Running Head: Digital Storytelling

Digital Storytelling as an Assessment Practice

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**Literature Review**

***Introduction***

We are living in a world of chaotic change where we are literally drowning in a mountain of data. The world is constantly changing and evolving exponentially. There now exist a global economy where citizens are being challenged to think creatively, become cooperative problem solvers and effective communicators. People need to know how to interact, engage and collaborate with others from multiple cultures using various types of technology. They will need to match left-brain analytical skills with right-brain creative, innovative skills to be competitive and successful in today’s global market (Pink, 2006).

In the United States, we measure educational success based upon test where student are asked to regurgitate facts taught to them in classrooms based upon an industrial age model, instead of an information age one. Today’s students are mainly being assessed in ways that tap into the left-brain analytical skills, while devaluing the right-brain creative skills. Why is there a need for this type of assessment? The main answer to the question is accountability. Students are being given something, in this case a grade or a degree, so there is a need to make sure they have met certain standards before the award can be granted. It is somewhat easy to administer a high stakes objective assessment to the masses on left-brain analytic skills. However, it is more difficult to assess students on those right-brain creative skills, as these are more subjective to evaluate. Could narratives through the practice of digital storytelling be a mechanism used to effectively assess not only right-brain creative skills, but also the left-brain analytical ones? For as we focus on narratives we expose learning processes often ignored when we are encouraged to research a narrow range of cognitive skills (McEwan, 1995).

Perhaps there is a need to go back to our ancestral roots and explore ways we first began to learn, retain and pass on wisdom. Collaborative narratives have been an entertaining and engaging way for people from cultures all over the world to express their experiences and give meaning to those experiences. From the beginning of time narratives were designed to teach, to inspire, to bring people together or to pass along wisdom from one generation to another. Storytelling is a human trait that is universal, present and recognizable across cultures and epochs (Alexander & Levine, 2008). There is power in using narratives or personal storytelling to convey or demonstrate knowledge. Through the process of storytelling meaning is constructed, knowledge is retained and the ability to pass along wisdom is enabled.

Daniel Pink (2005) points out that there is a major shift happening in the world today as we move from the Information Age to the Conceptual Age. Essentially in this new age it will be vital for students to have the ability to tell the story, to enable meaning making, to be a big picture thinker and to recognize patterns. All of these traits align well with digital storytelling principles and practices and will be framed within this literature review.

In this review of the literature the attention will be focused upon several areas of interest. The broad-brush stroke will be exploring the literature in regards to the use of digital storytelling as an assessment practice. However, there will be finer lines addressing themes around: 1) narratives or traditional storytelling techniques for assessment or wisdom retention, 2) digital storytelling for both academic and personal growth and 3) the use of technology for both digital storytelling and assessment practices.

***Definition of Terms***

For the purpose of this review there are some terms that need to be defined to express the viewpoint of the author and to orientate the reader to this perspective.

1. *Traditional storytelling techniques* refer to the means of effectively sharing knowledge, interpreting experiences or passing on wisdom to others. This is typically done through oral narration, written word or illustrations with the incorporation a beginning, middle and end.
2. *Digital storytelling* is a means for expanding upon traditional storytelling techniques through the inclusion of a variety of digital modalities. This can be viewed in either a passive way or in a manner that engages the listener.
3. *Assessment practices* is the systematic gathering of information about student learning and the factors that affect learning, undertaken with the resources, time, and expertise available, for the purpose of improving the learning. There are three basic steps of assessment: 1) Articulate learning goals, 2) Gather information about how well students are achieving the goals and why, 3) Use the information for improvement (Walvoord, 2004).
4. *Digital Literacy* is the ability to use, filter and validate technology tools and the Internet strategically to find and evaluate information, collaborate with others, produce and share original content and to achieve academic, professional or personal goals (O'Brien & Scharber, 2008).

This last term is important as it encompasses the entire learning process around digital storytelling and the assessment practices considered for this review.

To begin this review we will start with narratives and traditional storytelling then progress on to digital storytelling for academic and personal growth. We will continue reviewing the literature with a look at the technology surrounding digital storytelling and finally end with a theoretical framework for studying digital storytelling as an assessment practice.

***Narratives and Traditional Storytelling***

In Edward Wilson’s book, “The Future of Life” he makes this observation about narratives:

“We all live by narrative, every day and every minute of our lives. Narrative is the human way of working though a chaotic and an unforgiving world. The narrative genius of Homo sapiens is an accommodation to the inherent inability of the three pounds of our sensory system and brain to process more than a minute fraction of the information the environment pours into them. In order to keep the organism alive, that fraction must be intensely and accurately selective. The stories we tell ourselves and others are our survival manual.”

***First Forms of Education***

Narratives historically have been the way in which humans pass on the knowledge of the world around them. Stories that in fact help the people and the culture to survive and thrive in a hostile environment. Storytelling was the first form of education. In the book, “Wisdom Sits in Places – Landscape and Language Among the Western Apache”, Keith Basso quotes a bit of wisdom from one of the elders Nick Thompson, “That is what we know about our stories. They go to work on your mind and make you think about your life…” (p. 58). Stories do work on your mind and make you think deeper. Stories help you define yourself, where you come from and what you know.

To continue this thread of wisdom, Gary Witherspoon in the book, “Language and Art in the Navajo Universe” uncovers more insights about storytelling. When listening to and telling stories, it is important to remember that human beings actually create the world within which they live, think, speak and act. And even though they occupy the same globe, they traverse very different worlds (p. 3). Through the telling of stories and creation of art man relates to one another. With language man has the ability to express himself actively, creatively and become a powerful part of his universe. If he is void of language, then he is impotent, ignorant, isolated and static (p. 62). Our language and our stories become a vital piece of whom we are, where we come from and ultimately assist in pointing us to where we are going in this life.

***Evolution of Storytelling***

The following is a link to a multimedia piece created by the author about the Evolution of Storytelling (<http://voicethread.com/share/3180621/>). Please watch and if inspired make comments to this VoiceThread. There are a total of 31 slides including a reference slide. This presentation will take approximately 20 - 25 minutes to view (more time may be necessary if you chose to make comments).

