique is about time barriers and the respondent stated, "I suspect that the small amount of improvement is not worth the time spent."

The Subject Areas of Educational Uses of Digital Storytelling

Most of those surveyed responded that digital storytelling can be useful in teaching all subject areas (60%). While the fewest percentage of respondents agreed that digital storytelling can be useful in teaching mathematics (8%), the highest percentage of respondents indicated that digital storytelling can be useful in teaching language arts (42%) (see the DS website for Appendix Table 6).

Nineteen people also specified other subject areas in which digital storytelling can be useful for teaching, which included technology literacy, visual literacy, for mental health, social sciences (psychology, public health), and secondary language (see the DS website for Appendix Table 6A). Four respondents from the USA and Australia stated that digital storytelling can be useful in teaching technology literacy. The answers included "Manipulating computer images," "Visual literacy and the synergy among text, images, and voice," "especially if used as an e-portfolio - relating 'a story of learning," "How to write a blog." Two respondents from the United States felt that digital storytelling can be useful in teaching languages, specifically, "English as a Second Language" and "Foreign language."

Respondents from the United Kingdom stated that digital storytelling is also important in healthcare education. They specified that digital storytelling "allows the exploration of discourse that hinders and supports the recovery paradigm from mental illness to mental health." A respondent from the United Kingdom wrote: "I support the recovery paradigm in mental health and the radical collaboration of consumers and careers/families;" and "In healthcare education, digital stories are used to help students reflect on difficult (threshold) concepts, develop empathy, reflect on practice, and consider challenging issues from a very human perspective."

Two respondents presented their view that digital storytelling can be used in communication and provided key points including "reflection, empathy, listening skills, group work, respect, understanding, tolerance." Another respondent from Norway specified that digital storytelling can be used "Particularly where personal reflection is involved."

One respondent from the United States specified that the subject area of Social Sciences includes "psychology, public health," and one respondent from Sweden added "human rights, democracy, education for peace, conflict resolution" as subject areas where digital storytelling can be used.

The Reasons for Using Digital Storytelling with Students

Most of the participants agreed that digital storytelling can be used with students to allow them to construct their own understanding or experience in a content area (85%), facilitate collaborative activities in which students work together in a small group (81%), promote in-class discussion (73%), help them learn problem-solving and critical thinking skills (71%) understand complex ideas (68%), and introduce them to new content (64%) (see the DS website for Appendix Table 7).

The responses from the United States included the observation that students using digital storytelling can: "at times, come to grips with past experiences they might not have shared," "speak in public; the more macho the less they want to speak in public!" and "share knowledge and ideas from a personal perspective and understanding." The answers from Canada suggest that digital storytelling has a place in "Counseling / Therapy," where it allows students to "engage more deeply with subjects, or in my case, clients in community" and gives students "primarily permission to express themselves and remove barriers between people."

One response from the United Kingdom stated that digital storytelling "Injects fun into the lesson where the student's voice is audible and peer support is palpable." A response from Australia stated that "especially if used as an e-portfolio - relating 'a story of learning." Finally, one participant from Austria described using digital storytelling to "document learning processes."

Respondents' Own Use of Digital Storytelling

While 85.7 percent of respondents had experience using digital storytelling for some educational purpose (n=132), 14.3 percent of respondents stated that they had never used digital storytelling for any educational purpose (n=22) (see the DS website for Appendix Table 8). Of the 80.4 percent of respondents who had some digital storytelling experience before completing this study, 30 percent of them used digital storytelling for less than 1 year, 27 percent of them used DS for 1 or 2 years, 26 percent of them used DS for 3 to 5 years, and 17 of them used DS for more than 5 years (see the DS website for Appendix Table 9). Fifty-six percent of the participants who had used DS before created their own digital stories, while 46 percent of them use digital stories created by others, and 73 percent of the participants allowed students to create their own digital stories (see the DS website for Appendix Table 10).

The Purposes for Using Digital Storytelling

While 34 percent of teacher participants' main purpose for using digital storytelling is to support their teaching, 70 percent of the participants' purpose is to support student learning among their own students. Twenty-two percent of participants answered the open-ended question which asked about other purposes for using digital storytelling (see the DS website for Appendix Table 11).

The, response of teachers, especially in the USA and Canada, indicated that the purpose for using digital storytelling included using DS integrated in a writing program, to enhance pre-service teachers' reflections on practice, to improve collaborative activity, to aid in the focus of the class, to learn through student perspectives more about computer science in general, to engage youth in planning processes (i.e., the instructional design process), to teach DS as a subject, to provide digital content that pre-service teachers can use in their teaching, as a tool for students to express themselves, to preserve traditional indigenous knowledge, to increase awareness of subject matter for decision makers or others of influence, to teach about different cultures and to communicate with students from different cultures, and even to empower students to change the world.

The student participants' responses suggested that they use digital storytelling for doing homework, for making a blog, for telling a story in a unique and creative way, for learning special subjects, for language learning, or as a course requirement. Among respondents who classified themselves as "researchers," their aims for using DS were "to share the value of digital narratives across disciplines" and "to integrate DS in education." Six of those who indicated they were instructional designers, stated that their aims are to use DS to build a community including an online community of learners, to develop e-learning materials, and to increase social presence.