***Thornburg***

David Thornburg (2013) constructs a primordial metaphor around how people learn and communicate knowledge through the campfire, the watering hole and the cave. He starts with the campfire, where for thousands of years storytelling was use as a mechanism for teaching. Through the telling of stories elders passed along their wisdom to the next generation. Good stories encompass both cognitive and affective realms. A story can tell a truth or teach a belief while evoking the emotions of the audience. Another element of a good story is that multiple interpretations can be derived from the same tale. This is one reason why adults and children can enjoy the same story as each takes away different elements or meanings. The campfire where stories were told was a sacred place with the flames being the focal point. The backdrop was the sounds of the night and the storyteller’s voice sharing his wisdom with the next generation who in turn shared with future generations. This gift of sharing stories and passing on our wisdom essentially became embedded into our DNA. Many times metaphors were used to tackle topics much too confrontational to be addressed head on in the daylight. There is a quote from Robert Frost summing up the campfire experience, “We dance round in a ring and suppose, but the Secret sits in the middle and knows.”

Thornburg goes on to relate the computer screens of today with the campfires of yesterday. Perhaps he should have added the flicker of the television or the movie screen to be today’s biggest storytelling devices, but no matter the modality humans are drawn to the flickering light of storytelling for teaching and learning as well as for entertainment.

He continues the metaphor with the watering hole being the location where peers share their stories and make connections. The cave is the next place where individuals go to find solitary places to reflect upon what they have heard and learned. Finally, he completes the metaphor with the space called life. This is when people take what has been learned and apply it to everyday situations.

In today’s terms, the watering hole could be the social media sites that have become so popular in our culture. The solitary places could be the creation of videos or blogs where people have a space to reflect and speak what is on their mind. Life is when the knowledge is taken from the technology into the real physical world to enhance ones personal life. Each of these spaces has a place within the digital storytelling experience.

***Narratives in Teaching, Learning and Research***

Narratives are a basic fundamental human capacity and the role of narratives in education clearly merits our attention. Narrative is an extended language configured in a way that embodies life. It has a rhythm springing from the patterns of human life and interaction. There is a structural symmetry between the content and human existence. It helps to remember, that knowledge has been gained within the context of someone’s life and as a product of that person’s inquiry. In focusing on narratives in the framework of education we can explore on how to build it into the curriculum and make it an integral part of the teaching and learning experience (McEwan, 1995).

There are two types of narrative structures, one is a summation of human consciousness, these relate to the growth of knowledge or the discovery of ideas gathered through the deployment of human projects and practices. The other is an individual consciousness, which are stories of an individual’s educational growth and development. Throughout our lives we tend to naturally create narratives to give coherence and meaning to the whole lived experience (Bruner, 1990). These narratives of lived experiences represent constructed knowledge, not just the conveyance of information. Narratives allow us to put ideas into our own words, so we can make meaning of them. As we begin to learn we are forming our own unique narratives. Narratives give us a way of expressing our ways of knowing by helping to organize and communicate our own personal experiences. If we start to understand that the central focus of narrative is to create human meaning making and formation of identity, then we can grasp the significance of narrative in education. With this in mind, narratives can play a vital role for in helping to construct the future of the curriculum, the process of learning and ways to inform the practice of teaching (McEwan, 1995).

***Narrative Pedagogy***

The work of Richard Hopkins (1994) is a good starting place to when considering narrative pedagogy. In Hopkins’s book, *Narrative schooling: Experiential learning and the transformation of American education,* he proposes a narrative schooling grounded in the philosophy of John Dewey. Dewey viewed the that education is a continuing restructuring of the learner’s experience with the process taking into account personal meaning and social context. Basically, the content being presented needs to connect with the learner’s prior experience and the learner must have opportunities to actively engage with the content based on their own personal lived experience (Dewey, 1938). Hopkins enhances upon Dewey’s ideas by adding the narrative process through which the learner demonstrates meaning of their experiences and content. He writes, “Narrative is the indispensable process through which emplotment and meaning attribution flow…” (p. 10).

One educational arena that has explored narrative pedagogy is in the field of nursing. Diekelmann (2003) discovered over the course of a 15-year study with teachers, students and clinicians that how nursing practice is being learned is as important as what is being learned. She found the use of narrative pedagogy, in which teachers and students share and interpret their lived experiences to gather collective wisdom in order to address existing challenges was an effective practice. Bringing together both teachers and students to learn from each other’s perspectives was useful in this educational environment. She found when multi-perspective thinking is enacted new possibilities for teaching and learning happen in both the classroom and in clinical situations.

There were two themes that emerged from this study, the first is Thinking as Questioning: Preserving Perspectival Openness and, the second is Practicing Thinking: Preserving Fallibility and Uncertainty. In the first theme, students were not asked to specifically answer questions, but to persistently explore the meaning and significance of the practice. They were to explore and expose the underlying assumptions embedded in the experience. Through this exploration the teachers and students collaborate in new ways that preserve perspectival openness. The second theme, thinking shifts from being a means to an end into cycles of interpretation. In this situation, uncertainty and fallibility are preserved. Students are not “told”, but “guided” into thinking and learning difference content and practices. Through sharing of various viewpoints about how to solve a problem the students think through a situation and goes beyond the problem to become deeper thinkers. This helps students learn the importance of generating many perspectives in order to understand a situation and see the complexity and uncertainty of each situation.

By using narrative pedagogy to help student think differently, profoundly perhaps collaboratively they create a deeper meaning and understanding of the situation in being able to tell their story or achieve the learning outcomes of the experience.

Traditional storytelling and narratives have proven to be a fundamental structure of human meaning making. The narrative gives use an epistemological perspective that we can understand and relate to on many levels. As an example, which is easier to remember a list of facts or those facts woven into a story that ties them together for deep meaning? To go even further, which is more intriguing or engaging for the listener or learner, the list or the story?

To continue along this line of thinking, the next section will discuss the use of digital storytelling for academic and personal growth in learners.

***Digital Storytelling for Academic and Personal Growth***

***Center for Digital Storytelling***

The term digital storytelling was briefly defined earlier in this review, however if this practice is going to be used for assessment purposes more explanation is required to fully appreciate the benefits of how digital storytelling can be utilized in an educational environment. Digital storytelling revolves around the art of telling a story through the use of digital media (examples are images, audio and video). The story needs to have a theme or topic coming from a particular point of view or perspective and possess meaning within the framework. The stories are usually under five minutes and include a variety of uses including personal experiences, historical events, meaningful content or instructions on a particular subject.

Digital storytelling roots go back to the 1990’s when Dana Atchley first coined the term as he was experimenting with the use of multimedia elements in storytelling performances. He offered workshops at the American Film Institute. In 1994, he along with Joe Lambert and Nina Mullen started the San Francisco Digital Media Center, which evolved into the Center for Digital Storytelling, a non-profit, community art organization in Berkley, California. This Center still provides training and assistance to people interested in creating and sharing their personal narratives. To get a fuller understanding about the history of the digital storytelling it would benefit the reader to go to this website to hear Joe Lambert tell his own story: <http://www.youtube.com/watch?v=2hcf1WwVJPc>.

The Digital Storytelling Cookbook was created by Joe Lambert and gives detailed instructions on how to “bake” a digital story. On the following page is a table describing the seven elements of digital storytelling.

|  |
| --- |
| **The Seven Elements of Digital Storytelling** |
| A Point of View“Owning Your Insights” | * What is the perspective of the author?
* What is the story you want to tell?
* What do you think your story means?
 |
| A Dramatic Question“Finding the Moment” | * What is the question that will be answered by the end of the story?
* What was the moment(s) when something changed?
* Can you describe the meaning of that moment in detail?
 |
| The Emotional Content“Owning Your Emotions” | * What is the serious issue that speaks to us in a personal and  powerful way?
* Which emotions will best help the audience understand the journey  contained in your story?
* Is there an overall tone that captures the central theme?
 |
| The Gift of Media“Seeing Your Story” | * What images come to mind when recalling the moment of change  in the story?
* What do these images convey to the story?
* How do you but these images together to create meaning?
 |
| The Power of Voice and Sound“Hearing Your Story” | * How will your own voice support the story?
* Will music or sounds support the storyline?
* Does the sound enhance or interfere with the story?
 |
| The Economy“Assembling Your Story” | * How is the story presented in a way to not overload the audience  with to much information?
* How are you scripting or organizing your story?
* Does your story have a beginning, middle and end?
 |
| The Pace“Sharing Your Story” | * Who is your target audience?
* Does the story have a pace that will engage, but not confuse or  lose the audience?
* What was your purpose in sharing this story?
 |

Lambert, J. (2010). [The Digital Storytelling Cookbook](http://storycenter.org/static/505a3ab2e4b0f1416c7df69a/51684d91e4b0cbd5dcd53757/51684d91e4b0cbd5dcd5375b/1332882649047/cookbook.pdf). Digital Diner Press. This work is licensed under the Creative Commons Attribution-NonCommercial-SharAlike 2.5 License. To view this license, visit: <http://creativecommons.org/licenses/by-nc-sa/2.5/>

***The Educational Use of Digital Storytelling***

At the University of Houston within the College of Education a group is exploring ways in which digital storytelling can be used for educational purposes. The website was created almost ten years ago and has evolved into a resource for educators and students interested in integrating digital storytelling into educational activities. Over the years Bernard Robin, the professor who leads the educational uses of digital storytelling website has researched this area and discovered that it creates a strong foundation for many 21st Century literacies including:

1) Digital literacy – the ability to discuss issues, gather information and seek help,

2) Global literacy – the ability to create messages from a global perspective,

3) Technology literacy – the ability to use computers and other technologies,

4) Visual literacy – the ability to communicate through visual images,

5) Information literacy– the ability to find, evaluate and synthesize information.

When a student participates in the digital storytelling process the following skills can be developed: research, writing, organization, technology, presentation, interview, interpersonal, problem solving and assessment. However, there are some challenges when creating digital stories. Some of these include: trouble formulating an educationally sound story, access to technology tools necessary to create a digital story, issues of copyright and intellectual property of others, and time factor to learn all the elements that go into digital storytelling (Robin, 2006).

To get a real feel of feel of the experience take a tour through some of the digital stories that have been created by the students at the University of Houston at this link:

<http://digitalstorytelling.coe.uh.edu/example_stories.cfm?otherid=all>

Here are some recommended stories:

1) [Robin’s Market](http://digitalstorytelling.coe.uh.edu/view_story.cfm?vid=389&otherid=all&d_title=View%20All%20Digital%20Stories), 2) [The Path I Choose](http://digitalstorytelling.coe.uh.edu/view_story.cfm?vid=301&otherid=all&d_title=View%20All%20Digital%20Stories), 3) [Famine and Emigration](http://digitalstorytelling.coe.uh.edu/view_story.cfm?vid=304&categoryid=9&d_title=Places)

***21st Century Fluency Project, Narratives and Digital Storytelling***

The pedagogical practice of morphing from teacher-centered learning to student-centered instruction is important in working with digital storytelling. The creation of one’s own story draws upon the experience and knowledge of the students and creates a social awareness for a community of learners. This type of pedagogy draws upon the 21st Century fluency by suggesting learning be active and engaging ([21st Century Fluency Project, 2011](http://fluency21.com/)). Creating narratives promotes creative and critical thinking skills in students both in and out of the classroom environment.