One respondent who was a social media specialist in Canada explained his aim this way: "When giving workshops to story collectors for my projects to prepare them to find and record stories, as a conference delegate across disciplines (history, public art, digital storytelling, placemaking, etc) to present our project and convince people of the power of digital storytelling, as a way of introducing university and high school students to our project when invited to be part of a class, and, previously as a digital media and social media specialist and professional writer." And a respondent from Sweden, described as a project leader in human rights and democracy, wrote that DS is being used as "As a tool to discuss human rights and democracy and to encourage young people to be active citizens."

Training and Support for Educational Uses of Digital Storytelling

From the 132 participants who indicated that they had experience with digital storytelling, 38 percent indicated that they need additional training in digital storytelling. Twenty-three percent of them stated that they need additional computer hardware and software in order to use digital storytelling in the classroom. In addition, 28 percent of the participants require additional technical support. On the contrary, 45 percent of the participants said that they do not need any extra training and support because they already have adequate training and support (see the DS website for Appendix Table 12)

Sixteen participants answered the open-ended question related to what they need in order to use digital storytelling in their classrooms. Seven respondents wrote that they *need more training, technical, hardware and software*, although they have already enough support to use DS for educational purposes. They also included the following statements about support for DS: "keep learning new things all the time," "I would always be happy to improve both own skills and technical support," "more would be better." One of the participants who is a coordinator of education in a museum stated that teachers need more training and support and stated that "I need more help from the teachers and they need more training and support."

One of the survey respondents also stated a need for *high technology hardware* in order to create good digital stories for educational purposes. He writes: "I would need better video equipment (with high quality built-

in mic), green screen area, better sound equipment, a dedicated computer for audio and video mixing, better software."

Another participant in healthcare education stated that "I already have adequate training and support, but rather facilitate others to create stories of health and illness that can be used by other teachers and lecturers." Another respondent stated that they use Digital storytelling *as a community development tool and need more funding* to achieve this aim. He stated: "as a community development tool, we need funding support to be able to do it." An additional respondent stated that there is need for *professional support* in order to use DS in the classroom. He stated a need for "help in integrating into all curriculum areas."

Two respondents had some *critique* regarding using DS because of time issues. The respondents stated their critiques as: "After the first year, I stopped doing this at all. The time used was enormous compared to disappointing results." And another one stated that "I do not use DS regularly and find that I need to keep refreshing my skill set and other priorities overwhelm DS which is seen as a nice to do but not essential to do."

Others' Use of Digital Storytelling

Most of the respondents (65.7%) agreed that some of the educators and students they work with or know about are currently using digital storytelling in their classes, while some of the respondents did not know of any colleagues who are using digital storytelling in their classroom (29.3%). Only four respondents agreed that all of the educators and students who know of digital storytelling are using it in their classroom (5%). Some participants who wanted to add more detail about how digital storytelling is being used in their country gave more information about that subject (see the DS website for Appendix Table 13).

The Reasons People Do Not Use Digital Storytelling

The majority of the respondents (77.9%) agreed that some of the educators and students they work with and know about who are not currently using digital storytelling in their classes would be interested in learning more about how to use this educational tool, while a few of the respondents (6.4%) did not agree. On the other hand, 15.7 percent of the respondents completely agreed that all educators and students would be interested in using digital storytelling as an educational tool if there is a suitable condition for educational uses of digital storytelling (see the DS website for Appendix Table 14).

Discussion

Our results from this survey included participants from 26 different countries. In 14 of these countries, survey respondents stated that they are actively engaged in digital storytelling for educational purposes. These countries are the United States, Canada, United Kingdom, Australia, New Zealand, Norway, Sweden, Ireland, Turkey, Egypt, Korea, the Netherlands, South Africa, and Austria. The survey results demonstrate that those using digital storytelling in different countries have many different occupations. Most of the participants are involved in some type of educational endeavor, including college instructors, college students, school teachers, researchers, and instructional technologists, while a few respondents identified themselves as working in the area of health, community development, media arts or video.

Our findings suggest that digital storytelling supports student understanding of subject area knowledge, overall academic performance, as well as writing, technical, presentation, and research skills. In addition to these skills, our results confirm that students' higher order thinking, social, language, reflection and artistic skills are positively affected when their teachers use digital storytelling in their classroom.

The findings also suggest that digital storytelling can be used in multiple subject areas including language arts, social studies, the arts, and science.   In addition, some respondents use digital storytelling in teaching for technology literacy (in Austria), healthcare education (in the United Kingdom), and communication (in Norway).

Most survey respondents agreed that digital storytelling allows students to construct their own understanding or experience in a content area, facilitates collaborative activities in which students work together in a small group, and promotes in-class discussion. In addition, the teachers indicated that digital storytelling can help their students learn problem-solving and critical thinking skills, understand complex ideas, and introduce their students to new content. In addition, survey respondents in Canada, the USA, New Zealand, the United Kingdom, Australia, and Austria stated that they use DS to engage members of the community, for therapy, to share past experiences, and to inject fun into a lesson.

Our results indicate that although the some people need additional computer, software, and technical support, most people have enough support in order to use digital storytelling in the classroom. However, a number of respondents stated that they need training in how to create and use digital storytelling more than technical support. A few respondents also need funding support for community development and professional support for integrating DS into their curriculum.

Digital storytelling is a powerful and emerging educational tool, which is actively being used in many countries, both in and out of classrooms. However, based on our survey results, those using digital storytelling

need more training about how they can use this technology tool more efficiently. Therefore, there is a special need to continue to investigate digital storytelling training for teachers and students so that they will be able to obtain maximum benefits from digital storytelling as a learning and teaching tool.

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