Storytelling can be used more effectively when the teller uses a narrative lens. There is power in using personal stories or narratives to convey knowledge. We construct meaning of life and knowledge through the story telling process. Digital storytelling enables the teller to weave their narrative with a palette of various media. However, there is caution that the narrative should not be eclipsed by the gleam of technology (Garcia & Rossiter, 2010). In research conducted by Garcia & Rossiter, they pose the question, “Why does a narrative orientation matter to our educational applications of digital storytelling?” Their findings consider three answers. First, today’s students need to be able to express themselves through narratives. Storytelling, meaning making, big picture thinking and pattern recognition are an essential skill for 21st century students. Next, students need to have an interpretive space to create their own meaning. They need to have the ability to take knowledge and make it their own through the constructive, interpretive and contextual nature of a narrative. Finally, the learning outcomes for digital storytelling include the five literacies of the 21st century skills – digital, global, technology, visual and informational along with empathy, self-understanding and community building. The overall findings from this study show that educations must have an appreciation of narrative orientation to effectively employ digital storytelling as a tool for teaching and learning.

***D.U.S.T.Y. - Digital Underground Storytelling for Youth***

Digital storytelling can be a powerful tool for personal growth and the development of positive self-identities as demonstrated from data gathered in a study on the uses of technology and literacy to bridge a digital divide in the San Francisco Bay area. Participants in this study were part of a community technology center called D.U.S.T.Y (Digital Underground Storytelling for Youth - <http://outreach.berkeley.edu/node/33>). Through the use of digital storytelling they described pivotal moments in their lives and envision their future. They used narrative digital storytelling to discover who they are, share their unique experiences and explore their possible future pathways in life.

Two individuals are focused upon in the findings, the first is a young man named Randy who is 24 years old and the second is a 13-year-old girl named Dara. The use of technology in the form of digital storytelling helps to blur the age difference between adulthood and adolescence. This project crosses ages and generations to offer an opportunity to view how people grow and change through the course of a lifetime. This findings reveals how the use of new literate space (digital storytelling) can be a powerful tool for helping all individuals develop positive self-identities, reflect upon current circumstances and inspire thought on hopeful futures.

Randy’s narrative digital story bares his very deep feeling and creativity with this statement:

“Some rules are meant to be broken, some doors are meant to be opened and regardless of race, we all mostly come from the same place, love. This is life in rhyme.”

During this statement Randy chose to play a series of photographs he had taken in the digital storytelling workshop. This man truly made a connection to his feelings and the world through the digital storytelling process.

Dara was difference from Randy in that she was a shy girl who over time created several digital stories. The first was about the death of her grandfather, the next was about a cartoon character and the last one was about the death of Selena. The facilitators watched as Dara came out of her shell and became a self-assertive individual who developed into a competent and knowledgeable writer.

This study demonstrations that individuals who may have a difficult time in a traditional environment can soar in other types of learning environments and through different modes of communication. Digital storytelling is one avenue that can help open up a world of self-expression for those who may have not found their voice (Hull & Katz, 2006).

As demonstrated in this section, digital storytelling can have a powerful influence upon the creators and the viewers. The product of digital storytelling can be used for many purposes in the educational setting. It can be a tool for helping to build self-identity and it can become an instrument for the demonstration of learning outcomes or for the passing on of knowledge. In the next session the use of technology for the construction of digital stories will be discussed in light of assessment practices.

***Use of Technology for Digital Storytelling and Assessment***

***Confessions of a Digital Storytelling Teacher***

The use of digital technology has grown by leaps and bounds over the past two decades and its rapid growth will continue to amaze even the most innovative thinkers. In Jason Olher’s book, Confessions of a Digital Storytelling Teacher (2013), he reflects on the use of technology in the classroom since the early 80’s with the introduction of the personal computer. Here are a few of his insights:

* It is the special responsibility of the teacher to ensure that the students use the technology to serve the story and not the other way around.
* Learning communities are storytelling communities.
* Stories help us make sense out of the chaos of life.
* Story provides a powerful metaphor, framework and set of practical processes for resolving issues, educating ourselves and pursuing our goals.
* Stories help us remember.
* Digital stories allow today’s students to pursue academic content in their own language or modality.
* Digital stories combine traditional and emerging literacies, engaging otherwise reluctant students in literacy development.
* Digital story creation offers an effective means to teach media literacy and skills that are transferable to other endeavors.
* Digital storytelling helps students develop creativity and innovation skills needed to solve important problems in imaginative ways.
* Teachers are needed assist students with both the technology and the guidance to tell stories with clarity and humanity.

His insights into the use of digital storytelling are helpful in framing this mode of learning for assessment purposes. Unfortunately, the public has been lead to believe that the simple use of technology in education should somehow make students smarter, but this is like saying the when students use the pencil it makes them smarter. Yet as this debate wages on our students are becoming more engaged with digital devices both for recreational and academic use. Currently, our educational system is not keeping up in assisting students in how to use these technologies for demonstrating skills, creativity and literacies for real world practices. For our students to be competitive in the global economy educators need to recognize that learning how to understand and create new media is an important relevant skill.

Ohler (2013) gives three compelling reasons to assess new media. The first is that new media still consist of old media. Reading and writing is very much a part of the new literacies production process and can provide a way to motivate students to engage in traditional literacy. Secondly, new media has become part of what it means to be literate. Teaching new media needs to be approached in a proactive, instead of in a reactive way that will eventually lead to a scenario of playing catch up. Finally, more learning opportunities are becoming readily available outside of the formal educational structure. Students can bypass parts of traditional school to find other sources of information, education and social interaction. The educational system is at a critical crossroad in having to decide whether to choose to become part of the technical ecosystem and guide students through the perils of technology or letting them find their own way.

One major question that arises is how do teachers go about assessing new media. Fortunately, Ohler (2013) gives some insight into a practice he has developed over his years of working with digital storytelling. He does recommend the use of rubrics for transparency of grading, however he warns about this structure being too restrictive for a creative, subjective process. He has created a list of ideas that are useful when one is assessing digital stories. Below are his ideas to keep in mind when evaluating a digital story:

* *Set clear goals*
	+ Does the story mean the guidelines of the assignment?
* *Assess the story*
	+ Are storytelling principles used effectively?
* *Assess all of the artifacts created to develop the story*
	+ How is the written part of the story?
* *Assess the planning and the process*
	+ Were the planning skills demonstrated throughout the process?
* *Assess media grammar and use of media*
	+ Does the media support or distract from the story?
* *Assess understanding and presentation of the content*
	+ Did the student demonstrate understanding of the material?
	+ Was it presented in a way to show that to the audience?
* *Assess any teamwork/collaboration and use of resources*
	+ What was the level of involvement with the team and resources?
* *Assess the final performance*
	+ Did the final project achieve what it was meant to accomplish?
* *Self-assessment or peer assessment can be useful*
	+ The use of a reflective piece around personal or peers work is a critical part of the creative growth process.

As new media is destined to be the future, the choice to be actively engaged in creating assessments for new media or to let this opportunity just pass by will need to be made by educators. The more proactive educational institutions are to accept the need for new media assessment the more prepared students will be to enter the in which they live.

***Web 2.0***

The introduction of Web 2.0 technologies has made the process of creating digital stories more accessible to the general population. There are a few ways to define Web 2.0 technologies and for the purpose of this review the article, Web 2.0 Storytelling (Alexander, 2008) will be useful in helping to frame this term.

There are three factors used to define Web 2.0: 1) microcontent – small amounts of information created in technology that is easy to access, use and transparent to the content, 2) social software – a platform structured around people interaction rather than the traditional computer hierarchies, 3) findability – the ability for the general public to find the content. There is a fourth factor that could be added to this list. It would be the cost factor. Most Web 2.0 technologies are free or low cost to the users (Alexander, 2008).

There are many Web 2.0 technologies available to use in education. Al Levine has created a wikispace dedicated to sharing these across the Internet. The site is called 50+ Web 2.0 Ways To Share A Story (<http://50ways.wikispaces.com/>). Both authors believe that digital storytelling and the application of Web 2.0 technologies can be used in higher education as a composition platform for situations where students use stories to better communicate an important subject (example: <http://www.project1968.com>) or as a curricular object for a non linear approach to demonstration of a subject (example: <http://wwar1.blogspot.com/>). However, they do caution about engaging with technologies that are rapidly emerging and evolving as fast as the pace of the creative human mind. Basically, when one lives on the cutting edge, one will tend to get cut and bleed. For if one invest in a new technology it may change or vanish as quickly as it appears leaving teachers and students stranded in project without support or resources. Yet this caution should only serve as a warning and not deter from educators from using the technologies offered on via Web 2.0. Instead they should branch out exploring new technologies and strategies for engaging students to tell and share stories about themselves and the knowledge they gain along their educational journey.

***Pre-Service Teacher***

The use of technology to teach digital literacy and provide a mechanism for students to demonstrate learning outcomes is becoming an essential skill set for student as they advance in their education and become productive citizens in a globally networked society. This is demonstrated through a study on pre-service teachers in a teacher preparation program at a mid-western American university. These students used digital storytelling as one approach to building an e-portfolio through reflection and self-assessment. The study focuses on digital storytelling and if it can enhance self-efficacy and improve digital literacy skills. Other effects on education addressed in the study are: 1) traditional methods and new teaching approaches, 2) new learning objects for e-portfolios, 3) enhanced language, visual, and media literacy, and 4) meeting technology standards (Li, 2006).

In this study a mixed method of quantitative and qualitative methods was used to collect data. Pre- and post- questionnaires were used to assess student’s knowledge and skills in areas of education knowledge, educational technology integration, general technology skills, and student perspective on multimedia applications. The results of the study show that students gained knowledge and improved skills in all areas throughout the digital storytelling project. Therefore, digital storytelling was an effective approach in the enhancement of teaching and learning new literacies.

This study shows the importance of having pre-service teachers implement the technology, to learn the technology. By producing a digital storytelling piece for their own e-portfolio they are engaged in a series of cognitive learning processes. They learn the technology, reflect upon their educational knowledge base and discover how to integrate educational technology into other educational environments. In the future, this study could be a model of how to implement digital storytelling into teaching others about technology as literacy (Li, 2006).

***Critical View of Technology in the Classroom***

Technology and the Internet can be one strategic channel for advancing teaching and learning through the practice of digital storytelling. However, educators must be cautious when introducing technologies and the Internet into the classroom. There are many replications of inequalities bound up in technology and the Internet that reflects upon our society. A critical eye must be used before we apply strategies involving technology and the Internet in the classroom environment. A major factor to consider is the digital divide that exists in both the classroom and in our society. The divide is both political and economic in nature.

Technologies are emerging in schools with more reliance on computers and the Internet. However, there has been little consideration for the potential impact upon effective and equitable teaching and learning practices. We may have computers in every classroom, but we don’t have teachers in every classroom who know how to use them, nor do the students come with prior knowledge of technology. One assumption commonly made is the current generation of students, are “Digital Natives” and they already know how to use computers. Sure, they know how to play games, participate in social media and “surf the Internet” for popular themes, but do they know how to utilize educational or business technology and use it to its full potential? As educators we have the responsibility to prepare students to effectively use technology and the Internet to become productive, contributing citizen in our society. (Gorski, 2005).

There is a chasm between technology and effective teaching practices. Questions need to be addressed on what is the most effective way to teach these lessons and how does technology fit into this schema? Many educators discover a “cool” technology and try to make it fit into the lesson, when in reality the lesson should come first, not the technology. Technologies need to be understood and evaluated in the greater context of educational and societal framework before they are employed in the classroom. The use of digital storytelling needs to be propelled through the lens of the narrative and the storytelling process, not driven by the technology vehicle.

***Other Key Factors***

One key factor that needs to be addressed with the use of technology and digital storytelling is the importance of the teacher in the equation. Research has shown that the importance of integrating technology into the curriculum or the classroom is only effective if the teachers possess the expertise to use technology in a meaningful way (Sadik, 2008). Teachers have the ability to support student learning by encouraging them to organize and express their thoughts, knowledge and experiences significant ways (Robin, 2005). Training teachers to use technology and becoming confident in their level of ability is a key factor in the success of using digital storytelling for assessment purposes.

One study conducted around online teaching had the teachers construct their own digital stories to establish social presence in the course (Lowenthal & Dunlap, 2010). By actually creating a digital story, the teachers become familiar with the process and feel more comfortable when digital stories are introduced into the curriculum. They learn valuable insight through the construction experience and give students an example of a digital storytelling project.

Establishing good pedagogy around technology plays a vital in providing the crucial elements to making digital storytelling a success in the classroom. Another component that needs to be considered with the introduction of a new idea into the pedagogy is the theoretical framework. In the next section, three theories will be considered in reference to digital storytelling as an assessment practice.

***Theoretical Framework from the Literature Review***

There are a many theories that intertwine with the study of digital storytelling as an assessment practice. For this review the following theories will be discussed: 1) Constructivism, 2) Experiential Learning, and 3) New Literacy Studies.

***Constructivism***

Constructivism focuses on how students learn or the way knowledge is assembled in ones’ mind. In the constructivist framework learning is a process, a way of making sense of knowledge through the addition and synthesizing of new information within an existing knowledge structure (McDrury, 2003). Chaille and Britian (1991) describe constructivism in the following way:

The learner is actively constructing knowledge rather than passively taking in information. Learners come to the educational setting with many different experiences, ideas and approaches to learning. Learners do not acquire knowledge that is transmitted to them: rather, they construct knowledge through their intellectual activity and make it their own (1991, p. 11).

Storytelling is one-way students can construct their knowledge of events or content. They bring to their stories not only the current information, but knowledge from their past experiences.

In socio-cultural constructivist there is more emphasis put on the communication processes with the influence of social factors helping to construct knowledge. Vygotsky stressed the importance of language and dialogue in the social contexts of learning when constructing knowledge. He recognizes the importance of assisted and unassisted learning with the zone of proximal development (ZPD). ZPD is that area of learning where a student can problem solve independently to a point, but needs some guidance or collaboration from others to make it to the next level (Vygotsky, 1978).

Digital storytelling aligns with the Vygotskian perspective, as the learning process is social and collaborative. It also values the prior experience of the student and promotes a reflective dialogue in which meaning is constructed. One aspect of Vygotsky’s thinking that relates to the digital story paradigm is the importance of culturally situated learning that stresses educational interactions are reflected by the surrounding culture. Everyone is influenced by the interaction of his or her own social, historical, ideological and cultural contexts. These factors along with a reflective process are how we go about constructing our world.

In framing the digital storytelling process within the socio-cultural aspect of constructivism the idea of dialogue is central to the learning process and influenced by cultural context. This is not just a simple contextual framework, but also one that includes process and a complex issue of surrounding influences including the role of discourse (McDrury, 2003). The learning process for effective digital storytelling includes a meaningful experience, a reflective process, making the experience relevant and a dialogue that promotes deeper thinking.

Noel Entwistle’s (2001) divides learning into two separate levels. There is surface learning, which is just the reproduction of knowledge to cope with certain requirements verses deep learning, which is transformative learning where students understands ideas for themselves. This becomes a significant theoretical framework for the digital storytelling process as it engages students to dive deeper into the meaning of their experience through the construction of storytelling around their own knowledge.

***New Literacy Studies***

New Literacy Studies (NLS) is a label that has been given to research occurring over the past twenty years. Most of the research has been in the form of ethnography, looking at the movement of literacy from an individual focus towards a collective interactive and social practice (Gee, 1998).

Brian Street (2003) describes New Literacy Studies as a way to consider the nature of literacy, focusing not so much on acquisition of skills, as in dominant approaches, but rather on what it means to think of literacy as a social practice. NLS suggest that in practice literacy varies for one context or culture to another and so do the effects of different literacies in different conditions. NLS also defines literacy as a social practice, not just a technical skill. It is viewed as being entwined in socially constructed epistemological principles. Street argues that literacy is always a social act even from the outset. The way we acquire knowledge is a social practice that affects the nature of literacy held by the teacher and their student in relationship to their position of power.

The larger theory of New Literacy Studies defined by Coiro (2008) includes the following elements:

1. New skills, strategies, dispositions and social practices required by new
 technologies for information and communication
2. Central to full participation in a global community
3. Regularly changing as technologies changes
4. Multifaceted and benefits from multiple points of view

Each of these elements fold well into the process of creating digital storytelling for the assessment of learning outcomes both in study abroad programs and in service learning activities. Another definition of New Literacy Studies from a broad sense of the term states:

The new literacies of the Internet and other information and communication technologies (ICB) include the skills, strategies, and dispositions necessary to successfully use and adapt to the rapidly changing information and communication technologies and contexts that continuously emerge in our world and influence all areas of our personal and professional lives. These new literacies allow us to use the Internet and other information and communication technologies to identify important questions, locate information, critically evaluate the usefulness of that information, and synthesize information to answer those questions, and then communicate the answers to others (Leu, Kinzer, Coiro & Camack, 2004).

Where we once used pencil and paper to share information, we now use a multitude of information and communication technology to convey our thoughts and ideas. What is even more exciting is the spread of the communication. We don’t just write our ideas down to be stuffed into a notebook, we publish them to the world for others to read and make comments. New literacy is about empowering everyone within the reach of technology to communicate, share ideas and receive feedback.

As new literacies swirl around us, the practice of digital storytelling can assist in bring them into focus in order to use them to their fullest potential. There are certain skills, strategies and dispositions that students need to learn to effectively utilized these new literacies. Students will increasingly encounter new literacies every time they read, write or communicate through the Internet (Leu, Kinzer, Coiro & Camack, 2004).

Let’s use the example of a student creating a digital story for an online class. The student will use the following new literacies to achieve this goal: 1) an Internet browser for uploading digital media and a search engine for finding information, 2) critical thinking skills to evaluate the accuracy of the information found on the Internet, 3) a word processor or presentation tool to create the storyboard, 4) media production software to create the digital story, 5) knowledge on how to submit the assignment to the teacher, class or the world, 6) the ability to use social media to interface with other students about the digital story.

This is only one dimension that the New Literacy Studies addresses. There is another view that is even more important to consider, this being the concept of multiliteracies. The New London Group (2000) defines multiliteracies as a set of open-ended, flexible literacies required to operate in different contexts and within different communities of practice. Students can use these multiliteracies to create meaning and demonstrate learning outcomes with digital storytelling. When looking at the Internet and Web 2.0 technologies, there is the use of multiple media forms, so according to Lemke, students will need to understand how literacies and cultural traditions combine different semiotic modalities to realize that the total experience is more than the parts mean separately (Lemke, 1998). Students will also need to be proficient contributors to the Internet community adding to this growing body of knowledge. Finally, students will find that they encounter information from various social contexts. When students start to share information on a global scale there are new challenges that arise, such as how to interpret and respond to others from multiple social and cultural contexts (Leu, Kinzer, Coiro & Camack, 2004).

One major theme that is very important with New Literacy Studies is to teach students to be critical thinkers and enable them with the ability to analysis the information they will encounter as they are exposed to these various new literacies.

***Experiential Learning***

Experiential learning is a theory involving the process of learning through personal experiences. David Kolb, a psychologist who was influenced by John Dewey, Kurt Lewin and Jean Piaget, proposed this theory. Kolb defined this learning as a “process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experiences.” (Kolb, 1984).

Kolb takes a holistic approach by combining both cognitive and behavioral theories together to emphasize how experiences including cognitions, environmental factors and emotions influence the learning process (Kolb, 2000). This mode of learning is portrayed as a cycle with the following elements: For grasping the experience there is the *Concrete Experience* and *Abstract Conceptualization*, while transforming the experience has *Reflective Observation* and *Active Experimentation*. Within this cycle, a person has a concrete experience thus providing the information to serve as a basis for reflection. These reflections help the person to form abstract concepts, and then these concepts assist in developing new beliefs or ideas, which the person then actively tests. Through these tests the person gathers information and the process begins all over again.

There are many connections from this theory to the digital storytelling process. Digital stories are the product of experiential learning. As student has an experience, for example an event that takes place in a study abroad program. Through a reflective practice, the student forms a story around the event and in the process forms an abstract concept of what they learned from the event. In this case, the creation and sharing of the digital story moves the student to the active experimentation phase, where the discussion can assist the student in moving deeper into learning from the event. They cycle can continue as the student watches and comment on other student’s digital stories who participated on the same study abroad program. The students can relate to the other stories, but expand their thinking about the same experience as it is viewed from a different lens or perspective.

The combination of these three theories provides a framework for research with digital storytelling as an assessment practice. The process of digital storytelling allows for students to construct and demonstrate their knowledge through their own experience with the use of multiliteracies. The practice of digital storytelling could help to transformation learning and assessment practices in the educational system as it moves more into alignment with the needs of students as they prepare to function in a digital world. James Gee expresses this view in his book, The Anti-Education Era, when he says, “ Getting smart is now a 24/7 enterprise because intelligence comes from cultivating our lives and all our experiences in the service of learning and growth. Digital media today can make learning in and out of school engaging, social and life enhancing.”

***Conclusion***

It has been said in many different venues, “Our world is changing so fast that we need to prepare students for jobs that don’t even exist yet.” So how do we go about accomplishing this seemingly impossible task? One avenue we can take is by training teachers how to effectively incorporate new literacies into the content, including the use of digital storytelling as an assessment practice. Students don’t need separate classes for these new literacies. What they need is seamless integration of today’s literacies into their current learning environments. We need to inspire today’s students to think about how they can take the technologies of today and use them to show what they have learned and how the learning has change them.

To encourage these learning environments and engage students we need to offer options that encourage creativity and get students to act and think deeper. These places should offer students the opportunity for meaningful contribution, constructive feedback and a place to share with the learning community. Too often traditional schools fail to construct creative spaces and disregard out of school site that breed innovation and creativity (Sheridan & Roswell, 2010). Schools are building their curriculum on paper-based literacy instead of multimodal, nonlinear literacies available in the digital environment. As we progresses more into the digital world students become less engaged in the old style of instruction and are enraged that the educational system is not keeping up with their needs (Rhodes & Robnolt, 2009). Basically, new tools elicit new practices and educators need to rethink about how to reach out to today’s students and facilitate new ways of teaching and learning (Sheridan & Roswell, 2010).

The literature guides us to believe that digital storytelling is a valuable, transformative tool for a broad range of curriculum and disciple content. Storytelling can be a powerful mechanism for teaching and learning as stories help make meaning out of our experiences (Bruner, 1990). These experiences in turn are the key to transformative learning. Stories can also help students to build strong connections to former knowledge and improve memory (Schank, 1990). Parker Palmer states that teaching and learning spaces should honor the “little stories” of students, while telling the “big stories” of the discipline (Palmer, 1998). Digital storytelling provides this learning space by empowering students this opportunity. One great feature of digital storytelling is that with a little bit of guidance and creativity anyone can create their “little story” and make it available for the world to see, hear and learn from.

To end this review, I want to draw on a quote by Margret Mead, “we must create new models for adults who can teach their children not what to learn, but how to learn” (Mead, 1970). Digital storytelling is one model that can be used to teach our students how to learn by creating narrative through deeper reflecting thinking about their experiences and then transforming these thoughts into digital stories for sharing and demonstration of their own unique knowledge.

***References***

21st Century Fluency Project. Retrieved from: <http://www.fluency21.com/index>

Alexander, B., & Levine, A. (November 01, 2008). *Web 2.0 Storytelling: Emergence of a New Genre.* *Educause Review, 43,* 6.)

Basso, K. H. (1996). *Wisdom sits in places: Landscape and language among the Western Apache*. Albuquerque: University of New Mexico Press.

Bruner, J. (1990). Acts of meaning. Cambridge, MA: Harvard University Press.

Chaille, C. & Britain, L. (1991). *The young child as a scientist: A constructivist approach to early childhood science education.* New York: HarperCollins.

Coiro, J., Knobel, M., Lankshear, C., & Leu, D. J. (2008). Central issues in new literacies and new literacies research. In J. Coiro, M. Knobel, C. Lankshear, & D. J. Leu. (Eds.) *The handbook of research in new literacies (pp. 1-22).* Mahwah, NJ: Erlbaum.

Dewey, J. (1938). *Experience and education*. New York: Macmillan.

Diekelmann, N. L. (2003). *Teaching the practitioners of care: New pedagogies for the health professions*. Madison, Wis: University of Wisconsin Press.

Entwistle, N. (July 01, 2001). Styles of learning and approaches to studying in higher education. *Kybernetes, 30,*593-603

Garcia, P. & Rossiter, M. (2010). Digital Storytelling as Narrative Pedagogy**.** In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2010* (pp. 1091-1097). Chesapeake, VA: AACE. Retrieved April 20, 2010 from <http://www.editlib.org/p/33500>

Gee, J. P. (2013). The anti-education era: creating smarter students through digital learning. Palgrave Macmillian.

Gee, J. (1998) *The New Literacy Studies and the “Social Turn”.* Retrieved from <http://www.schools.ash.org.au/litweb/page300.html> on October 23, 2010.

Gorski, P. (2005). *Multicultural education and the Internet: Intersections and integrations*. Boston: McGraw-Hill.

Hopkins, R. L. (1994). *Narrative schooling: Experiential learning and the transformation of American education.* New York: Teachers College Press.

Hull, G. & Katz, M.L. (2006). Crafting an Agentive Self: Case Studies of Digital Storytelling. *Research in Teaching of English, 41(1), 43-81.* Retrieved April 20, 2010 from <http://www.uclinks.org/reference/research/hull_katz.pdf>

Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2000). Experiential Learning Theory: Previous Research and New Directions. In Perspectives on cognitive, learning, and thinking styles. Sternberg & Zhang (Eds.). NJ: Lawrence Erlbaum.

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development. New Jersey: Prentice-Hall.

Lambert, J. (2010). The Digital Storytelling Cookbook. Digital Diner Press. This work is licensed under the Creative Commons Attribution-NonCommercial-SharAlike 2.5 License. To view this license, visit: <http://creativecommons.org/licenses/by-nc-sa/2.5/>

Lemke, J.L. (1998). Metamedia literacy: Transforming meanings and media. In D. Reinking, M.C. McKenna, L.D. Labbo, & R.D. Kieffer (Eds.), *Handbook of literacy and* *technology: Transformations in a posttypographic* *world* (pp. 283–301). Mahwah, NJ: Erlbaum.

Leu, Jr., D., Kinzer, C., Coiro, J., & Camack, D. (2004). *Theoretical Models and Processes of Reading (5th ed.)*, International Reading Association.

Li, L. (2006). Digital Storytelling: Self-Efficacy and Digital Literacy. In T. Reeves & S. Yamashita (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2006* (pp. 2159-2164). Chesapeake, VA: AACE. Retrieved April 26, 2010 from <http://www.editlib.org/p/24031>

Lowenthal, P. R., & Dunlap, J. C. (January 01, 2010). From pixel on a screen to real person in your students' lives: Establishing social presence using digital storytelling. *Internet and Higher Education, 13,* 70-72.

McDrury, J., & Alterio, M. (2003). *Learning through storytelling in higher education: Using reflection & experience to improve learning*. London: Kogan Page.

Mead, M. (1970). Culture and Commitment. Garden City, NY: Natural History Press.

New London Group, The. (2000). *A pedagogy of multiliteracies: Designing social futures*. In B. Cope & M. Kalantzis (Eds.), Multiliteracies: Literacy learning and the design of social futures (pp. 9–38). London: Routledge.

O'Brien, D., & Scharber, C. (September 01, 2008). Digital literacies go to school: Potholes and possibilities. *Journal of Adolescent and Adult Literacy, 52,* 1, 66-68.

Ohler, J. (2013). *Digital storytelling in the classroom: New media pathways to literacy, learning, and creativity*. Thousand Oaks, CA: Corwin Press

Palmer, P.J. (1998). The Courage To Teach: Exploring the Inner Landscape of a Teacher’s Life. San Francisco, CA: Jossey-Bass.

Pink, D. H. (2006). A Whole New Mind. New York: Riverhead Books.

Rhodes, J. and Robnolt, V. (2009). Digital literacies in the classroom. In L. Christenbury, R. Bomer, and P. Smagorinsky (eds.), Handbook of the Adolescent Literacy Research (153-169). New York: Guilford Publications.

Robin, B. (2006). The Educational Uses of Digital Storytelling**.** In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2006* (pp. 709-716). Chesapeake, VA: AACE. Retrieved April 20, 2010 from <http://www.editlib.org/p/22129>

Sadik, A. (January 01, 2008). Digital storytelling: a meaningful technology-integrated approach for engaged student learning. *Educational Technology Research and Development, 56,* 4, 487-506.

Schank, R. (1990). Tell me a story: Narrative and intelligence. Evanston, IL: Northwestern

 University Press.

Sheridan-Rabideau, M. P., & Rowsell, J. (2010). *Design literacies: Learning and innovation in the digital age*. London: Routledge

Street, B. (2003). *Current issues in comparative education: Vol. 5(2)*. New York, NY: Teachers College, Columbia University.

Thornburg, D. (2013). *From the campfire to the holodeck: Creating engaging and powerful 21st century learning environments*.

Walvoord, B. E. F. (2004). *Assessment clear and simple: A practical guide for institutions, departments, and general education*. San Francisco: Jossey-Bass.

Wilson, E. O. (2002). *The future of life*. New York: Alfred A. Knopf.

Witherspoon, G. (1977). *Language and art in the Navajo universe*. Ann Arbor: University of Michigan Press.

Vygotsky, L. S., & Cole, M. (1978). *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press.